BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

SOUTHERN ZONE BENCH, CHENNAI

ORIGINAL APPLICATION NO. 118 OF 2025 (SZ)

[EARLIER ORIGINAL APPLICATION NO. 207 OF 2025 (PB)]

IN THE MATTER OF:

K Vijay Laxmi and Ors. APPLICANT(S)

Vs

Central Pollution Control Board,
Through its Member Secretary,
New Delhi and Ors. RESPONDENT(S)

INDEX

Place: Chennai Counsel for CPCB

Date: 17.09.2025

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SOUTHERN ZONE BENCH, CHENNAI

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Through its Member Secretary,
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REPLY FILED ON BEHALF OF RESPONDENT NO. 2:

CENTRAL POLLUTION CONTROL BOARD (CPCB)

1. That, the Hon'ble National Green Tribunal at Principle Bench (hereinafter referred to as "Hon'ble NGT (PB)") vide order dated 28.05.2025 **(Annexure-1)** in Original Application (hereinafter referred to as "OA") No. 207 of 2025 (PB) impleaded Central Pollution Control Board (hereinafter referred to as CPCB) as Respondent No. 2 and sought the reply/response in the instant matter. The said matter was transferred to Hon'ble NGT Southern Zone Bench and has been renumbered as OA No. 118 of 2025(SZ). Thereby, the reply is made in succeeding paragraphs.

H.D.VARALAXMI
Regional Director
CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (Chennai)
MoEF & CC, Govt.of India
2nd Floor, 40-E, BSNL Building, TVK Industrial Estate,
CIPET Road, Guindy, Chennai - 600032

2. That, CPCB has been constituted under Section 3 of the Water (Prevention and Control of Pollution) Act, 1974. It performs the functions 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.

3. That, State Pollution Control Boards (hereinafter referred to as "SPCB") and Pollution Control Committees (hereinafter referred to as "PCC") have been constituted in States/Union Territories under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 and are empowered to implement the provisions of these Acts in respect of territories falling in their Territorial Jurisdictions.

REPLY

1. That, the matter has been registered Suo-Motu by the Hon'ble NGT (PB) based on the petition received from Ms. K. Vijay Laxmi and others, which is related to alleged violation of CBWTF Rules & Regulations by M/s Rainbow Industries, Srikakulam, Andhra Pradesh. As per the applicants, the industry is operating 100 kg/hr capacity of Bio Medical Waste Treatment Plant and collecting waste (about 3-4 tons) from two Districts (Srikakulam & Vizianagaram). It was alleged that due to low capacity of the plant, industry is unable to maintain / operate plant in scientific / systematic way. It was further alleged that biomedical waste was not burning in-time & waste is being handled unscientifically, with biomedical waste spilling inside the premises and being dumped outside, contaminating nearby lands and causing serious environmental and health hazards to villagers. Further, it has also been

H.D.VARALAXMI
Regional Director
CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (Chennai)
MoEF & CC, Govt.of India
2nd Floor, 40-E, BSNL Building, TVK Industrial Estate.
CIPET Road, Guindy, Chennai - 600032

brought out in the OA that despite several inspections, notices, and closure orders issued by APPCB, the unit continues to operate by revoking orders through local/higher authorities. It is further alleged that the firm has been threatening the villagers in order to prevent them from making complaints.

2. That, it is humbly submitted that Biomedical Waste Management Rules, 2016 (hereinafter referred to as BWM Rules, 2016) has been notified by the Ministry of Environment, Forest & Climate Change for ensuring proper management of biomedical waste in an environmentally sound manner.

3. That, as per Rule 9 of the BWM Rules, 2016, State Pollution Control Board in the respective State/Pollution Control Committee in the respective State/Union Territory is the prescribed authority for implementation of the Rules in the respective State/Union Territory and they shall comply with the responsibilities as stipulated in Schedule III of these Rules.

4. That, Rule 10 of BWM Rules, 2016 stipulates that the Common Bio-medical Waste Treatment Facility (CBWTF) Operator shall obtain authorization from respective State Pollution Control Board /Pollution Control Committee and the validity of such authorisation shall be synchronized with the validity of the consents.

5. That, it is humbly submitted that as entrusted under Schedule-III of the BWM Rules, 2016, CPCB prepared Guidelines for Common Biomedical Waste Treatment and Disposal Facility which were issued on December 21, 2016

H.D.VARALAXMI
Regional Director
CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (Chennai)
MoEF & CC, Govt.of India
2nd Floor, 40-E, BSNL Building, TVK Industrial Estate.
CIPET Road, Guindy, Chennai - 600032

and subsequently amended on April 12, 2025. The copy of Guidelines dated 21st December 2016 and 12th April 2025 are attached as **Annexure-2 (colly).**

6. That, it is humbly submitted that Hon'ble NGT (PB) vide order dated 28.05.2025 in the instant matter also directed, as follows:

> *"....In view of the environmental questions involved in the case, we also consider it appropriate that a Joint Committee be constituted to verify the factual position and suggest appropriate remedial action. Accordingly, we constitute a Joint Committee comprising of officers duly authorized by Member Secretary, CPCB, Member Secretary, APPCB and District Collector/District Magistrate, Srikakulam and direct the same to meet within two weeks, undertake visits to the site, look into the grievances of the applicant, associate the applicant and representative of the concerned project proponent, verify the factual position and suggest appropriate remedial action. The APPCB will be the nodal agency for coordination and compliance....".*

7. That, it is submitted that in compliance with the aforesaid order of the Hon'ble NGT, Joint Committee was constituted and CPCB is one of the member of the Committee. The Committee inspected M/s Rainbow Industries, Srikakulam Andhra Pradesh, on 02.07.2025. The Report of the Joint Committee was filed by the Nodal Agency i.e. APPCB and is annexed as **Annexure-3**. The Joint Committee Report may be treated as part and parcel of this Reply. The Conclusions and Recommendations of the Joint Committee are as follows:

H.D.VARALAXMI
Regional Director
CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (Chennai)
MoEF & CC, Govt.of India
2nd Floor, 40-E, BSNL Building, TVK Industrial Estate,
CIPET Road, Guindy, Chennai - 600032

Conclusions:

i. The CBWTF is engaged in collection and treatment of bio-medical waste from the districts of Srikakulam, Parvathi Puram-Manyam and Vijayanagaram. It is operating with valid Consent for Operation, Hazardous Waste Authorization and Bio-Medical Waste Authorization issued by APPCB having validity upto 31.01.2027.

ii. The CBWTF has installed twin chamber incinerator of capacity 100 kg/hr (1,800 kg/day), autoclave, disinfection chamber, shredder and waste sharp pit for disposal of biomedical waste.

iii. The CBWTF is surrounded by agriculture land and the nearest habitat/village is located at a distance of 1.12 kms. The biomedical waste collected is processed within the facility and no waste was disposed outside the facility or in the surrounding agriculture land.

iv. The CBWTF collects and disposes an average 792.89 kg/day segregated bio-medical waste from the Health Care Facilities with a total bed strength of 13,274 beds including both bedded and non-bedded HCFs, located within 150 km radius in the districts of Srikakulam, Parvathi Puram-Manyam and Vijayanagaram. The total quantity of biomedical waste (an average 792.89 kg/day) collected and treated is within the authorized/installed capacity.

v. The CBWTF has provided registration certificates to all its registered HCFs.

vi. The CBWTF has a total of six (06) GPS fitted vehicles of capacity 1.00 to 1.5 MT each for collection and transportation of Biomedical waste from member HCFs and are registered with the APPCB Bio-medical App.

H.D.VARALAXMI
Regional Director
CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (Chennai)
MoEF & CC, Govt.of India
2nd Floor, 40-E, BSNL Building, TVK Industrial Estate,
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vii. The CBWTF has provision for storage of untreated Biomedical waste next to incinerator area. However, separate room (or) labelling, for storage of color-coded waste is not provided. All the wastes are segregated and stored in the same area.

viii. An average 667.72 kg/day yellow category biomedical waste collected is incinerated in double chamber incinerator with a capacity of 100 kg/hr (1,800 kg/day). The temperature maintained in the primary chamber ranges from 809°C to 1050°C and in the secondary chamber from 1061°C to 1159°C. the operator of the CBWTF furnished a certificate from the manufacturer regarding 2 seconds residence time in the secondary combustion chamber.

ix. An average 117 kg/day of red category waste of biomedical waste collected is autoclaved in autoclave with an installed capacity of 100 litres per hour (25-30 Kg/cycle (hr)). The spore testing of the autoclave is conducted every fortnightly by third party. The treated red category waste is shredded in a shredder of capacity 100 Kg/hr. The shredded plastic waste is disposed to APPCB authorized plastic recyclers.

x. Waste sharps (white category biomedical waste) are disinfected with 1% sodium hypochlorite solution in a disinfection chamber of 1 KLD capacity followed by autoclaving and disposed in six (06) concrete waste sharp pit each with a capacity of 200 kg within the CBWTF premises.

xi. The Blue (glass waste) category of biomedical waste along with plastic waste (autoclaved Red waste) is disposed to APPCB authorized plastic recyclers i.e. M/s Bharath Enterprises, Hyderabad.

H.D.VARALAXMI
Regional Director
CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (Chennai)
MoEF & CC, Govt.of India
2nd Floor, 40-E, BSNL Building, TVK Industrial Estate.
CIPET Road, Guindy, Chennai - 600032

xii. The wet scrubber is installed at the incinerator as an air pollution control device. The wastewater from wet scrubber is treated in the ETP.

xiii. The results of source emission monitoring carried out at the stack attached to the incinerator shows that parameters such as NO_2, HCl and Hg are within the prescribed emission standards. Particulate Matter concentration exceeds the permissible limit, with a recorded value of 65 mg/Nm³ against the standard of 50 mg/Nm³. The combustion efficiency is below the required standard, recorded at 98.5% against the stipulated 99%.

xiv. The dioxins and furans concentration monitored during performance evaluation study conducted in 2023-24 was 0.1036 ng/Nm³ against the standard of 0.1 ng/Nm³ (at 11% O_2).

xv. The monitoring facility such as ladder and platform provided at the stack is not as per CPCB guidelines.

xvi. The Online Continuous Emission Monitoring System is installed at the stack attached to the incinerator to monitor the parameters viz. CO, CO_2, NO_x & PM and it is connected to the CPCB and APPCB servers. However, on the day of inspection, it was observed that the OCEMS was non-functional as it was under repair since 12th June, 2025.

xvii. An averages 3 KLD of effluent generation from floor washing, vehicle washing and wet scrubber are treated in the ETP of capacity 6 KLD comprises of primary collection tank, oil & grease trap, aeration tank, settlement tank, secondary collect tank and sludge drying bed. The analysis of samples collected at outlet of ETP shows that the parameters are complying with the prescribed effluent discharge standards.

H.D.VARALAXMI
Regional Director
CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (Chennai)
MoEF & CC, Govt.of India
2nd Floor, 40-E, BSNL Building, TVK Industrial Estate,
CIPET Road, Guindy, Chennai - 600032

xviii. An averages 19.04 kg/day ash generated from the incinerators, along with residue from flue gas cleaning and ETP sludge are disposed to the TSDF facility operated by M/s. Coastal Waste Management, Parawada, through Andhra Pradesh Environmental Management Corporation Limited.The analysis results of incineration ash indicate that LOI on a dry basis is exceeding the prescribed limit, recorded at 19.97% against the standard of <5% and the percentage of Organic Carbon is also above the acceptable limit, recorded at 3.72% against the standard of <3%.

xix. The online monitoring records of time of operation and temperatures of the primary and secondary chambers in incinerator are maintained. Time of operation, temperature and pressure at autoclave are automatically recorded in a data logger. The records of operation of incinerator such as total waste feed, time of operation, water pressure of the venturi and pH of the scrubber, quantity of waste fed per cycle in autoclave, details of disinfection were not maintained in a log books.

Recommendations:

Based on the observations following measures are recommended for implementation at M/s. Rainbow Industries, Srikakulam:

i. Separate room with color-coded labelling shall be provided for storage of segregated waste prior to treatment and disposal.

ii. The CBWTF shall ensure disposal of blue category of biomedical waste i.e., treated waste glass bottles only through the authorized recyclers.

H.D.VARALAXMI
Regional Director
CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (Chennai)
MoEF & CC, Govt.of India
2nd Floor, 40-E, BSNL Building, TVK Industrial Estate.
CIPET Road, Guindy, Chennai - 600032

iii. The CBWTF shall ensure concentration of particulate matter, dioxins and furans in the source emissions and combustion efficiency in incinerator comply with the prescribed standards.

iv. The CBWTF shall provide the monitoring facility such as ladder and platform at the stack attached to incinerator as per CPCB guidelines.

v. The CBWTF shall ensure calibration and functioning of Online Continuous Emission Monitoring System installed at the stack attached to the incinerator and data is continuously transferred to APPCB and CPCB RTDMS portals.

vi. The CBWTF shall maintain records of operation of incinerator such as total waste feed, duration of operation, water pressure of the venturi and pH of the scrubber, quantity of waste fed per cycle in autoclave and details of disinfection.

8. That the answering respondent craves leave of the Hon'ble NGT to file Additional Reply, if required, in future.

9. That, in light of the above submission, it is respectfully submitted that this Answering Respondent No. 2, i.e. CPCB, shall abide by any order(s) or direction(s) passed by this Hon'ble NGT in the instant OA.

Dated at Chennai on this Seventeenth day of September, 2025.

Counsel for the 2nd Respondent

2nd Respondent -CPCB

H.D.VARALAXMI
Regional Director
CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (Chennai)
MoEF & CC, Govt.of India
2nd Floor, 40-E, BSNL Building, TVK Industrial Estate,
CIPET Road, Guindy, Chennai - 600032

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

SOUTHERN ZONE BENCH, CHENNAI

ORIGINAL APPLICATION NO. 118 OF 2025 (SZ)

[EARLIER ORIGINAL APPLICATION NO. 207 OF 2025 (PB)]

IN THE MATTER OF:

K Vijay Laxmi and Ors. APPLICANT(S)

Vs

Central Pollution Control Board,
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New Delhi and Ors. RESPONDENT(S)

AFFIDAVIT

I, H. D. Varalaxmi, D/o Shri H.S. Devaiah, Hindu, aged about 56 years working as a Scientist E & Regional Director at the Regional Directorate - Chennai, Central Pollution Control Board, 40-E, 2nd Floor, BSNL Building, TVK Industrial Estate, CIPET Road, Chennai - 600 032, do hereby solemnly affirm and sincerely state as follows:

1. That the deponent is authorized representative to represent the Respondent CPCB in the present case, and as such, I am well conversant with the facts and circumstances of the present case on the basis of the information derived from the official records, and hence, I am competent and authorized to verify, sign and swear this affidavit on behalf of the Respondent CPCB.

H.D.VARALAXMI
Regional Director
CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (Chennai)
MoEF & CC, Govt.of India
2nd Floor, 40-E, BSNL Building, TVK Industrial Estate.
CIPET Road, Guindy, Chennai - 600032

2. That the accompanying Reply may be read part and parcel of the present affidavit as I am competent to swear this affidavit.

3. That the accompanying Reply has been drafted and filed under my instructions and authority the contents thereof of are true and correct on the basis of the record maintained during ordinary course of business of CPCB and available records and documents and the contents of the same are read over and explained to me and are not repeated herein for the sake of brevity.

Dated at Chennai on this Seventeenth day of September, 2025.

2nd Respondent -CPCB

H.D.VARALAXMI
Regional Director
CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (Chennai)
MoEF & CC, Govt.of India
2nd Floor, 40-E, BSNL Building, TVK Industrial Estate.
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VERIFICATION

Verified at Chennai on this Seventeenth day of September, 2025 that the contents of the above reply are correct and true on the basis of the record of the cases as maintained in the day to day affairs of the CPCB. Nothing has been concealed, or suppressed therefrom or mis-stated.

Verified at Chennai on this the Seventeenth day of September, 2025.

DEPONENT

H.D.VARALAXMI
Regional Director
CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (Chennai)
MoEF & CC, Govt.of India
2nd Floor, 40-E, BSNL Building, TVK Industrial Estate.
CIPET Road, Guindy, Chennai - 600032

Annexure R-2/I

Item No. 02 Court No. 2

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 207/2025

K Vijay Laxmi and Ors. Applicants

Versus

State of Andhra Pradesh & Ors. Respondents

Date of hearing: 28.05.2025

CORAM: HON'BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

Applicants: None for the Applicants.

ORDER

1. K Vijay Laxmi and others have sent the present letter petition dated 17.05.2024 to this Tribunal, which has been treated and registered as O.A. No. 207/2025 for exercise of suo motu jurisdiction.

2. The relevant part of the letter petition enumerating grievances of the applicant is reproduced as follows:-

> *" **Sub: Violation of CBMWTF Rules & Regulations by M/s Rainbow Industries Srikakulam-Reg***
>
> *X X X X*
>
> *With reference to the above subject and above cited firm Namely M/s. RAINBOW INDUSTRIES, Located at PathaKunkam (V), Laveru (M), Srikakulam District, running with 100kg/hr. capacity Bio Medical Waste Treatment Plant. This plant collecting waste from 2 Districts (Srikakulam & Vizianagaram). Nearly they are collecting 3-4 Tons of Bio Medical waste every day from both districts (Srikakulam & Vizianagaram). Due to low capacity of the plant they are unable to maintain / Run Plant in scientific / Systematic way. Bio Medical waste was not burning in-time & Waste was not storing in scientific method / systematic method and BMW waste was spreading / Spilling inside the plant area and few of the BMW waste material was throwing / Spreading*

outside of the plant also, they are contaminated the cultivation lands & Environment with this BMW Waste, due to this contamination causes severe Environmental challenges & health issues to the public residing nearby villages.

APPCB conducted several inspections, Meetings and given so many Notices, Directions, Show cause notices, Closure orders (Copies Attached) to the above cited firm towards closing of the firm from past so many years. No further action was taken against the firm and they are (Rainbow Industries) managing with local / Higher authorities and revoking the orders from past so many years.

They are (Rainbow Industries) threating surrounding villagers not to complain against the firm and managing with local authorities support towards running the plant. Hence, we are requesting your goodselves, please take necessary action against this firm and help us to survive in our villages in healthy condition in future."

3. *Prima facie* the averments made in the application raise substantial questions relating to environment arising out of the implementation of the enactments specified in Schedule-I to the National Green Tribunal Act, 2010.

4. In view of the averments in the application, we consider it appropriate to have response of (1) State of Andhra Pradesh through District Collector/District Magistrate, Srikakulam; (2) Central Pollution Control Board through its Member Secretary, (3) Andhra Pradesh Pollution Control Board through its Member Secretary and (4) M/s. Rainbow Industries, Located at Village PathaKunkam, Mandal Laveru, District Srikakulam who are impleaded as respondents no. 1 to 4. The Registry is directed to prepare and attach memo of parties to the application and issue notices to respondents no. 1 to 4 requiring them to file their reply/response within two months.

5. In view of the environmental questions involved in the case, we also consider it appropriate that a Joint Committee be constituted to verify the factual position and suggest appropriate remedial action. Accordingly, we constitute a Joint Committee comprising of officers duly authorized by Member Secretary, CPCB, Member Secretary, APPCB and

District Collector/District Magistrate, Srikakulam and direct the same to meet within two weeks, undertake visits to the site, look into the grievances of the applicant, associate the applicant and representative of the concerned project proponent, verify the factual position and suggest appropriate remedial action. The APPCB will be the nodal agency for coordination and compliance.

6. Even though in the present case cognizance has been taken by this Bench on the basis of letter petition received by post with approval and assignment under order of Hon'ble Chairperson, but in view of the facts and circumstances of the case including the fact that the place of accrual of cause of action lies within jurisdiction of the Southern Zone Bench of this Tribunal at Chennai we are of the considered view that it will be appropriate if the case is further heard by the Southern Zone Bench of this Tribunal at Chennai.

7. Accordingly, the Registry is directed to list the matter before the Southern Zone Bench of this Tribunal at Chennai on 08.07.2025 after obtaining orders from Hon'ble the Chairperson for transfer of the case.

8. Report of the Joint Committee may be filed by APPCB and replies/ responses may be filed by respondents no. 1 to 4 before the Southern Zone Bench of this Tribunal at Chennai within two months.

9. A copy of this order be sent to the Member Secretary, CPCB, Member Secretary, APPCB and District Collector/District Magistrate, Srikakulam by email for requisite compliance.

Arun Kumar Tyagi, JM

Dr. Afroz Ahmad, EM

May 28th, 2025

Original Application No. 207/2025/AB

Guidelines for Common Bio-medical Waste Treatment and Disposal Facilities

CENTRAL POLLUTION CONTROL BOARD

(Ministry of Environment, Forest and Climate Change)

Parivesh Bhawan, East Arjun Nagar

DELHI -110 032

website: www.cpcb.nic.in

(April 12, 2025)

Abbreviations

APCD	-	Air Pollution Control Device
BMWM Rules	-	Bio-medical Waste Management Rules, 2016
CBWTF	-	Common Bio-medical Waste Treatment and Disposal Facility
CO	-	Carbon Monoxide
CO_2	-	Carbon Dioxide
CPCB	-	Central Pollution Control Board
CRZ	-	Coastal Regulation Zone
DG	-	Diesel Generator
EC	-	Environmental Clearance
EIA	-	Environment Impact Assessment
ETP	-	Effluent Treatment Plant
GPS	-	Global Positioning System
HCFs	-	Health Care Facilities
HCl	-	Hydrochloric Acid
HOWM & TM Rules	-	Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016
MHz	-	Mega Hertz
MoEF& CC	-	Ministry of Environment, Forest & Climate Change
KM	-	Kilometer
KW	-	Kilowatt
MoU	-	Memorandum of Understanding
NABL	-	National Accreditation Board for Testing and Laboratories
NO_x	-	Oxides of Nitrogen
O_2	-	Oxygen
PCC	-	Pollution Control Committee
PLC	-	Programmable Logical Control
SEIAA	-	State Environment Impact Assessment Authority
SLF	-	Secured Landfill
SPCB	-	State Pollution Control Board
TSDF	-	Treatment Storage and Disposal Facility
TOC	-	Total Organic Carbon
VOCs	-	Volatile Organic Compounds

CONTENT

1) Introduction

A Common Bio-medical Waste Treatment and Disposal Facility (CBWTF) is a set up where biomedical waste generated from member health care facilities is imparted necessary treatment to reduce adverse effects that this waste may pose on human health and environment. The treated recyclable waste may finally be sent for disposal in a secured landfill or for recycling.

According to the Bio-medical Waste Management Rules, 2016, "bio-medical waste treatment and disposal facility" means any facility wherein treatment, disposal of bio-medical waste or processes incidental to such treatment and disposal is carried out, and includes common bio-medical waste treatment facilities and "operator of a common bio-medical waste treatment facility" means a person who owns or controls a Common Bio-medical Waste Treatment and Disposal Facility (CBWTF) for the collection, reception, storage, transport, treatment, disposal or any other form of handling of bio-medical waste.

The Bio-medical Waste Management Rules, 2016 (BMWM Rules) restricts occupier for establishment of on-site or captive bio-medical waste treatment and disposal facility, if a service of common bio- medical waste treatment and disposal facility is available within a distance of seventy-five kilometer, as installation of individual treatment facility by health care facility (HCF) requires comparatively high capital investment. In addition, it requires separate dedicated and trained skilled manpower and infrastructure development for proper operation and maintenance of treatment systems. The concept of CBWTF not only addresses such problems but also prevents proliferation of captive treatment facilities in a particular area. In turn, it reduces the monitoring pressure on regulatory agencies. By running the treatment equipment at CBWTF to its full capacity, the cost of treatment of per kilogram of bio-medical waste gets significantly reduced. Its considerable advantages have made CBWTF popular and proven concept in most part of the world.

The CBWTFs are also required to set up based on the need for ensuring environmentally sound management of bio-medical waste keeping in view the techno-economic feasibility and viable operation of the facility with minimal impact on human health and environment.

Since 1998, the CBWTF as an option for treatment of bio-medical waste also been legally introduced in India. Considering the likely impacts that may cause to the

patients undergoing treatment because of operation of the captive treatment equipment within the health care facilities (HCFs), now the Bio-medical Waste Management Rules, 2016 recommends the Occupier (i.e., HCF) for ensuring treatment and disposal of generated bio-medical waste through a CBWTF, located within a distance of 75 KM. Further, these rules eased the bottleneck in upbringing the CBWTF by making department in the business allocation of land assignment in the State or UT administration responsible for providing a suitable site (s) within its jurisdiction.

The concept of CBWTF is also being widely accepted in India among the healthcare units, medical associations and entrepreneurs. In order to set up a CBWTF to its maximum perfection, care shall be taken in choosing the right technology, development of CBWTF area, proper designing of transportation system to achieve optimum results etc. Key features of CBWTF have been addressed in the subsequent sections.

To facilitate the treatment and disposal of bio-medical waste generated from the HCFs, at present (as per Annual Report 2023 submitted by the State Pollution Control Boards/Pollution Control Committees), thereare 234 no. of CBWTFs in operation and 30 no. of CBWTFs are under construction. Also, the Bio-medical Waste Management Rules, 2016 mandates that the operator of a CBWTF authorised by the prescribed authority is required to take all necessary steps to ensure that the bio-medical waste collected from the occupier is transported, handled, stored, treated and disposed of, without any adverse effect to the human health and the environment, in accordance with the BMWM Rules and the guidelines issued by the Central Government or the Central Pollution Control Board (CPCB) from time to time. Therefore, these guidelines have been prepared with an aim to have uniformity in ensuring site selection, allowing and establishment of a state-of-the-art CBWTF, operation as well as verification of compliance to the BMWM Rules, 2016 throughout the country. However, any other aspects which are not been covered under these guidelines and needs attention, in such a case, the prescribed authority may take suitable action in the interest of protection of the environment in consultation with MoEF & CC/CPCB. Also, it is pertinent to mention here that these guidelines are mandatory henceforth under the Bio-medical Waste Management Rules, 2016

2) Criteria for development of a new Common Bio-medical Waste Treatment and Disposal Facility for a locality or region.

Prior to allowing any new CBWTF, following criteria or steps may be followed:

a) Prescribed authority under the BMWM Rules, 2016 [i.e., State Pollution Control Board (SPCB) in the respective State or Pollution Control Committee (PCC) in the respective Union Territory Administration] is required to prepare an inventory or review with regard to the bio-medical waste generation at least once in five years in the coverage areas of the existing bio-medical waste treatment and disposal facility. The prescribed authority is also required to extrapolate the coverage-area wise bio-medical waste generation for the next ten years.

b) SPCB/PCC is required to conduct gap analysis w.r.to coverage area of the bio-medical waste generation, its projection over a period of next ten years, adequacy of existing treatment capacity of the CBWTF in each coverage area of radius 75 KM, as given in **Annexure-I** and as per methodology for conduct of gap analysis given at **Appendix-I**.

Further, decision may be taken by concerned SPCB/PCC based on gap analysis report to allow new facility or expansion of an existing facility. Adequacy of the existing facility to handle quantum of biomedical waste and/or compliance with the norms prescribed under BMWM Rules, 2016 shall also be taken into account.

All the SPCBs and PCCs shall conduct the gap analysis and based on the gap analysis, action plan for development of new CBWTFs is required to be prepared and submitted to MoEF & CC & CPCB within six months' time. In case of States/UTs, where no CBWTF is available, in such a case, SPCB/PCC being prescribed authority under the BMWM Rules is required to ensure establishment new facilities. SPCB/PCC may submit the detailed proposal to MoEF & CC/MoH & FW through the respective State Government or UT Administration. Association of HCFs may also be encouraged to develop their own CBWTF following these guidelines. In case, any coverage area requires additional treatment capacity, in such a case, action may be initiated by the prescribed authority for allowing a new CBWTF in that locality based on the gap analysis report without interfering the coverage area of the existing CBWTF.

c) SPCB/PCC shall identify the coverage area, which require additional treatment facility and bring it to the notice of the concerned department in the business allocation of land assignment in the respective State Government or UT Administration. The department in the business allocation of land assignment shall be responsible for providing suitable site in the identified coverage area for setting up of a CBWTF, in

consultation with the prescribed authority (i.e., SPCB/PCC), other stakeholders and in accordance with these guidelines issued by CPCB from time to time.

d) Alternately, a CBWTF may also be allowed to be established on a land procured by an entrepreneur in accordance with the location criteria suggested under these guidelines.

e) The SPCB/PCC or concerned department in the business allocation of land assignment in the respective State Government or UT Administration may seek expression of interest from the proponents for development of new CBWTF (s) in the identified coverage area. Upon allocation of site to the proponent, the proponent is required to take necessary approvals as required under the Environment (Protection) Act, 1986 for development of the new CBWTF in accordance with these guidelines.

f) In the absence of expression of interest by any proponent, then SPCB/PCC shall insist health care facilities to form association and to develop its own CBWTF in line with these guidelines or to have captive treatment facilities (Only hilly or remote areas) for ensuring treatment and disposal of generated bio-medical waste as stipulated under the BMWM Rules.

g) In case of any regulatory action including closure of any existing CBWTF is inevitable, the respective SPCB/PCC may take action under the BMWM Rules including for making alternate arrangement to ensure safe disposal of the bio-medical waste generated from the member health care facilities of such default CBWTF through CBWTF located nearby.

h) In case of hilly areas considering the geography, only one CBWTF with adequate treatment capacity may be developed covering at least two districts to cater treatment services to the HCFs located in the respective Districts. The selection and allocation of site etc., should be done as per the criteria suggested under these guidelines. The treatment charges to be prescribed by the respective SPCB/PCC in consultation with the State Advisory Committee.

The criteria for development of CBWTFs in any coverage area is also depicted in **Figure 1**.

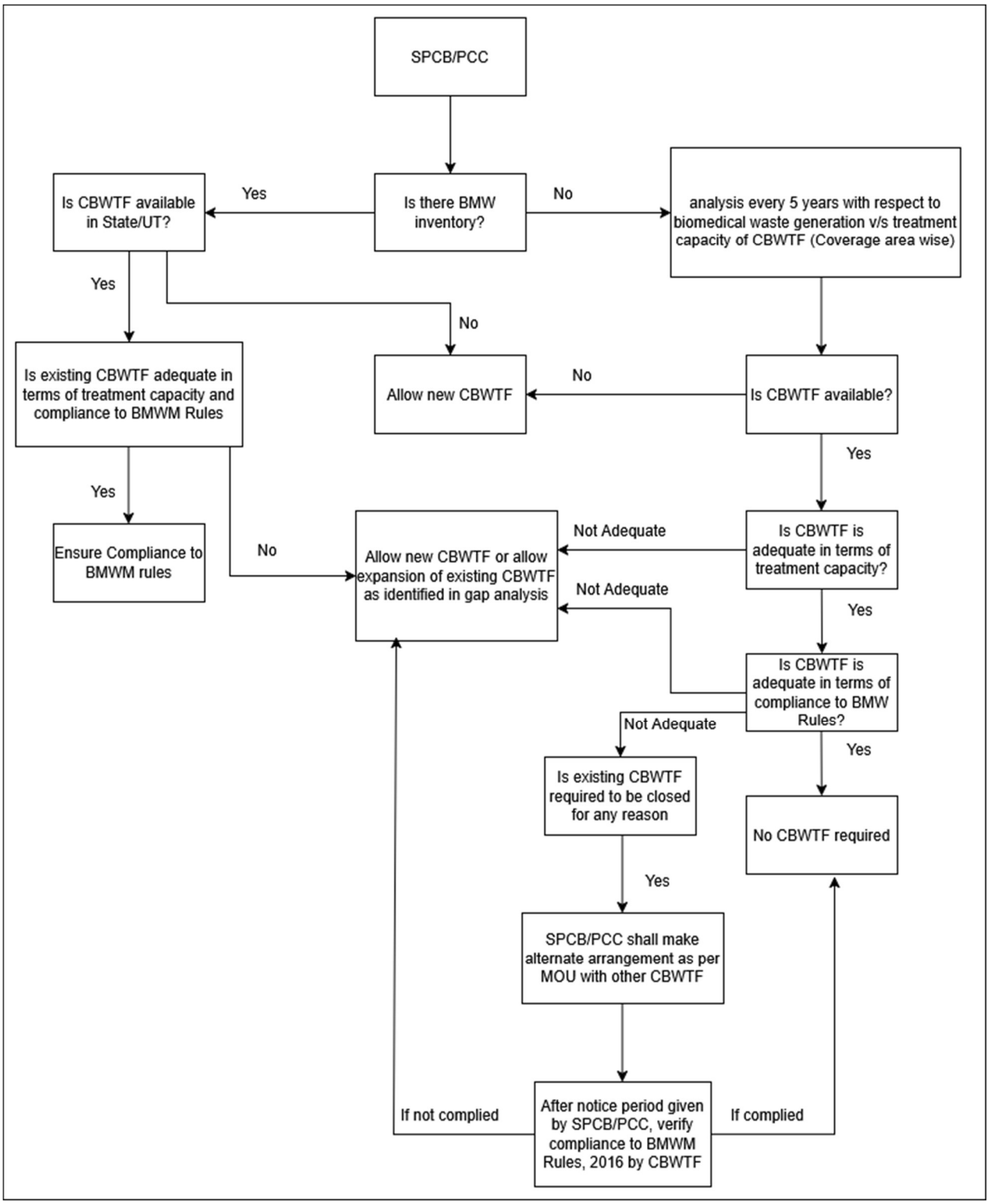

Figure 1. Criteria for Development of a CBWTF in a coverage area

3) Duties of the operator of a common bio-medical waste treatment and disposal facility

The duties of the operator of a common bio-medical waste treatment and disposal facility (CBWTF) as enunciated under Rule 5 of the Bio-medical Waste Management Rules, 2016 shall be ensured and complied with. All CBWTFs shall also comply w.r.to the residence time as well as emission norms including for Dioxins and Furans for incineration facility as prescribed under BMWM Rules, 2016. In addition to the above, to ensure proper management of bio-medical waste in the respective coverage area, as a mitigation measure, especially in the event of

(a) a temporary break down (not more than a week) of a CBWTF especially for rectification of the refractory lining of the incineration chambers or change of requisite APCD due to failure; and

(b) Closure of a CBWTF for violation of the provisions of the BMWM Rules or any other reason.

All CBWTFs are required to submit action plan (in case of closure), to the respective SPCB/PCC, for imposing suitable condition while granting authorisation under the BMWM Rules, 2016. The action plan should include:

(a) an MoU made with the nearest two CBWTF located within the respective State/UT as alternate arrangement ensuring that the bio-medical waste generated is collected, treated and disposed of within 48 hours as stipulated under the BMWM Rules. In case, if there is no CBWTF located nearby then such CBWTFshould have to install stand by treatment equipment (equal to the existing treatment capacity as per consents granted by the SPCB/PCC), and

(a) Decontamination plan of the CBWTF for execution of such plan prior to closure of a CBWTF.

4) Applicability of these guidelines

These guidelines are applicable to all the upcoming or new CBWTFs. In case of the existing CBWTFs, these guidelines shall be applicable

(a) the existing CBWTFs desires to expand or enhance the existing treatment capacity

(or)

(b) the existing CBWTFs desires to modernize the existing treatment equipment with the new equipment with enhancement in the existing treatment capacity.

5) Environmental laws applicable for commissioning or operation of a CBWTF

Operation of a CBWTF leads to air emissions as well as waste water generation as in case of an industrial operation. Most common sources of waste water generation in CBWTFs are vehicle washing, floor washing, and scrubbed liquid effluent from air pollution control systems attached with the incinerator/plasma pyrolysis. Incineration as well as DG Set is the general source of air emissions.

5.1 Any other approvals (such as Land Use /Change in Land Use as applicable) required from the concerned authorities under various laws have to be complied with by the proponent of the CBWTF prior to development of a CBWTF.

5.2 Consents under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 as well as Authorization under the BMWM Rules, 2016

The project proponent of the CBWTF is required to obtain 'Consent to Establishment' under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 21 of the Air (Prevention and Control of Pollution) Act, 1981, from the respective prescribed authority i.e. SPCB/PCC. Upon installation of the requisite equipment, the CBWTF Operator is also required to obtain authorization under BMWM Rules, 2016 co-terminus with consent to operate under Water (Prevention and Control of Pollution) Act, 1976 & Air (Prevention and Control of Pollution) Act, 1981 from the respective SPCB/PCC prior to commencement of the CBWTF.

5.3 Environmental Clearance under EIA Notification 2006

Ministry of Environment, Forest & Climate Change (MoEF & CC), notified amendment to the EIA Notification 2006 and published vide MoEF & CC Notification of S.O. 1142 (E) dated April 17, 2015. According to this notification, the 'bio-medical waste treatment facility' is categorized under the Item 7 (da) in the schedule, requiring 'environmental clearance' from the State Environment Impact Assessment Authority (SEIAA). Therefore, the CBWTF operator is also required to obtain 'Environmental Clearance (EC)' from the respective SEIAA or Ministry of Environment, Forest& Climate Change (MoEF& CC), as the case may be, before any construction work, or preparation of land by the projects management, which include the following:

a) All new projects or activities pertaining to the bio-medical waste treatment facility; and

b) Expansion and modernization with additional treatment capacity of existing bio-medical waste treatment facility (excluding augmentation of incineration facility for compliance to the residence time as well as Dioxins and Furans without enhancing the existing treatment capacity).

c) Any expansion or modification in the treatment capacity or relocation of the existing CBWTF (requires compliance to the relevant provisions notified under the Environment (Protection) Act, 1986 by the MoEF & CC.

6) Location criteria

In the context of these guidelines, buffer zone represents a separation distance between the source of pollution in CBWTF and the receptor - following the principle that the degree of impact reduces with increased distance. The following parameters may be considered for ascertaining buffer distance on case-to-case basis:

(i) potential for spread of infection from wastes stored in the premises.
(ii) applicable standards for pollution control and the relative efficiency of the existing incinerators and emission control systems,
(iii) potential of fugitive dust emission from incinerators,
(iv) Quantity and quality of wastewater discharged
(v) the potential for odour production,
(vi) the potential for noise pollution,
(vii) the risk posed to human health due to exposure to emissions from incinerator,
(viii) the risk of fire and
(ix) significance of the residual impacts such as bottom ash and fly ash.

As far as possible, the CBWTF shall be located near to its area of operation in order to minimize the transportation distance in waste collection, thus enhancing its operational flexibility as well as for ensuring compliance to the time limit for treatment and disposal of bio-medical waste as stipulated under the BMWM Rules (i.e., within 48 hours). Also, the location of the CBWTF should be in conformity to the CRZ Norms and other provisions notified under the Environment (Protection) Act, 1986. The location shall be decided in consultation with the State Pollution Control Board (SPCB)/ Pollution Control Committee (PCC) and SEIAA or MoEF & CC, as the case may be. The location criteria for development of a CBWTF are as follows:

(a) A CBWTF shall preferably be developed in a notified industrial area without any requirement of buffer zone **(or)**

(b) A CBWTF can be located at a place reasonably far away from notified residential and sensitive areas and should have a buffer distance of preferably 500 m so that it shall have minimal impact on these areas. In case of non-availability of such a land, the buffer zone distance from the notified residential area may be reduced to less than 500 m by SPCB/PCC without referring the matter to CPCB by prescribing additional control measures such as (i) adoption of best available technologies (BAT) by the proponent of CBWTF; (ii) prescribing stringent standards for operation of the CBWTF by the SPCB/PCC; (iii) adoption of zero liquid discharge by the CBWTF and (iv) in case of any complaints from the public, then CBWTF should prove that the facility is not causing any adverse impact on environment and habitation in the vicinity.

(c) The CBWTF can also be developed as an integral part of the Hazardous Waste Treatment Storage and Disposal Facility (TSDF) subject to obtaining of necessary approvals from the authorities concerned including 'environmental clearance' as per Environmental Impact Assessment 2006 and further amendments notified under the Environment (Protection) Act, 1986, provided there is no CBWTF exist within 150 KM distance from the existing TSDF.

7) Land requirement

Sufficient land shall be allocated to the CBWTF to provide all requisite systems which include dedicated space for storage of waste (both treated and untreated), waste treatment equipment, vehicle washing bay, vehicle parking space, ETP, incineration ash storage provision, administrative room, space for DG Set etc.,.

(a) Preferably, a CBWTF shall be set up on a plot size of not less than one acre in all the areas. However, a CBWTF can be developed in adjacent plots but cannot be set up in two or more different plots located in different areas. Separate plots can be permitted only for vehicle parking if located in the close vicinity of the proposed CBWTFs or the existing CBWTFs.

(b) In case of upcoming or new CBWTFs (where municipal population is more than 25 lakhs), the land area requirement may be relaxed (but in any case not less than 0.5 acre) by the SPCB/PCC, with additional control measures such as zero liquid discharge, increase in stack height, stringent emission norms, odour control measures or any other measures felt necessary by the prescribed authority on case-to-case basis, only in consultation with SEIAA or MoEF &CC, as the case may be.

8) Coverage area of CBWTF

Suggested coverage area for development of a CBWTF is as follows:

a) A CBWTF located within the respective State/Union Territory may be allowed to cater to healthcare units situated within a radial distance of 75 kilometers, subject to the condition that the facility possesses adequate treatment capacity to handle the bio-medical waste generated within the said radius. For the purpose of determining adequacy, 90% of the total treatment capacity as authorized by the concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) shall be considered. It shall further be ensured that bio-medical waste generated is collected, treated and disposed of within 48 hours as stipulated under the BMWM Rules.

The concerned SPCB/PCC shall undertake a gap analysis, as per **Appendix-I**, to assess the quantum of bio-medical waste generated vis-à-vis the available treatment capacity of the CBWTF (considering 90% of the authorized treatment capacity). In case the analysis indicates a shortfall in treatment capacity or if the existing CBWTF is found to be non-compliant with the provisions of the Bio-Medical Waste Management Rules, 2016, the SPCB/PCC may consider proposals for establishing a new CBWTF or for expansion of an existing facility, ensuring that bio-medical waste generated is collected, treated and disposed of within 48 hours as stipulated under the BMWM Rules.

b) In case of hilly areas, considering the geography, only one CBWTF with adequate treatment capacity may be developed covering at least two districts to cater treatment services to the HCFs located in the respective Districts. The selection and allocation of site etc. should be done as per the criteria suggested under these guidelines. The treatment charges to be prescribed by the respective SPCB/PCC in consultation with the State Advisory Committee to be constituted under the BMWM Rules by the respective State Government or UT Administration.

9) Treatment equipment

The Common Bio-medical Waste Treatment Facility should treat the bio-medical waste as per BMWM Rules and as per the authorisation granted by the prescribed authority. The CBWTF should have the following treatment facilities:

a) Incineration/Plasma Pyrolysis

Incineration is a controlled combustion process where waste is completely oxidized and harmful microorganisms present in it are destroyed/ denatured under high temperature. The guidelines for "Design & Construction Requirements of Bio-medical Waste Incinerators" by CPCB from time to time shall be followed for selecting/or augmenting the incinerator.

Plasma Pyrolysis *is an alternate* to incinerator, Plasma Pyrolysis treatment technology can be installed for disposal of bio-medical waste categories as per BMWM Rules wherein destruction of bio-medical waste is similar to incineration can be achieved. In case of plasma pyrolysis, waste is treated at high temperature under controlled condition to form gases like methane, hydrogen and carbon monoxide which are subjected to combustion (oxidation) in secondary chamber. In the plasma pyrolysis process waste is converted into small clinker which can be disposed in secured landfills.

b) Autoclaving/Hydroclaving/Microwaving

(i) ***Autoclaving*** is a low-heat thermal process where steam is brought into direct contact with waste in a controlled manner and for sufficient duration to disinfect the wastes as stipulated under the Bio-medical Waste Management Rules. For ease and safety in operation, the system should be horizontal type and exclusively designed for treatment of bio-medical waste. For optimum results, pre-vacuum based system be preferred against the gravity type system. It shall have tamper-proof control panel with efficient display and recording devices for recording critical parameters such as time, temperature, pressure, date and batch number etc. as required under the BMWM Rules.

(ii) ***Hydroclaving*** is similar to that of autoclaving except that the waste is subjected to indirect heating by applying steam in the outer jacket. The waste is continuously tumbled in the chamber during the process.

(iii) ***Microwaving:*** *In microwaving*, microbial inactivation occurs as a result of the thermal effect of electromagnetic radiation spectrum lying between the frequencies 300 and 300,000MHz. Microwave heating is an inter-molecular heating process. The heating occurs inside the waste material in the presence of steam.

c) ***Chemical disinfection:*** Though chemical disinfection or alternates as stipulated under the BMWM Rules is also an option for treatment of certain categories of bio-medical waste such as glass waste but looking at the volume of waste to be disinfected at the CBWTF and the pollution load associated with the use of chemical disinfectants, the chemical disinfection for treatment of bio-medical waste as part of a CBWTF may be used sparingly or avoided as far as possible.

d) ***Dry heat sterilization:*** This is the additional option for treatment of waste sharps as stipulated under the BMWM Rules. In this method, waste sharps are treated using dry heat (hot air) at a temperature not less than 185^0C, at least for a residence period of 150 minutes in each cycle (with sterilization period of 90 minutes).

e) ***Shredder:*** Shredding is a process by which waste are de-shaped or cut into smaller pieces so as to make the wastes unrecognizable. It helps in prevention of reuse of bio-medical waste and also acts as identifier that the wastes have been disinfected and are safe to dispose of. A shredder to be used for shredding bio-medical waste shall confirm to the following minimum requirements:

(i) The shredder for bio-medical waste shall be of robust design with minimum maintenance requirement;

(ii) The shredder should be properly designed and covered to avoid spillage and dust generation. It should be designed such that it has minimum manual handling;

(iii) The hopper and cutting chamber of the shredder should be so designed to accommodate the waste bag full of bio-medical waste;

(iv) The shredder blade should be highly resistant and should be able to shred waste sharps, syringes, scalpels, blades, plastics, catheters, intravenous sets/ bottles, blood bags, gloves, bandages etc. It should be able to handle/ shred wet waste, especially after microwave/ autoclave/hydroclave;

(v) The shredder blade shall be of non-corrosive and hardened steel;

(vi) The shredder should be so designed and mounted so as not to generate dust, high noise & vibration;

(vii) If hopper lid or door of collection box is opened, the shredder should stop automatically for safety of operator;

(viii) In case of shock-loading (non-shreddable material in the hopper), there should be a mechanism to automatically stop the shredder to avoid any emergency/accident;

(ix) In case of overload or jamming, the shredder should have mechanism of reverse motion of shaft to avoid any emergency/accident;

(x) The motor shall be connected to the shredder shaft through a gear mechanism, to ensure low rpm and safety;

(xi) The unit shall be suitably designed for operator safety, mechanical as well as electrical;

(xii) The shredder should have low rotational speed (maximum 50 rpm). This will ensure better gripping and cutting of the bio-medical waste;

(xiii) The discharge height (from discharge point to ground level) shall be sufficient (minimum 3 feet) to accommodate the containers for collection of shredded material. This would avoid spillage of shredded material;

(xiv) The minimum capacity of the motor attached with the shredder shall be 3 KW for 50 Kg/hr, 5 KW for 100 kg/hr & 7.5 KW for 200 Kg/hr and shall be three phase induction motor. This will ensure efficient cutting of the bio-medical wastes as prescribed in the Bio-medical Waste Management Rules; and

(xv) The shredder also should be fitted with separate 'energy meter' for recording total energy consumed for operation of this equipment.

g) ***Sharp pit/ Encapsulation:*** A sharp pit or a facility for sharp encapsulation in a metal container or cement concrete shall be provided for treated sharps *(i.e., treatment by autoclaving or dry heat sterilization followed by shredding or mutilation).* An option may also be worked out for recovery of metal from treated and shredded waste sharps within the CBWTF or iron foundries having consent to operate from the SPCBs/PCCs and located nearby, as per the conditions imposed in authorization granted under BMWM Rules by the SPCB/PCC.

A sharp pit may be of circular or rectangular shape and shall be dug and lined with cement plastered brick masonry or concrete rings. The pit should be covered with a heavy concrete slab with a provision of galvanized steel pipe projecting about 1.5 meters above the slab, with an internal diameter of up to 50 mm or 1.5 times the length of vials, whichever is more. The top opening of the steel pipe shall have a provision of locking after the treated waste sharps are disposed into the sharp pit. When the pit is full, it can be sealed completely, after another pit is prepared. In case of high water table regions (i.e., where water table is less than 6 metres beneath the bottom of the sharp pit), a tank with above mentioned arrangements shall be made above the ground.

h) ***Deep burial:*** SPCB/PCC should not allow the 'deep burial' of bio-medical waste as a part of CBWTF.

i) ***Non-burn technology:*** Non-incineration technologies for disposal of bio-medical waste are adopted in some of the developed countries. Non-incineration technology comprises of shredding and disinfection by autoclaving/microwaving or chemical treatment. The treated waste can be disposed along with municipal solid waste in sanitary landfills or through waste to energy plants. Such option can also be adopted in places where the sanitary landfill or waste to energy plant for disposal of municipal solid waste is available. Such technology is permitted only after prior approval of MoEF & CC and only after obtaining authorization under the BMWM Rules from the respective SPCB/PCC for the purpose of carrying out trial runs for assessment of efficacy of the treatment equipment.

j) ***Vehicle/Containers washing facility:*** Every time a vehicle is unloaded, the vehicle and empty waste containers shall be washed properly and disinfected. Washing can be carried out in an open area but on an impermeable surface and liquid effluent so generated shall be conveyed and treated in an effluent treatment plant. The impermeable area shall be of appropriate size so as to avoid spillage of liquid during washing.

k) ***Effluent Treatment Plant:*** A suitable Effluent Treatment Plant (ETP) shall be installed to ensure that liquid effluent generated during the process of washing containers, vehicles, floors etc. is treated and reused after treatment. Proper treatment of waste water shall be ensured in case of zero discharge by recirculation of treated waste water for scrubbing. ETP may have treatment unit operations comprising collection tank, O & G trap, chemical dosing cum mixing (Flash and slow), coagulation chamber, primary settling tank (s), biological treatment process, secondary settling tank, pressure filter and activated carbon filter, pH Correction tank (wherever recirculation of treated water is practiced) so as to comply with the liquid discharge standards stipulated under the Bio-medical Waste Management Rules, 2016. ETP may also have the following provisions:

(i) separate 'energy meter' so as to know total consumption of electricity for operation of the machinery attached with the ETP.

(ii) pH meter so as to know pH level of treated water as well as pH level of treated water used for recirculated or recycling in APCD attached with the incinerator or any utility within the CBWTF.

(iii) A 'magnetic flow meter' should also be fitted at all the water supply extraction points of the CBWTF as well as the outlet to know the total wastewater treated for further end use or discharge in compliance to the BMWM Rules.

(iv) Provision of 'press filter' to reduce the moisture content of the ETP Sludge or it may be dried in 'sludge drying bed'. After removal of moisture content or drying, same need to be disposed of in an environmentally sound manner depending upon the hazardous constituents present in it as per Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016. In case, ETP sludge contains metal contents within the prescribed limits as per Hazardous & Other Waste (Management & Transboundary Movement) Rules, 2016, such ETP sludge shall be given to CBWTF for incineration or to hazardous waste treatment, storage and disposal facility (TSDF) for disposal in secured landfill.

Note:

a) If any CBWTF desires to adopt any other technology other than referred under Schedule –I of the BMWM Rules, may adopt new technology only with the prior approval from MoEF & CC and is also required to obtain authorization under the BMWM Rules from the respective SPCB/PCC for carrying out trial run for assessment of efficacy of the new technology.

b) All the treatment equipment should be operated and complied with the norms as stipulated under Schedule II of the Bio-medical Waste Management Rules, 2016 published by MoEF & CC vide GSR 343 (E) dated 28th March, 2016.

c) Incinerator / Plasma Pyrolyisis/ Autoclaving/Microwaving/ Hydroclaving/ Shredder/ Dry Heat Sterilization/ ETP should be fitted with separate 'energy meter' for recording total energy consumed for operation of these equipment.

d) In the event of temporary shutdown (not more than a week) due to any operational problems in the treatment equipment (such as restoration of refractory lining or maintenance or repairs in APCD), to ensure bio-medical waste collected from the member health care facilities is treated within the time limit as stipulated under the BMWM Rules, all CBWTF operators should also be provided with stand by treatment equipment especially incinerator/plasma pyrolysis/autoclave (or) alternately MoU made with the nearby CBWTF (located within the State/UT) shall be submitted to the respective SPCB/PCC, by all the existing CBWTF operators (whereas the upcoming facilities have to make such arrangement prior to commencement of the facility) so as to include such condition while granting authorisation under the BMWM Rules, 2016 to the concerned CBWTF operators (vice-versa).

(10) Infrastructure set up

The CBWTF shall have enough space within it to install required treatment equipment, untreated and treated waste storage area, vehicle-parking, vehicle and containers washing area, Effluent Treatment Plant (ETP), administration room or staff room etc. The required area for CBWTF would depend upon the projected amount of bio-medical waste to be handled by it. A CBWTF shall have the following infrastructure:

a) Treatment equipment room

A separate housing may be provided for each treatment equipment at the CBWTF such as incinerator room, autoclave room, microwave room etc., as applicable. Each room shall have well-designed roof and walls. Such room shall be well ventilated and easy to wash. The floor and interior finishing of the room shall be such that chances of sticking/harbouring of microorganisms are minimized. This can be attained by providing smooth & fine floor and wall surfaces (to a height of 2 meter from floor) preferably of tiles. The number of joints in such surfaces shall be minimal. The equipment room shall also have a separate cabin, to supervise the operation of the equipment and to record the waste handling and equipment operational data attached to each equipment room. There shall be two waste storage rooms, one for storage of untreated waste and another for treated waste and may be located at a distance from each other. The storage room shall have provisions similar to that of equipment room being well-ventilated with easy to wash floors & walls, smooth and fine surfaces etc. All the treatment equipment rooms and waste storage rooms should be provided with 'fly catcher/killing device'. The room shall be washed and cleaned with a suitable disinfectant every day.

b) Main waste storage space

Separate space shall be provided near the entry point of the CBWTF to unload and store all biomedical wastes that have been transported to the CBWTF by its own transportation vehicle. The size of the room shall be adequate to store all wastes transported to the CBWTF. The front portion of the room shall be utilized for unloading the wastes from the vehicle and back or side portion shall be utilized for shifting the wastes to the respective treatment equipment. In the front portion of the room where transportation vehicle is parked for unloading, the floor shall be made impermeable so that any liquid spillage during unloading does not percolates into the ground. The liquid generated during handling of wastes and washing, shall be diverted to the inlet

of effluent treatment plant (ETP). In the main storage room, wastes shall be stacked with clear distinction as per the color coding of the containers by providing partitions. From here, the colored containers may be sent to the respective treatment equipment by using suitable closed type of conveyance (trolley etc.,). The main storage room too shall have provisions similar to that of equipment room such as roofing, well ventilated, easy to wash floors & walls, smooth and fine surfaces etc.

Apart from the above, a CBWTF should have separate storage provision for storage of mercury bearing waste collected from the member health care facilities as per the procedure given in CPCB guidelines. Mercury storage provision should be provided as per the guidelines issued by CPCB (refer www.cpcb.nic.in). The capacity of the mercury storage provision should be maximum of 90 days and by which the collected mercury bearing waste shall have to be disposed of through a TSDF located nearby following the manifest as per Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016. The charges for collection and disposal of mercury bearing waste shall be collected by the CBWTF from the respective member HCF.

c) Treated waste storage room

Separate space should be provided to store the wastes treated in different treatment units. The wastes shall be stored in separate group as per the disposal options. Other provisions in the room shall be similar to the main storage room. Waste such as incineration ash/vitrified ash generated in the process of incineration/plasma pyrolysis respectively shall be stored safely in a separate area under the shed so as to avoid entry of rain water during the monsoon and for easy collection. In case, incineration ash/ vitrified ash is found to be hazardous waste in nature same should be disposed of through any authorized TSDF operator located nearby following the manifest as per Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016. In case of a State/UT where TSDF is not available, all the CBWTF operators have to store incineration ash safely as per these guidelines.

d) Administrative Room

This room shall be utilized for general administration, record keeping, billing etc.

e) Generator set

CBWTF shall have a generator set of adequate capacity as standby arrangement for power, with sufficient capacity to run the treatment equipment during the failure of power supply. The generator set shall comply with the necessary requirement as per DG Set norms notified under the Environment (Protection) Act, 1986.

f) Continuous emission monitoring system (CEMS)

Monitoring provision for continuous monitoring of the incinerator/plasma pyrolysis stack emission shall be installed by the CBWTF operators for the parameters as stipulated by the respective SPCB/PCC as per the authorisation granted under the BMWM Rules, 2016. Other-wise, at present, all the existing CBWTF operators are required to carry out stack emission monitored using continuous emission monitoring system for the flue gas parameters such as CO_2, O_2, CO as well as primary & secondary chamber temperatures, and records maintained. The continuous emission monitoring system for stack emission should be installed as per the guidelines issued by SPCB/PCC/CPCB. Also, the real time continuous stack emission monitoring data is also required to be transmitted to the servers of the respective SPCB/PCC as well as CPCB, by all the existing CBWTF operators

g) Vehicle Parking

Provision for parking shall be made within the confines of the site for parking of required number of vehicles, loading and unloading of the vehicles meant for transporting waste to and from the facility, etc. In case of a CBWTF with space constraints, multi-storey parking or a separate provision may be allowed only for parking of vehicles.

h) Display and sign board

An identification board (Display) of durable material and finish shall be displayed at the entrance to the facility. This shall clearly display the name of the facility, owner name, address and telephone number of the operator and the prescribed authority, no. of hours of operation & operational hours, telephone numbers of the personnel to be contacted in the event of an emergency, validity period of authorization as well as total daily waste treated and disposed. Also, sign boards should be provided at all the salient points (untreated waste storage area, treatment equipment, treated waste storage area, ETP, firefighting equipment) within the facility.

i) Washing Room

A washing room shall be provided for eye washing/hand washing/ bathing etc. for the workers.

j) Site Security

High walls, fencing and guarded gates shall be provided at the facility to prevent unauthorized access to the site by humans and livestock.

k) Fire safety

Fire safety equipment such as sand buckets and fire extinguishers should be provided at all the salient points of the CBWTF including at the diesel storage areas, diesel tanks connected with the incinerator etc. Fire alarm also should be provided within the CBWTF to prompt the workers in the event of any fire hazard. Workers should also be trained in First Aid administration.

l) First Aid Box

First Aid Box with necessary provisions need to be provided at all the salient points within the facility.

m) Green Belt

The open area available within the CBWTF shall be developed into green belt.

n) Website:

All CBWTFs shall develop own website and the upcoming CBWTF shall develop the website prior to the commencement of the facility. The website should be uploaded with relevant information periodically (on monthly basis) especially as detailed below:

(i) A copy of the Environmental Clearance obtained;
(ii) Copies of the Consents under the Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 as well as the Authorisation under the BMWM Rules obtained from the SPCB/PCC;

(iii) List of all the member Health Care Facilities with complete address, bedded or non-bedded HCFs, no. of beds, bar code, category-wise average bio-medical waste generation in kg/annum;
(iv) Charges levied on the member Health Care Facilities (HCFs) for treatment and disposal of bio-medical waste;
(v) Vehicles connected with a provision of GPS as per BMWM Rules and Vehicle-wise route chart for collection, transportation of bio-medical waste from the member HCFs;
(vi) Real time continuous online stack emission monitoring data;
(vii) Monthly details of total waste collected from the member HCFs, total waste treated, and treated recyclable plastic waste or glass waste sold to the parties and final mode of disposal of incineration ash;
(viii) A copy of the annual report submitted to the respective SPCB/PCC;
(ix) Monitoring results of the stack emissions, treated wastewater and incineration ash, as per the frequency stipulated under the BMWM Rules;
(x) List of HCFs (located within the coverage area) with complete address which have not taken membership of the CBWTF for disposal of Bio-medical waste;
(xi) Contact person, contact telephone number and e-mail addresses of the facility; and.
(xii) Provision to have access to the SPCB/PCC/CPCB/MoEF & CC/MoH & FW especially on GPS, online monitoring system and the data.

Besides the provisions suggested in the earlier paras, following important provisions should also be made in a CBWTF:

(i) A telephone shall be provided and maintained at the facility.
(ii) A First Aid Box shall be provided and maintained at the CBWTDF.
(iii) Proper lighting shall be provided at the facility.
(iv) Proper care shall be taken to keep the facility and surroundings free from odors.
(v) Measures shall be implemented to control pests and insects at the site.
(vi) Measures shall be implemented to control the escape of litter from the site.
(vii) Necessary provision shall be made to prevent and control noise generated, if any, due to the activities at the site.
(viii) Necessary protective gear for the waste handlers shall be provided.
(ix) Immunization to all the workers of CBWTF against all the diseases including especially Tetanus and Hepatitis -B as stipulated under the BMWM Rules.
(x) Workers should have provisions such as washing, toilet, and suitable place for eating.

(xi) Workers should also be provided with N-95 mask besides other PPEs such as hand gloves, gumboots, goggles etc.

Every CBWTF operator shall submit a work-plan to the Prescribed Authority. The work-plan should include the details of facilities at the CBWTF, collection, transportation & storage of the bio-medical wastes, operational details etc.

11) Record keeping

Maintenance of records for all operations carried out at the CBWTF is very important to monitor overall operation of the CBWTF. It also helps in submission of the required information to be submitted to the 'Prescribed Authority' by 30 th June of every year as per the format prescribed under the BMWM Rules or provided by the SPCB/PCC. A well-maintained record of all the activities at the CBWTF also enables the facility operator to produce all information of the activities on demand of the concerned prescribed authority. The record should include all information relating to each activity at the CBWTF site as per BMWM Rules which include accidents occurred (spills, injury, fire accident) and the measures taken and also, however, minimum requirement is outlined below:

a) Records of waste movements

Daily records shall be maintained for the waste accepted and treated waste removed from the site. This record shall include the following minimum details:

(i) **Waste accepted: -**Records on day-to-day basis (as per the format given at **Annexure-II**) shall be maintained with respect to the waste collection date, name of the healthcare unit with bar code, waste category as per BMWM Rules, category-wise quantity of waste accepted, vehicle registration number used for collection of bio-medical waste from member health care facilities, time at which waste collected from member HCFs, name of the vehicle driver and his signature and waste receiving date & time (at CBWTF site). Similar information to be acknowledged to the member health care facility by the CBWTF operator on daily basis.

(ii) **Treated waste to be disposed :-** Date, treated waste type, Quantity, vehicle number, disposal as stipulated under BMWM Rules.

b) Logbook for the treatment equipment

A logbook shall be maintained for each treatment equipment installed at the site and shall include the following:

(i) The weight of each batch.
(ii) The categories of waste as per the Rules.
(iii) The time, date and duration of each treatment cycle and total hours of operations.
(iv) The complete details of all operational parameters during each cycle.

Log book to be maintained for operating the incinerator/plasma pyrolysis as well as the autoclave as per the formats given at **Annexure –III.**

c) Monitoring and reporting of operations in the CBWTF:

The monitoring of the key operating parameters of treatment equipment provides several benefits. First, monitoring provides the operator with information needed to make decisions on necessary combustion control adjustments. Second, properly maintained monitoring records can provide useful information for identifying operating trends and potential maintenance problems. Following are the suggested parameters for monitoring of the treatment equipment

(i) Monitoring of operating parameters of the incinerator/plasma pyrolysis: Following operating parameters can be monitored in case of incinerator/plasma pyrolysis:

- Waste charge rate.
- Combustion gas temperature in primary and secondary chamber as well as the temperature of the stack exit gas (flue gas).
- Condition of the draft (negative draft in primary chamber).
- Combustion gas oxygen level in primary and secondary chamber as well as stack exit gas.
- Air flow rate through the incinerator/plasma pyrolysis.
- Carbon-Di-Oxide (CO_2), Oxygen (O_2) and Carbon Monoxide (CO) level in the flue gas.

- Quantity of auxiliary fuel usage as well as the power consumption (in every batch).
- Pressure drop in the primary chamber and APCD attached with the incinerator/plasma pyrolysis and
- Bottom ash or slag quality (for Total Organic Carbon (TOC) as well as loss on ignition and the hazardous constituents (at least once in a quarter).

(ii) Monitoring of operating parameters of the Autoclave: Following operating parameters can be monitored during the sterilization using autoclave:

- Time at which sterilization started and time at which sterilization completed.
- Temperature conditions maintained throughout the sterilization
- Conditions of pressure maintained throughout the sterilization
- Duration of sterilization
- Validation test results

Records concerning the above parameters need to be maintained and checked periodically for taking remedial measures during the operation of the incinerator or plasma pyrolysis or autoclave. In case of other treatment processes, the operational conditions as well as the efficacy tests to be complied with as per the standards prescribed under the BMWM Rules.

(iii) Frequency of monitoring:

The CBWTF operator shall carry out following tests through a NABL approved laboratory or a laboratory approved under the Environment (Protection) Act, 1986, as per the frequency stipulated under the BMWM Rules or as prescribed by the SPCB/PCC and record of such analysis results shall be maintained and submitted to the prescribed authority (SPCB/PCC), as suggested below:

- **Liquid effluent**: Parameters such as pH, Suspended Solids, Oil & Grease, BOD, COD, Bio-assay for liquid effluent being discharged from the CBWTF be monitored as per the Consent conditions or once in a quarter and such records maintained and submitted to SPCB/PCC.

- **Stack emission monitoring:**

In case of the BMW incinerators, the Stack Emission shall be monitored (under optimum capacity) for parameters such as Particulate Matter, HCl, NO_x, Hg & compounds and combustion efficiency once in three months as required under schedule II of the Bio-medical Waste Management Rules 2016 (All monitored values shall be corrected to 11% Oxygen on dry basis). In case of dioxins and furans, monitoring should be done once in a year (monitored values shall be corrected to 11% Oxygen on dry basis).

- **Validation test of autoclave/microwave/chemical treatment/Dry heat sterilization:**

Suggested validation test for treatment of bio-medical waste by autoclave/microwave/chemical treatment/Dry heat sterilization is given in **Table 1.**

Table 1: Suggested validation test for treatment of bio-medical waste by autoclave/microwave/chemical treatment/Dry heat sterilization

S. No	Type of equipment used for treatment of bio-medical waste	Type of Validation Test	Frequency
(i)	Autoclave	(i) biological indicator strips or vials Geobacillus stearothermophilus spores with at least $1X10^6$ spores),	once in three months
		(ii) chemical indicator strip or tape	each batch of waste treated
(ii)	Microwave	Bacillus atrophaeus spores using vials or spore strips with at least 1 x 10^4spores per detachable strip	Recommended: once in three months
(iii)	Chemical treatment followed by shredding	Bacillus Subtilis (ATCC 19659)- 4 Log10 reduction or greater	Once in a week
(iv)	Dry heat sterilization	consistently kill the biological indicator Geobacillus Stearothermophillus or	Once in three months

S. No	Type of equipment used for treatment of bio-medical waste	Type of Validation Test	Frequency
		Bacillus Atropheaus spores using vials with at least 6 log10 spores per ml.	
		A chemical indicator strip or tape	Once in a week

d) Site Records:

Site records shall include the following:

(i) All the approvals obtained from other concerned departments other than the prescribed authority;
(ii) Details of construction or engineering works;
(iii) Maintenance schedule, breakdowns/trouble shootings and remedial actions;
(iv) Emergencies;
(v) Incidents of unacceptable waste received and the action taken; and
(vi) Details of site inspections by the officials of the regulatory authorities, purpose of visits with date and necessary actions initiated on the observations.

Daily, monthly and annual summary records of all the above shall be maintained and made available at the site for inspection and same submitted whenever required by an authorized official of the concerned regulatory authorities.

12) Collection and transportation of bio-medical waste

The collection and transportation of bio-medical waste shall be carried out in a manner so as to prevent any possible hazard to human health and environment. Collection and transportation are the two operations where the chances of segregated bio-medical waste coming in contact with the public, rag pickers, animals/birds, etc. are high. Therefore, all care shall be taken to ensure that the segregated bio-medical waste handed over by the healthcare units reach CBWTF without any damage, spillage or unauthorized access by public, animals etc. A responsible person from the CBWTF operator shall always accompany the vehicle to supervise the collection and transportation of bio-medical waste. Also, the private transport vehicles should not be

authorised by the SPCBs/PCCs only for transportation of the Bio-medical Waste. The CBWTF operator should be made responsible for collection and transportation of bio-medical waste.

a) Collection of bio-medical waste:

Generator of the bio-medical waste is responsible for providing segregated waste in accordance with the provisions of the Bio-medical Waste Management Rules, 2016, to the CBWTF operator. Dedicated temporary storage at healthcare unit shall be designated. The coloured bags handed over by the healthcare units shall be collected in similar coloured containers with proper cover. Each bag shall be labeled as per Schedule IV of the Bio-medical Waste Management Rules as well as with bar coding system (to be complied by the occupier or operator of a CBWTF as per BMWM Rules) so that at any time, the healthcare units can be traced back that are not segregating the bio-medical wastes as per BMWM Rules. The coloured containers should be strong enough to withstand any possible damage that may occur during loading, transportation or unloading of such containers. These containers shall also be labeled as per Schedule IV of the Rules. Sharps shall be collected in puncture resistant container. The person responsible for collection of bio-medical wastes shall also carry a register with him to maintain the records such as name of the healthcare unit, the type and quantity of waste received, time at which waste collected from the member HCF, signature of the authorised person from the healthcare unit etc**.** During transportation, the containers should be covered in order to prevent exposure of public to odours and contamination.

(b) Transportation of the collected bio-medical waste to the CBWTF:

All the vehicles used by the CBWTF operator shall not be sub-letted or contract vehicles should not be used by the CBWTF operator. All the vehicles owned by the CBWTF operator and intended only for collection of bio-medical waste from the member health care facilities should be registered under the Motor Vehicle Act with the respective RTO/Transport Department and such vehicle numbers should also be registered with the respective SPCB/PCC for the purpose of collection of bio-medical waste from the member health care facilities. The bio-medical waste collected in designated coloured containers shall be transported to the CBWTF in a fully covered vehicle. Such vehicle shall be dedicated for transportation of bio-medical waste only. Depending upon the volume of the wastes to be transported, the vehicle may be a

two or three-wheeler, light motor vehicle or heavy duty vehicle. In either case, the vehicle must possess the following:

(i) Transportation vehicle shall be fitted with GPS to track the movement of the vehicle.

(ii) Separate cabins shall be provided for driver/staff as well as for placing the designated colour coded bio-medical waste containers.

(iii) Two wheeler registered under the Motor Vehicle Act shall be permitted for collection of bio-medical waste only from the clinics or dispensaries located in places where the lanes are narrow and not easily accessible to four wheeler vehicles. Such two wheeler vehicle (s) should have a provision of a suitable fixed waste collection box marked with bio-hazard symbol, contact details, proper lid, emergency spill collection procedure, first aid box and manifest record in accordance with the BMWM Rules

(iv) The base of the waste cabin shall be leak proof to avoid pilferage of liquid during transportation.

(v) The waste cabin may be designed for storing waste containers in tiers and also should be provided with a lighting provision.

(vi) The waste cabin shall be so designed that it is easy to wash and disinfect.

(vii) The inner surface of the waste cabin shall be made of smooth surface to minimize water retention.

(viii) The waste cabin shall have provisions for sufficient openings in the rear and/or sides so that waste containers can be easily loaded and unloaded.

(ix) The vehicles used for the purpose of collection and transportation of bio-medical waste must be labelled with the bio-hazard symbol (as per Schedule IV of the BMWM Rules, 2016) in red/black colour and should display the name, address, and contact number of the CBWTF operator in green colour. CBWTF authorized by *("Name of SPCB/PCC")* shall also be mentioned below name,

address and contact number of the CBWTF operator in green colour, as given in **Annexure-VII**.

(x) All the existing vehicles used for the purpose of collection and transportation of biomedical waste shall be labelled with the bio-hazard symbol and shall display the name, address, and contact number of the CBWTF operator on white background (as given in **Annexure-VII**). Further, vehicles registered with the respective SPCB/PCC for the purpose of collection and transportation of biomedical waste after June, 2025 shall be white in colour.

(xi) Bio-hazard symbol size and font size shall be in minimum proportion of 12:3 and 12:1, respectively, with respect to body height of the vehicle used for transportation of biomedical waste. For Example: If body height is 6 feet i.e. 72" then minimum font size will 6" and minimum size of bio-hazard symbol will be 18"as given in **Annexure-VII**.

(xii) The vehicle driver should carry always valid registration of the vehicle obtained from the concerned transport authority and also carry valid 'pollution under control certificate' issued by the authorized certificate issuing agency.

Depending upon the area to be covered under the CBWTF, the route of transportation shall be worked out. The transportation routes of the vehicle shall be designed for optimum travel distance and to cover all member healthcare units of the CBWTF. The CBWTF operator should ensure online and real time tracking & monitoring provisions (GPS provision) should be given access with passwords to the SPCB/PCC and CPCB to cross check the movement of the transportation vehicles on any time by the SPCB/PCC/CPCB. As far as possible, the transportation shall be carried out during non-peak traffic hours. If the area to be covered is very large, a satellite station may be established to store the bio-medical waste collected from the adjoining areas. The wastes so stored at satellite station may then be transported to the CBWTF in a big vehicle. It shall be ensured that the total time taken from generation of bio-medical waste to its treatment, which also includes collection and transportation time, shall not exceed 48 hours.

13) Disposal option of solid waste generated from the CBWTF

Treated plastic waste, incineration ash, treated waste sharps and glass waste, Oil & Grease waste and ETP sludge are generally generated from the CBWTF from the treatment systems such as autoclaving/microwaving, incineration, chemical disinfection and effluent treatment plant respectively. The treated bio-medical waste shall be disposed as per the options suggested in the **Table 2** given below:

Table 2: Suggested Disposal option of solid waste generated from the CBWTF

Sl. No.	Treated Waste Category	Suggested Treatment and Disposal Options
1.	Plastic wastes	Plastic waste should not be sent to landfill sites. Plastic waste after disinfection and shredding , is required to be (i) sent to registered or authorized recyclers (or) (ii) for energy recovery (or) (iii) diesel or fuel oil recovery (or) (iv) for road making, whichever is possible.
2.	Disinfected Sharps (including needles and syringes)	Treatment by Autoclaving or Dry Heat Sterilization followed by shredding or mutilation or combination of shredding cum autoclaving. Treated sharps need to be disposed of (i) by encapsulation in metal container or cements concrete; (or) (ii) sent for final disposal to iron foundries (having consent to operate from the SPCBs/PCCs) (or) (iii) Disposal in sanitary landfill; (or) (iv) Disposal in designated concrete waste sharp pit.
3.	Incineration ash	Incineration ash from incineration of any bio-medical waste shall be disposed through hazardous waste treatment, storage and disposal facility (TSDF), if toxic or hazardous constituents are present beyond the prescribed limits as given in Schedule –II of the Hazardous and Other Waste Management & Transboundary Movement Rules or as revised from time to time.
4.	Other treated solid wastes like Glass waste	Disinfection (by soaking the washed glass waste after cleaning with detergent and Sodium Hypochlorite

Sl. No.	Treated Waste Category	Suggested Treatment and Disposal Options
		treatment) or through autoclaving or microwaving or hydroplaning and then sent for recycling.
5.	Oil & Grease	By Incineration
6.	ETP Sludge	After drying in sludge drying beds or removal of moisture content using 'Filter Press' and such ETP sludge shall be given to CBWTF for incineration or to the hazardous waste treatment, storage and disposal facility (HWTSDF) for disposal in Secured Landfill
7.	Hazardous Waste	Disposal through a TSDF located nearby following the manifest as per the Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016

14) Cost to be charged by the CBWTF Operator for the Health Care Facilities

Cost to be charged from the healthcare facilities plays an important role in financial viability and sustainable operation of a CBWTF project, for providing the best treatment services to the Health Care Units and for ensuring compliance to the BMWM Rules. The cost shall be so worked out that neither it becomes a monopoly of the CBWTF operator nor the interest of the CBWTF operator is overlooked. It is recommended that cost to be charged from the healthcare units, depending on the size, no, of beds and the distance from the location of the CBWTF and same shall be worked out in consultation with the concerned SPCB/PCC and the local Medical Association, keeping in view the following options:

(a) In case of non-bedded health care units, fixed charges depending on the average quantity of waste generation per day, in case of the nursing homes/clinics/sample collection Centres /Dental HCentres, dispensary, pathological laboratory, blood banks, and other non-bedded hospitals irrespective of their system of medicine including ayush hospitals.

(b) In case of bedded hospitals, fixed charges per bed per day basis and based on the no. of beds for which consents under the Water Act, 1974/Air Act, 1981 and authorization granted under the BMWM Rules, by the prescribed authority

Note:

(i) Rates are required to be revised once in a year based on the Wholesale Price Index (WPI Index) or Consumer Price Index (CPI Index) (considering the prevailing market price especially in respect of the labour expenses, diesel prices, electricity, operating cost etc.,.), by the State Advisory Committee in consultation with the concerned SPCB/PCC, local Medical Association and the representatives of the CBWTF Association

(ii) *The Health Care Facilities are required to ensure timely payments to the CBWTFs for ensuring timely treatment services in compliance to the BMWM Rules as well as agreement made with the concerned CBWTF Operator.*

15) Check list for development of CBWTF

The criteria for development of CBWTDF have been discussed in detail in the Previous sections. However, to have at a glance check in developing CBWTF, checklist is reproduced for convenience and is annexed **(Annexure-IV).**

16) Periodic inspection/monitoring or performance evaluation of the CBWTF

To have uniformity in performance evaluation of the CBWTF throughout the country, a check list for performance evaluation of the CBWTF for carrying out inspection/monitoring/compliance verification has been prepared and is annexed **(Annexure –V)**. All the prescribed authority (SPCB/PCC) shall inspect the CBWTF at least once in six months located in the respective State/UT and a copy of the inspection reports shall be submitted to CPCB and MoEF & CC along with a copy of the action taken for ensuring compliance to the BMWM Rules and CPCB guidelines issued from time to time and also such information is required to be uploaded in SPCB/PCC website. CPCB shall carryout random inspection of the CBWTFs once in a quarter and any violations observed further actions shall be initiated by CPCB if required under the Environment (Protection) Act, 1986.

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Appendix-I

Methodology to Conduct gap analysis with respect to generation and treatment of biomedical waste - Revision 1

Guidelines for Common Biomedical Waste Treatment Facilities was prepared by CPCB with an aim to have uniformity in ensuring site selection, allowing and establishment of a state-of-the-art Common Biomedical Waste Treatment Facilities (CBWTFs), operation as well as verification of compliance to the BMWM Rules, 2016 throughout the country. As per the said guideline, SPCB/PCC is required to prepare an inventory or review with regard to the bio-medical waste generation at least once in five years in the coverage areas of the existing CBWTF and conduct gap analysis as per format given in Annexure-I of the guideline.

Further, methodology for conducting gap analysis with respect to generation and treatment of biomedical waste prepared by CPCB and circulated to all SPCBs/PCCs. Accordingly, 12 SPCBs/PCCs have conducted gap analysis and submitted the report to CPCB. However, non-uniformity and ambiguity was observed specifically with regard to the method for extrapolating the data on biomedical waste generation and requirement of adequate treatment capacity in the gap analysis reports submitted by SPCBs/PCCs. Therefore, revised methodology have been prepared with an aim to have uniformity in the method for carrying out the gap analysis by State Pollution Control Boards/Pollution Control Committees.

The methodology for conducting gap analysis may be based on following parameters:

S. No.	Parameters	Details
1.	Coverage area of CBWTF	Mention farthest distance covered by CBWTF
2.	No. of HCFs (Bedded and non-bedded)	In Number
3.	No. of Beds covered	In Number
4.	Total biomedical waste generation (in Kg/day)	The generation of biomedical waste may be calculated by considering following aspects: a) Generation from bedded HCFs: The biomedical waste generation rate may be considered as 277* grams per bed per day

		b) Generation from non-bedded HCFs: The biomedical waste generation may be considered as 274** grams per day c) Biomedical waste generated from occasional waste generators such as health camps, institutions, vaccination camps etc as defined under CPCB guidelines may also be considered. * Reference: Report on Health-care Waste Management status in countries of the South-East Asia Region by WHO which is also nearly equal to the average biomedical waste generation per day per bed as per AR information received from States/UTs. **The value is taken based on the data given by CBWTF Associations regarding current average biomedical waste generation from non-bedded HCFs.
5.	Extrapolate the biomedical waste generation for next 10 years	Linear method may be adopted for extrapolation of biomedical waste generation
6.	Total existing treatment capacity (in Kg/day) (Sum of Incineration Capacity and Autoclave/Microwave/Hydroclave Capacity)	For calculation of existing treatment capacity, maintenance time (not more than 12-18 hrs/month) may be considered for calculating operational hours of equipment as below: a) Operational Hours for static incinerator 20 hrs/day b) Operational hours for Rotary incinerator 22 hrs/day c) 18 cycle per day for autoclave

		The actual capacity may also be considered as 90% of available capacity keeping 10% margin for diverted/extra waste etc.
7.	Total Biomedical Waste treated and disposed (Kg/day)	Sum of all categories of biomedical waste treated and disposal.
8.	Gap between total extrapolated biomedical waste generation (for next 10 years) and existing biomedical waste treatment capacity	Extrapolated biomedical waste generation minus total existing treatment capacity

Annexure-I

Coverage area-wise gap analysis for assessing additional BMW treatment capacity requirement

S. No	Coverage area (pl. indicate areas covered by a CBWTF in the State/UT)	No. of HCFs		No. of Beds covered	Total estimated BMW generation in Kg/day	Total existing treatment capacity in Kg					Total BMW Treated and Disposed in Kg/day	Gap between total BMW Generation and the Existing BMW Treatment Capacity in Kg	Remarks (Whether additional Treatment Capacity is required or not)	
		Bedded	Non-bedded			Incineration	Autoclaving/ Hydroclaving /microwaving	Chemical disinfection	Deep burial	Any other mode of disposal			Yes	No
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)

Note: Above gap analysis coverage area-wise is required to be prepared once in five years and should be shown or depicted in a Map of State/UT.

Annexure- II

Format for maintaining the records by the CBWTF Operator alongwith the transportation Vehicle used for collection of bio-medical waste from the member HCFs

Name of the CBWTF :
Address of the CBWTF with contact details :
Vehicle Registration Number (certificate to be carried by the vehicle driver) :
Route covered (indicate places) by the vehicle :

Note: Above format is required to be maintained in duplicate both by the CBWTF Operator and the member HCF

Date	Vehicle number and the Time of arrival of the vehicle	Vehicle Speedo meter mileage readings in KM		Name of the HCF with address and the bar code number from whom waste collected	Category-wise quantity of bio-medical waste received in kg					Total BMW collected by the CBWTF		Name of the Vehicle driver with	Signatures	
		Initial	Final		Yellow	Red	Blue	Out dated medicines	White - waste sharps	Total No. of Bags	Total waste		Vehicle Driver	Representative of the HCF
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		(12)	(13)	(14)

Annexure - III

Log book for Operating the Incinerator/Plasma Pyrolysis

Date	Time of operation of the Incineration		Quantity of hourly BMW charged in Kg (Total BMW charged in a day in Kg)	Temperature maintained in ^{O} C			Negative draft in primary chamber *(in mm of water column) (Pl. indicate range i.e., min. to max)*	Pressure drop across APCD *(in mm of water column) (Pl. indicate range i.e, min. to max)*	p^{H} level of scrubbed liquid used *(Pl. indicate range - min. to max.)*	Average values of flue gas analysis results (continuous online) observed during the incineration/plasma pyrolysis process operation				Consumption of electricity/ Diesel whichever is applicable			Net Quantity of bio-medical waste received in Kg	Net Quantity of bio-medical Waste left over in a day (in Kg)
				Primary Chamber	Secondary Chamber	After scrubbing in exit stack gas				CO in mg/Nm^3	O_2 in %	CO_2 in %	% combustion Efficiency	Power (indicate electricity meter reading)		Diesel in liters (pl. indicate daily or weekly diesel consumption)		
	Start	End												Initial reading	Final reading			(19) = (18) – (4)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	16)	(17)	(18)	(19)

Note: Fill the details whichever is applicable

Log Book for Operating the Autoclave/Hydroclave

Date	Time of operation of the Autoclave or Hydroclave		Batch number	Quantity of waste feeding per batch in Kg (Total waste treated by autoclaving/ hydroclave in Kg)	Temperature and Pressure ~~in every ten minutes~~		Strip test result (pl. paste the strip test for each batch with a proof)	Consumption of electricity (indicate electricity meter reading)		Net Quantity of waste received in Kg	Net Quantity of Waste left over in Kg
	Start	End			Temperature in ^{O} C	Pressure in psi		Initial reading	Final reading		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)=(11)-(5)

Annexure – IV

Check List for Development of a Common Bio-medical Waste Treatment and Disposal Facility & For issuing 'Consent to Establishment under Water & Air Acts

1. Name of the Proponent :
2. Proposed location of the CBWTF :
3. No. of HCFs in the locality :
4. No. beds :
5. Total Bio-medical Waste Generation in kg/day :
(i) Incinerable in kg/day :
(ii) Autoclavable in kg/day :
(iii) Glass waste in kg/day :
(iv) Waste sharps in kg/day :

6. **Proposed location of the CBWTDF**: located away from

a) Residential area : Yes □ No □
b) Sensitive area : Yes □ No □
c) Industrial area : Yes □ No □
d) Is it as a part of TSDF : Yes □ No □
e) Is the facility proposed in Hilly areas : Yes □ No □
d) Buffer distance of 500 m available : Yes □ No □

7. **Proposed land area for CBWTF:**
a) Area about 1 acre : Yes □ No □
b) Area less than 1 Acre : Yes □ No □
c) Area more than 1 Acre : Yes □ No □

8. **Proposed coverage area of the CBWTF:**
a) Any facility located upto a radius of 75 KM from the proposed locality : Yes □ No □
b) No. of beds covered by the existing facility/proposed facility:
(i) more than 10, 000 beds : Yes □ No □
(ii) less than 10,000 beds : Yes □ No □
c) Is there any CBWTF within the radius of 75 KM : Yes □ No □
d) BMW Waste generation in a coverage area under consideration: ..... Kg/day

e) Existing CBWTF treatment Capacity :
   (a) Incineration/plasma pyrolysis :..... Kg/day
   (b) Autoclave/hydroclave : .....Kg/day
   (c) Chemical Disinfection :..... Kg/day

f) Is locality requires any additional capacity (within a radius of 75 KMs)?.
   : Yes □ No □
   (i) If so, indicate reason:.....

9. Requirement of Treatment Facility: Following treatment facilities shall be provided in a CBWTF:

a) Incineration : Yes □ No □
b) Autoclave (Pre-vacuum horizontal feeding) / Hydroclave / Microwave.
   : Yes □ No □
c) Shredder : Yes □ No □
d) Sharp pit (with drawing details) : Yes □ No □
e) Provision for floor washing/vehicle washing: Yes□ No □
f) Effluent Treatment Plant : Yes □ No □
g) Secured land fill/Disposal of ash in TSDF : Yes □ No □
h) Other provisions as per CPCB guidelines : Yes □ No □

10. Segregation

(i). Segregation shall be as per the Bio-medical Waste Management Rules, 2016 as amended as well as compatible with treatment facilities at CBWTF
(ii). Occupier/Generator is responsible for providing segregated waste to the operator.

11. Collection

(i) Respective coloured bags provided with bar code should be kept in similar coloured container i.e. coloured bags shall not be directly kept in vehicle.
(ii) Sharps shall be collected in puncture resistant, leak proof, rigid containers.
(iii) Temporary storage at healthcare unit shall be designated.

12. Transport Vehicle

(I) Dedicated vehicles for collection of Bio-medical waste : Yes □ No □

(II) Separate cabins shall be provided for driver/staff and the bio-medical waste containers : Yes □ No □

(III) The base of the waste cabin shall be leak proof to avoid pilferage of liquid during transportation : Yes □ No □

(I) The waste cabin may be designed for storing waste containers in tiers : Yes □ No □

(V) The waste cabin shall be so designed that it is easy to wash and disinfect. : Yes □ No □

(VI) The inner surface of the waste cabin shall be made of smooth surface to minimize water retention :Yes □ No □

(VII) The waste cabin shall have provisions of sufficient openings in the rear and/or sides so that waste containers can be easily loaded and unloaded : Yes □ No □

(VIII) The vehicle shall be labeled with the bio-hazard symbol (as per Schedule IV of BMWM Rules) and should display the name, address and telephone number of the CBWTF : Yes □ No □

(IX) Other provision as per CPCB guidelines : Yes □ No □

13. Storage

(I) Sufficient ventilated storage space for untreated and treated bio-medical waste shall be provided. : Yes □ No □

(II) The flooring and walls (to a height of 2M from floor) shall be finished with smooth and fine material. There shall be minimum number of joints. : Yes □ No □

14. Record Keeping

(I) Documents such as collection advice taken from health care units for each category of waste, records of waste movements, logbook for the equipment and site records shall be maintained. : Yes □ No □

(II) All the record (five year) shall be available at the CBWTF site for inspection. : Yes □ No □

15. Proposed Treated Waste Disposal method:

(i). Incineration ash - Secured landfill/near by TSDF : Yes□ No□

(ii). Plastic waste after disinfection and shredding –Registered Recycling Unit : Yes □ No □

(iii). Sharps, after disinfection (if encapsulated) - Municipal landfill : Yes □No □

(iv). Treated wastewater –Discharge into sewer/drain or recycling in APCD : Yes □ No □

(v). Oil & grease –By incineration: : Yes □ No □

(VI). Any other mode of disposal of recyclable waste:
(If so, pl. indicate .....)

16. Estimated energy consumption and fuel consumption per month :

(i) Estimated energy consumption per month

(a)	General lighting in the facility	:
(b)	Incinerator	:
(c)	Autolcave/microwave	:
(d)	Shredder	:
(e)	ETP	:
(f)	Any other	:

(ii) Estimated fuel consumption:

(a)	Diesel consumption	:..... in Kl per month
(b)	No. of hours of operation of DG Set	:
(c)	No. of hours of incineration	:

17. Whether the proponent obtained necessary approvals from the concerned departments as required : Yes □ No □

(i) If yes, attach details

18. Whether the proponent obtained EC as per EIA 2006 and the amendments made thereof : Yes □ No □

(i) If yes, attach a copy of the EC obtained from the concerned

19. Whether the proposal recommended for issuing consent to establish

: Yes □ No □

(Signature of the official verified with date)

Annexure – V

Check List for Performance Evaluation of the
Common Bio-medical Waste Treatment and Disposal Facility (CBWTF)

S.No.	Details		Particulars
01.	Name of CBWTF with contact details	:	
02.	Date of visit	:	
03.	Location details of the CBWTF	:	a) Near to Residential area: :Yes □ No □ b) In/near Sensitive area: Yes □ No□ c) In Industrial area : Yes □ No □ d) Is there a buffer zone of 500 m: Yes □ No □ Indicate exact distance: in KM e) Is it as a part of TSDF: Yes □ No □ If so, distance of TSDF from the nearest CBWTF: ……KM.. f) Is the facility proposed in Metropolitan city: Yes □ No □ (i)Name of the City: …… (ii)Population of the City (as per latest census): …… g) Is the facility proposed in Hilly area : Yes □ No □ (i)Name of the Town/City: ……
04	Month / year of establishment and the Consents status	:	Establishment Month/Year :
05.	CBWTF set up by	:	
06.	CBWTF operated by	:	
07.	Total number of healthcare facilities and beds covered (as on date of visit)	:	No. of HCFs : No. of Beds : No. of HCFs and beds upto 75 KM radius:

S.No.	Details		Particulars
08.	Total BMW Treatment Capacity of CBWTF (in kg / day)	:	Incineration : Autoclave : Chemical Disinfection: Any other treatment and disposal:
09.	**Consents and Authorization details :**		
9.1	Consent under Water (Prevention and Control of Pollution) Act, 1974	:	□Applied for □ Not Applied for □ Possess Valid Consent □ Not renewed □ No consent If obtained: Consent is valid upto ..... and issued by .....SPCB/PCC vide letter dated .....
9.2	Consent under Air (Prevention and Control of Pollution) Act, 1981	:	□Applied for □ Not Applied for □ Possess Valid Consent □ Not renewed □ No consent If obtained: Consent is valid upto ..... and issued by .....SPCB/PCC vide letter dated .....
9.3	**Environmental Clearance (EC)**		□Applied for □ Not applied □ Obtained □ Not obtained If obtained: EC issued by SEIAA or MoEF& CC vide letter dated .....
9.4	Authorization under BMW Rules, 1998	:	□ Applied for □ Not Applied for □ Possess Valid Authorisation □ Not renewed □ No Authorisation If obtained: Authorisation is valid upto ..... and issued by .....SPCB/PCC vide letter dated .....
10.	Investment in setting up the CBWTF	:	
11.	Area of plot size for CBWTF (Sq. ft.)	:	
12	Annual Report submission for the year	:	Submitted before due date : :Yes □ No □ If yes, provide details of waste collected, received and treated & disposed of: .....
12.	Coverage area of CBWTF (radius in KM covered)	:	Coverage area upto 75 km radius: Yes □ No □

S.No.	Details		Particulars
13.	Name of Districts/Cities / places being covered	:	(Pl. indicate Districts or places covered:..... .....) W.r.to the CBWTF (i) Farthest HCF located at :.. .....KM (ii) Nearest HCF located at :.....KM.
14.	Daily operation schedule (timings)	:	(i) Collection: ...AM to .... PM. (ii) Incineration:....AM to ....PM (iii) Whether waste from member HCFs collected in holidays: □ Yes □ No
15.	Cost charged to the healthcare facilities	:	(i) Charges in Rs..... (ii) Is the cost to be levied suggested by: .....Organisation
16.	**Total quantity of bio-medical waste treated: kg/day (avg.)**		
16.1	Incinerable	:	..... %
16.2	Autoclaving	:	.....%
16.3	Chemical Disinfection	:	.....%
16.4	Others (please specify waste type-wise)	:	.....%
17.	**Staff involvement in CBWTF operation (number of persons):**		
17.1	Managerial / Administration	:	
17.2	Equipment operations	:	
17.3	Transportation of BMW	:	No. of Drivers: No. of Helpers:
17.4	Sanitation and others	:	
17.5	Total persons excluding managers	:	
18.0	**Collection and Transportation of bio-medical waste from member HCFs :**		
18.1	No. of Vehicles used for collection of waste from member HCFs	:	(i) Four Wheelers: .....Nos and Vehicle Numbers: ..... (ii) Two Wheelers :.....Nos and Vehicle Numbers:.....
18.2	Vehicles are labeled as per BMWM Rules, 2016	:	□ Satisfactory □ No satisfactory
18.3	Vehicles used are as per CPCB Guidelines	:	□ Satisfactory □ No satisfactory

<table>
<tr><th>S.No.</th><th>Details</th><th></th><th>Particulars</th></tr>
<tr><td>18.4</td><td>Vehicles attached with the GPS provision as per BMWM Rules 2016</td><td></td><td>□ Satisfactory □ No satisfactory</td></tr>
<tr><td>18.5</td><td>Whether waste collected from member HCFs adopted Bar coding system ?</td><td></td><td>□ Yes □ No</td></tr>
<tr><td>19.0</td><td>Temporary untreated waste storage area</td><td>:</td><td>□ Satisfactory □ No satisfactory</td></tr>
<tr><td>20.0</td><td>Mode of conveyance of bio-medical waste from untreated waste storage area to the treatment equipment within the CBWTF</td><td>:</td><td>□ Closed Trolley/Pull cart with bio-hazard symbol
□ No Closed Trolley/Pull cart
□ Others like .....</td></tr>
<tr><td>21.0</td><td colspan="3">Treatment equipment installed at CBWTDF</td></tr>
<tr><td>21.1</td><td>Incinerator/plasma pyrolysis capacity and make</td><td>:</td><td>(i) No. of Incinerators including standby:
(ii) Incineration capacity: ..... kg /hr .....Kg/day.</td></tr>
<tr><td>21.2</td><td>Daily Operation schedule of the incinerator /plasma pyrolysis (timings)</td><td>:</td><td>.....AM to .....PM (or)
.....PM to .....AM
Whether bio-medical waste collected from member HCFs is treated during holidays:
Yes □ No □</td></tr>
<tr><td>21.3</td><td>Consumption of auxiliary fuels</td><td>:</td><td><table><tr><th>S. No</th><th>Type of Fuel</th><th>Consumption Quantity in liters per day</th><th>Bill numbers of purchase of fuel</th></tr><tr><td>a)</td><td></td><td></td><td></td></tr><tr><td>b)</td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>21.4</td><td>Stack attached with the incinerator /plasma pyrolysis</td><td>:</td><td>(i) Stack Diameter: m
(ii) Stack Height : m above Ground Level</td></tr>
<tr><td>21.5</td><td>Monitoring provision attached with the stack</td><td>:</td><td>□ Platform □ Porthole □ access to the platform (Steps/Monkey Ladder/any other.....)</td></tr>
<tr><td>21.6</td><td>Is stack monitoring provision satisfactory</td><td>:</td><td>□ Yes □No</td></tr>
</table>

S.No.	Details		Particulars
	and as per CPCB guidelines		
21.7	air pollution control systems attached with the incinerator/plasma pyrolysis	:	(i) Quenching : □ Yes □ No (ii) Venturi scrubber : □ Yes □ No (iii) Droplet separator : □ Yes □ No (iv) Mist eliminator : □ Yes □ No (v) Filters : □ Yes □ No (vi) Lime and Activated Carbon injection: : □ Yes □ No (vii) ID Fan : □ Yes □ No (viii) Any other : (Pl. indicate)
21.8	Waste feeding mechanism	:	(i) Manual feeding : □ Yes □ No (ii) PLC based Automatic feeding : □ Yes □ No
21.9	Is PLC and automatic recording system (for recording operating parameters of the incinerator) attached with the incinerator/plasma pyrolysis	:	(i) PLC synchronized with waste feeding mechanism & in working condition: □ Yes □ No (I) PLC synchronized and recording system attached with incinerator and in working condition: □ Yes □ No
21.10	Operational conditions of the Incineration/plasma pyrolysis as observed during the visit	:	(i) Whether burners in working condition: □ Yes □ No (ii) Temperature maintained in Primary Chamber (range) : ……..^{O} C (iii) Temperature maintained in Secondary Chamber (range):……..^{O} C (iv) Negative draft in Primacy Chamber : ……..mm of water column (v) Pressure drop in the Venturi: …… mm of water column
21.11	Is continuous on-line monitoring system/Flue gas analyser attached with the incinerator/plasma pyrolysis for flue gas	:	(i) Is continuous online monitoring system (COMS) attached with incinerator: □ Yes □ No (ii) Observed values of flue gas parameters: CO_2: .% ;O_2: …… % and CO: …… % (iii) Observed Combustion Efficiency: ……%

S.No.	Details		Particulars
	analysis (i.e CO, O_2 and CO_2)		(iv) Observed values of stack emissions as per COMS .....
21.12	Emergency and Fire safety measures adopted within the facility is adequate	:	Is Emergency stack attached with the incinerator: □ Yes □ No Whether fire safety measures adopted (Fire Extinguishers, Sand buckets etc.): □ Yes □ No
21.13	Log book for incinerator/ plasma pyrolysis is maintained and satisfactory	:	Log Book Maintained: □ Yes □ No Log Book Maintained is satisfactory : □ Yes □ No
21.14	Details of heat recovery system installed with incinerator/plasma pyrolysis	:	□ Yes □ No
22.0	**Capacity of autoclave and-- make**	:	Autoclave of capacity .....kg/cycle and make ..... installed.
22.1	Operating conditions of autoclave/microwave as observed during the visit	:	Operating parameters observed: (i) Temperature : in ^{O}C (ii) Pressure : in psi **(iii)** Residence time : in minutes
22.2	Provision made for the autoclave /micorwave	:	Trolley for waste feeding : □ Yes □ No Graphic or computer recording device attached: □ Yes □ No
22.3	Spore test or strip test conducted regularly and records maintained	:	□ Yes □ No Pl. indicate frequency of Strip test conducted: every batch /once in a week /quarterly /yearly Pl. indicate frequency of Spore test conducted: every batch /once in a week /quarterly /yearly
22.4	Performance of autoclave by spore testing or routine test	:	□ Satisfactory □ Not satisfactory
22.5	Log book maintained for autoclave is satisfactory	:	Log Book Maintained: □ Yes □ No Log Book Maintained is satisfactory : □ Yes □ No
23.0	**Capacity of shredder and make**	:	..... kg/hr. Self-designed & got fabricated locally.

<table>
<tr><th>S.No.</th><th>Details</th><th></th><th>Particulars</th></tr>
<tr><td>24.0</td><td>Details of sharp pit / Encapsulation facility</td><td>:</td><td>(i) Sharp Pit provided : □ Yes □No
(ii) Is it as per CPCB guideline : □ Yes □No
(iii) Records maintained : □ Yes □No
(iv) Total quantity of waste sharps stored:
(v) Total quantity of waste sharps treated and disposed:</td></tr>
<tr><td>25.0</td><td colspan="3">Water Balance</td></tr>
<tr><td>25.1</td><td>Source and quantity of water intake per day (cu.m / day)</td><td>:</td><td>Water consumption source: .....
Water is drawn at ..... KLD approximately.
Is magnetic water flow meter attached to the water source/water storage tank : □ Yes □No

Magnetic water flow meter readings as per record (for last month):
1 St Day of Month :
Last day of month :
Magnetic Flow meter as observed during the visit:
<table>
<tr><th rowspan="2">S. No</th><th rowspan="2">Month</th><th colspan="2">Magnetic flow meter reading</th></tr>
<tr><th>Initial</th><th>Final</th></tr>
<tr><td>(1</td><td>Previous month .....</td><td></td><td></td></tr>
<tr><td>(2)</td><td>On the date of visit:.....</td><td></td><td></td></tr>
</table>

If water requirement is met from outside through tankers, pl. provide No. of Tankers procured in a previous six months:

Total quantity of water consumed during the previous six months : .. .. in KLD</td></tr>
<tr><td>25.2</td><td>Break up of water usage (such as washing, scrubbing etc.)</td><td>:</td><td>Scrubber – KL/hr or KLD
Washing – KLD
Disinfections – KLD
Gardening – KLD
Domestic – KLD</td></tr>
</table>

S.No.	Details		Particulars
26.0	**Total wastewater effluent generated per day**	:	About .....KLD generated Quantity of treated water reused/recycled in %: Any other mode of disposal:
27.	**Effluent treatment plant details**		
27.1	ETP Capacity	:	..... KL/Cycle
27.2	Flow Chart of ETP	:	ETP comprising of: ..... Unit operations
27.3	Intake and Discharge of ETP	:	(i) Magnetic Flow measuring device provided at the outlet of ETP: □ Yes □ No (ii) Energy meter attached to the ETP: □ Yes □ No (iii) Energy consumed over a period of one month: = ... Units (iv) pH meter attached at the outlet of ETP: □ Yes □ No
27.4	Final mode of disposal of treated water	:	(i) Is treated wastewater complying with the discharge norms □ Yes □ No (ii) Is Treated water is reused in the scrubber: □ Yes □ No (ii) Is Treated water is reused for gardening: □ Yes □ No (iii) Is Treated water is discharged in drain: □ Yes □ No (iv) Is Treated water is discharged in open area: □ Yes □ No
28.	**Status of infrastructure provided (Pl. indicate 'Yes / No' whichever is applicable)**		
28.1	Separate treatment equipment room	:	□ Yes □ No
28.2	Main waste storage room	:	□ Yes □ No
28.3	Treated waste storage room	:	□ Yes □No
28.4	Administrative room	:	□Yes □No
28.5	Generator set	:	□ Yes □No

S.No.	Details		Particulars
	(i) Capacity	:	
	(ii) Is Stack attached as per DG Set norms	:	□Yes □ No
	(iii) Is Acoustic enclosure provided as per DG Set norms	:	□ Yes □ No
	(iv) Is DG Set complying to the emissions norms and noise level norms	:	□Yes □ No If so, pl. indicate latest monitoring results: .....
28.6	Site security (high walls, fencing, guarded gates etc.)	:	High walls on all four sides :□ Yes □No Fencing on all the sides : □ Yes □ No Guarded Gates : □Yes □ No Any other observation pl indicate:.....
28.7	Parking facility	:	□ Yes □ No
28.8	Sign board	:	□ Yes □ No
28.9	Green belt	:	□ Yes □ No
28.10	Washing room	:	□ Yes □ No
28.11	First aid box	:	□ Yes □ No
28.12	Lighting arrangements in the facility	:	□ Yes □ No
28.13	Odour problem remedial measures	:	□ Yes □ No
28.14	Fire fighting and emergency facilities	:	□ Yes □ No
28.15	Measures for control of pests / insects etc.	:	□ Yes □ No
28.16	Protective gear for waste handlers	:	□ Yes □ No
28.17	Telephone facility	:	□ Yes □ No
28.18	Provision of washing, toilets and safe place for eating for the workers		□ Yes □ No
28.19	File alarm system provided in the facility		□ Yes □ No

S.No.	Details		Particulars
29.	**Record maintenance and record keeping details (Pl. indicate 'Yes / No' whichever is applicable)**		
29.1	Waste Movement /Manifest record	:	□ Yes □ No
29.2	Log book for treatment equipment	:	□ Yes □ No
29.3	Site records	:	□ Yes □ No
29.4	Incineration ash generation and final disposal records	:	□ Yes □ No
29.5	Treated plastic waste generation and its sale to the registered recycler	:	□ Yes □ No
29.6	Syringes treated and its final disposal record	:	□ Yes □ No
29.7	Workers health status records		□ Yes □ No
29.8	Workers immunization records		□ Yes □ No
29.9	Medical and para-medical workers training records		□ Yes □ No
29.10	Whether records maintained with regard to the accidents (such as fire, spills and injury and measures taken)		□ Yes □ No
30.	**Collection and transportation status (Yes / No)***		
30.1	Whether waste collected in a container of similar colour with label as per the Rules?	:	□ Yes □ No
30.2	Whether the person who collects BMW maintain a register with him / her?	:	□ Yes □ No

S.No.	Details		Particulars
30.3	Has due attention have been given in vehicles to prevent spillage / pilferage/ loading / unloading etc.?	:	□ Yes □ No
30.4	Is the vehicle labeled with the symbol and display the name, address, telephone number etc.?	:	□ Yes □ No
30.5	Does the CBWTF operator use satellite station to store the waste?	:	□ Yes □ No (If yes, give details.....)
30.6	The CBWTF operator collects waste daily or alternate day including holidays?	:	□ Yes □ No
30.7	Whether waste treatment criterion of 48 hours is complied?		□ Yes □ No
31.	**Disposal of treated waste:**		
31.1	Plastic waste after treatment	:	Plastic waste Sold to: M/s. ..... and approved by .....SPCB/PCC
31.2	Treated sharps	:	Treated syringes disposal by:..... or through M/s.....and approved by .....SPCB/PCC
31.3	Incineration ash	:	Incineration ash disposal by: Disposal in Sanitary Landfill:□ Yes □ No Disposal through TSDF:□ Yes □ No Any other mode :.....
31.4	Other treated solid wastes	:	
31.5	Oil & grease	:	
31.6	Treated wastewater	:	

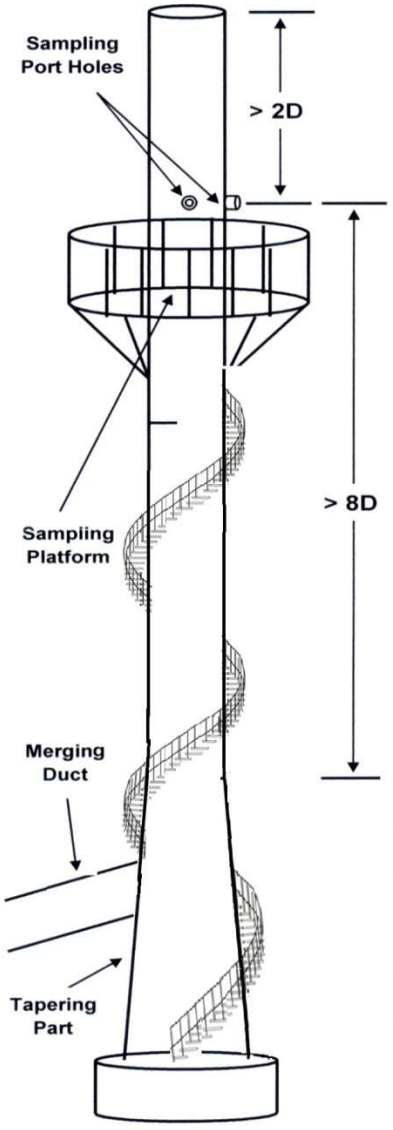
<table>
<tr><th>S.No.</th><th>Details</th><th></th><th>Particulars</th></tr>
<tr><td>32.</td><td>Frequency of incinerator / autoclave / microwave / hydroclave / ETP discharge effluent testing and name of the laboratory (specify approved or not under E(P) Act, 1986 or NABL Accredited Lab.). Give details of compliance / non-compliance)</td><td>:</td><td>(i) Reported monitoring frequency:
(ii) Stack monitoring : Quarterly :□ Yes □ No
(iii) Waste water : Monthly/Quarterly/Yearly
(iv) Incineration ash : Monthly/Quarterly/Yearly
(v) Name of the Laboratory conducted test: .....
(vi) Is the Laboratory approved under E (P) Act, 1986/.....SPCB/PCC/ NABL: :□ Yes □ No
(vii) Copies of the analysis reports of treated effluent, incinerated ash, stack monitoring as (Annexures.....)</td></tr>
<tr><td>32.1</td><td>Frequency of site inspection by SPCBs/PCCs/CPCB/any other agencies</td><td>:</td><td>(i) No. of times in a year inspected by the SPCB/PCC: .....
(ii) No. of times in a year inspected by the CPCB .....</td></tr>
<tr><td>33.</td><td colspan="3">Monitoring Results :</td></tr>
<tr><td>33.1</td><td>Incinerator stack emission (parameters stipulated in the Rules, temperature attainment in the chambers, residence time in the secondary chamber etc.)</td><td>:</td><td><table><tr><th>Parameter</th><th>PM</th><th>HCl</th><th>NOx</th><th>Hg & com-pounds</th><th>Dioxins and Furans</th><th>C.E.</th></tr><tr><td>Date</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>LIMIT</td><td>50</td><td>50</td><td>400</td><td>0.05</td><td>0.1 ng TEQ per Nm^3</td><td>99.00%</td></tr></table>Date of monitoring:
Note: All values are in mg/Nm^3, except CE</td></tr>
<tr><td>33.2</td><td>Whether Stack emission norms are complied with by the CBWTF</td><td></td><td>□ Yes □ No</td></tr>
<tr><td>33.3</td><td>Incineration ash characteristics</td><td>:</td><td>Characteristics as per Schedule –II of HOW (M& TM) Rules,2016 (Annexure-----)
Is it hazardous waste as per HOWM&TM Rules, 2016: □ Yes □No</td></tr>
<tr><td>33.4</td><td>ETP inlet/outlet characteristics</td><td>:</td><td><table><tr><th>Parameter</th><th>pH</th><th>TSS</th><th>COD</th><th>BOD</th><th>O&G</th></tr><tr><td>ETP Inlet Result</td><td></td><td></td><td></td><td></td><td></td></tr></table></td></tr>
</table>

S.No.	Details		Particulars
			ETP Outlet Result | | | | | | All values are in mg/l except pH
33.5	Whether liquid effluent discharge norms are complying by the CBWTF	:	□ Yes □ No
33.6	Whether CBWTF is submitting the annual report within the due date for the preceding year	:	□ Yes □ No If Yes, annual report submitted vide letter No..... dated.....
34.	Any other relevant observations	:	(pl. enclose as annexure)
35.	Name of the officials with designation inspected /monitored the CBWTF and the signature	:	

Annexure-VI

STATIONARY SOURCE EMISSION MONITORING

MODIFICATIONS TO BE MADE TO SAMPLING PLATFORM AND SAMPLING PORT HOLE



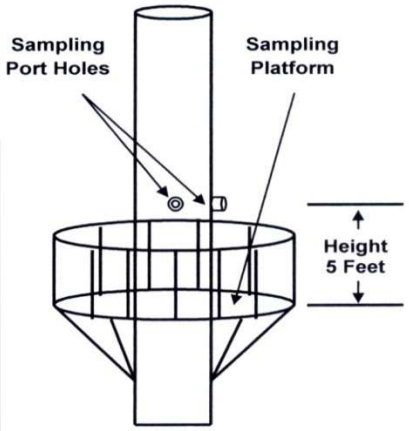
Number of Port Holes : Minimum two numbers of Port Holes at 90° apart from each other at a horizontal plane.

Location of Port Holes : Minimum 8 times of Internal Diameters of Stack downstream (upward direction of stack) from any duct confluence, bends and tapering & minimum 2 times of Internal Diameters of Stack upstream (downward direction of stack) from stack exit.

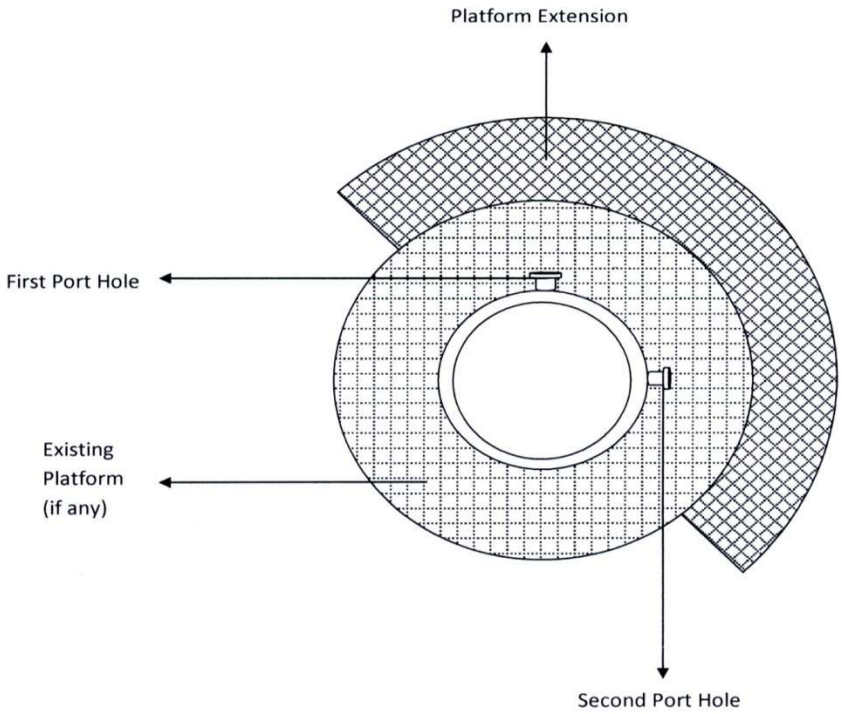
Location of Sampling Platform : 5 feet upstream (downward direction of stack) from the Port Hole as determined above.

Port Hole Flange : If the internal diameter of the flange is 4 inch or more then there is no need to change, if it is less than 4 inch than it has to be replaced with 4 inch flange. The flange should not protrude out more than 6 inches from the outer wall of the stack (it shall be kept as less as possible).

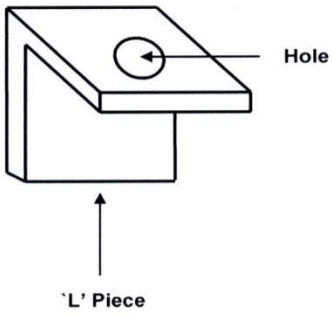
Sampling Platform Modification : A semi-circular extension of the existing platform (width extending outward by 6 feet from outside wall of the stack and covering at least one third of the circumference) may be provided for access to both the Port Holes. This area can be extended from the existing Platform and if deemed necessary for safety of the personnel a counter extension in opposite direction may also be provided. The extended Platform shall be strengthened with requisite support from the stack.



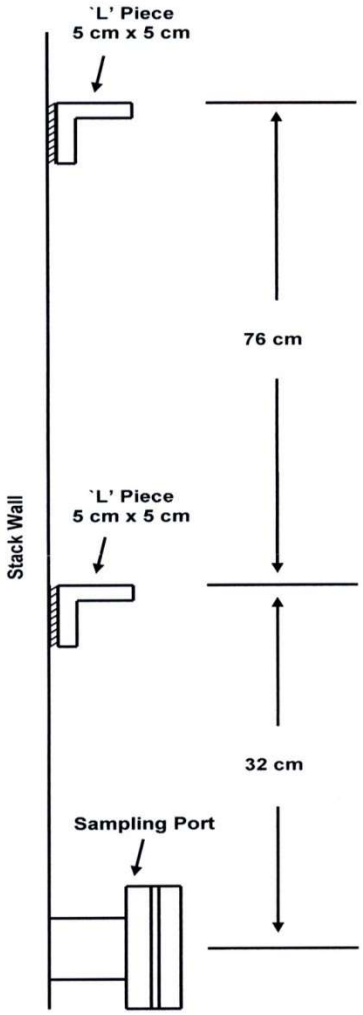
Note: Alternatively, safe access to monitoring platform may be provided with seperate scaffolding-cum-staircase arrangement



Sampling Platform Modification / Extension



**Fixing of `L' Pieces on the stack wall :** Two `L' shaped pieces are to be fixed on the stack wall for mounting the Mono-Rail & Chain (part of the Sampling Kit for movement of sampling Train in & out through the Sampling Port Hole). The `L' pieces shall be made of approximately 6 mm thick galvanized iron to have 5 cm long arms. One arm of the `L' piece shall be welded on the stack wall and another arm shall have a hole of 14 mm diameter near the open end. Both the `L' Pieces shall be welded on the stack wall at specified distances (as shown in the diagram on the next page) from the centre of Sampling Port Hole (in a vertical axis on the Stack Wall).



Fixing of `L' Pieces on the Stack Wall

ANNEXURE – VII

The vehicle shall be labeled with the bio-hazard symbol (as per Schedule IV of the BMWM Rules) and should display the name, address and contact telephone and mobile number of the CBWTF.

Bio Medical Waste Vehicle

Name and address of CBWTF with Contact number of CBWTF operator

Authorized by *(Name of)* State Pollution Control Board/Pollution Control Committee

Vehicle Side-1

Bio Medical Waste Vehicle

Name and address of CBWTF with Contact number of CBWTF operator

Authorized by *(Name of)* State Pollution Control Board/Pollution Control Committee

Vehicle Side-2

Bio- Hazard symbol at back side of the vehicle

Note: Proportion of Font size with respect to body height of the vehicle-12:1 (Minimum)

Proportion of Bio-hazard symbol with respect to body height of the vehicle-12:3 (Minimum)

Example: If body height is 6 feet i.e. 72" then minimum font size will 6" and minimum size of bio-hazard symbol will be 18".

REFERENCES

1. Bio-medical Waste Management Rules, 2016.
2. Revised Guidelines for Common Bio-medical Waste Treatment Facilities (2016).
3. CPCB Guidelines for BMW Incinerators.
4. 'Disposal of Bio-medical Waste generated during Universal Immunization Programme' issued by CPCB.
5. 'Guidelines for Environmentally Sound Management of Mercury Waste Generated from the Health Care Facilities' issued by CPCB.
6. Annual Report 2023 submitted to CPCB by the SPCBs/PCCs.
7. Stationary Source Emission Monitoring –Modifications to be made to the Sampling Platform and Sampling Port Hole issued by National Reference Trace Organics Laboratory (NRTOL), CPCB.

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Revised Guidelines for Common Bio-medical Waste Treatment and Disposal Facilities

CENTRAL POLLUTION CONTROL BOARD

(Ministry of Environment, Forest and Climate Change)

Parivesh Bhawan, East Arjun Nagar

DELHI -110 032

website: www.cpcb.nic.in

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Abbreviations

APCD	-	Air Pollution Control Device
BMWM Rules	-	Bio-medical Waste Management Rules
CBWTF	-	Common Bio-medical Waste Treatment and Disposal Facility
CO	-	Carbon Monoxide
CO_2	-	Carbon Dioxide
CPCB	-	Central Pollution Control Board
CRZ	-	Coastal Regulation Zone
DG	-	Diesel Generator
EC	-	Environmental Clearance
EIA	-	Environment Impact Assessment
ETP	-	Effluent Treatment Plant
GPS	-	Global Positioning System
HCFs	-	Health Care Facilities
HCl	-	Hydrochloric Acid
HOWM & TM Rules	-	Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016
MHz	-	Mega Hertz
MoEF& CC	-	Ministry of Environment, Forest & Climate Change
KM	-	Kilometer
KW	-	Kilowatt
MoU	-	Memorandum of Understanding
NABL	-	National Accreditation Board for Testing and Laboratories
NO_x	-	Oxides of Nitrogen
O_2	-	Oxygen
PCC	-	Pollution Control Committee
PLC	-	Programmable Logical Control
SEIAA	-	State Environment Impact Assessment Authority
SLF	-	Secured Landfill
SPCB	-	State Pollution Control Board
TSDF	-	Treatment Storage and Disposal Facility
TOC	-	Total Organic Carbon
VOCs	-	Volatile Organic Compounds

CONTENT

1) Introduction

A Common Bio-medical Waste Treatment and Disposal Facility (CBWTF) is a set up where biomedical waste generated from member health care facilities is imparted necessary *treatment* to reduce adverse effects that this waste may pose on human health and environment. The treated recyclable waste may finally be sent for disposal in a secured landfill or for recycling.

According to the Bio-medical Waste Management Rules, 2016, *"bio-medical waste treatment and disposal facility" means any facility wherein treatment, disposal of bio-medical waste or processes incidental to such treatment and disposal is carried out, and includes common bio-medical waste treatment facilities* and *"operator of a common bio-medical waste treatment facility" means a person who owns or controls a Common Bio-medical Waste Treatment and Disposal Facility (CBWTF) for the collection, reception, storage, transport, treatment, disposal or any other form of handling of bio-medical waste*.

The Bio-medical Waste Management Rules, 2016 (hereafter referred as BMWM Rules) restricts occupier for establishment of on-site or captive bio-medical waste treatment and disposal facility, if a service of common bio- medical waste treatment and disposal facility is available within a distance of seventy-five kilometer, as installation of individual treatment facility by health care facility (HCF) requires comparatively high capital investment. In addition, it requires separate dedicated and trained skilled manpower and infrastructure development for proper operation and maintenance of treatment systems. The concept of *CBWTF* is not only addresses such problems but also prevents proliferation of treatment technologies in a particular town or city. In turn, it reduces the monitoring pressure on regulatory agencies. By running the treatment equipment at CBWTF to its full capacity, the cost of treatment of per kilogram bio-medical waste gets significantly reduced. Its considerable advantages have made CBWTF popular and proven concept in most part of the world.

The CBWTFs are also required to set up based on the need for ensuring environmentally sound management of bio-medical waste keeping in view the techno-economic feasibility and viable operation of the facility with minimal impact on human health and environment.

Since 1998, the CBWTF as an option for treatment of bio-medical waste also been legally introduced in India. Considering the likely impacts that may cause to the patients undergoing treatment because of operation of the captive treatment

equipment within the health care facilities (HCFs), now the Bio-medical Waste Management Rules, 2016 restricts the Occupier (i.e., HCF) for ensuring treatment and disposal of generated bio-medical waste through a CBWTF, located within a distance of 75 KM. Further, these rules eased the bottleneck in upbringing the CBWTF by making department in the business allocation of land assignment in the State or UT administration responsible for providing a suitable site (s) within its jurisdiction.

The concept of CBWTF is also being widely accepted in India among the healthcare units, medical associations and entrepreneurs. In order to set up a CBWTF to its maximum perfection, care shall be taken in choosing the right technology, development of CBWTF area, proper designing of transportation system to achieve optimum results etc. Key features of CBWTF have been addressed in the subsequent sections.

To facilitate the treatment and disposal of bio-medical waste generated from the HCFs, at present (as per Annual Report 2014 submitted by the SPCBs/PCCs), there are 192 no. of CBWTFs in operation and 33 no. of CBWTFs are under construction. Also, the Bio-medical Waste Management Rules, 2016 mandates that the operator of a CBWTF authorised by the prescribed authority is required to take all necessary steps to ensure that the bio-medical waste collected from the occupier is transported, handled, stored, treated and disposed of, without any adverse effect to the human health and the environment, in accordance with the BMWM Rules and the guidelines issued by the Central Government or the Central Pollution Control Board (CPCB) from time to time. Therefore, these guidelines have been prepared with an aim to have uniformity in ensuring site selection, allowing and establishment of a state-of-the-art CBWTF, operation as well as verification of compliance to the BMWM Rules, 2016 throughout the country. However, any other aspects which are not been covered under these guidelines and needs attention, in such a case, the prescribed authority may take suitable action in the interest of protection of the environment in consultation with MoEF & CC/CPCB. Also, it is pertinent to mention here that these guidelines are mandatory henceforth under the Bio-medical Waste Management Rules, 2016

2) Criteria for development of a new Common Bio-medical Waste Treatment and Disposal Facility for a locality or region.

Prior to allowing any new CBWTF, following criteria or steps may be followed:

a) Prescribed authority under the BMWM Rules, 2016 [i.e., State Pollution Control Board (SPCB) in the respective State or Pollution Control Committee (PCC) in the respective

Union Territory Administration] is required to prepare an inventory or review with regard to the bio-medical waste generation at least once in five years in the coverage areas of the existing bio-medical waste treatment and disposal facility. The prescribed authority is also required to extrapolate the coverage-area wise bio-medical waste generation for the next ten years.

b) SPCB/PCC is required to conduct gap analysis w.r.to coverage area of the bio-medical waste generation and also projected over a period of next ten years, adequacy of existing treatment capacity of the CBWTF in each coverage area of radius 75 KM, as given in **Annexure-I.**

All the SPCBs and PCCs shall conduct the gap analysis and based on the gap analysis, action plan for development of new CBWTFs is required to be prepared and submitted to MoEF & CC & CPCB within six months' time. In case of States/UTs, where no CBWTF is available, in such a case, SPCB/PCC being prescribed authority under the BMWM Rules is required to submit the detailed proposal to MoEF & CC/MoH & FW through the respective State Government or UT Administration. Also, the option of forming association by the group of heath care facilities (HCFs) to develop their own CBWTF also be encouraged following these guideline. In case, any coverage area requires additional treatment capacity , in such a case, action may be initiated by the prescribed authority for allowing a new CBWTF in that locality without interfering the coverage area of the existing CBWTF and beds covered by the existing CBWTF.

c) SPCB/PCC shall identify the coverage area, which require additional treatment facility and bring it to the notice of the concerned department in the business allocation of land assignment in the respective State Government or UT Administration. The department in the business allocation of land assignment shall be responsible for providing suitable site in the identified coverage area for setting up of a CBWTF, in consultation with the prescribed authority (i.e., SPCB/PCC), other stakeholders and in accordance with these guidelines issued by CPCB from time to time.

d) Alternately, a CBWTF may also be allowed to be established on a land procured by an entrepreneur in accordance with the location criteria suggested under these guidelines.

e) The SPCB/PCC or concerned department in the business allocation of land assignment in the respective State Government or UT Administration may seek expression of interest from the proponents for development of new CBWTF (s) in the identified coverage area. Upon allocation of site to the proponent, the proponent is

required to take necessary approvals as required under the Environment (Protection) Act, 1986 for development of the new CBWTF in accordance with these guidelines.

f) In the absence of expression of interest by any proponent, then SPCB/PCC shall insist health care facilities to form association and to develope its own CBWTF in line with these guidelines or to have captive treatment facilities for ensuring treatment and disposal of generated bio-medical waste as stipulated under the BMWM Rules, 2016.

g) In case of any regulatory action including closure of any existing CBWTF is inevitable, the respective SPCB/PCC may take action under the BMWM Rules including for making alternate arrangement to ensure safe disposal of the bio-medical waste generated from the member health care facilities of such default CBWTF through CBWTF located nearby.

h) In case of hilly areas considering the geography, only one CBWTF with adequate treatment capacity may be developed covering atleast two districts to cater treatment services to the HCFs located in the respective Districts. The selection and allocation of site etc., should be done as per the criteria suggested under these guidelines. The treatment charges to be prescribed by the respective SPCB/PCC in consultation with the State Advisory Committee.

The criteria for development of CBWTFs in any coverage area is also depicted in **Figure 1**.

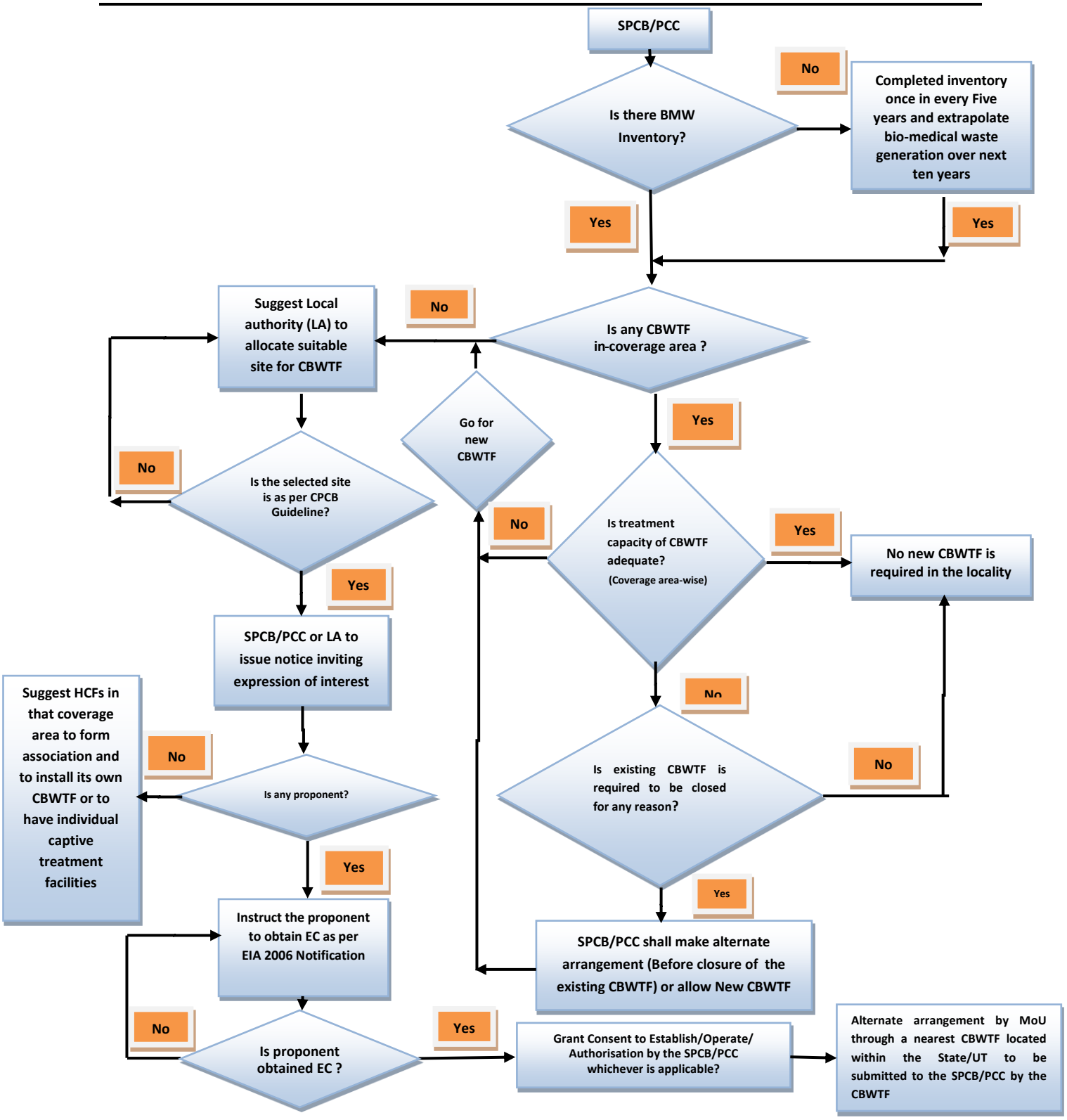

Figure 1. Criteria for Development of a CBWTF in a coverage area

3) Duties of the operator of a common bio-medical waste treatment and disposal facility

The duties of the operator of a common bio-medical waste treatment and disposal facility (CBWTF) as enunciated under Rule 5 of the Bio-medical Waste Management Rules, 2016 shall be ensured and complied with. Also, all the existing CBWTFs shall also complete augmentation of the existing incineration facility so as to comply w.r.to the residence time as well as emission norms including for Dioxins and Furans prescribed under BMWM Rules, 2016 within two years from the date of notification of the BMWM Rules, 2016 (i.e., prior to 27.03.2018). In addition to the above, to ensure proper management of bio-medical waste in the respective coverage area, as a mitigation measure, especially in the event of

(a) a temporary break down (not more than a week) of a CBWTF especially for rectification of the refractory lining of the incineration chambers or change of requisite APCD due to failure; and

(b) Closure of a CBWTF for violation of the provisions of the BMWM Rules or any other reason.

Prior to commencement of a new CBWTF as well as all the existing CBWTF Operators are required to submit action plan, to the respective SPCB/PCC, for imposing suitable condition while granting authorisation under the BMWM Rules, 2016. The action plan should also include:

(a) a MoU made with the nearest CBWTF located within the respective State/UT, as alternate arrangement. In case, if there is no CBWTF located nearby then such CBWTF should have to install stand by treatment equipment (equal to the existing treatment capacity as per consents granted by the SPCB/PCC), and

(b) decontamination plan of the CBWTF for execution of such plan prior to closure of a CBWTF.

4) Applicability of these guidelines

These guidelines are applicable to all the upcoming or new CBWTFs. In case of the existing CBWTFs, these guidelines shall be applicable in case

(a) the existing CBWTFs desires to expand or enhance the existing treatment capacity

(or)

(b) the existing CBWTFs desires to modernize the existing treatment equipment with the new equipment with enhancement in the existing treatment capacity.

5) Environmental laws applicable for commissioning or operation of a CBWTF

Operation of a CBWTF leads to air emissions as well as waste water generation as in case of an industrial operation. Most common sources of waste water generation in CBWTFs are vehicle washing, floor washing, and scrubbed liquid effluent from air pollution control systems attached with the incinerator/plasma pyrolysis. Incineration as well as DG Set is the general source of air emissions.

5.1 Any other approvals (such as Land Use /Change in Land Use as applicable) required from the concerned authorities under various laws have to be complied with by the proponent of the CBWTF prior to development of a CBWTF.

5.2 Consents under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 as well as Authorization under the BMWM Rules, 2016

The project proponent of the CBWTF is required to obtain 'Consent to Establishment' under Rule 25 of the Water (Prevention and Control of Pollution) Act, 1974 and under Rule 21 of the Air (Prevention and Control of Pollution) Act, 1981, from the respective prescribed authority i.e. SPCB/PCC. Upon installation of the requisite equipment, the CBWTF Operator is also required to obtain authorization under BMWM Rules, 2016 co-terminus with consent to operate under Water (Prevention and Control of Pollution) Act, 1976 & Air (Prevention and Control of Pollution) Act, 1981 from the respective SPCB/PCC prior to commencement of the CBWTF.

5.3 Environmental Clearance under EIA Notification 2006

Ministry of Environment, Forest & Climate Change (MoEF & CC), notified amendment to the EIA Notification 2006 and published vide MoEF & CC Notification of S.O. 1142 (E) dated April 17, 2015. According to this notification, the 'bio-medical waste treatment facility' is categorized under the Item 7 (da) in the schedule, requiring 'environmental clearance' from the State Environment Impact Assessment Authority (SEIAA). Therefore, the CBWTF operator is also required to obtain 'Environmental Clearance (EC)' from the respective SEIAA or Ministry of Environment, Forest& Climate Change (MoEF& CC), as the case may be, before any construction work, or preparation of land by the projects management, which include the following:

a) All new projects or activities pertaining to the bio-medical waste treatment facility; and

b) Expansion and modernization with additional treatment capacity of existing bio-medical waste treatment facility (excluding augmentation of incineration facility

for compliance to the residence time as well as Dioxins and Furans without enhancing the existing treatment capacity).

c) Any expansion or modification in the treatment capacity or relocation of the existing CBWTF (requires compliance to the relevant provisions notified under the Environment (Protection) Act, 1986 by the MoEF & CC

6) Location criteria

In the context of these guidelines, buffer zone represents a separation distance between the source of pollution in CBWTF and the receptor - following the principle that the degree of impact reduces with increased distance. The following parameters may be considered for ascertaining buffer distance on case-to-case basis:

(i) potential for spread of infection from wastes stored in the premises.
(ii) applicable standards for pollution control and the relative efficiency of the existing incinerators and emission control systems,
(iii) potential of fugitive dust emission from incinerators,
(iv) potential for discharge of wastewater
(v) the potential for odour production,
(vi) the potential for noise pollution,
(vii) the risk posed to human health and safety due to exposure to emissions from incinerator,
(viii) the risk of fire and
(ix) Significance of the residual impacts such as bottom ash and fly ash.

As far as possible, the CBWTF shall be located near to its area of operation in order to minimize the transportation distance in waste collection, thus enhancing its operational flexibility as well as for ensuring compliance to the time limit for treatment and disposal of bio-medical waste as stipulated under the BMWM Rules (i.e., within 48 hours). Also, the location of the CBWTF should be in conformity to the CRZ Norms and other provisions notified under the Environment (Protection) Act, 1986. The location shall be decided in consultation with the State Pollution Control Board (SPCB)/ Pollution Control Committee (PCC). The location criteria for development of a CBWTF are as follows:

(a) A CBWTF shall preferably be developed in a notified industrial area without any requirement of buffer zone **(or)**

(b) A CBWTF can be located at a place reasonably far away from notified residential and sensitive areas and should have a buffer distance of preferably 500 m so that it shall

have minimal impact on these areas. In case of non-availability of such a land, the buffer zone distance from the notified residential area may be reduced to less than 500 m by SPCB/PCC without referring the matter to CPCB by prescribing additional control measures such as (i) adoption of best available technologies (BAT) by the proponent of CBWTF; (ii) prescribing stringent standards for operation of the CBWTF by the SPCB/PCC; (iii) adoption of zero liquid discharge by the CBWTF and (iv) in case of any complaints from the public, then CBWTF should prove that the facility is not causing any adverse impact on environment and habitation in the vicinity. If SPCB/PCC is not in a position to resolve the issue relating to buffer zone while selecting the site for CBWTFs, in such a case, SPCBs/PCCs may refer the matter to CPCB.

(c) The CBWTF can also be developed as an integral part of the Hazardous Waste Treatment Storage and Disposal Facility (TSDF) subject to obtaining of necessary approvals from the authorities concerned including 'environmental clearance' as per Environmental Impact Assessment 2006 and further amendments notified under the Environment (Protection) Act, 1986, provided there is no CBWTF exist within 150 KM distance from the existing TSDF.

7) Land requirement

Sufficient land shall be allocated to the CBWTF to provide all requisite systems which include dedicated space for storage of waste (both treated and untreated), waste treatment equipment, vehicle washing bay, vehicle parking space, ETP, incineration ash storage provision, administrative room, space for DG Set etc.,.

(a) Preferably, a CBWTF shall be set up on a plot size of not less than one acre in all the areas. However, a CBWTF can be developed in adjacent plots but cannot be set up in two or more different plots located in different areas. Separate plots can be permitted only for vehicle parking if located in the close vicinity of the proposed CBWTFs or the existing CBWTFs.

(b) In case of upcoming or new CBWTFs (both in municipal limits with population more than 25 lakhs or in rural areas), the land area requirement may be relaxed (but in any case not less than 0.5 acre) by the SPCB/PCC, with additional control measures such as zero liquid discharge, increase in stack height, stringent emission norms, odour control measures or any other measures felt necessary by the prescribed authority on case-to-case basis, only in consultation with CPCB.

8) Coverage area of CBWTF

Suggested coverage area for development of a CBWTF is as follows:

a) A CBWTF located within the respective State/UT shall be allowed to cater healthcare units situated at a radial distance of 75 KM. However, in a coverage area where 10,000 beds are not available within a radial distance of 75 KM, existing CBWTF in the locality (located within the respective State/UT) may be allowed to cater the healthcare units situated upto 150 KM radius w.r.to its location provided the bio-medical waste generated is collected, treated and disposed of within 48 hours as stipulated under the BMWM Rules.

b) In case, number of beds is exceeding >10,000 beds in a locality (i.e. coverage area of the CBWTF under reference) and the existing treatment capacity is not adequate, in such a case, a new CBWTF may be allowed in such a locality in compliance to various provisions notified under the Environment (Protection) Act, 1986, to cater services only to such additional bed strength of the HCFs located.

c) In case of hilly areas, considering the geography, only one CBWTF with adequate treatment capacity may be developed covering atleast two districts to cater treatment services to the HCFs located in the respective Districts. The selection and allocation of site etc. should be done as per the criteria suggested under these guidelines. The treatment charges to be prescribed by the respective SPCB/PCC in consultation with the State Advisory Committee to be constituted under the BMWM Rules by the respective State Government or UT Administration.

9) Treatment equipment

The Common Bio-medical Waste Treatment Facility should treat the bio-medical waste as per BMWM Rules and as per the authorisation granted by the prescribed authority. The CBWTF should have the following treatment facilities:

a) Incineration/Plasma Pyrolysis

Incineration is a controlled combustion process where waste is completely oxidized and harmful microorganisms present in it are destroyed/ denatured under high temperature. The guidelines for "Design & Construction Requirements of Bio-medical Waste Incinerators" by CPCB from time to time shall be followed for selecting/or augmenting the incinerator.

Plasma Pyrolysis *is an alternate* to incinerator, Plasma Pyrolysis treatment technology can be installed for disposal of bio-medical waste categories as per BMWM Rules wherein destruction of bio-medical waste is similar to incineration can be achieved. In case of plasma pyrolysis, waste is treated at high temperature under controlled condition to form gases like methane, hydrogen and carbon monoxide which are subjected to combustion (oxidation) in secondary chamber. In the plasma pyrolysis process waste is converted into small clinker which can be disposed in secured landfills.

b) Autoclaving/Hydroclaving

(i) Autoclaving is a low-heat thermal process where steam is brought into direct contact with waste in a controlled manner and for sufficient duration to disinfect the wastes as stipulated under the Bio-medical Waste Management Rules. For ease and safety in operation, the system should be horizontal type and exclusively designed for treatment of bio-medical waste. For optimum results, pre-vacuum based system be preferred against the gravity type system. It shall have tamper-proof control panel with efficient display and recording devices for recording critical parameters such as time, temperature, pressure, date and batch number etc. as required under the BMWM Rules.

(ii) Hydroclaving is similar to that of autoclaving except that the waste is subjected to indirect heating by applying steam in the outer jacket. The waste is continuously tumbled in the chamber during the process.

c) Microwaving: *In microwaving*, microbial inactivation occurs as a result of the thermal effect of electromagnetic radiation spectrum lying between the frequencies 300 and 300,000MHz. Microwave heating is an inter-molecular heating process. The heating occurs inside the waste material in the presence of steam.

d) Chemical disinfection: Though chemical disinfection or alternates as stipulated under the BMWM Rules is also an option for treatment of certain categories of bio-medical waste such as glass waste but looking at the volume of waste to be disinfected at the CBWTF and the pollution load associated with the use of chemical disinfectants, the chemical disinfection for treatment of bio-medical waste as part of a CBWTF may be used sparingly or avoided as far as possible.

e) Dry heat sterilization: This is the additional option for treatment of waste sharps as stipulated under the BMWM Rules. In this method, waste sharps are treated using

dry heat (hot air) at a temperature not less than 185^0C, at least for a residence period of 150 minutes in each cycle (with sterilization period of 90 minutes).

f) ***Shredder:*** Shredding is a process by which waste are de-shaped or cut into smaller pieces so as to make the wastes unrecognizable. It helps in prevention of reuse of bio-medical waste and also acts as identifier that the wastes have been disinfected and are safe to dispose off. A shredder to be used for shredding bio-medical waste shall confirm to the following minimum requirements:

(i) The shredder for bio-medical waste shall be of robust design with minimum maintenance requirement;

(ii) The shredder should be properly designed and covered to avoid spillage and dust generation. It should be designed such that it has minimum manual handling;

(iii) The hopper and cutting chamber of the shredder should be so designed to accommodate the waste bag full of bio-medical waste;

(iv) The shredder blade should be highly resistant and should be able to shred waste sharps, syringes, scalpels, blades, plastics, catheters, intravenous sets/ bottles, blood bags, gloves, bandages etc. It should be able to handle/ shred wet waste, especially after microwave/ autoclave/hydroclave;

(v) The shredder blade shall be of non-corrosive and hardened steel;

(vi) The shredder should be so designed and mounted so as not to generate dust, high noise & vibration;

(vii) If hopper lid or door of collection box is opened, the shredder should stop automatically for safety of operator;

(viii)]In case of shock-loading (non-shreddable material in the hopper), there should be a mechanism to automatically stop the shredder to avoid any emergency/accident;

(ix) In case of overload or jamming, the shredder should have mechanism of reverse motion of shaft to avoid any emergency/accident;

(x) The motor shall be connected to the shredder shaft through a gear mechanism, to ensure low rpm and safety;

(xi) The unit shall be suitably designed for operator safety, mechanical as well as electrical;

(xii) The shredder should have low rotational speed (maximum 50 rpm). This will ensure better gripping and cutting of the bio-medical waste;

(xiii) The discharge height (from discharge point to ground level) shall be sufficient (minimum 3 feet) to accommodate the containers for collection of shredded material. This would avoid spillage of shredded material;

(xiv) The minimum capacity of the motor attached with the shredder shall be 3 KW for 50 Kg/hr, 5 KW for 100 kg/hr & 7.5 KW for 200 Kg/hr and shall be three phase induction motor. This will ensure efficient cutting of the bio-medical wastes as prescribed in the Bio-medical Waste Management Rules; and

(xv) The shredder also should be fitted with separate 'energy meter' for recording total energy consumed for operation of this equipment.

g) ***Sharp pit/ Encapsulation:*** A sharp pit or a facility for sharp encapsulation in a metal container or cement concrete shall be provided for treated sharps *(i.e., treatment by autoclaving or dry heat sterilization followed by shredding or mutilation).* An option may also be worked out for recovery of metal from treated and shredded waste sharps within the CBWTF or iron foundries having consent to operate from the SPCBs/PCCs and located nearby, as per the conditions imposed in authorization granted under BMWM Rules by the SPCB/PCC.

A sharp pit may be of circular or rectangular shape and shall be dug and lined with cement plastered brick masonry or concrete rings. The pit should be covered with a heavy concrete slab with a provision of galvanized steel pipe projecting about 1.5 meters above the slab, with an internal diameter of up to 50 mm or 1.5 times the length of vials, whichever is more. The top opening of the steel pipe shall have a provision of locking after the treated waste sharps are disposed into the sharp pit. When the pit is full, it can be sealed completely, after another pit is prepared. In case of high water table regions (i.e., where water table is less than 6 metres beneath the bottom of the sharp pit), a tank with above mentioned arrangements shall be made above the ground.

h) ***Deep burial:*** Any SPCB/PCC should not allow the 'deep burial' of bio-medical waste as a part of CBWTF. Any existing CBWTF having disposal of bio-medical waste by deep burial should have the requisite treatment equipment as stipulated under the BMWM Rules, *within six months* from the date of finalization of these guidelines.

i) ***Non-burn technology:*** Non-incineration technologies for disposal of bio-medical waste are adopted in some of the developed countries. Non-incineration technology comprises of shredding and disinfection by autoclaving/microwaving or chemical treatment. The treated waste can be disposed along with municipal solid waste in sanitary landfills or through waste to energy plants. Such option can also be adopted in places where the sanitary landfill or waste to energy plant for disposal of municipal

solid waste is available. Such technology is permitted only after prior approval of MoEF & CC and only after obtaining authorization under the BMWM Rules from the respective SPCB/PCC for the purpose of carrying out trial runs for assessment of efficacy of the treatment equipment.

j) ***Vehicle/Containers washing facility:*** Every time a vehicle is unloaded, the vehicle and empty waste containers shall be washed properly and disinfected. Washing can be carried out in an open area but on an impermeable surface and liquid effluent so generated shall be conveyed and treated in an effluent treatment plant. The impermeable area shall be of appropriate size so as to avoid spillage of liquid during washing.

k) ***Effluent Treatment Plant:*** A suitable Effluent Treatment Plant (ETP) shall be installed to ensure that liquid effluent generated during the process of washing containers, vehicles, floors etc. is treated and reused after treatment. Proper treatment of waste water shall be ensured in case of zero discharge by recirculation of treated waste water for scrubbing*. ETP may have treatment unit operations* comprising collection tank, O & G trap, chemical dosing cum mixing (Flash and slow), coagulation chamber, primary settling tank (s), biological treatment process, secondary settling tank, pressure filter and activated carbon filter, pH Correction tank (wherever recirculation of treated water is practiced) *so as to co*mply with the liquid discharge standards stipulated under the Bio-medical Waste Management Rules, 2016. ETP may also have the following provisions:

(i) separate 'energy meter' so as to know total consumption of electricity for operation of the machinery attached with the ETP.

(ii) pH meter so as to know pH level of treated water as well as pH level of treated water used for recirculated or recycling in APCD attached with the incinerator or any utility within the CBWTF.

(iii) A 'magnetic flow meter' should also be fitted at all the water supply extraction points of the CBWTF as well as the outlet to know the total wastewater treated for further end use or discharge in compliance to the BMWM Rules.

(iv) Provision of 'press filter' to reduce the moisture content of the ETP Sludge or it may be dried in 'sludge drying bed'. After removal of moisture content or drying, same need to be disposed off in an environmentally sound manner depending upon the hazardous constituents present in it as per Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016.

In case, ETP sludge contains metal contents within the prescribed limits as per Hazardous & Other Waste (Management & Transboundary Movement) Rules, 2016, such ETP sludge shall be given to CBWTF for incineration or to hazardous waste treatment, storage and disposal facility (TSDF) for disposal in secured landfill.

Note:

a) If any CBWTF desires to adopt any other technology other than referred under Schedule –I of the BMWM Rules, may adopt new technology only with the prior approval from MoEF & CC and is also required to obtain authorization under the BMWM Rules from the respective SPCB/PCC for carrying out trial run for assessment of efficacy of the new technology.

b) All the treatment equipment should be operated and complied with the norms as stipulated under Schedule II of the Bio-medical Waste Management Rules, 2016 published by MoEF & CC vide GSR 343 (E) dated 28th March, 2016.

c) Incinerator / Plasma Pyrolyisis/ Autoclaving/Microwaving/ Hydroclaving/ Shredder/ Dry Heat Sterilization/ ETP should be fitted with separate 'energy meter' for recording total energy consumed for operation of these equipment.

d) In the event of temporary shutdown (not more than a week) due to any operational problems in the treatment equipment (such as restoration of refractory lining or maintenance or repairs in APCD), to ensure bio-medical waste collected from the member health care facilities is treated within the time limit as stipulated under the BMWM Rules, ~~each~~ all the CBWTF operators should also be provided with stand by treatment equipment especially incinerator/plasma pyrolysis/autoclave (or) alternately MoU made with the nearby CBWTF (located within the State/UT) shall be submitted to the respective SPCB/PCC, by all the existing CBWTF operators (whereas the upcoming facilities have to make such arrangement prior to commencement of the facility) so as to include such condition while granting authorisation under the BMWM Rules, 2016 to the concerned CBWTF operators (vice-versa).

(10) Infrastructure set up

The CBWTF shall have enough space within it to install required treatment equipment, untreated and treated waste storage area, vehicle-parking, vehicle and containers washing area, Effluent Treatment Plant (ETP), administration room or staff room etc. The required area for CBWTF would depend upon the projected amount of bio-medical waste to be handled by it. A CBWTF shall have the following infrastructure:

a) Treatment Equipment Room

A separate housing may be provided for each treatment equipment at the CBWTF such as incinerator room, autoclave room, microwave room etc., as applicable. Each room shall have well-designed roof and walls. Such room shall be well ventilated and easy to wash. The floor and interior finishing of the room shall be such that chances of sticking/harbouring of microorganisms are minimized. This can be attained by

providing smooth & fine floor and wall surfaces (to a height of 2 meter from floor) preferably of tiles. The number of joints in such surfaces shall be minimal. The equipment room shall also have a separate cabin, to supervise the operation of the equipment and to record the waste handling and equipment operational data attached to each equipment room. There shall be two waste storage rooms, one for storage of untreated waste and another for treated waste and may be located at a distance from each other. The storage room shall have provisions similar to that of equipment room being well-ventilated with easy to wash floors & walls, smooth and fine surfaces etc. All the treatment equipment rooms and waste storage rooms should be provided with 'fly catcher/killing device'. The room shall be washed and cleaned with a suitable disinfectant every day.

b) Main waste storage space

Separate space shall be provided near the entry point of the CBWTF to unload and store all biomedical wastes that have been transported to the CBWTF by its own transportation vehicle. The size of the room shall be adequate to store all wastes transported to the CBWTF. The front portion of the room shall be utilized for unloading the wastes from the vehicle and back or side portion shall be utilized for shifting the wastes to the respective treatment equipment. In the front portion of the room where transportation vehicle is parked for unloading, the floor shall be made impermeable so that any liquid spillage during unloading does not percolates into the ground. The liquid generated during handling of wastes and washing, shall be diverted to the inlet of effluent treatment plant (ETP). In the main storage room, wastes shall be stacked with clear distinction as per the color coding of the containers by providing partitions. From here, the colored containers may be sent to the respective treatment equipment by using suitable closed type of conveyance (trolley etc.,). The main storage room too shall have provisions similar to that of equipment room such as roofing, well ventilated, easy to wash floors & walls, smooth and fine surfaces etc.

Apart from the above, a CBWTF should have separate storage provision for storage of mercury bearing waste collected from the member health care facilities as per the procedure given in CPCB guidelines. Mercury storage provision should be provided as per the guidelines issued by CPCB (refer www.cpcb.nic.in). The capacity of the mercury storage provision should be maximum of 90 days and by which the collected mercury bearing waste shall have to be disposed of through a TSDF located nearby following the manifest as per Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016. The charges for collection and disposal of

mercury bearing waste shall be collected by the CBWTF from the respective member HCF.

c) Treated waste storage room

Separate space should be provided to store the wastes treated in different treatment units. The wastes shall be stored in separate group as per the disposal options. Other provisions in the room shall be similar to the main storage room. Waste such as incineration ash/vitrified ash generated in the process of incineration/plasma pyrolysis respectively shall be stored safely in a separate area under the shed so as to avoid entry of rain water during the monsoon and for easy collection. In case, incineration ash/ vitrified ash is found to be hazardous waste in nature same should be disposed of through any authorized TSDF operator located nearby following the manifest as per Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016. In case of a State/UT where TSDF is not available, all the CBWTF operators have to store incineration ash safely as per these guidelines.

d) Administrative Room

This room shall be utilized for general administration, record keeping, billing etc.

e) Generator set

CBWTF shall have a generator set of adequate capacity as standby arrangement for power, with sufficient capacity to run the treatment equipment during the failure of power supply. The generator set shall comply with the necessary requirement as per DG Set norms notified under the Environment (Protection) Act, 1986.

f) Continuous emission monitoring system (CEMS)

Monitoring provision for continuous monitoring of the incinerator/plasma pyrolysis stack emission shall be installed by the CBWTF operators for the parameters as stipulated by the respective SPCB/PCC as per the authorisation granted under the BMWM Rules, 2016. Other-wise, at present, all the existing CBWTF operators are required to carry out stack emission monitored using continuous emission monitoring system for the flue gas parameters such as CO_2, O_2, CO as well as primary & secondary chamber temperatures, and records maintained. The continuous emission monitoring system for stack emission should be installed as per the guidelines issued by SPCB/PCC/CPCB. Also, the real time continuous stack emission

monitoring data is also required to be transmitted to the servers of the respective SPCB/PCC as well as CPCB, by all the existing CBWTF operators

g) Vehicle Parking

Provision for parking shall be made within the confines of the site for parking of required number of vehicles, loading and unloading of the vehicles meant for transporting waste to and from the facility, etc.. In case of a CBWTF with space constraints, multy-storey parking or a separate provision may be allowed only for parking of vehicles.

h) Display and sign board

An identification board (Display) of durable material and finish shall be displayed at the entrance to the facility. This shall clearly display the name of the facility, owner name, address and telephone number of the operator and the prescribed authority, no. of hours of operation & operational hours, telephone numbers of the personnel to be contacted in the event of an emergency, validity period of authorization as well as total daily waste treated and disposed. Also, sign boards should be provided at all the salient points (untreated waste storage area, treatment equipment, treated waste storage area, ETP, firefighting equipment) within the facility.

i) Washing Room

A washing room shall be provided for eye washing/hand washing/ bathing etc. for the workers.

j) Site Security

High walls, fencing and guarded gates shall be provided at the facility to prevent unauthorized access to the site by humans and livestock.

k) Fire safety

Fire safety equipment such as sand buckets and fire extinguishers should be provided at all the salient points of the CBWTF including at the diesel storage areas, diesel tanks connected with the incinerator etc. Fire alarm also should be provided within the CBWTF to prompt the workers in the event of any fire hazard. Workers should also be trained in First Aid administration.

l) First Aid Box

First Aid Box with necessary provisions need to be provided at all the salient points within the facility.

m) Green Belt

The open area available within the CBWTF shall be developed into green belt.

n) Website: (newly added as per BMWM Rules, 2016)

All the existing CBWTFs shall develope own website by 27.03.2017 whereas the upcoming CBWTF shall develope the website prior to the commencement of the facility. The website should be uploaded with relevant information periodically (on monthly basis) especially as detailed below:

(i) A copy of the Environmental Clearance obtained;
(ii) Copies of the Consents under the Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 as well as the Authorisation under the BMWM Rules obtained from the SPCB/PCC;
(iii) List of all the member Health Care Facilities with complete address, bedded or non-bedded HCFs, no. of beds, bar code, category-wise average bio-medical waste generation in kg/annum;
(iv) Charges levied on the member Health Care Facilities (HCFs) for treatment and disposal of bio-medical waste;
(v) Vehicles connected with a provision of GPS as per BMWM Rules and Vehicle-wise route chart for collection, transportation of bio-medical waste from the member HCFs;
(vi) Real time continuous online stack emission monitoring data;
(vii) Daily bio-medical waste collected, received and treated (Member HCF-wise);
(viii) Monthly details of total waste collected from the member HCFs, total waste treated, and treated recyclable plastic waste or glass waste sold to the parties and final mode of disposal of incineration ash;
(ix) A copy of the annual report submitted to the respective SPCB/PCC;
(x) Monitoring results of the stack emissions, treated wastewater and incineration ash, as per the frequency stipulated under the BMWM Rules;
(xi) List of HCFs (located within the coverage area) with complete address which have not taken membership of the CBWTF for disposal of Bio-medical waste;
(xii) Contact person, contact telephone number and e-mail addresses of the facility; and.

(xiii) Provision to have access to the SPCB/PCC/CPCB/MoEF & CC/MoH & FW especially on GPS, online monitoring system and the data.

Besides the provisions suggested in the earlier paras, following important provisions should also be made in a CBWTF:

(i) A telephone shall be provided and maintained at the facility.
(ii) A First Aid Box shall be provided and maintained at the CBWTDF.
(iii) Proper lighting shall be provided at the facility.
(iv) Proper care shall be taken to keep the facility and surroundings free from odors.
(v) Measures shall be implemented to control pests and insects at the site.
(vi) Measures shall be implemented to control the escape of litter from the site.
(vii) Necessary provision shall be made to prevent and control noise generated, if any, due to the activities at the site.
(viii) Necessary protective gear for the waste handlers shall be provided.
(ix) Immunization to all the workers of CBWTF against all the diseases including especially Tetanus and Hepatitis -B as stipulated under the BMWM Rules.
(x) Workers should have provisions such as washing, toilet, and suitable place for eating.
(xi) Workers should also be provided with N-95 mask besides other PPEs such as hand gloves, gumboots, goggles etc.

Every CBWTF operator shall submit a work-plan to the Prescribed Authority. The work-plan should include the details of facilities at the CBWTF, collection, transportation & storage of the bio-medical wastes, operational details etc.

11) Record keeping

Maintenance of records for all operations carried out at the CBWTF is very important to monitor overall operation of the CBWTF. It also helps in submission of the required information to be submitted to the 'Prescribed Authority' by 30 th June of every year as per the format prescribed under the BMWM Rules or provided by the SPCB/PCC. A well-maintained record of all the activities at the CBWTF also enables the facility operator to produce all information of the activities on demand of the concerned prescribed authority. The record should include all information relating to each activity at the CBWTF site as per BMWM Rules which include accidents occurred (spills, injury, fire accident) and the measures taken and also, however, minimum requirement is outlined below:

a) Records of waste movements

Daily records shall be maintained for the waste accepted and treated waste removed from the site. This record shall include the following minimum details:

(i) **Waste accepted: -**Records on day-to-day basis (as per the format given at **Annexure-II**) shall be maintained with respect to the waste collection date, name of the healthcare unit with bar cade, waste category as per BMWM Rules, category-wise quantity of waste accepted, vehicle registration number used for collection of bio-medical waste from member health care facilities, time at which waste collected from member HCFs, name of the vehicle driver and his signature and waste receiving date & time (at CBWTF site). Similar information to be acknowledged to the member health care facility by the CBWTF operator on daily basis.

(ii) **Treated waste to be disposed:-** Date, treated waste type, Quantity, vehicle number, disposal as stipulated under BMWM Rules.

b) Logbook for the treatment equipment

A logbook shall be maintained for each treatment equipment installed at the site and shall include the following:

(i) The weight of each batch.
(ii) The categories of waste as per the Rules.
(iii) The time, date and duration of each treatment cycle and total hours of operations.
(iv) The complete details of all operational parameters during each cycle.

Log book to be maintained for operating the incinerator/plasma pyrolysis as well as the autoclave as per the formats given at **Annexure –III.**

c) Monitoring and reporting of operations in the CBWTF:

The monitoring of the key operating parameters of treatment equipment provides several benefits. First, monitoring provides the operator with information needed to make decisions on necessary combustion control adjustments. Second, properly maintained monitoring records can provide useful information for identifying operating trends and potential maintenance problems. Following are the suggested parameters for monitoring of the treatment equipment

(i) Monitoring of operating parameters of the incinerator/plasma pyrolysis: Following operating parameters can be monitored in case of incinerator/plasma pyrolysis:

- Waste charge rate.
- Combustion gas temperature in primary and secondary chamber as well as the temperature of the stack exit gas (flue gas).
- Condition of the draft (negative draft in primary chamber).
- Combustion gas oxygen level in primary and secondary chamber as well as stack exit gas.
- Air flow rate through the incinerator/plasma pyrolysis.
- Carbon-Di-Oxide (CO_2), Oxygen (O_2) and Carbon Monoxide (CO) level in the flue gas.
- Quantity of auxiliary fuel usage as well as the power consumption (in every batch).
- Pressure drop in the primary chamber and APCD attached with the incinerator/plasma pyrolysis and
- Bottom ash or slag quality (for Total Organic Carbon (TOC) as well as loss on ignition and the hazardous constituents (at least once in a quarter).

(ii) Monitoring of operating parameters of the Autoclave: Following operating parameters can be monitored during the sterilization using autoclave:

- Time at which sterilization started and time at which sterilization completed.
- Temperature conditions maintained throughout the sterilization
- Conditions of pressure maintained throughout the sterilization
- Duration of sterilization
- Validation test results

Records concerning the above parameters need to be maintained and checked periodically for taking remedial measures during the operation of the incinerator or plasma pyrolysis or autoclave. In case of other treatment processes, the operational conditions as well as the efficacy tests to be complied with as per the standards prescrined under the BMWM Rules.

(iii) Frequency of monitoring:

The CBWTF operator shall carry out following tests through a NABL approved laboratory or a laboratory approved under the Environment (Protection) Act, 1986, as

per the frequency stipulated under the BMWM Rules or as prescribed by the SPCB/PCC and record of such analysis results shall be maintained and submitted to the prescribed authority (SPCB/PCC), as suggested below:

- **Liquid effluent**: Parameters such as pH, Suspended Solids, Oil & Grease, BOD, COD, Bio-assay for liquid effluent being discharged from the CBWTF be monitored as per the Consent conditions or once in a quarter and such records maintained and submitted to SPCB/PCC.

- **Stack emission monitoring:**

  In case of the BMW incinerators which came after 28.03.2016, the Stack Emission shall be monitored (under optimum capacity) for parameters such as Particulate Matter, HCl, NO_x, Hg & compounds and combustion efficiency *once in three months* as required under schedule II of the Bio-medical Waste Management Rules 2016 (All monitored values shall be corrected to 11% Oxygen on dry basis). In case of dioxins and furans, monitoring should be done *once in a year* (monitored values shall be corrected to 11% Oxygen on dry basis). In case of the incinerators (existing prior to the notification of BMWM Rules, 2016), new incinerators standards are required to be complied within two years i.e., by 27.03.2018.

- **Validation test of autoclave/microwave/chemical treatment/dry heat sterilization:**

  Suggested validation test for treatment of bio-medical waste by autoclave/microwave/chemical treatment/Dry heat sterilization is given in **Table 1.**

Table 1: Suggested validation test for treatment of bio-medical waste by autoclave/microwave/chemical treatment/Dry heat sterilization

S. No	Type of equipment used for treatment of bio-medical waste	Type of Validation Test	Frequency
(i)	Autoclave	(i) biological indicator strips or vials Geobacillus stearothermophilus spores with at least $1X10^6$ spores),	once in three months
		(ii) chemical indicator strip or tape	each batch of waste treated
(ii)	Microwave	Bacillus atrophaeus spores using vials or spore strips with at least 1 x 10^4spores per detachable strip	Recommended: once in three months
(iii)	Chemical treatment followed by shredding	Bacillus Subtilis (ATCC 19659)-4 Log10 reduction or greater	Once in a week
(iv)	Dry heat sterilisation	consistently kill the biological indicator Geobacillus Stearothermophillus or Bacillus Atropheaus spores using vials with at least 6 log10 spores per ml.	Once in three months
		A chemical indicator strip or tape	Once in a week

d) Site Records:

Site records shall include the following:

(i) All the approvals obtained from other concerned departments other than the prescrined authority;
(ii) Details of construction or engineering works;
(iii) Maintenance schedule, breakdowns/trouble shootings and remedial actions;
(iv) Emergencies;
(v) Incidents of unacceptable waste received and the action taken; and
(vi) Details of site inspections by the officials of the regulatory authorities, purpose of visits with date and necessary actions initiated on the observations.

Daily, monthly and annual summary records of all the above shall be maintained and made available at the site for inspection and same submitted whenever required by an authorized official of the concerned regulatory authorities.

12) Collection and transportation of bio-medical waste

The collection and transportation of bio-medical waste shall be carried out in a manner so as to prevent any possible hazard to human health and environment. Collection and transportation are the two operations where the chances of segregated bio-medical waste coming in contact with the public, rag pickers, animals/birds, etc. are high. Therefore, all care shall be taken to ensure that the segregated bio-medical waste handed over by the healthcare units reach CBWTF without any damage, spillage or unauthorized access by public, animals etc. A responsible person from the CBWTF operator shall always accompany the vehicle to supervise the collection and transportation of bio-medical waste. Also, the private transport vehicles should not be authorised by the SPCBs/PCCs only for transportation of the Bio-medical Waste. The CBWTF operator should be made responsible for collection and transportation of bio-medical waste.

a) Collection of bio-medical waste:

Generator of the bio-medical waste is responsible for providing segregated waste in accordance with the provisions of the Bio-medical Waste Management Rules, 2016, to the CBWTF operator. Dedicated temporary storage at healthcare unit shall be designated. The coloured bags handed over by the healthcare units shall be collected in similar coloured containers with proper cover. Each bag shall be labeled as per Schedule IV of the Bio-medical Waste Management Rules as well as with bar coding system (to be complied by the occupier or operator of a CBWTF as per BMWM Rules) so that at any time, the healthcare units can be traced back that are not segregating the bio-medical wastes as per BMWM Rules. The coloured containers should be strong enough to withstand any possible damage that may occur during loading, transportation or unloading of such containers. These containers shall also be labeled as per Schedule IV of the Rules. Sharps shall be collected in puncture resistant container. The person responsible for collection of bio-medical wastes shall also carry a register with him to maintain the records such as name of the healthcare unit, the type and quantity of waste received, time at which waste collected from the member HCF, signature of the authorised person from the healthcare unit etc**.** During transportation, the containers should be covered in order to prevent exposure of public to odours and contamination.

(b) Transportation of the collected bio-medical waste to the CBWTF:

All the vehicles used by the CBWTF operator shall not be sub-letted or contract vehicles should not be used by the CBWTF operator. All the vehicles owned by the CBWTF operator and intended only for collection of bio-medical waste from the member health care facilities should be registered under the Motor Vehicle Act with the respective RTO/Transport Department and such vehicle numbers should also be registered with the respective SPCB/PCC for the purpose of collection of bio-medical waste from the member health care facilities. The bio-medical waste collected in designated coloured containers shall be transported to the CBWTF in a fully covered vehicle. Such vehicle shall be dedicated for transportation of bio-medical waste only. Depending upon the volume of the wastes to be transported, the vehicle may be a two or three-wheeler, light motor vehicle or heavy duty vehicle. In either case, the vehicle must possess the following:

(i) Transportation vehicle shall be fitted with GPS to track the movement of the vehicle.

(ii) Separate cabins shall be provided for driver/staff as well as for placing the designated colour coded bio-medical waste containers.

(iii) Two wheeler registered under the Motor Vehicle Act shall be permitted for collection of bio-medical waste only from the clinics or dispensaries located in places where the lanes are narrow and not easily accessible to four wheeler vehicles. Such two wheeler vehicle (s) should have a provision of a suitable fixed waste collection box marked with bio-hazard symbol, contact details, proper lid, emergency spill collection procedure, first aid box and manifest record in accordance with the BMWM Rules

(iv) The base of the waste cabin shall be leak proof to avoid pilferage of liquid during transportation.

(v) The waste cabin may be designed for storing waste containers in tiers and also should be provided with a lighting provision.

(vi) The waste cabin shall be so designed that it is easy to wash and disinfect.

(vii) The inner surface of the waste cabin shall be made of smooth surface to minimize water retention.

(viii) The waste cabin shall have provisions for sufficient openings in the rear and/or sides so that waste containers can be easily loaded and unloaded.

(ix) The vehicle shall be labeled with the bio-hazard symbol (as per Schedule IV of the BMWM Rules) and should display the name, address and contact telephone and mobile number of the CBWTF.

(x) The vehicle driver should carry always valid registration of the vehicle obtained from the concerned transport authority and also carry valid 'pollution under control certificate' issued by the authorized certificate issuing agency.

Depending upon the area to be covered under the CBWTF, the route of transportation shall be worked out. The transportation routes of the vehicle shall be designed for optimum travel distance and to cover all member healthcare units of the CBWTF. The CBWTF operator should ensure online and real time tracking & monitoring provisions (GPS provision) should be given access with passwords to the SPCB/PCC and CPCB to cross check the movement of the transportation vehicles on any time by the SPCB/PCC/CPCB. As far as possible, the transportation shall be carried out during non-peak traffic hours. If the area to be covered is very large, a satellite station may be established to store the bio-medical waste collected from the adjoining areas. The wastes so stored at satellite station may then be transported to the CBWTF in a big vehicle. It shall be ensured that the total time taken from generation of bio-medical waste to its treatment, which also includes collection and transportation time, shall not exceed 48 hours.

13) Disposal option of solid waste generated from the CBWTF

Treated plastic waste, incineration ash, treated waste sharps and glass waste, Oil & Grease waste and ETP sludge are generally generated from the CBWTF from the treatment systems such as autoclaving/microwaving, incineration, chemical disinfection and effluent treatment plant respectively. The treated bio-medical waste shall be disposed as per the options suggested in the **Table 2** given below:

Table 2: Suggested Disposal option of solid waste generated from the CBWTF

Sl. No.	Treated Waste Category	Suggested Treatment and Disposal Options
1.	Plastic wastes after disinfection and shredding	Plastic waste should not be sent to landfill sites. Treated plastic waste to be (i) sent to registered or authorized recyclers **(or)** (ii) for energy recovery **(or)** (iii) for diesel or fuel oil recovery **(or)** (iv) for road making, whichever is possible.
2.	Disinfected Sharps (including needles and syringes) (i.e., Treatment by Autoclaving or Dry Heat Sterilization followed by shredding or mutilation combination of shredding cum autoclaving)	Encapsulation in metal container or cements concrete; (or) sent for final disposal to iron foundries (having consent to operate from the SPCBs/PCCs (or) sanitary landfill or designated concrete waste sharp pit.
3.	Incineration ash	Incineration ash (ash from incineration of any bio-medical waste) shall be disposed through hazardous waste treatment, storage and disposal facility (TSDF), if toxic or hazardous constituents are present beyond the prescribed limits as given in Schedule –II of the Hazardous and Other Waste Management & Transboundary Movement Rules or as revised from time to time.
4.	Other treated solid wastes like Glass waste	Disinfection (by soaking the washed glass waste after cleaning with detergent and Sodium Hypochlorite treatment) or through autoclaving or microwaving or hydroplaning and then sent for recycling.
5.	Oil & Grease	By Incineration
6.	ETP Sludge	After drying in sludge drying beds or removal of moisture content using 'Filter Press' and such ETP sludge shall be given to CBWTF for incineration or to the hazardous waste treatment, storage and disposal facility (HWTSDF) for disposal in Secured Landfill
7.	Hazardous Waste	Disposal through a TSDF located nearby following the manifest as per the Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016

14) Cost to be charged by the CBWTF Operator for the Health Care Facilities

Cost to be charged from the healthcare facilities plays an important role in financial viability and sustainable operation of a CBWTF project, for providing the best treatment services to the Health Care Units and for ensuring compliance to the BMWM Rules. The cost shall be so worked out that neither it becomes a monopoly of the CBWTF operator nor the interest of the CBWTF operator is overlooked. It is recommended that cost to be charged from the healthcare units, depending on the size, no, of beds and the distance from the location of the CBWTF and same shall be worked out in consultation with the concerned SPCB/PCC and the local Medical Association, keeping in view the following options:

(a) In case of non-bedded health care units, fixed charges depending on the average quantity of waste generation per day, in case of the nursing homes/clinics/sample collection Centres /Dental Centres, dispensary, pathological laboratory, blood banks, and other non-bedded hospitals irrespective of their system of medicine including ayush hospitals.

(b) In case of bedded hospitals, fixed charges per bed per day basis and based on the no. of beds for which consents under the Water Act, 1974/Air Act, 1981 and authorization granted under the BMWM Rules, by the prescribed authority

Note:

(i) Rates are required to be revised once in a year based on the Wholesale Price Index (WPI Index) or Consumer Price Index (CPI Index) (considering the prevailing market price especially in respect of the labour expenses, diesel prices, electricity, operating cost etc.,.), by the State Advisory Committee in consultation with the concerned SPCB/PCC, local Medical Association and the representatives of the CBWTF Association

(ii) The Health Care Facilities are required to ensure timely payments to the CBWTFs for ensuring timely treatment services in compliance to the BMWM Rules as well as agreement made with the concerned CBWTF Operator.

15) Check list for development of CBWTF

The criteria for development of CBWTDF have been discussed in detail in the

Previous sections. However, to have at a glance check in developing CBWTF, checklist is reproduced for convenience and is annexed **(Annexure-IV).**

16) Periodic inspection/monitoring or performance evaluation of the CBWTF

To have uniformity in performance evaluation of the CBWTF throughout the country, a check list for performance evaluation of the CBWTF for carrying out inspection/monitoring/compliance verification has been prepared and is annexed **(Annexure –V)**. All the prescribed authority (SPCB/PCC) shall inspect the CBWTF at least once in six months located in the respective State/UT and a copy of the inspection reports shall be submitted to CPCB and MoEF & CC along with a copy of the action taken for ensuring compliance to the BMWM Rules and CPCB guidelines issued from time to time and also such information is required to be uploaded in SPCB/PCC website. CPCB shall carryout random inspection of the CBWTFs once in a quarter and any violations observed further actions shall be initiated by CPCB if required under the Environment (Protection) Act, 1986.

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Annexure-I

Coverage area-wise gap analysis for assessing additional BMW treatment capacity requirement

S. No	Coverage area (pl. indicate areas covered by a CBWTF in the State/UT)	No. of HCFs		No. of Beds covered	Total estimated BMW generation in Kg/day	Total existing treatment capacity in Kg					Total BMW Treated and Disposed in Kg/day	Gap between total BMW Generation and the Existing BMW Treatment Capacity in Kg	Remarks (Whether additional Treatment Capacity is required or not)	
		Bedded	Non-bedded			Incineration	Autoclaving/ Hydroclaving /microwaving	Chemical disinfection	Deep burial	Any other mode of disposal			Yes	No
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)

Note: Above gap analysis coverage area-wise is required to be prepared once in five years and should be shown or depicted in a Map of State/UT.

Annexure- II

Format for maintaining the records by the CBWTF Operator alongwith the transportation Vehicle used for collection of bio-medical waste from the member HCFs

Name of the CBWTF :
Address of the CBWTF with contact details :
Vehicle Registration Number (certificate to be carried by the vehicle driver) :
Route covered (indicate places) by the vehicle :

Date	Vehicle number and the Time of arrival of the vehicle	Vehicle Speedo meter mileage readings in KM		Name of the HCF with address and the bar code number from whom waste collected	Category-wise quantity of bio-medical waste received in kg					Total BMW collected by the CBWTF		Name of the Vehicle driver with	Signatures	
		Initial	Final		Yellow	Red	Blue	Out dated medicines	White-Waste Sharps	Total No. of Bags	Total waste		Vehicle Driver	Representative of the HCF
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		(12)	(13)	(14)

Note: Above format is required to be maintained in duplicate both by the CBWTF Operator and the member HCF

Annexure - III

Log book for Operating the Incinerator/Plasma Pyrolysis

Date	Time of operation of the Incineration		Quantity of hourly BMW charged in Kg (Total BMW charged in a day in Kg)	Temperature maintained in ^{O}C			Negative draft in primary chamber *(in mm of water column) (Pl. indicate range i.e., min. to max)*	Pressure drop across APCD *(in mm of water column) (Pl. indicate range i.e, min. to max)*	p^{H} level of scrubbed liquid used *(Pl. indicate range - min. to max.)*	Average values of flue gas analysis results (continuous online) observed during the incineration/plasma pyrolysis process operation				Consumption of electricity/ Diesel whichever is applicable			Net Quantity of bio-medical waste received in Kg	Net Quantity of bio-medical Waste left over in a day (in Kg)
	Start	End		Primary Chamber	Secondary Chamber	After scrubbing in exit stack gas				CO in mg/Nm^3	O_2 in %	CO_2 in %	% combustion Efficiency	Power (indicate electricity meter reading) Initial reading	Power (indicate electricity meter reading) Final reading	Diesel in liters (pl. indicate daily or weekly diesel consumption)		(19)= (18) – (4)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	16)	(17)	(18)	**(19)**

Note: Fill the details whichever is applicable

Log Book for Operating the Autoclave/Hydroclave

Date	Time of operation of the Autoclave or Hydroclave		Batch number	Quantity of waste feeding per batch in Kg (Total waste treated by autoclaving/ hydroclave in Kg)	Temperature and Pressure ~~in every ten minutes~~		Strip test result (pl. paste the strip test for each batch with a proof)	Consumption of electricity (indicate electricity meter reading)		Net Quantity of waste received in Kg	Net Quantity of Waste left over in Kg
	Start	End			Temperature in ^{O}C	Pressure in psi		Initial reading	Final reading		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)=(11)-(5)

Annexure – IV

Check List for Development of a Common Bio-medical Waste Treatment and Disposal Facility & For issuing 'Consent to Establishment under Water & Air Acts

1.	Name of the Proponent	:	
2.	Proposed location of the CBWTF	:	
3.	No. of HCFs in the locality	:	
4.	No. beds	:	
5.	Total Bio-medical Waste Generation in kg/day	:	
	(i) Incinerable in kg/day	:	
	(ii) Autoclavable in kg/day	:	
	(iii) Glass waste in kg/day	:	
	(iv) Waste sharps in kg/day	:	

6. **Proposed location of the CBWTDF**: located away from

a)	Residential area	:	Yes □	No □
b)	Sensitive area	:	Yes □	No □
c)	Industrial area	:	Yes □	No □
d)	Is it as a part of TSDF	:	Yes □	No □
e)	Is the facility proposed in Hilly areas	:	Yes □	No □
d)	Buffer distance of 500 m available	:	Yes □	No □

7. **Proposed land area for CBWTF:**

a)	Area about 1 acre	:	Yes □	No □
b)	Area less than 1 Acre	:	Yes □	No □
c)	Area more than 1 Acre	:	Yes □	No □

8. **Proposed coverage area of the CBWTF:**

a)	Any facility located upto a radius of 75 KM from the proposed locality	:	Yes □	No □
b)	No. of beds covered by the existing facility/proposed facility:			
	(i) more than 10, 000 beds	:	Yes □	No □
	(ii) less than 10,000 beds	:	Yes □	No □
c)	Is there any CBWTF within the radius of 75 KM	:	Yes □	No □

d) BMW Waste generation in a coverage area under consideration: ..... Kg/day

e) Existing CBWTF treatment Capacity :
   (a) Incineration/plasma pyrolysis :..... Kg/day
   (b) Autoclave/hydroclave : .....Kg/day

f) Is locality requires any additional capacity (within a radius of 75 KMs)?.
   : Yes □ No □
   (i) If so, indicate reason:.....

9. Requirement of Treatment Facility: Following treatment facilities shall be provided in a CBWTF:

a) Incineration : Yes □ No □
b) Autoclave (Pre-vacuum horizontal feeding) / Hydroclave / Microwave.
   : Yes □ No □
c) Shredder : Yes □ No □
d) Sharp pit (with drawing details) : Yes □ No □
e) Provision for floor washing/vehicle washing: Yes□ No □
f) Effluent Treatment Plant : Yes □ No □
g) Secured land fill/Disposal of ash in TSDF : Yes □ No □
h) Other provisions as per CPCB guidelines : Yes □ No □

10. Segregation

(i). Segregation shall be as per the Bio-medical Waste Management Rules, 2016 as amended as well as compatible with treatment facilities at CBWTF
(ii). Occupier/Generator is responsible for providing segregated waste to the operator.

11. Collection

(i) Respective coloured bags provided with bar code should be kept in similar coloured container i.e. coloured bags shall not be directly kept in vehicle.
(ii) Sharps shall be collected in puncture resistant, leak proof, rigid containers.
(iii) Temporary storage at healthcare unit shall be designated.

12. Transport Vehicle

(I) Dedicated vehicles for collection of Bio-medical waste : Yes □ No □
(II) Separate cabins shall be provided for driver/staff and the bio-medical waste containers : Yes □ No □

(III) The base of the waste cabin shall be leak proof to avoid pilferage of liquid during transportation : Yes □ No □

(I) The waste cabin may be designed for storing waste containers in tiers : Yes □ No □

(V) The waste cabin shall be so designed that it is easy to wash and disinfect. : Yes □ No □

(VI) The inner surface of the waste cabin shall be made of smooth surface to minimize water retention : Yes □ No □

(VII) The waste cabin shall have provisions of sufficient openings in the rear and/or sides so that waste containers can be easily loaded and unloaded : Yes □ No □

(VIII) The vehicle shall be labeled with the bio-hazard symbol (as per Schedule IV of BMWM Rules) and should display the name, address and telephone number of the CBWTF : Yes □ No □

(IX) Other provision as per CPCB guidelines : Yes □ No □

13. Storage

(I) Sufficient ventilated storage space for untreated and treated bio-medical waste shall be provided. : Yes □ No □

(II) The flooring and walls (to a height of 2M from floor) shall be finished with smooth and fine material. There shall be minimum number of joints. : Yes □ No □

14. Record Keeping

(I) Documents such as collection advice taken from health care units for each category of waste, records of waste movements, logbook for the equipment and site records shall be maintained. : Yes □ No □

(II) All the record (five year) shall be available at the CBWTF site for inspection. : Yes □ No □

15. Proposed Treated Waste Disposal method:

(i). Incineration ash - Secured landfill/near by TSDF : Yes□ No□

(ii). Plastic waste after disinfection and shredding –Registered Recycling Unit : Yes □ No □

(iii). Sharps, after disinfection (if encapsulated) - Municipal landfill : Yes □No □

(iv). Treated wastewater –Discharge into sewer/drain or recycling in APCD

: Yes □ No □

(v). Oil & grease –By incineration: : Yes □ No □

(VI). Any other mode of disposal of recyclable waste:
(If so, pl. indicate .....)

16. Estimated energy consumption and fuel consumption per month :

(i) Estimated energy consumption per month

(a)	General lighting in the facility	:
(b)	Incinerator	:
(c)	Autolcave/microwave	:
(d)	Shredder	:
(e)	ETP	:
(f)	Any other	:

(ii) Estimated fuel consumption:

(a)	Diesel consumption	:..... in Kl per month
(b)	No. of hours of operation of DG Set	:
(c)	No. of hours of incineration	:

17. Whether the proponent obtained necessary approvals from the concerned departments as required : Yes □ No □

(i) If yes, attach details

18. Whether the proponent obtained EC as per EIA 2006 and the amendments made thereof : Yes □ No □

(i) If yes, attach a copy of the EC obtained from the concerned

19. Whether the proposal recommended for issuing consent to establish

: Yes □ No □

(Signature of the official verified with date)

Annexure – V

Check List for Performance Evaluation of the
Common Bio-medical Waste Treatment and Disposal Facility (CBWTF)

S.No.	Details		Particulars
01.	Name of CBWTF with contact details	:	
02.	Date of visit	:	
03.	Location details of the CBWTF	:	a) Near to Residential area: :Yes □ No □ b) In/near Sensitive area: Yes □ No□ c) In Industrial area : Yes □ No □ d) Is there a buffer zone of 500 m: Yes □ No □ Indicate exact distance: in KM e) Is it as a part of TSDF: Yes □ No □ If so, distance of TSDF from the nearest CBWTF: ……KM.. f) Is the facility proposed in Metropolitan city: Yes □ No □ (i)Name of the City: …… (ii)Population of the City (as per latest census): …… g) Is the facility proposed in Hilly area : Yes □ No □ (i)Name of the Town/City: ……
04	Month / year of establishment and the Consents status	:	Establishment Month/Year :
05.	CBWTF set up by	:	
06.	CBWTF operated by	:	
07.	Total number of healthcare facilities and beds covered (as on date of visit)	:	No. of HCFs : No. of Beds : No. of HCFs and beds upto 75 KM radius:
08.	Total BMW Treatment Capacity of CBWTF (in kg / day)	:	Incineration : Autoclave : Any other treatment and disposal:

S.No.	Details		Particulars
09.	**Consents and Authorization details :**		
9.1	Consent under Water (Prevention and Control of Pollution) Act, 1974	:	□Applied for □ Not Applied for □ Possess Valid Consent □ Not renewed □ No consent If obtained: Consent is valid upto ..... and issued by .....SPCB/PCC vide letter dated .....
9.2	Consent under Air (Prevention and Control of Pollution) Act, 1981	:	□Applied for □ Not Applied for □ Possess Valid Consent □ Not renewed □ No consent If obtained: Consent is valid upto ..... and issued by .....SPCB/PCC vide letter dated .....
9.3	**Environmental Clearance (EC)**		□Applied for □ Not applied □ Obtained □ Not obtained If obtained: EC issued by SEIAA or MoEF& CC vide letter dated .....
9.4	Authorization under BMW Rules, 1998	:	□ Applied for □ Not Applied for □ Possess Valid Authorisation □ Not renewed □ No Authorisation If obtained: Authorisation is valid upto ..... and issued by .....SPCB/PCC vide letter dated .....
10.	Investment in setting up the CBWTF	:	
11.	Area of plot size for CBWTF (Sq. ft.)	:	
12	Annual Report submission for the year	:	Submitted before due date : :Yes □ No □ If yes, provide details of waste collected, received and treated & disposed of: .....
12.	Coverage area of CBWTF (radius in KM covered)	:	Coverage area upto 75 km radius: Yes □ No □
13.	Name of Districts/Cities / places being covered	:	(Pl. indicate Districts or places covered:..... .....) W.r.to the CBWTF (i) Farthest HCF located at :.. .....KM (ii) Nearest HCF located at :.....KM.

S.No.	Details		Particulars
14.	Daily operation schedule (timings)	:	(i) Collection: ...AM to .... PM. (ii) Incineration:....AM to ....PM (iii) Whether waste from member HCFs collected in holidays: □ Yes □ No
15.	Cost charged to the healthcare facilities	:	(i) Charges in Rs..... (ii) Is the cost to be levied suggested by: .....Organisation
16.	**Total quantity of bio-medical waste treated: kg/day (avg.)**		
16.1	Incinerable	:	..... %
16.2	Autoclaving	:	.....%
16.3	Others (please specify waste type-wise)	:	.....%
17.	**Staff involvement in CBWTF operation (number of persons):**		
17.1	Managerial / Administration	:	
17.2	Equipment operations	:	
17.3	Transportation of BMW	:	No. of Drivers: No. of Helpers:
17.4	Sanitation and others	:	
17.5	Total persons excluding managers	:	
18.0	**Collection and Transportation of bio-medical waste from member HCFs :**		
18.1	No. of Vehicles used for collection of waste from member HCFs	:	(i) Four Wheelers: .....Nos and Vehicle Numbers: ..... (ii) Two Wheelers :.....Nos and Vehicle Numbers:.....
18.2	Vehicles are labeled as per BMWM Rules, 2016	:	□ Satisfactory □ No satisfactory
18.3	Vehicles used are as per CPCB Guidelines	:	□ Satisfactory □ No satisfactory
18.4	Vehicles attached with the GPS provision as per BMWM Rules 2016		□ Satisfactory □ No satisfactory
18.5	Whether waste collected from member HCFs adopted Bar coding system ?		□ Yes □ No

S.No.	Details		Particulars
19.0	Temporary untreated waste storage area	:	□ Satisfactory □ No satisfactory
20.0	Mode of conveyance of bio-medical waste from untreated waste storage area to the treatment equipment within the CBWTF	:	□ Closed Trolley/Pull cart with bio-hazard symbol □ No Closed Trolley/Pull cart □ Others like .....
21.0	**Treatment equipment installed at CBWTDF**		
21.1	Incinerator/plasma pyrolysis capacity and make	:	(i) No. of Incinerators including standby: (ii) Incineration capacity: ..... kg /hr .....Kg/day.
21.2	Daily Operation schedule of the incinerator /plasma pyrolysis (timings)	:	.....AM to .....PM (or) .....PM to .....AM Whether bio-medical waste collected from member HCFs is treated during holidays: Yes □ No □
21.3	Consumption of auxiliary fuels	:	**S. No** / **Type of Fuel** / **Consumption Quantity in liters per day** / **Bill numbers of purchase of fuel** a) b)
21.4	Stack attached with the incinerator /plasma pyrolysis	:	**(i)** Stack Diameter: m **(ii)** Stack Height : m above Ground Level
21.5	Monitoring provision attached with the stack	:	□ Platform □ Porthole □ access to the platform (Steps/Monkey Ladder/any other.....)
21.6	Is stack monitoring provision satisfactory and as per CPCB guidelines	:	□ Yes □No
21.7	air pollution control systems attached with the incinerator/plasma pyrolysis	:	(i) Quenching : □ Yes □ No (ii) Venturi scrubber : □ Yes □ No (iii) Droplet separator : □ Yes □ No (iv) Mist eliminator : □ Yes □ No (v) Filters : □ Yes □ No (vi) Lime and Activated Carbon injection: : □ Yes □ No

S.No.	Details		Particulars
			(vii) ID Fan : □ Yes □ No (viii) Any other : (Pl. indicate)
21.8	Waste feeding mechanism	:	(i) Manual feeding : □ Yes □ No (ii) PLC based Automatic feeding : □ Yes □ No
21.9	Is PLC and automatic recording system (for recording operating parameters of the incinerator) attached with the incinerator/plasma pyrolysis	:	(i) PLC synchronized with waste feeding mechanism & in working condition: □ Yes □ No (I) PLC synchronized and recording system attached with incinerator and in working condition: □ Yes □ No
21.10	Operational conditions of the Incineration/plasma pyrolysis as observed during the visit	:	(i) Whether burners in working condition: □ Yes □ No (ii) Temperature maintained in Primary Chamber (range) : ……^{O} C (iii) Temperature maintained in Secondary Chamber (range):……^{O} C (iv) Negative draft in Primacy Chamber : ……mm of water column **(v)** Pressure drop in the Venturi: …… mm of water column
21.11	Is continuous on-line monitoring system/Flue gas analyser attached with the incinerator/plasma pyrolysis for flue gas analysis (i.e CO, O_2 and CO_2)	:	(i) Is continuous online monitoring system (COMS) attached with incinerator: □ Yes □ No (ii) Observed values of flue gas parameters: CO_2:……%; O_2: …… % and CO: …… % (iii) Observed Combustion Efficiency: ……% (iv) Observed values of stack emissions as per COMS ……
21.12	Emergency and Fire safety measures adopted within the facility is adequate	:	Is Emergency stack attached with the incinerator: □ Yes □ No Whether fire safety measures adopted (Fire Extinguishers, Sand buckets etc.): □ Yes □ No
21.13	Log book for incinerator/ plasma pyrolysis is maintained and satisfactory	:	Log Book Maintained: □ Yes □ No Log Book Maintained is satisfactory : □ Yes □ No

S.No.	Details		Particulars
21.14	Details of heat recovery system installed with incinerator/plasma pyrolysis	:	□ Yes □ No
22.0	**Capacity of autoclave and-- make**	:	Autoclave of capacity ……..kg/cycle and make …… installed.
22.1	Operating conditions of autoclave/microwave as observed during the visit	:	Operating parameters observed: (i) Temperature : in ^{O}C (ii) Pressure : in psi **(iii)** Residence time : in minutes
22.2	Provision made for the autoclave /micorwave	:	Trolley for waste feeding : □ Yes □ No Graphic or computer recording device attached: □ Yes □ No
22.3	Spore test or strip test conducted regularly and records maintained	:	□ Yes □ No Pl. indicate frequency of Strip test conducted: every batch /once in a week /quarterly /yearly Pl. indicate frequency of Spore test conducted: every batch /once in a week /quarterly /yearly
22.4	Performance of autoclave by spore testing or routine test	:	□ Satisfactory □ Not satisfactory
22.5	Log book maintained for autoclave is satisfactory	:	Log Book Maintained: □ Yes □ No Log Book Maintained is satisfactory : □ Yes □ No
23.0	**Capacity of shredder and make**	:	….. kg/hr. Self-designed & got fabricated locally.
24.0	Details of sharp pit / Encapsulation facility	:	(i) Sharp Pit provided : □ Yes □No (ii) Is it as per CPCB guideline : □ Yes □No (iii) Records maintained : □ Yes □No (iv) Total quantity of waste sharps stored: (v) Total quantity of waste sharps treated and disposed:
25.0	**Water Balance**		
25.1	Source and quantity of water intake per day (cu.m / day)	:	Water consumption source: …… Water is drawn at ….. KLD approximately. Is magnetic water flow meter attached to the water source/water storage tank : □ Yes □No

<table>
<tr><th>S.No.</th><th>Details</th><th></th><th>Particulars</th></tr>
<tr><td></td><td></td><td></td><td>Magnetic water flow meter readings as per record (for last month):
1 St Day of Month :
Last day of month :
Magnetic Flow meter as observed during the visit:
<table>
<tr><th rowspan="2">S. No</th><th rowspan="2">Month</th><th colspan="2">Magnetic flow meter reading</th></tr>
<tr><th>Initial</th><th>Final</th></tr>
<tr><td>(1</td><td>Previous month .....</td><td></td><td></td></tr>
<tr><td>(2)</td><td>On the date of visit:.....</td><td></td><td></td></tr>
</table>
If water requirement is met from outside through tankers, pl. provide No. of Tankers procured in a previous six months:

Total quantity of water consumed during the previous six months : .. .. in KLD</td></tr>
<tr><td>25.2</td><td>Break up of water usage (such as washing, scrubbing etc.)</td><td>:</td><td>Scrubber – KL/hr or KLD
Washing – KLD
Disinfections – KLD
Gardening – KLD
Domestic – KLD</td></tr>
<tr><td>26.0</td><td>Total wastewater effluent generated per day</td><td>:</td><td>About .....KLD generated
Quantity of treated water reused/recycled in %:
Any other mode of disposal:</td></tr>
<tr><td>27.</td><td colspan="3">Effluent treatment plant details</td></tr>
<tr><td>27.1</td><td>ETP Capacity</td><td>:</td><td>..... KL/Cycle</td></tr>
<tr><td>27.2</td><td>Flow Chart of ETP</td><td>:</td><td>ETP comprising of:
..... Unit operations</td></tr>
<tr><td>27.3</td><td>Intake and Discharge of ETP</td><td>:</td><td>(i) Magnetic Flow measuring device provided at the outlet of ETP: □ Yes □ No
(ii) Energy meter attached to the ETP:
□ Yes □ No
(iii) Energy consumed over a period of one month: = ... Units
(iv) pH meter attached at the outlet of ETP:
□ Yes □ No</td></tr>
</table>

S.No.	Details		Particulars
27.4	Final mode of disposal of treated water	:	(i) Is treated wastewater complying with the discharge norms □ Yes □ No (ii) Is Treated water is reused in the scrubber: □ Yes □ No (ii) Is Treated water is reused for gardening: □ Yes □ No (iii) Is Treated water is discharged in drain: □ Yes □ No (iv) Is Treated water is discharged in open area: □ Yes □ No
28.	**Status of infrastructure provided (Pl. indicate 'Yes / No' whichever is applicable)**		
28.1	Separate treatment equipment room	:	□ Yes □ No
28.2	Main waste storage room	:	□ Yes □ No
28.3	Treated waste storage room	:	□ Yes □No
28.4	Administrative room	:	□Yes □No
28.5	Generator set	:	□ Yes □No
	(i) Capacity	:	
	(ii) Is Stack attached as per DG Set norms	:	□Yes □ No
	(iii) Is Acoustic enclosure provided as per DG Set norms	:	□ Yes □ No
	(iv) Is DG Set complying to the emissions norms and noise level norms	:	□Yes □ No If so, pl. indicate latest monitoring results: .....
28.6	Site security (high walls, fencing, guarded gates etc.)	:	High walls on all four sides :□ Yes □No Fencing on all the sides : □ Yes □ No Guarded Gates : □Yes □ No Any other observation pl indicate:.....

S.No.	Details		Particulars
28.7	Parking facility	:	□ Yes □ No
28.8	Sign board	:	□ Yes □ No
28.9	Green belt	:	□ Yes □ No
28.10	Washing room	:	□ Yes □ No
28.11	First aid box	:	□ Yes □ No
28.12	Lighting arrangements in the facility	:	□ Yes □ No
28.13	Odour problem remedial measures	:	□ Yes □ No
28.14	Fire fighting and emergency facilities	:	□ Yes □ No
28.15	Measures for control of pests / insects etc.	:	□ Yes □ No
28.16	Protective gear for waste handlers	:	□ Yes □ No
28.17	Telephone facility	:	□ Yes □ No
28.18	Provision of washing, toilets and safe place for eating for the workers		□ Yes □ No
28.19	File alarm system provided in the facility		□ Yes □ No
29.	**Record maintenance and record keeping details (Pl. indicate 'Yes / No' whichever is applicable)**		
29.1	Waste Movement /Manifest record	:	□ Yes □ No
29.2	Log book for treatment equipment	:	□ Yes □ No
29.3	Site records	:	□ Yes □ No
29.4	Incineration ash generation and final disposal records	:	□ Yes □ No
29.5	Treated plastic waste generation and its sale to the registered recycler	:	□ Yes □ No
29.6	Syringes treated and its final disposal record	:	□ Yes □ No

S.No.	Details		Particulars
29.7	Workers health status records		□ Yes □ No
29.8	Workers immunization records		□ Yes □ No
29.9	Medical and para-medical workers training records		□ Yes □ No
29.10	Whether records maintained with regard to the accidents (such as fire, spills and injury and measures taken)		□ Yes □ No
30.	**Collection and transportation status (Yes / No)***		
30.1	Whether waste collected in a container of similar colour with label as per the Rules?	:	□ Yes □ No
30.2	Whether the person who collects BMW maintain a register with him / her?	:	□ Yes □ No
30.3	Has due attention have been given in vehicles to prevent spillage / pilferage/ loading / unloading etc.?	:	□ Yes □ No
30.4	Is the vehicle labeled with the symbol and display the name, address, telephone number etc.?	:	□ Yes □ No
30.5	Does the CBWTF operator use satellite station to store the waste?	:	□ Yes □ No (If yes, give details.....)
30.6	The CBWTF operator collects waste daily or alternate day including	:	□ Yes □ No

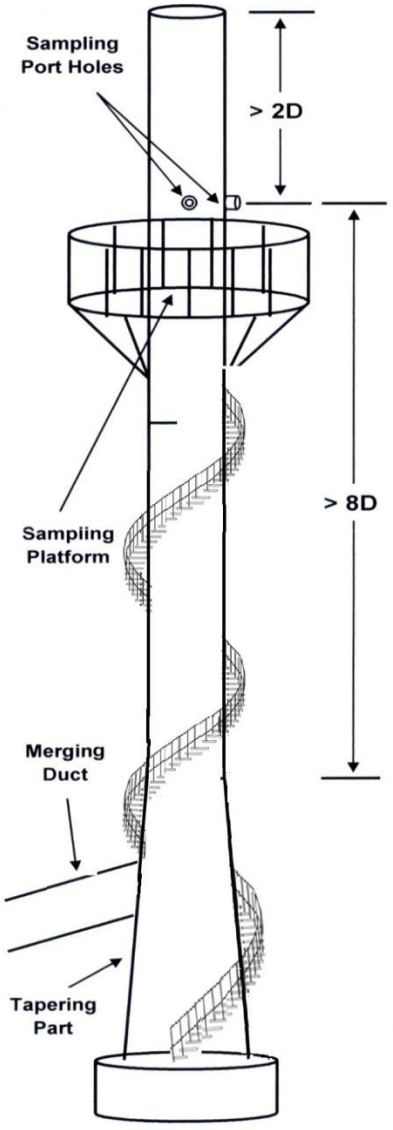
S.No.	Details		Particulars
	holidays?		
30.7	Whether waste treatment criterion of 48 hours is complied?		□ Yes □ No
31.	**Disposal of treated waste:**		
31.1	Plastic waste after treatment	:	Plastic waste Sold to: M/s. ..... and approved by .....SPCB/PCC
31.2	Treated sharps	:	Treated syringes disposal by:..... or through M/s.....and approved by .....SPCB/PCC
31.3	Incineration ash	:	Incineration ash disposal by: Disposal in Sanitary Landfill:□ Yes □ No Disposal through TSDF:□ Yes □ No Any other mode :.....
31.4	Other treated solid wastes	:	
31.5	Oil & grease	:	
31.6	Treated wastewater	:	
32.	Frequency of incinerator / autoclave / microwave / hydroclave / ETP discharge effluent testing and name of the laboratory (specify approved or not under E(P) Act, 1986 or NABL Accredited Lab.). Give details of compliance / non-compliance)	:	(i) Reported monitoring frequency: (ii) Stack monitoring : Quarterly :□ Yes □ No (iii) Waste water : Monthly/Quarterly/Yearly (iv) Incineration ash : Monthly/Quarterly/Yearly (v) Name of the Laboratory conducted test: ..... (vi) Is the Laboratory approved under E (P) Act, 1986/.....SPCB/PCC/ NABL: :□ Yes □ No (vii) Copies of the analysis reports of treated effluent, incinerated ash, stack monitoring as (Annexures.....)
32.1	Frequency of site inspection by SPCBs/PCCs/CPCB/any other agencies	:	(i) No. of times in a year inspected by the SPCB/PCC: ..... (ii) No. of times in a year inspected by the CPCB .....

<table>
<tr><th>S.No.</th><th>Details</th><th></th><th>Particulars</th></tr>
<tr><td>33.</td><td colspan="3">Monitoring Results :</td></tr>
<tr><td>33.1</td><td>Incinerator stack emission (parameters stipulated in the Rules, temperature attainment in the chambers, residence time in the secondary chamber etc.)</td><td>:</td><td>
<table>
<tr><th>Parameter</th><th>PM</th><th>HCl</th><th>NOx</th><th>Hg & com-pounds</th><th>Dioxins and Furans</th><th>C.E.</th></tr>
<tr><td>Date</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>LIMIT</td><td>50</td><td>50</td><td>400</td><td>0.05</td><td>0.1 ng TEQ per Nm^3</td><td>99.00%</td></tr>
</table>
Date of monitoring:
Note: All values are in mg/Nm^3, except CE</td></tr>
<tr><td>33.2</td><td>Whether Stack emission norms are complied with by the CBWTF</td><td></td><td>□ Yes □ No</td></tr>
<tr><td>33.3</td><td>Incineration ash characteristics</td><td>:</td><td>Characteristics as per Schedule –II of HOW (M& TM) Rules,2016 (Annexure-----)
Is it hazardous waste as per HOWM&TM Rules, 2016: □ Yes □No</td></tr>
<tr><td>33.4</td><td>ETP inlet/outlet characteristics</td><td>:</td><td>All values are in mg/l except pH
<table>
<tr><th>Parameter</th><th>pH</th><th>TSS</th><th>COD</th><th>BOD</th><th>O&G</th></tr>
<tr><td>ETP Inlet Result</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>ETP Outlet Result</td><td></td><td></td><td></td><td></td><td></td></tr>
</table></td></tr>
<tr><td>33.5</td><td>Whether liquid effluent discharge norms are complying by the CBWTF</td><td>:</td><td>□ Yes □ No</td></tr>
<tr><td>33.6</td><td>Whether CBWTF is submitting the annual report within the due date for the preceding year</td><td>:</td><td>□ Yes □ No
If Yes, annual report submitted vide letter No..... dated.....</td></tr>
<tr><td>34.</td><td>Any other relevant observations</td><td>:</td><td>(pl. enclose as annexure)</td></tr>
<tr><td>35.</td><td>Name of the officials with designation inspected /monitored the CBWTF and the signature</td><td>:</td><td></td></tr>
</table>

Annexure-VI

STATIONARY SOURCE EMISSION MONITORING

MODIFICATIONS TO BE MADE TO SAMPLING PLATFORM AND SAMPLING PORT HOLE



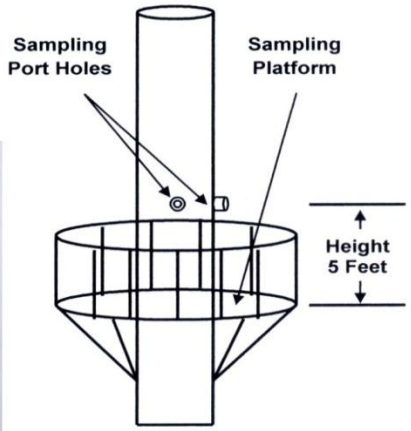
Number of Port Holes : Minimum two numbers of Port Holes at 90° apart from each other at a horizontal plane.

Location of Port Holes : Minimum 8 times of Internal Diameters of Stack downstream (upward direction of stack) from any duct confluence, bends and tapering & minimum 2 times of Internal Diameters of Stack upstream (downward direction of stack) from stack exit.

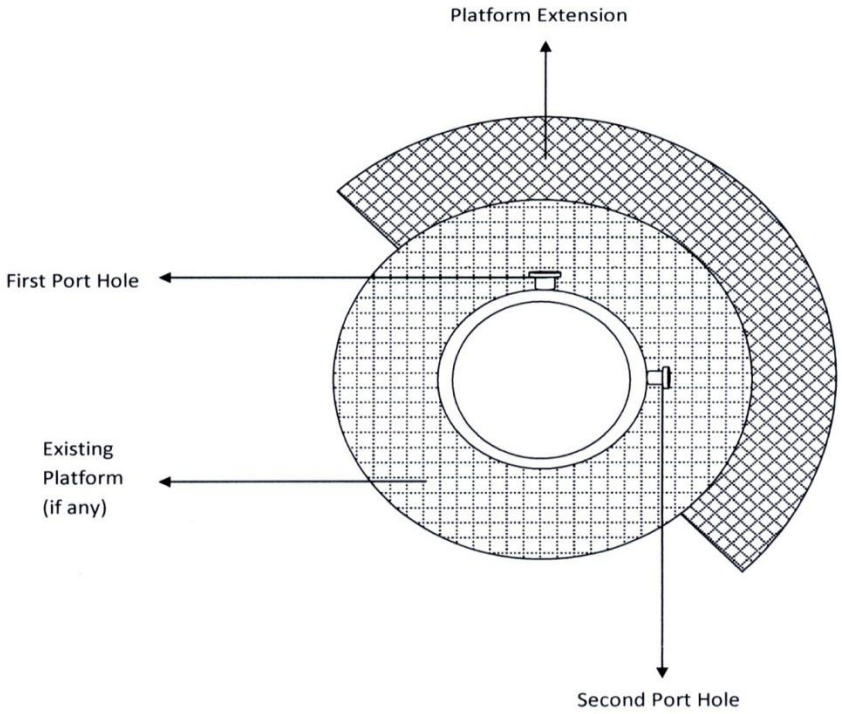
Location of Sampling Platform : 5 feet upstream (downward direction of stack) from the Port Hole as determined above.

Port Hole Flange : If the internal diameter of the flange is 4 inch or more then there is no need to change, if it is less than 4 inch than it has to be replaced with 4 inch flange. The flange should not protrude out more than 6 inches from the outer wall of the stack (it shall be kept as less as possible).

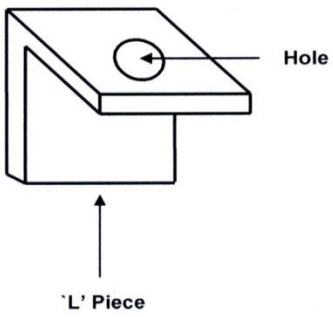
Sampling Platform Modification : A semi-circular extension of the existing platform (width extending outward by 6 feet from outside wall of the stack and covering at least one third of the circumference) may be provided for access to both the Port Holes. This area can be extended from the existing Platform and if deemed necessary for safety of the personnel a counter extension in opposite direction may also be provided. The extended Platform shall be strengthened with requisite support from the stack.



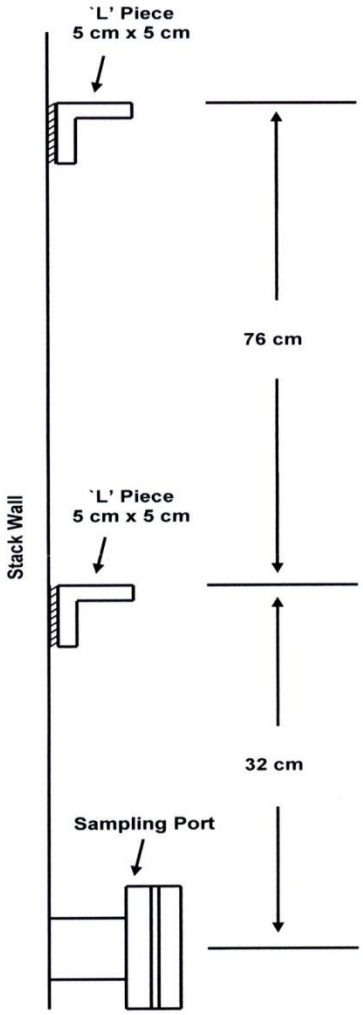
Note: Alternatively, safe access to monitoring platform may be provided with seperate scaffolding-cum-staircase arrangement



Sampling Platform Modification / Extension



**Fixing of `L' Pieces on the stack wall :** Two `L' shaped pieces are to be fixed on the stack wall for mounting the Mono-Rail & Chain (part of the Sampling Kit for movement of sampling Train in & out through the Sampling Port Hole). The `L' pieces shall be made of approximately 6 mm thick galvanized iron to have 5 cm long arms. One arm of the `L' piece shall be welded on the stack wall and another arm shall have a hole of 14 mm diameter near the open end. Both the `L' Pieces shall be welded on the stack wall at specified distances (as shown in the diagram on the next page) from the centre of Sampling Port Hole (in a vertical axis on the Stack Wall).



Fixing of `L' Pieces on the Stack Wall

REFERENCES

1. Bio-medical Waste Management Rules, 2016.
2. CPCB Guidelines for CBWTFs (2003).
3. CPCB Guidelines for BMW Incinerators (2003).
4. 'Disposal of Bio-medical Waste generated during Universal Immunization Programme' issued by CPCB.
5. 'Guidelines for Environmentally Sound Management of Mercury Waste Generated from the Health Care Facilities' issued by CPCB.
6. Annual Report 2014 submitted to CPCB by the SPCBs/PCCs.
7. Stationary Source Emission Monitoring –Modifications to be made to the Sampling Platform and Sampling Port Hole issued by National Reference Trace Organics Laboratory (NRTOL), CPCB.

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Annexure R-2/III

JOINT COMMITTEE REPORT SUBMITTED TO THE HON'BLE NATIONAL GREEN TRIBUNAL, SOUTHERN ZONE IN OA. NO. 118 OF 2025 (SZ) EARLIER OA NO. 207 OF 2025 (PB) IN THE MATTER "K VIJAY LAXMI AND OTHERS VERSUS STATE OF ANDHRA PRADESH AND OTHERS" IN COMPLIANCE TO THE ORDER DATED 28.05.2025

1.0 Background

Grievance in the O.A) No. 207 of 2025(PB) has been registered by the Hon'ble National Green Tribunal (NGT), Principal Bench (PB), New Delhi based on letter petition dated 17.05.2024 received from Sri K Vijay Laxmi and Ors. vs State of Andhra Pradesh & Ors. Further the same was renumbered as O.A No 118 of 2025 (SZ) vide order dated 08.07.2025 is about operation of Common Bio-Medical Waste Treatment Facility (CBWTF) named as M/s. Rainbow Industries, Sy.No.22/1, Patha Kunkam (V), Laveru (M), Srikakulam District, Andhra Pradesh. The applicant has alleged that:

"*Violation of CBMWTF Rules & Regulations by M/s. RAINBOW INDUSTRIES, located at PathaKunkam (V), Laveru (M), Srikakulam District, running with 100 kg/hr capacity Bio Medical Waste Treatment Facility:*

- *This plant collecting waste from 2 Districts (Srikakulam & Vizianagaram). Nearly they are collecting 3-4 Tons of Bio Medical waste every day from both districts (Srikakulam & Vizianagaram). Due to low capacity of the plant they are unable to maintain / Run Plant in scientific / Systematic way. Bio Medical waste was not burning in-time & Waste was not storing in scientific method / systematic method and BMW waste was spreading / Spilling inside the plant area and few of the BMW waste material was throwing / Spreading outside of the plant also, they are contaminated the cultivation lands & Environment with this BMW Waste, due to this contamination causes severe Environmental challenges & health issues to the public residing nearby villages.*
- *APPCB conducted several inspections, Meetings and given so many Notices, Directions, show cause notices, Closure orders (Copies Attached) to the above cited firm towards closing of the firm from past so many years. No further action was taken against the firm and they are (Rainbow Industries) managing with local / Higher authorities and revoking the orders from past so many years.*

- *They are (Rainbow Industries) threating surrounding villagers not to complain against the firm and managing with local authorities support towards running the plant. Hence, we are requesting your good selves, please take necessary action against this firm and help us to survive in our villages in healthy condition in future."*

The Hon'ble NGT passed an order dated 28.05.2025 in the aforesaid OA No. 207 of 2025 and directed the following:

"*In view of the environmental questions involved in the case, we also consider it appropriate that a Joint Committee be constituted to verify the factual position and suggest appropriate remedial action. Accordingly, we constitute a Joint Committee comprising of officers duly authorized by Member Secretary, Central Pollution Control Board (CPCB), Member Secretary, Andhra Pradesh Pollution Control Board (APPCB) and District Collector/District Magistrate, Srikakulam and direct the same to meet within two weeks, undertake visits to the site, look into the grievances of the applicant, associate the applicant and representative of the concerned project proponent, verify the factual position and suggest appropriate remedial action. The APPCB will be the nodal agency for coordination and compliance. Report of the Joint Committee may be filed by APPCB and replies/ responses may be filed by respondents no. 1 to 4 before the Southern Zone Bench of this Tribunal at Chennai within two months.*"

The copy of Hon'ble NGT order dated 28.05.2025 is enclosed as **Annexure-1**.

2.0 Constitution of the Joint Committee

In compliance with the aforesaid Hon'ble NGT order dated 28.05.2025, the CPCB has communicated the nomination of Smt. Sowmya D, Scientist-E, to represent CPCB as member of the Committee vide letter dated 06.06.2025 and the Senior Environmental Engineer (Sri A. Narendra Babu), Andhra Pradesh Pollution Control Board (APPCB), Bio Medical Section, Head Office, Vijayawada was nominated as member and Nodal Officer to represent APPCB in the Joint Committee. Further, the District Collector, Srikakulam has nominated the District Revenue Officer, Srikakulam for the Joint Committee.

3.0 Site visit and inspection by the Joint Committee

The Joint Committee visited and inspected the aforesaid Common Bio-medical Waste Treatment and disposal Facility (CBWTF) i.e. M/s. Rainbow Industries, Sy.No.22/1, Patha Kunkam (V), Laveru (M), Srikakulam District on 02/07/2025. The following committee members were present during the inspection:

1. Smt. Sowmya D, Scientist-E, CPCB, Chennai
2. Sri. A. Narendra Babu, Senior Environmental Engineer, APPCB, Vijayawada, AP
3. Sri. M. Venkateshwara Rao, District Revenue Officer, Srikakulam District, AP

Also Smt. B. Karuna Sri, Regional Officer, APPCB, Srikakulam was present during the Joint Committee inspection. Shri T. Anil Kumar – Managing Director of the CBWTF was accompanied the Joint Committee during the inspection and provided background information about the CBWTF, treatment process and environmental management system installed.

During the inspection, the Joint Committee inspected the CBWTF, surrounding area and verified documents maintained by the facility, Online Continuous Emission Monitoring System (OCEMS) data, allegations made in letter petition dated 17.05.2024 and preliminary information provided by APPCB. On the day of inspection, APPCB carried out source emission monitoring, analysis of wastewater and ash samples and furnished the analysis report.

4.0 About M/s. Ranbow Industries Pvt. Ltd.

M/s. Rainbow Industries Pvt. Ltd., located at Sy.No.22/1, Patha Kunkam (V), Laveru (M), Srikakulam District is engaged in collection and treatment of bio-medical waste from the districts of Srikakulam, Parvathi Puram-Manyam and Vijayanagaram. The facility commenced operations on 09.08.2012. The geographical location of the facility is shown in **Image 1**.

Image 1: Geographical location of the facility

The CBWTF is spread-over an area of 1.05 acres. Of this, 0.45 acres is the built-up area, which accommodates incineration unit, autoclaving section, Effluent Treatment Plant (ETP), storage areas for both bio-medical waste and incineration ash. The remaining 0.6 acres is open area earmarked for vehicle parking and washing facility, storage of treated recyclable plastic waste (red category waste) and ancillary facilities i.e. DG set, security cabin and rest room for workers. The area allocation for the various process sections within the facility is summarized below in **Table 1**.

Table 1: Area Allocation for various Process Sections

S.No	Facility	Approximate area (m^2)
1.	Incineration & Biomedical waste collection area	180
2.	Autoclaving including shredder	20
3.	ETP	20
4.	Ash storage	20
5.	Storage area of bio-medical waste	60

5.0 Status of consents issued by APPCB

The facility was established in the year 2010 and therefore, as per the provisions of EIA Notification, 2006, Environmental Clearance (EC) is not applicable. The facility was granted Consent For Establishment (CFE) by APPCB on 23.04.2010. Subsequently, Consent For Operation (CFO), Hazardous Waste Authorization (HWA) and Bio-Medical Waste (BMW) Authorization was issued by APPCB on 25.03.2022 with validity upto

31.01.2027, to operate the facility for collection, reception, transport and disposal of biomedical waste (COVID & Non- COVID) generated from the Health Care Establishments located in erstwhile Srikakulam & Vizianagaram districts, in accordance with the Bio-Medical Waste (Management & Handling) Rules, 2016 & its amendments. A copy of the CFO is enclosed as **Annexure - 2**.

6.0 Observations of Joint Committee:

The observations and findings of the Joint Committee based on the inspection of the facility and surrounding area, verification of the documents and records maintained by the facility, OCEMS data, records and analysis reports furnished by APPCB are as follow:

6.1 Location of CBWTF

The CBWTF is surrounded by agriculture land and the nearest habitat/village is located at a distance of 1.12 kms. The location of the facility and surrounding area are shown in Image 2. During the inspection it is observed that biomedical waste processed in the facility and no waste was disposed outside the facility or in the surrounding agriculture land.

Image 2: Geographical location of the facility and surrounding area

6.2 Area Covered and Collection of Bio-medical Waste (BMW)

The CBWTF collects bio-medical waste that is segregated as per the Schedule I of Bio-medical Waste Management Rules, 2016 from the Health Care Facilities (HCFs) with a total bed strength of 13,274 beds including both bedded and non-bedded HCFs, located within 150 km radius in the districts of Srikakulam, Parvathi Puram-Manyam and Vijayanagaram. The details of the bedded and non-bedded HCFs covered by the CBWTF are presented in **Table 2**.

The cost charged to the HCFs is as per APPCB circular dated 01.02.2022, a copy of the circular is enclosed as **Annexure -3**.

Table 2: District-wise Bed Strength of Health Care Facilities (HCFs) covered by the facility

S. No.	Name of the District	Bed strength from bedded HCFs	Bed strength from Non bedded HCFs	Total bed strength (bedded & non bedded)
1.	Srikakulam	5592	380	5975
2.	Parvathipuram -Manyam	1392	93	1485
3.	Vijayanagaram	5382	432	5814
Grand Total		**12366**	**905**	**13, 274**

6.1.1 Quantity and category-wise collection of BMW

As per records, the average daily quantity of BMW collected from the total 13,274 beds (bedded and non-bedded HCFs) is 792.89 kg/day and the same quantity is disposed. The category-wise daily quantities of bio-medical waste collected from the member HCFs are presented in **Table 3**. A copy of the daily records submitted by the CBWTF is enclosed as **Annexure-4**.

Table 3: Category-wise Bio-Medical Waste Collection and disposal by CBWTF and Authorized/installed capacity

S. No	Category	Monthly Average (kg/month) (Apr-Jun, 2025)	Daily Average (kg/day) (Apr-Jun, 2025)	Daily Average (kg/day) as per Annual Returns, 2024	Authorized/Installed capacity (kg/day)
I	**Incinerable Waste**				
1.	Yellow	20028.95	667.72	701.29	1,800

			(84.2% of total Biomedical waste generated)	(84.1 % of total Biomedical waste generated)	
II	**Non-incinerable Waste**				
2.	Red	3485.38	116.17	126.55	1,800
3.	White	139.32	4.58	2.724	6
4.	Blue	140.46	4.68	2.801	16.67
	Total	**23,794.11**	**792.89**	**833.365**	-

From the above table, it can be inferred that the CBWTF is collecting and treating BMW within the authorized quantity.

6.1.2 Registration of HCFs

The CBWTF is providing registration certificates to all its registered HCFs. These certificates contain- HCF membership certificate number, validity period, name and designation of the authorized person of the registered HCF, registration details under the Nursing Home Act, information related to renewal of Consent to Operate (CTO) etc. A copy of one such registration certificate issued by the CBWTF is enclosed as **Annexure-5**.

6.3 Transportation

The CBWTF has a total of six (06) GPS fitted vehicles (5 in operation + 1 standby) for collection and transportation of Biomedical waste from member HCFs. The capacity of each vehicle varies from 1.00 to 1.5 MT. The CBWTF is following colour code system for the vehicles as per CPCB guidelines and are registered with the APPCB Bio-medical App.

6.4 Storage

The CBWTF has provision for storage of untreated Biomedical waste next to incinerator area. However, separate room (or) labeling, for storage of color-coded waste is not provided. All the waste are segregated and stored in the same area.

6.5 Treatment Facilities

The existing treatment processes of the CBWTF are incineration, autoclaving, disinfection, shredder, waste sharp pit and ETP. The details of various treatment units are depicted in the **Table 4**.

Table 4: Details of treatment units

S. No.	Treatment unit	Designed capacity	Hours of operation
1.	Autoclave	100 Lt.	18 (1 hr each cycle, 18 cycles)
2.	Disinfection chamber (RCC tank)	1 KLD	Batch based on availability of material
3.	Twin chamber incinerator	100 Kg/hr	20 hr
4.	Shredder	100 Kg/hr	3-4 hrs
5.	ETP	6 KLD	-

6.4.1 Incinerator

The CBWTF has a double chamber incinerator with a capacity of 100 kg/hr (1,800 kg/day, considering 90% of installed capacity & 20 hours of operation as per CPCB guidelines for CBWTFs dated 12.04.2025) to treat the average collected quantity of yellow (incinerable) category waste, which is approximately 667.72 kg/day.

As per the records of temperature available in online RTDMS portal, the temperature maintained in the primary chamber ranges from 809°C to 1050°C and in the secondary chamber from 1061°C to 1159°C. During inspection it was observed that the operational temperature of the primary chamber was 890 °C and the secondary chamber was 1315 °C.

The APPCB conducted Gap Analysis Study of biomedical waste generated in Andhra Pradesh State during 2022-24. As part of the study, performance evaluation of CBWTF was carried out through M/s Bharat Institute of Higher Education and Research and Unwind Learning Labs. The measured dioxins and furans concentration in the facility during performance evaluation study conducted in 2023-24 was 0.1036 ng/Nm^3 against the standard of 0.1 ng/Nm^3 (at 11% O_2).

During the performance evaluation, the operator of the CBWTF furnished a certificate from the manufacturer regarding 2 seconds residence time in the secondary combustion chamber. The residence time of 2 seconds was not verified physically during the study.

6.4.2 Autoclave

The CBWTF has provided an autoclave with a capacity of 100 litres per hour with one (1) cycle per hour (25-30 Kg/cycle) to treat red (autoclavable) category waste. Approximately 3257 to 3795 kg/month (average 117 kg/day) of red category waste is autoclaved and it is less than the authorized quantity of 54,000 Kg/month. The CBWTF is executing spore testing of the autoclave every fortnightly by third party.

6.4.3 Shredder

The treated red category of BMW is shredded in a shredder of capacity 100 Kg/hr. The shredded plastic waste is disposed to APPCB authorized plastic recyclers i.e. M/s Bharath Enterprises, Hyderabad for recycling. Copies of MoU with the recycler were made available during inspection.

Details on disposal records of treated red category of BMW (i.e. shredded plastic waste) from April to June 2025 are provided in the **Table 5**. Copies of the sales invoices with respect to the disposal of shredded plastic waste are enclosed as **Annexure-6**.

Table 5: Disposal Records of Treated Red Category of BMW (Shredded Plastic Waste)

Month	Quantity disposed (kg/month)
April, 2025	1314.5
May, 2025	1347
June, 2025	1567

6.4.4 Disinfection (White Category BMW)

The CBWTF has a disinfection chamber of 1 KLD capacity. Waste sharps (White category of BMW) are disinfected with 1% sodium hypochlorite solution followed by autoclaving and disposed in a concrete waste sharp pit within the CBWTF premises. The facility has six (06) sharp pits, each with a capacity of 200 kg, designated for the disposal of waste sharps.

6.4.5 Blue Category BMW

The Blue (glass waste) category of BMW along with plastic waste (autoclaved Red waste) is disposed to APPCB authorized plastic recyclers i.e. M/s Bharath Enterprises, Hyderabad. Copies of the sales invoices with respect to the disposal of glass waste along with shredded plastic waste are enclosed as **Annexure-6.**

6.5 Air Pollution Control

The stack attached to the incinerator is equipped with a wet scrubber as an air pollution control device. The monitoring facility such as ladder and platform provided at the stack is not as per CPCB guidelines.

6.6 OCEMS facility

The CBWTF has installed an Online Continuous Emission Monitoring System at the stack attached to the incinerator to monitor the parameters viz. CO, CO_2, NO_x & PM and it is connected to the CPCB and APPCB servers. However, on the day of inspection, it was observed that the OCEMS was non-functional as it was under repair.

The following OCEMS data was recorded on the CPCB portal for the period from April – June 2025.

i. Temperature at Primary and Secondary chamber

Table 6: Temperature Data Recorded at Primary and Secondary Chambers (April – June 2025)

Sl. No.	Chamber	Minimum temperature (°C)	Maximum temperature (°C)	Average Temperature (°C)
1.	Primary Chamber	810	1050	935
2.	Secondary Chamber	1061	1159	1124

i. Parameters at the stack attached to the incinerator

Table 7: Stack Emission Parameters Monitored by OCEMS (April – June 2025)

Sl. No.	Parameters	Minimum	Maximum	Average
1.	CO_2 (%)	4.8	6.9	5.9
2.	CO (mg/Nm^3)	9	27.5	19.84

3.	HCL (mg/Nm^3)	24	30	27.52
4.	NO_x (mg/Nm^3)	52	99	71.70
5.	PM (mg/Nm^3)	23.4	39.5	30.74

6.7 Source emission results

During the inspection, the APPCB carried-out source emission monitoring of the stack attached to the incinerator for various parameters viz. PM, NO_2, HCl, Hg, O_2, CO_2, CO, etc., and the monitoring results are tabulated in **Table 8.** A copy of the monitoring reports is enclosed as **Annexure-7.**

Table 8: Source emission monitoring results of the stack attached to incinerator

Parameters	**Unit**	Date of monitoring (02.07.2025)	
		Results	**APPCB prescribed standards** (Limiting concentration in mg/ Nm3 unless stated)
Particulate Matter (PM)	mg/Nm^3	**65.0**	50
Nitrogen dioxide (NO2)	mg/Nm^3	179.9	400
HCl	mg/Nm^3	9.12	50
Hg	mg/Nm^3	0.0001	0.05
Carbon dioxide (CO2)	%	2.37	--
Carbon monoxide (CO)	ppm	367	--
Combustion Efficiency	%	**98.5**	99.00
Oxygen (O_2)	%	17.86	--

From the above results, it can be inferred that the Particulate Matter (PM) concentration exceeds the permissible limit, with a recorded value of 65 mg/Nm^3 against the standard of 50 mg/Nm^3. Additionally, the combustion efficiency is below the required standard, recorded at 98.5% against the stipulated 99%.

6.8 Water use and Effluent management

6.8.1 Source of water

The source of water for the CBWTF is groundwater. As per the records, the total water requirement is about 11 KLD, which includes 2.0 KLD as makeup water and 3 KLD as re-circulated water for the autoclave.

6.8.2 Effluent Treatment Plant (ETP)

The CBWTF has ETP with a reported design capacity of 6 KLD, whereas average effluent generation from various CBWTF activities such as floor washing, vehicle washing and wet scrubber is about 3 KLD. The ETP comprises of primary collection tank, oil & grease trap, aeration tank with blower, settlement tank, sand filter and sludge drying bed. Treated effluent is recycled in wet scrubber and excess is utilized for gardening in the premises of the facility. Flow meters are installed at both the inlet and outlet of the ETP and flow meter readings records are properly maintained.

6.8.3 Wastewater analysis

During the inspection, grab samples were collected form the ETP inlet, outlet and Scrubber outlet. These samples were analysed at the APPCB Zonal Laboratory. The results are presented in **Table 9.**

Table 9: Analysis results of wastewater samples

Parameter	Date of monitoring (02.07.2025)			APPCB Prescribed standards
	Scrubber Outlet	ETP Inlet	ETP outlet	
pH	< 2	3.27	7.02	6.5-9.0
Suspended solids	248	177	42	100mg/l
Total Dissolved Solids	16896	7640	972	--
Chemical Oxygen Demand (COD)	1040	848	36	250 mg/l
Biochemical Oxygen Demand (BOD)	372	212	12	30 mg/l
Oil and grease	< 1.0	< 1.0	< 1.0	10 mg/l

It is observed from the above wastewater analysis results that the effluent samples comply with the prescribed standards of APPCB.

6.9 Incineration ash disposal

The ash generated from the incinerators, along with residue from flue gas cleaning and ETP sludge, is disposed to the TSDF facility operated by M/s. Coastal Waste Management, Parawada, through APEMCL.

As per the manifest records for the period April to June 2025, a total of 17.14 MT of incineration ash was disposed, which averages to 19.04 kg/day, against the consented quantity of 60 kg/day. A copy of the manifest records for incineration ash disposal is provided at **Annexure-8.**

6.10 Incineration ash analysis

During the inspection, APPCB collected a sample of incineration ash for analysis. The sample was analysed at the APPCB Zonal Laboratory and the results are presented in **Table 10**.

Table 10: Analysis results of incineration ash

S. No.	Parameter	Units	Results	Standard
1.	Physical state	--	Solid	--
2.	pH (1:5 ratio)	--	11.32	--
3.	Electrical Conductivity (1:5 Ratio)	µS/cm	55800	--
4.	Loss on Ignition (LOI) (on dry basis)	%	**19.97**	< 5%
5.	Loss on Drying (LOD)	%	20.26	--
6.	% Organic Carbon	%	**3.72**	< 3%

The analysis results of incineration ash indicate that:

i. The LOI on a dry basis is exceeding the prescribed limit, recorded at 19.97% against the standard of < 5%.

ii. The percentage of Organic Carbon is also above the acceptable limit, recorded at 3.72% against the standard of < 3%.

6.11 Record maintenance

The CBWTF has not maintained a logbook to record various operational parameters for the incinerator, autoclave, and disinfection units.

i. Incinerator

Online monitoring of time of operation and temperatures of the primary and secondary chambers are maintained. Physical records such as total waste feed, time of operation, primary combustion temperature, secondary combustion temperature, water pressure of the venturi and pH of the scrubber were not recorded in a logbook.

ii. Autoclave

Time of operation, temperature, and pressure are automatically recorded in a data logger. However, physical records of the quantity of waste fed per cycle are not maintained.

iii. Disinfection Unit

Records related to the total waste feed and the quantity of sodium hypochlorite solution used were not maintained.

While category-wise waste collection records are properly maintained, no physical records or logbooks are available for tracking the operational parameters of the treatment equipment.

6.12 Power consumption

The CBWTF has installed a dedicated energy meter for monitoring power consumption across all processes, including the incinerator, autoclave, and Effluent Treatment Plant (ETP). Based on the data provided for the period April to June 2025, the monthly electricity consumption is presented in **Table 11.**

Table 11: Monthly power consumption (Incinerator)

Month	Electricity consumption, units (kWh/month)
April, 2025	5037
May, 2025	5247
June, 2025	6570

6.13 Occupational Health and Safety

It is informed that there are twenty (20) workers engaged in the handling of BMW at the facility. All workers are provided with Personal Protective Equipment (PPE) kits (gum boots, gloves and masks) to ensure their safety during operations. Medical check-ups are conducted once every six months, and all workers have been vaccinated against Hepatitis-B and Tetanus as part of occupational health and safety measures.

7.0 Conclusions

1. The CBWTF is engaged in collection and treatment of bio-medical waste from the districts of Srikakulam, Parvathi Puram-Manyam and Vijayanagaram. It is operating with valid Consent for Operation, Hazardous Waste Authorization and Bio-Medical Waste Authorization issued by APPCB having validity upto 31.01.2027.

2. The CBWTF has installed twin chamber incinerator of capacity 100 kg/hr (1,800 kg/day), autoclave, disinfection chamber, shredder and waste sharp pit for disposal of biomedical waste.

3. The CBWTF is surrounded by agriculture land and the nearest habitat/village is located at a distance of 1.12 kms. The biomedical waste collected is processed within the facility and no waste was disposed outside the facility or in the surrounding agriculture land.

4. The CBWTF collects and disposes 792.89 kg/day of segregated bio-medical waste from the Health Care Facilities with a total bed strength of 13,274 beds including both bedded and non-bedded HCFs, located within 150 km radius in the districts of Srikakulam, Parvathi Puram-Manyam and Vijayanagaram. The total quantity of biomedical waste (792.89 kg/day) collected and treated is within the authorized/installed capacity.

5. The CBWTF has provided registration certificates to all its registered HCFs.

6. The CBWTF has a total of six (06) GPS fitted vehicles of capacity 1.00 to 1.5 MT each for collection and transportation of Biomedical waste from member HCFs and are registered with the APPCB Bio-medical App.

7. The CBWTF has provision for storage of untreated Biomedical waste next to incinerator area. However, separate room (or) labeling, for storage of color-coded waste is not provided. All the waste are segregated and stored in the same area.

8. An average 667.72 kg/day yellow category waste of BMW collected is incinerated in double chamber incinerator with a capacity of 100 kg/hr (1,800 kg/day). The temperature maintained in the primary chamber ranges from 809°C to 1050°C and in the secondary chamber from 1061°C to 1159°C. the operator of the CBWTF furnished a certificate from the manufacturer regarding 2 seconds residence time in the secondary combustion chamber.

9. An average 117 kg/day of red category waste of BMW collected is autoclaved in autoclave with an installed capacity of 100 litres per hour (25-30 Kg/cycle (hr)). The spore testing of the autoclave is conducted every fortnightly by third party. The treated red category waste is shredded in a shredder of capacity 100 Kg/hr. The shredded plastic waste is disposed to APPCB authorized plastic recyclers.

10. Waste sharps (white category of BMW) are disinfected with 1% sodium hypochlorite solution in a disinfection chamber of 1 KLD capacity followed by autoclaving and disposed in six (06) concrete waste sharp pit each with a capacity of 200 kg within the CBWTF premises.

11. The Blue (glass waste) category of BMW along with plastic waste (autoclaved Red waste) is disposed to APPCB authorized plastic recyclers i.e. M/s Bharath Enterprises, Hyderabad.

12. The wet scrubber is installed at the incinerator as an air pollution control device. The wastewater from wet scrubber is treated in the ETP.

13. The results of source emission monitoring carried out at the stack attached to the incinerator shows that parameters such as NO_2, HCl and Hg are within the prescribed emission standards. Particulate Matter concentration exceeds the permissible limit, with a recorded value of 65 mg/Nm^3 against the standard of 50 mg/Nm^3. The combustion efficiency is below the required standard, recorded at 98.5% against the stipulated 99%.

14. The dioxins and furans concentration monitored during performance evaluation study conducted in 2023-24 was 0.1036 ng/Nm^3 against the standard of 0.1 ng/Nm^3 (at 11% O_2).

15. The monitoring facility such as ladder and platform provided at the stack is not as per CPCB guidelines.

16. The Online Continuous Emission Monitoring System is installed at the stack attached to the incinerator to monitor the parameters viz. CO, CO_2, NO_x & PM and it is

connected to the CPCB and APPCB servers. However, on the day of inspection, it was observed that the OCEMS was non-functional as it was under repair since 12th June, 2025.

17. An averages 3 KLD of effluent generation from floor washing, vehicle washing and wet scrubber are treated in the ETP of capacity 6 KLD comprises of primary collection tank, oil & grease trap, aeration tank, settlement tank, secondary collect tank and sludge drying bed. The analysis of samples collected at outlet of ETP shows that the parameters are complying with the prescribed effluent discharge standards.

18. An averages 19.04 kg/day ash generated from the incinerators, along with residue from flue gas cleaning and ETP sludge are disposed to the TSDF facility operated by M/s. Coastal Waste Management, Parawada, through APEMCL. The analysis results of incineration ash indicate that LOI on a dry basis is exceeding the prescribed limit, recorded at 19.97% against the standard of < 5% and the percentage of Organic Carbon is also above the acceptable limit, recorded at 3.72% against the standard of < 3%.

19. The online monitoring records of time of operation and temperatures of the primary and secondary chambers in incinerator are maintained. Time of operation, temperature and pressure at autoclave are automatically recorded in a data logger. The records of operation of incinerator such as total waste feed, time of operation, water pressure of the venturi and pH of the scrubber, quantity of waste fed per cycle in autoclave, details of disinfection were not maintained in a log books.

8.0 Recommendations

Based on the observations following measures are recommended for implementation at M/s. Rainbow Industries, Srikakulam:

1. Separate room with color-coded labeling shall be provided for storage of segregated waste prior to treatment and disposal.

2. The CBWTF shall ensure disposal of blue category of BMW i,e treated waste glasses bottles only through the authorized recyclers.

3. The CBWTF shall ensure concentration of particulate matter, dioxins and furans in the source emissions and combustion efficiency in incinerator comply with the prescribed standards.

4. The CBWTF shall provide the monitoring facility such as ladder and platform at the stack attached to incinerator as per CPCB guidelines.

5. The CBWTF shall ensure calibration and functioning of Online Continuous Emission Monitoring System installed at the stack attached to the incinerator and data is continuously transferred to APPCB and CPCB RTDMS portals.

6. The CBWTF shall maintain records of operation of incinerator such as total waste feed, duration of operation, water pressure of the venturi and pH of the scrubber, quantity of waste fed per cycle in autoclave and details of disinfection.

Smt. Sowmya D, Scientist 'E', CPCB, Regional Directorate, Chennai

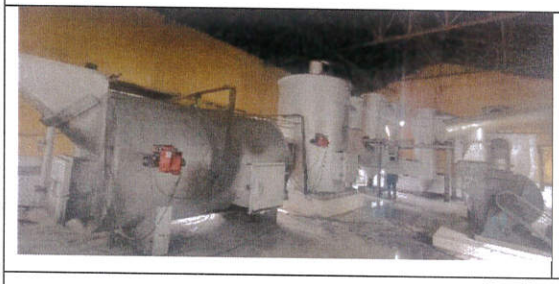
Sri. A. Narendra Babu, Senior Environmental Engineer, APPCB, Vijayawada, Andhra Pradesh

Sri.M. Venkateshwara Rao, District Revenue Officer, Srikakulam District, Andhra Pradesh

PHOTOGRAPHS




BMW waste segregated and stored at the CBWTF




Incinerator

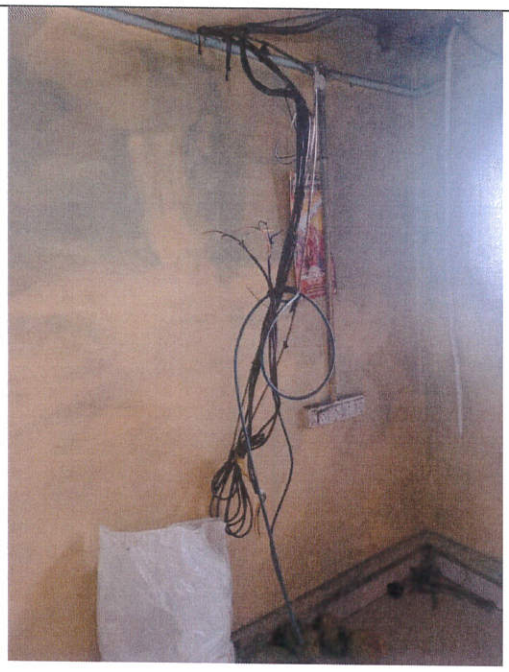
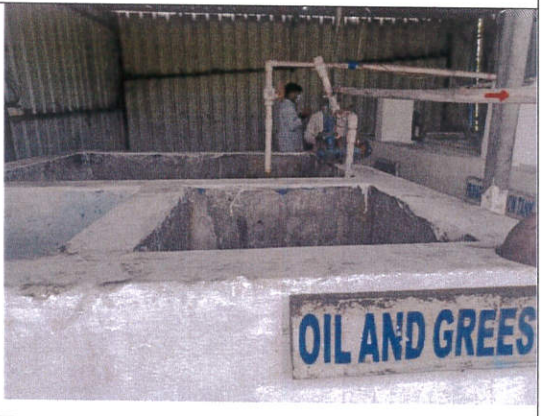
Conveyor belt to the incinerator

Autoclave

Shredder

Sharps storage pit

Incineration ash storage area

	
Stack connected to the incinerator	OCEMS (under repair) connected to the stack
	
Overview of the ETP	Oil & Grease Trap
	
Overview of the ETP	Aeration Tank

Annexure-1

Item No. 02 Court No. 2

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 207/2025

K Vijay Laxmi and Ors. Applicants

Versus

State of Andhra Pradesh & Ors. Respondents

Date of hearing: 28.05.2025

CORAM: HON'BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

Applicants: None for the Applicants.

ORDER

1. K Vijay Laxmi and others have sent the present letter petition dated 17.05.2024 to this Tribunal, which has been treated and registered as O.A. No. 207/2025 for exercise of suo motu jurisdiction.

2. The relevant part of the letter petition enumerating grievances of the applicant is reproduced as follows:-

> *" **Sub: Violation of CBMWTF Rules & Regulations by M/s Rainbow Industries Srikakulam-Reg***
>
> *X X X X*
>
> *With reference to the above subject and above cited firm Namely M/s. RAINBOW INDUSTRIES, Located at PathaKunkam (V), Laveru (M), Srikakulam District, running with 100kg/hr. capacity Bio Medical Waste Treatment Plant. This plant collecting waste from 2 Districts (Srikakulam & Vizianagaram). Nearly they are collecting 3-4 Tons of Bio Medical waste every day from both districts (Srikakulam & Vizianagaram). Due to low capacity of the plant they are unable to maintain / Run Plant in scientific / Systematic way. Bio Medical waste was not burning in-time & Waste was not storing in scientific method / systematic method and BMW waste was spreading / Spilling inside the plant area and few of the BMW waste material was throwing / Spreading*

outside of the plant also, they are contaminated the cultivation lands & Environment with this BMW Waste, due to this contamination causes severe Environmental challenges & health issues to the public residing nearby villages.

APPCB conducted several inspections, Meetings and given so many Notices, Directions, Show cause notices, Closure orders (Copies Attached) to the above cited firm towards closing of the firm from past so many years. No further action was taken against the firm and they are (Rainbow Industries) managing with local / Higher authorities and revoking the orders from past so many years.

They are (Rainbow Industries) threating surrounding villagers not to complain against the firm and managing with local authorities support towards running the plant. Hence, we are requesting your goodselves, please take necessary action against this firm and help us to survive in our villages in healthy condition in future."

3. *Prima facie* the averments made in the application raise substantial questions relating to environment arising out of the implementation of the enactments specified in Schedule-I to the National Green Tribunal Act, 2010.

4. In view of the averments in the application, we consider it appropriate to have response of (1) State of Andhra Pradesh through District Collector/District Magistrate, Srikakulam; (2) Central Pollution Control Board through its Member Secretary, (3) Andhra Pradesh Pollution Control Board through its Member Secretary and (4) M/s. Rainbow Industries, Located at Village PathaKunkam, Mandal Laveru, District Srikakulam who are impleaded as respondents no. 1 to 4. The Registry is directed to prepare and attach memo of parties to the application and issue notices to respondents no. 1 to 4 requiring them to file their reply/response within two months.

5. In view of the environmental questions involved in the case, we also consider it appropriate that a Joint Committee be constituted to verify the factual position and suggest appropriate remedial action. Accordingly, we constitute a Joint Committee comprising of officers duly authorized by Member Secretary, CPCB, Member Secretary, APPCB and

District Collector/District Magistrate, Srikakulam and direct the same to meet within two weeks, undertake visits to the site, look into the grievances of the applicant, associate the applicant and representative of the concerned project proponent, verify the factual position and suggest appropriate remedial action. The APPCB will be the nodal agency for coordination and compliance.

6. Even though in the present case cognizance has been taken by this Bench on the basis of letter petition received by post with approval and assignment under order of Hon'ble Chairperson, but in view of the facts and circumstances of the case including the fact that the place of accrual of cause of action lies within jurisdiction of the Southern Zone Bench of this Tribunal at Chennai we are of the considered view that it will be appropriate if the case is further heard by the Southern Zone Bench of this Tribunal at Chennai.

7. Accordingly, the Registry is directed to list the matter before the Southern Zone Bench of this Tribunal at Chennai on 08.07.2025 after obtaining orders from Hon'ble the Chairperson for transfer of the case.

8. Report of the Joint Committee may be filed by APPCB and replies/ responses may be filed by respondents no. 1 to 4 before the Southern Zone Bench of this Tribunal at Chennai within two months.

9. A copy of this order be sent to the Member Secretary, CPCB, Member Secretary, APPCB and District Collector/District Magistrate, Srikakulam by email for requisite compliance.

Arun Kumar Tyagi, JM

Dr. Afroz Ahmad, EM

May 28th, 2025

Original Application No. 207/2025/AB

Annexure-2

ANDHRA PRADESH POLLUTION CONTROL BOARD
D.No.33-26-14D/2, Near Sunrise Hospital, Pushpa Hotel Centre,
Chalamavari Street, Kasturibaipet, Vijayawada – 520 010
Phone. No.0866-2436200, Website: www.pcb.ap.gov.in

RED CATEGORY
Renewal of CONSENT, HW AUTHORIZATION AND BMW AUTHORISATION ORDER

Consent order No: APPCB/VSP/SKLM/CFO/HO/2009 **25/03/2022**

CONSENT is hereby granted for Operation 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 & Transboundary, Movement) Rules, 2016 and the rules and orders made there under and Authorisation under Rule 10 of the Bio-Medical Waste Management Rules, 2016 (hereinafter referred to as 'the Acts', `the Rules') to:

M/s. Rainbow Industries,
Sy.No.22/1, Patha Kunkam (V), Laveru (M),
Srikakulam District, Andhra Pradesh.
Email: rainbowindustries@rocketmail.com

(Hereinafter referred to as 'the Applicant') authorizing to operate the Common Bio-medical Waste Treatment and disposal Facility to discharge the effluents from the outlets and the quantity of Emissions per hour from the chimneys as detailed below:

i) Outlet for discharge of effluents:

Outlet No.	Outlet Description	Max Daily Discharge (KLD)	Point of Disposal
1.	Process & washings	3.0 KLD	Onland for gardening within the premises after treatment in ETP.
2.	Domestic Effluents	2.0 KLD	Septic tank followed by soak pit.

ii) Emission from chimneys:

Chimney No.	Description of Chimney	Quantity of emissions at peak flow
1.	Attached to HSD Incinerator of capacity 100 Kgs/hr	--
2.	Attached to 1 x 45 kVA DG set	--

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

M/s. Rainbow Industries, Sy.No.22/1, Patha Kunkam (V), Laveru (M), Srikakulam District, Andhra Pradesh is hereby granted an authorization to operate a facility for collection, reception, transport and disposal of the following wastes with quantities as below:

- **HAZARDOUS WASTES WITH DISPOSAL OPTION:**

S. No	Name of the Hazardous waste	Stream	Quantity	Disposal Option
1.	Incineration ash	37.2 of Schedule - I	60 Kg/day	Shall be routed through M/s. APEMC to TSDF, Parawada.

2.	ETP Sludge	35.3 of Schedule - I	5.0 Kg/ day	
3.	Waste oil	5.1 of Schedule – I	10 LPM	Shall be routed through M/s. APEMC to APPCB authorized re-processors /recyclers (as recyclable waste)
4.	Spent HCl	---	5.0 TPM	Sent to authorized agencies.

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

S. No	Name of the Hazardous waste	Quantity	Disposal Option
1.	Plastic waste collected from HCFs autoclaved and shredded	33 Kg/day	Shall be disposed to reprocessing units after disinfection in autoclave followed by shredding.
2.	Sharps	27 Kg/day	Shall be disposed to concrete pits onsite.

BMWM AUTHORISATION

(Rule 10 of the Bio-Medical Waste Management Rules, 2016)

M/s. Rainbow Industries is hereby granted an authorisation to operate a facility for collection, reception, storage, transport and disposal of biomedical waste on the premises situated at Sy.No.22/1, Patha Kunkam (V), Laveru (M), Srikakulam District, Andhra Pradesh.

This order is valid to collect, transport, treat and scientific disposal of Bio-medical Waste (COVID & Non- COVID) generated from the Health Care Establishments located in Srikakulam & Vizianagaram districts in accordance with the Bio-Medical Waste (Management & Handling) Rules, 2016 & its amendments, Guidelines for Common Bio-Medical Waste Treatment and Disposal Facility.

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 & D enclosed to this order.

This combined order of Consent, Hazardous Waste Authorization & Bio-medical Waste Authorization shall be valid for a period ending with the **31st January 2027.**

KANDAVALLI VENKATESWARA RAO, JCEE(KVR), O/o JOINT CHIEF ENVIRONMENTAL ENGINEER3-APPCB

To
M/s. Rainbow Industries,
Sy.No.22/1, Patha Kunkam (V), Laveru (M),
Srikakulam District, Andhra Pradesh.

Copy to:

1. The Joint Chief Environmental Engineer, Zonal Office, **Visakhapatnam** for information and necessary action.
2. The Environmental Engineer, Regional Office, **Srikakulam** for information and necessary action.

SCHEDULE – A

1. Any up-set condition in any industrial plant / activity of the facility, 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 facility 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. All the rules & regulations notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act, 1991 should be followed as applicable.
4. The facility shall put up two sign boards (6x4 ft. each) at publicly visible places at the main gate indicating the activity, effluent discharge standards, air emission standards, hazardous waste quantities and validity of CFO and exhibit the CFO order at a prominent place in the factory premises.
5. 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.
6. The facility 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.
7. 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.
8. The applicant should make applications through Online for renewal of Consent (under Water and Air Acts) and Authorization under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 & Authorization under Bio –medical Waste Management Rules, 2016 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. The facility 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, 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.
10. The facility 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.
11. The facility may explore the possibility of tapping the solar energy for their energy requirements.

SCHEDULE - B

1. The effluent discharged shall not contain constituents in excess of the tolerance limits mentioned below:

Outlet	Parameter	Limiting Standards (mg/l except for pH)
1	PH	6.50 – 9.00
	Suspended Solids (at 103 – 105^{o} C)	100
	Oil and Grease	10
	Chemical Oxygen Demand (COD)	250
	Biochemical Oxygen Demand (3 days at	30

	27˚C)	
	Bio-assay test	90% survival of fish after 96 hours in 100% effluent.

2. The water consumption shall not exceed the quantities mentioned below:

S.No	Purpose	Quantity(KLD)
1.	Process & washings	3.0
2.	Domestic	3.0
3.	Autoclave	5.0 KLD (2.0 KLD makeup & 3 KLD re-circulated)

Separate meters with necessary pipe line shall be provided for assessing the quantity of water used for each of the purposes like Autoclave, Domestic, Truck washings etc.

3. The incinerator shall meet the following operating standards:
   a. Combustion efficiency (CE) shall be at least 99.00%.
   b. The Combustion efficiency is computed as follows:

$$C.E = \frac{\%CO2}{\%CO2 + \%CO} \times 100$$

   c. The temperature of the primary chamber shall be $800 \pm 50^{o}C$.
   d. The secondary chamber gas residence time shall be at least 2 (two) seconds at $1050 + 50^{o}$ C., with minimum 3% Oxygen in the stack gas.

4. The emissions from incinerator shall not contain constituents in excess of the prescribed limits mentioned below.

Chimney No.	Parameters	Limiting concentration in mg Nm^3 unless stated
1	Particular matter	50
	Nitrogen Oxides NO and NO2 expressed asNO2	400
	HCl	50
	Total Dioxins and Furans	0.1ngTEQ/Nm^3 (at 11% O_2)
	Hg and its compounds	0.05

5. There shall not be any manual handling during charging of bio-medical waste into the primary chamber of the incinerator. The waste shall be charged in bags at the supplier's recommended intervals through a conveyer & loading device ensuring no direct exposure of the operator to the furnace atmosphere. The device shall prevent leakage of hot flue gas & any backfire in the loading hopper / device. The waste shall be introduced on the hearth in such a way so as to prevent the heap formation. Suitable raking arrangement shall be provided for uniform spreading of waste on the hearth.
6. The waste shall be charged only after the required temperatures in the primary and secondary chambers are attained during the beginning of the operation of incinerator and the required temperatures shall be maintained in the chambers during operation.
7. The burners shall be interlocked with respective chamber temperatures and in case of any malfunction of the unit, the entire unit consisting of F.D. Fan, I.D. Fan and primary & secondary chamber burners will be stopped.
8. A skilled person shall be designated to operate and maintain the incinerator. The operator shall have adequate qualification in relevant subject and shall be trained & certified by the incinerator supplier in operation & maintenance of the incineration.
9. All the staff at the incinerator plant shall put on protective gears such as gumboots, gloves, glass etc. to avoid contact with the bio-medical wastes.
10. Wastes to be incinerated shall not be chemically treated with any chlorinated disinfectants.

Chlorinated plastics shall not be incinerated.

11. Volatile organic compounds in ash shall not be more than 0.01%.
12. Toxic metals in incineration ash shall be limited within the regulatory quantities as defined under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
13. Only low sulphur fuel like L.D.O/L.S.H.S/Diesel shall be used as fuel in the incinerator.
14. The facility shall provide graphic or computer recording devices to the incinerator which shall automatically and continuously monitor and record dates, time of the day, batch sequential number and operating parameters such as temperatures in both the chambers, CO, CO_2 and 0_2 in gaseous emission throughout duration of incineration cycle.
15. A programmable logic control (PLC) based control system shall be maintained to the incinerator.
16. The facility shall make adequate arrangements for scrubbing the emissions from the incinerator for control of odour.
17. The autoclave shall be dedicated for the purposes of disinfecting and treating bio-medical waste. The medical waste shall be subjected to the required temperature, pressure and time as specified in Schedule – II of Bio-Medical Waste Management Rules, 2016.
18. The autoclave shall have graphic or computer recording devices which will automatically and continuously monitor and record dates, time of day, load identification number and operating parameters throughout the entire length of the autoclave cycle. The applicant shall carry out Validation Test of autoclave (Spore Testing and Routine Test).
19. Data-logging to the Auto-clave with print out arrangements for temperature, pressure etc has to be provided.
20. The facility shall operate air pollution control equipments such as cyclone separator, high pressure venture scrubber, droplet separator attached to incinerator so as to comply with the BMW Rules, 2016 and its amendments.
21. The loading point of the disinfected recyclable waste shall be separated from the incoming material.
22. The shredder for bio-medical waste shall be of robust design with minimum maintenance requirement. In case of shock loading (non-shreddable material in the hopper), there shall be a mechanism to automatically stop the shredder to avoid any emergency/accident.
23. The facility shall comply with ambient air quality standards of PM_{10} (Particulate Matter size less than 10 mm) - 100 mg/ m^3; $PM_{2.5}$(Particulate Matter size less than 2.5 mm) - 60 mg/ m^3; SO_2 - 80 mg/ m^3; NO_x - 80 mg/m^3, outside the factory premises at the periphery of the facility.

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 shall be complied. Following standards prescribed for noise shall be complied.

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

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

24. All activities like washing of vehicles, packing of shredded items, transferring or storage of any waste shall be done in the closed shed only.
25. The segregated rubber and plastic components, disposable syringes shall be disinfected before disposal.
26. The proponent shall provide and maintain a closed pipeline system for carrying the effluent from the generation point to the ETP in order to avoid the mixing with rainwater
27. The proponent shall maintain the records for all operations carried out at the CBMWTF.

S C H E D U L E – 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 these Rules.
9. The person authorised shall comply any other conditions as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.

Specific Conditions:

10. The facility shall comply with the provisions of HWM Rules, 2016 in terms of interstate transport of Hazardous Waste and manifest document prescribed Under Rule 18 and 19 of the HWM Rules, 2016.
11. The facility shall not store hazardous waste for more than 90 days as per the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.
12. The facility shall store Used / Waste Oil in a secured way in their premises till its disposal to the manufacturers / dealers on buyback basis.
13. The facility 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 facility 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.
15. Annual return shall be filed by June 30th for the period ensuring 31st March of the year.

SCHEDULE – D
[See Rule 8(4)]

(Authorization for operating Bio Medical Waste Treatment Facility for collection, reception, treatment, storage, transport and disposal of biomedical wastes)

1. The authorization shall comply with the provisions of the Environment (Protection) Act, 1986 and the rules made thereunder;
2. The authorization or its renewal shall be produced for inspection at the request of an officer authorized by the prescribed authority;
3. The person authorized shall not rent, lend, sell, transfer or otherwise transport the bio-medical wastes without obtaining prior permission of the Prescribed Authority;
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. It is the duty of the authorized person to take prior permission of the Prescribed Authority to

close down the facility;

6. The authorized person shall collect Bio Medical Waste (BMW) from all hospitals, nursing homes, clinics, dispensaries, veterinary institutions, animal houses, biological laboratories, blood banks etc that generate Bio Medical Waste located in Srikakulam & Vizianagaram districts authorized by the Board without fail;
7. The non- chlorinated colour coded bags/ containers of carrying Bio-medical waste shall be labeled according to Schedule – IV and also carry information prescribed in Schedule – I of Bio-medical Waste Management Rules, 2016 and its amendments;
8. The authorized person shall treat & dispose the bio-medical waste and in compliance with the standards prescribed in Schedule – II of Bio-Medical Waste Management Rules, 2016 and its amendments;
9. The facility shall take all necessary steps to ensure that the bio-medical waste collected from the occupier is transported, handled, stored, treated and disposed of, without any adverse effect to the human health and the environment, in accordance with these rules and guidelines issued by the Central Government or, as the case may be, the central pollution control board from time to time;
10. The facility shall ensure timely collection of bio-medical waste from the occupier as prescribed under these rules;
11. The facility shall establish bar coding and global positioning system for handling of bio-medical waste;
12. The facility shall inform the prescribed authority immediately regarding the occupiers which are not handing over the segregated bio-medical waste in accordance with these rules;
13. The facility shall provide training for all its workers involved in handling of bio-medical waste at the time of induction and at least once a year thereafter;
14. The facility shall assist the HCFs in training conducted by them for bio-medical waste management;
15. The facility shall undertake appropriate medical examination at the time of induction and at least once in a year and immunise all its workers involved in handling of bio-medical waste for protection against diseases, including Hepatitis B and Tetanus, that are likely to be transmitted while handling bio-medical waste and maintain the records for the same;
16. The facility shall ensure occupational safety of all its workers involved in handling of bio-medical waste by providing appropriate and adequate personal protective equipment;
17. The facility shall report major accidents including accidents caused by fire hazards, blasts during handling of biomedical waste and the remedial action taken and the records relevant thereto, (including nil report) in Form I to the prescribed authority and also along with the annual report;
18. The facility shall maintain a log book for each of its treatment equipment recording the weight of batch; categories of waste treated; time, date and duration of treatment cycle and total hours of operation;
19. The facility shall allow occupier, who are giving waste for treatment to the operator, to see whether the treatment is carried out as per the rules;
20. The facility shall display details of authorisation, treatment, annual report etc on its web-site;
21. After ensuring treatment by autoclaving or microwaving followed by mutilation or shredding, whichever is applicable, the recyclables from the treated bio-medical wastes such as plastics and glass, shall be given to recyclers having valid consent or authorisation or registration from the respective State Pollution Control Board or Pollution Control Committee;
22. The facility shall supply non-chlorinated plastic coloured bags to the occupier on chargeable basis, if required;
23. Common bio-medical waste treatment and disposal facility shall ensure collection of biomedical waste on holidays also;
24. The facility shall maintain all record for operation of incineration, hydro or autoclaving;
25. Any person including an occupier or operator of a common bio medical waste treatment facility, intending to use new technologies for treatment of bio medical waste other than those listed in Schedule I shall request the Central Government for laying down the standards or

operating parameters;

26. Every occupier shall phase out use of non-chlorinated plastic bags and the chlorinated plastic bags shall not be used for storing and transporting of bio-medical waste and the occupier or operator of a common bio-medical waste treatment facility shall not dispose of such plastics by incineration and the bags used for storing and transporting biomedical waste shall be in compliance with the Bureau of Indian Standards;
27. The Occupier or Operator of a common bio-medical waste treatment facility shall maintain a record of recyclable wastes referred to in sub-rule (9) which are auctioned or sold and the same shall be submitted to the prescribed authority as part of its annual report. The record shall be open for inspection by the prescribed authorities;
28. The handling and disposal of all the mercury waste and lead waste shall be in accordance with the respective rules and regulations;
29. The operator of common bio-medical waste treatment facility shall transport the bio-medical waste from the premises of an occupier to any off-site bio-medical waste treatment facility only in the vehicles having label as provided in part 'A' of the Schedule IV along with necessary information as specified in part 'B' of the Schedule IV;
30. The vehicles used for transportation of bio-medical waste shall comply with the conditions if any stipulated by the State Pollution Control Board or Pollution Control Committee in addition to the requirement contained in the Motor Vehicles Act, 1988 (59 of 1988), if any or the rules made there under for transportation of such infectious waste;
31. Untreated human anatomical waste, animal anatomical waste, soiled waste and, biotechnology waste shall not be stored beyond a period of forty –eight hours;
32. Every occupier or operator of common bio-medical waste treatment facility shall submit an annual report to the prescribed authority in Form-IV, on or before the 30th June of every year;
33. Any person aggrieved by an order made by the prescribed authority under these rules may, within a period of thirty days from the date on which the order is communicated to him, prefer an appeal in Form V to the Secretary (Environment) of the State Government or Union territory administration;
34. The occupier or operator of common bio-medical waste treatment facility shall be liable for action under section 5 and section 15 of the Act, in case of any violation;
35. The facility shall comply with the standards mentioned in Schedule I & Schedule II of BMW Rules and amendments thereof;
36. The facility shall submit Form –I in case of accidents occurred;
37. The BMW shall not be mixed with other wastes;
38. The authorized person shall not accept the non segregated waste from the HCFs and such incident shall be reported to Prescribed Authority as per BMW Rules;
39. The facility shall comply with the following:

a. Bio-medical Waste Management Rules, 2016 and amendments thereof;
b. Hazardous Waste Management Rules, 2016 and amendments thereof;
c. Plastic Waste Management Rules, 2016 and amendments thereof;
d. Solid Waste Management Rules, 2016 and amendments thereof;
e. Construction & Demolition Waste Management Rules, 2016 and its amendments;
f. E-Waste Management Rules, 2016 and its amendments;
g. Noise Rules, 2000 and its amendments;
h. Guidelines for handling, treatment and disposal of waste generated during treatment/ Diagnosis/ Quarantine of COVID -19 patients issued by CPCB;
i. Guidelines for Bar Code System for Effective Management of Bio-medical Waste issued by CPCB;
j. Revised guidelines for Common Bio-medical Waste Treatment and Disposal Facility issued by CPCB;
k. Guidelines for Verification of Two Seconds Residence Time in Secondary Combustion Chamber of the Biomedical Waste Incinerator issued by CPCB;
l. Environmentally sound management of mercury waste generated from the health care facilities

issued by CPCB;

m. Guidelines for handling of biomedical waste for utilization issued by CPCB.

41. The person responsible for collection of bio-medical waste shall also carry a register with him to maintain the records such as name of the hospitals, the quantity and type of wastes handled, signature of the person from the hospital side, day and time of collection etc;

42. The bio-medical wastes collected in colored containers shall be transported to the CBWTF in a fully covered vehicle. The transport vehicles carrying BMW shall have separate compartments to maintain the segregation of wastes. The driver of the vehicle or the accompanied staff shall maintain necessary records while receiving and handing over the wastes;

43. The vehicle shall be labeled with the Bio-medical waste symbol (as per Schedule – IV of the rules) and should display the name, address and telephone number of Common Bio-medical Waste Treatment Facility. The rear side of the carrier shall have provision of full opening so that waste containers could be easily loaded and unloaded and also the carrier can be washed and disinfected easily;

44. Notwithstanding anything contained in the Motor Vehicles Act, 1988, or rules there under, untreated biomedical waste shall be transported only in such vehicles as may be authorized for the purpose by the competent authority as specified by the Government;

45. The authorized person shall maintain records related to collection, reception, storage, transportation, treatment, disposal and/or any form of handling of biomedical waste in accordance with the Bio-medical Rules and the revised guidelines for CBWTF;

46. The CBWTF shall develop greenbelt in the vacant land available within the premises;

47. When any accident occurs at the facility or any other site where bio-medical waste is handled or during transportation of such waste, the authorized person shall report the accident in Form III to the A.P. Pollution Control Board forthwith;

48. The Facility shall submit condition wise compliance of conditions stipulated in the CFO order and the BMW Authorization every month to the RO, Srikakulam; ZO, Visakhapatnam and Head Office, Vijayawada along with the following information in excel format:

S. No	Name & detailed Address of the Hospital with contact number and email address	Nature of the HCE (Hospital / Clinic / Blood bank / Diagnostic / Veterinary unit etc)	No. of beds authorized by Board	No. of Beds registered with CBWTF	Incinerable waste collected & incinerated		Recyclable waste collected & treated		Segregation by HCE (Yes/No/Partial)
					Average for current month (Kgs/day)	Average for the last six months (Kgs/day)	Average for current month (Kgs/day)	Average for the last six months (Kgs/day)	

49. This authorisation shall be exhibited in the above premises and should be produced from time to time at the request of the Inspecting Officer;

50. The facility shall comply with the directions issued by the CPCB/ Board from time to time;

51. The facility shall implement the rules and regulations notified by the MOE&F, GoI;

52. 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.

53. The Board reserves its right to modify above conditions or stipulate any additional conditions including revocation of this order in the interest of environment protection.

54. Any contravention of the conditions or directions of authorization will attract prosecution under the provisions of the Environment (Protection) Act, 1986 & Environmental Compensation will be imposed as per the CPCB guidelines for imposition of Environmental Compensation charges against Health care facilities and Common Bio-medical waste treatment facilities (As per Hon’ble National Green Tribunal order dated 12.03.2019 in the

matter of O.A.No. 710-713 of 2017).

The facility shall submit Half yearly compliance reports to all the stipulated conditions in Environmental Clearance (EC), Consent for Establishment (CFE) and Consent for Operation (CFO) 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 facility 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.

KANDAVALLI VENKATESWARA RAO, JCEE(KVR), O/o JOINT CHIEF ENVIRONMENTAL ENGINEER3-APPCB

To
M/s. Rainbow Industries,
Sy.No.22/1, Patha Kunkam (V), Laveru (M),
Srikakulam District, Andhra Pradesh.

Annexure-3

ANDHRA PRADESH POLLUTION CONTROL BOARD
D.No.33-26-14D/2, Near Sunrise Hospital, Pushpa Hotel Centre,
Chalamalavari Street, Kasturibaipet, Vijayawada – 520 010
Phone. No.0866-2463200, Website : https://pcb.ap.gov.in/

Lr.No:APPCB/BMWTC/BMW/CBWTF/2022 **01/02/2022**

Sub: APPCB – UH-IV – BMW – Enhancement of Bio-medical Waste management - services - Reg.

Ref:-
1. Lr.No. 2/APPCB/UH-IV/BMW/HO/TC/2018 dated 07.02.2018 of APPCB to CBWTFs in the state.
2. Representations of CBWTF Association of India – AP Chapter, Vijayawada dated 06.01.2022.
3. Bio-medical Technical Committee meeting held on 18.01.2022.

***

Vide reference 1st cited, in the 14th Bio-Medical Technical Committee meeting which was held on 06.02.2018 the service charges were enhanced.

Now, the CBWTF Association of India - AP Chapter submitted representations to the Board to enhance the "Service Charges" for the COVID-19 & Non- COVID Bio-medical waste from the month of January, 2022 vide reference 1st cited.

The issue was discussed by the Bio-medical Technical Committee in its meeting held on 18.01.2022 @ 05:00 P.M.

The following enhanced service charges for Non-COVID BMW & COVID BMW are approved:

1. Enhancement of Service charge for Non-COVID BMW:

S.No.	Type of HCF	Present service charge (Rs)	Enhanced Service charge for Non- COVID BMW (Rs)
1.	Government General Hospitals (DME)	Rs. 7/- per Bed per day	Rs. 10/- per Bed per day
2.	AP Vidya Vidhana Parishad (> 50 beds)	Rs. 6/- per Bed per day	Rs. 8/- per Bed per day
	AP Vidya Vidhana Parishad (< 50 beds)	Rs. 5/- per Bed per day	Rs. 7/- per Bed per day
3.	P.H.C (Director of Health)	Rs. 4000/- per month	Rs. 5000/- per month
4.	Bedded HCFs (< 50 beds)	Rs. 5/- per Bed per day	1 to 20 beds – Rs. 6/- per bed per day
	Bedded HCFs (> 50 beds)	Rs. 6/- per Bed per day	21-49 beds – Rs. 7/- per bed per day 50-100 beds – Rs. 8/- per bed per day > 101 beds – Rs. 9/- per bed per day

5.	Non- bedded HCFs (Clinics, Labs, Diagnostic center etc)	Rs. 500/800/1000 per month	Rs. 1000/1500/2500 per month
6.	Blood banks	Rs. 3000 per month	Rs. 4000 per month
7.	Dental Clinics (per chair)	Rs. 500 per month	Rs. 750 per month
8.	Expired medicines sent by APMSIDC or other agencies	--	Rs.100 per Kg

The APNA State General Secretary, A.P. Private hospitals & nursing Homes Association informed that for Vizianagaram and Srikakulam districts, additional Rs. 1/- for the above mentioned slab rates (at Sl. No:4) are acceptable to the association.

He further informed that for Prakasam district, the charges of Rs. 7/- per bed per day for 1 to 49 beds, Rs.8/- per bed per day for 50-100 beds, Rs.9/- per bed per day for 101 and above are acceptable to their association.

2. Enhancement of Service charge for COVID BMW:

S.No.	Type of HCF	Present service charge (Rs)	Enhanced Service charge for COVID BMW (Rs)
1.	Hospitals (Government & Private)/ Quarantine center/ Covid Care Centers/ testing Centers	Rs. 20,000/- per month upto 200 Kgs; above 200 Kgs @ Rs 80/- per Kgs	Rs. 25,000/- per month upto 150 Kgs; above 150 Kgs @ Rs 100/- per Kgs
2.	Laboratories/ Diagnostics	Rs. 10,000/- per month upto 200 Kgs	Rs. 12,000/- per month

KANDAVALLI VENKATESWARA RAO, CEE(KVR), O/o CHIEF ENVIRONMENTAL ENGINEER-APPCB

To,

1. The Director of Medical Education, (Old Government General Hospital), Hanumanpeta, Vijayawada 520 003;
2. The Commissioner, A.P. Vaidya Vidhana Parishad, Government of Andhra Pradesh, 2nd Floor, B-Block, Himagna Towers, D.No.189, LIC Colony Adda Road, Saipuram Colony, Road One Center, Gollapudi, Vijayawada Rural, Krishna District;
3. The Director, Public Health & Family Welfare department, 5th Floor, APIIC Building, Mangalagiri Guntur Dt., Andhra Pradesh.
4. Dr.P.Srinivas, MD General Secretary, AP Private Hospital & Nursing Homes Association, Vijayawada.
5. Dr. P.V. Madhusudhan Sharma, President, Indian Medical Association, IMA HALL Opp. Swarna Palace, Eluru Rd, Vijayawada.

6. The CEO, Krishna Institute of Medical Sciences, Kurnool.

RAINBOW INDUSTRIES

Cell. : 9391387742
8897737742

(COMMON BIO-MEDICAL WASTE TREATMENT FACILITY)

Authorised by A.P. Pollution Control Board

Office : 12-222, Adarsh Nagar, Opp. IDPL Colony,Quthbullapur, R.R. Dist. - 500 037

E-mail : rainbowindustries@rocketmail.com

Annexure-4

To
The Environmental Engineer
A.P. Pollution Controlboard
Srikakulam

Ref No.

Date : 01.5.25

Sub:- Bio- Medical waste collected & treated from the Srikakulam district for the month of April'25

S.No	Date	Yellow	Red	Blue	White	Total	Remarks
1	01-Apr-25	294.16	42.91	1.68	1.38	340.13	
2	02-Apr-25	281.04	45.48	1.55	1.31	329.38	
3	03-Apr-25	290.59	43.92	1.94	1.93	338.38	
4	04-Apr-25	293.97	46.29	1.99	1.98	344.23	
5	05-Apr-25	288.99	41.82	2.05	2.04	334.90	
6	06-Apr-25	291.28	45.19	2.01	2.00	340.48	
7	07-Apr-25	292.47	47.64	2.03	2.02	344.16	
8	08-Apr-25	295.59	44.98	2.00	1.99	344.56	
9	09-Apr-25	297.67	46.82	2.02	2.01	348.52	
10	10-Apr-25	289.49	43.19	2.06	2.05	336.79	
11	11-Apr-25	290.57	42.87	2.02	2.01	337.47	
12	12-Apr-25	286.28	44.49	2.09	2.08	334.94	
13	13-Apr-25	288.69	41.14	2.11	2.10	334.04	
14	14-Apr-25	291.14	38.98	2.03	2.02	334.17	
15	15-Apr-25	285.46	43.16	2.05	2.04	332.71	
16	16-Apr-25	283.82	46.62	2.09	2.08	334.61	
17	17-Apr-25	279.96	42.08	2.01	1.99	326.04	
18	18-Apr-25	282.17	44.19	2.03	2.02	330.41	
19	19-Apr-25	288.92	41.28	2.08	2.06	334.34	
20	20-Apr-25	291.14	45.91	2.04	2.03	341.12	
21	21-Apr-25	281.47	47.07	2.11	2.10	332.75	
22	22-Apr-25	284.17	43.99	2.08	2.06	332.30	
23	23-Apr-25	296.46	46.82	2.23	2.19	347.70	
24	24-Apr-25	290.58	41.14	2.16	2.13	336.01	
25	25-Apr-25	287.49	43.49	2.04	2.01	335.03	
26	26-Apr-25	289.98	40.82	2.09	2.03	334.92	
27	27-Apr-25	283.64	44.46	2.07	2.05	332.22	
28	28-Apr-25	291.47	39.99	2.14	2.11	335.71	
29	29-Apr-25	286.41	42.18	2.10	2.08	332.77	
30	30-Apr-25	279.98	45.64	2.13	2.12	329.87	
Total		**8655.05**	**1314.56**	**61.04**	**60.02**	**10090.67**	

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RAINBOW INDUSTRIES HYDERABAD

Cell. : 9391387742
8897737742

RAINBOW INDUSTRIES

(COMMON BIO-MEDICAL WASTE TREATMENT FACILITY)

Authorised by A.P. Pollution Control Board
Office : 12-222, Adarsh Nagar, Opp. IDPL Colony,Quthbullapur, R.R. Dist. - 500 037
E-mail : rainbowindustries@rocketmail.com

To
Ref. No
The Environmental Engineer
A.P.Pollution Controlboard
Srikakulam

Date : 01.5.25

Sub:- Bio- Medical waste collected & treated from the Parvathipuram district for the month of April'25

S.No	Date	Yellow	Red	Blue	White	Total	Remarks
1	01-Apr-25	101.28	21.16	0.41	0.35	123.20	
2	02-Apr-25	98.54	19.82	0.38	0.32	119.06	
3	03-Apr-25	104.31	24.25	0.46	0.45	129.47	
4	04-Apr-25	107.58	22.89	0.43	0.42	131.32	
5	05-Apr-25	99.69	25.09	0.40	0.39	125.57	
6	06-Apr-25	103.31	21.46	0.45	0.44	125.66	
7	07-Apr-25	100.82	23.97	0.46	0.46	125.71	
8	08-Apr-25	102.17	20.76	0.43	0.42	123.78	
9	09-Apr-25	87.52	18.17	0.41	0.40	106.50	
10	10-Apr-25	84.16	17.42	0.46	0.45	102.49	
11	11-Apr-25	86.49	19.31	0.43	0.42	106.65	
12	12-Apr-25	83.73	21.18	0.39	0.38	105.68	
13	13-Apr-25	89.92	23.31	0.46	0.45	114.14	
14	14-Apr-25	87.14	20.17	0.43	0.42	108.16	
15	15-Apr-25	90.01	19.92	0.38	0.37	110.68	
16	16-Apr-25	94.79	24.19	0.44	0.43	119.85	
17	17-Apr-25	92.82	22.93	0.41	0.40	116.56	
18	18-Apr-25	93.17	20.17	0.45	0.44	114.23	
19	19-Apr-25	96.48	25.62	0.47	0.46	123.03	
20	20-Apr-25	92.63	23.49	0.43	0.42	116.97	
21	21-Apr-25	88.25	21.57	0.48	0.46	110.76	
22	22-Apr-25	86.79	22.06	0.41	0.39	109.65	
23	23-Apr-25	83.47	26.87	0.41	0.40	111.15	
24	24-Apr-25	87.64	24.13	0.35	0.34	112.46	
25	25-Apr-25	90.15	20.58	0.39	0.37	111.49	
26	26-Apr-25	84.46	27.46	0.40	0.38	112.70	
27	27-Apr-25	86.98	23.31	0.37	0.36	111.02	
28	28-Apr-25	92.14	26.94	0.33	0.32	119.73	
29	29-Apr-25	85.61	21.55	0.38	0.37	107.91	
30	30-Apr-25	83.49	19.39	0.42	0.41	103.71	
Total		**2765.54**	**669.14**	**12.52**	**12.09**	**3459.29**	

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RAINBOW INDUSTRIES HYDERABAD

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RAINBOW INDUSTRIES

Cell. : 9391387742
8897737742

(COMMON BIO-MEDICAL WASTE TREATMENT FACILITY)

Authorised by A.P. Pollution Control Board

Office : 12-222, Adarsh Nagar, Opp. IDPL Colony,Quthbullapur, R.R. Dist. - 500 037

E-mail : rainbowindustries@rocketmail.com

To
Ref No
The Environmental Engineer
A.P.Pollution Controlboard
Vizianagaram

Date : 01.5.25

Sub:- Bio- Medical waste collected & treated from the Vizianagaram district for the month of April'25

S.No	Date	Yellow	Red	Blue	White	Total	Remarks
1	01-Apr-25	295.51	41.52	1.58	1.39	340.00	
2	02-Apr-25	290.18	38.92	1.68	1.54	332.32	
3	03-Apr-25	288.47	46.58	1.96	1.95	338.96	
4	04-Apr-25	294.98	42.87	1.99	1.98	341.82	
5	05-Apr-25	282.64	47.52	2.10	2.09	334.35	
6	06-Apr-25	291.16	43.69	1.97	1.96	338.78	
7	07-Apr-25	296.67	45.18	1.92	1.91	345.68	
8	08-Apr-25	292.51	44.03	1.98	1.97	340.49	
9	09-Apr-25	295.79	46.26	2.03	2.02	346.10	
10	10-Apr-25	285.14	42.18	2.11	2.10	331.53	
11	11-Apr-25	289.74	40.92	2.06	2.05	334.77	
12	12-Apr-25	281.61	38.87	2.04	2.03	324.55	
13	13-Apr-25	284.23	41.18	2.09	2.08	329.58	
14	14-Apr-25	278.62	43.61	2.02	2.01	326.26	
15	15-Apr-25	286.46	40.18	2.10	2.09	330.83	
16	16-Apr-25	274.19	44.63	2.07	2.06	322.95	
17	17-Apr-25	282.46	41.89	2.03	2.02	328.40	
18	18-Apr-25	287.94	43.28	2.01	2.00	335.23	
19	19-Apr-25	290.27	40.61	2.13	2.11	335.12	
20	20-Apr-25	286.59	39.98	2.09	2.08	330.74	
21	21-Apr-25	281.14	42.14	2.12	2.10	327.50	
22	22-Apr-25	283.68	44.46	2.07	2.06	332.27	
23	23-Apr-25	289.52	38.92	2.09	2.08	332.61	
24	24-Apr-25	284.61	41.04	2.16	2.15	329.96	
25	25-Apr-25	286.74	43.16	1.99	1.98	333.87	
26	26-Apr-25	279.6	40.94	2.03	2.00	324.57	
27	27-Apr-25	281.47	42.18	2.05	2.04	327.74	
28	28-Apr-25	290.61	44.62	2.21	2.01	339.45	
29	29-Apr-25	289.62	41.98	2.18	2.06	335.84	
30	30-Apr-25	284.79	40.25	2.15	2.11	329.30	
Total		**8606.94**	**1273.59**	**61.01**	**60.03**	**10001.57**	

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Cell. : 9391387742
8897737742

(COMMON BIO-MEDICAL WASTE TREATMENT FACILITY)

Authorised by A.P. Pollution Control Board

Office : 12-222, Adarsh Nagar, Opp. IDPL Colony,Quthbullapur, R.R. Dist. - 500 037

E-mail : rainbowindustries@rocketmail.com

To
Ref No
The Environmental Engineer
A.P.Pollution Controlboard
Vizianagaram

Date : 02/06/25

Sub:- Bio- Medical waste collected & treated from the Vizianagaram district for the month of May'25

S.No	Date	Yellow	Red	Blue	White	Total	Remarks
1	01-May-25	280.47	46.64	2.01	1.99	331.11	
2	02-May-25	283.69	44.82	1.96	1.95	332.42	
3	03-May-25	275.16	42.79	2.13	2.12	322.20	
4	04-May-25	281.04	45.16	2.09	2.08	330.37	
5	05-May-25	277.85	43.98	2.14	2.13	326.10	
6	06-May-25	280.46	40.87	2.08	2.07	325.48	
7	07-May-25	269.92	44.48	2.11	2.09	318.60	
8	08-May-25	283.61	42.11	2.04	2.03	329.79	
9	09-May-25	286.14	40.99	1.99	1.98	331.10	
10	10-May-25	289.62	45.52	2.02	2.01	339.17	
11	11-May-25	278.16	41.25	1.95	1.94	323.30	
12	12-May-25	285.91	43.61	2.12	2.11	333.75	
13	13-May-25	290.04	46.89	2.15	2.14	341.22	
14	14-May-25	277.29	44.24	2.09	2.08	325.70	
15	15-May-25	279.62	41.05	2.03	2.02	324.72	
16	16-May-25	271.43	43.16	2.05	2.04	318.68	
17	17-May-25	280.25	46.62	2.09	2.08	331.04	
18	18-May-25	276.61	42.08	2.01	1.99	322.69	
19	19-May-25	274.89	44.19	2.03	2.02	323.13	
20	20-May-25	281.52	41.28	2.08	2.06	326.94	
21	21-May-25	279.34	45.91	2.04	2.03	329.32	
22	22-May-25	283.69	47.07	2.11	2.10	334.97	
23	23-May-25	280.89	43.99	2.08	2.06	329.02	
24	24-May-25	267.64	46.82	2.23	2.19	318.88	
25	25-May-25	278.55	41.14	2.16	2.13	323.98	
26	26-May-25	287.49	43.49	2.04	2.01	335.03	
27	27-May-25	286.14	40.82	2.09	2.03	331.08	
28	28-May-25	281.67	44.46	2.07	2.05	330.25	
29	29-May-25	284.78	39.99	2.14	2.11	329.02	
30	30-May-25	277.01	41.04	1.99	1.98	322.02	
31	31-May-25	274.16	43.61	1.93	1.92	321.62	
Total		**8685.04**	**1350.07**	**64.05**	**63.54**	**10162.71**	

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Cell. : 9391387742
8897737742

RAINBOW INDUSTRIES

(COMMON BIO-MEDICAL WASTE TREATMENT FACILITY)

Authorised by A.P. Pollution Control Board
Office : 12-222, Adarsh Nagar, Opp. IDPL Colony,Quthbullapur, R.R. Dist. - 500 037
E-mail : rainbowindustries@rocketmail.com

To
Ref No
The Environmental Engineer
A.P.Pollution Controlboard
Srikakulam

Date : 02.06.25

Sub:- Bio- Medical waste collected & treated from the Parvathipuram district for the month of May'25

S.No	Date	Yellow	Red	Blue	White	Total	Remarks
1	01-May-25	87.46	20.18	0.41	0.40	108.45	
2	02-May-25	89.82	22.64	0.37	0.36	113.19	
3	03-May-25	82.46	25.04	0.43	0.42	108.35	
4	04-May-25	85.82	23.61	0.39	0.38	110.20	
5	05-May-25	90.04	21.11	0.42	0.41	111.98	
6	06-May-25	86.92	24.64	0.44	0.43	112.43	
7	07-May-25	92.17	20.79	0.38	0.37	113.71	
8	08-May-25	88.92	19.98	0.41	0.40	109.71	
9	09-May-25	87.58	22.62	0.43	0.42	111.05	
10	10-May-25	91.04	25.41	0.37	0.36	117.18	
11	11-May-25	89.92	21.04	0.40	0.39	111.75	
12	12-May-25	84.46	23.13	0.42	0.41	108.42	
13	13-May-25	90.74	26.69	0.44	0.43	118.30	
14	14-May-25	86.69	24.18	0.38	0.37	111.62	
15	15-May-25	88.31	22.61	0.41	0.40	111.73	
16	16-May-25	82.05	23.96	0.35	0.34	106.70	
17	17-May-25	85.47	25.61	0.39	0.37	111.84	
18	18-May-25	91.04	24.05	0.40	0.38	115.87	
19	19-May-25	79.62	22.62	0.37	0.36	102.97	
20	20-May-25	81.13	26.16	0.33	0.32	107.94	
21	21-May-25	87.51	23.69	0.38	0.35	111.93	
22	22-May-25	92.05	19.99	0.42	0.39	112.85	
23	23-May-25	81.46	21.82	0.38	0.36	104.02	
24	24-May-25	85.81	24.63	0.43	0.42	111.29	
25	25-May-25	83.04	22.06	0.44	0.38	105.92	
26	26-May-25	80.64	20.58	0.39	0.37	101.98	
27	27-May-25	88.29	23.46	0.46	0.45	112.66	
28	28-May-25	86.68	21.06	0.41	0.40	108.55	
29	29-May-25	77.82	19.92	0.43	0.41	98.58	
30	30-May-25	83.67	23.16	0.45	0.41	107.69	
31	31-May-25	91.09	18.99	0.33	0.32	110.73	
Total		**2679.72**	**705.43**	**12.46**	**11.98**	**3409.59**	

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Managing Partner

Cell. : 9391387742
8897737742

RAINBOW INDUSTRIES

(COMMON BIO-MEDICAL WASTE TREATMENT FACILITY)

Authorised by A.P. Pollution Control Board
Office : 12-222, Adarsh Nagar, Opp. IDPL Colony,Quthbullapur, R.R. Dist. - 500 037
E-mail : rainbowindustries@rocketmail.com

To
The Environmental Engineer
A.P. Pollution Controlboard
Srikakulam

Ref. No.

Date : 02.06.25

Sub:- Bio- Medical waste collected & treated from the Srikakulam district for the month of May'25

S.No	Date	Yellow	Red	Blue	White	Total	Remarks
1	01-May-25	281.98	44.82	2.08	2.07	330.95	
2	02-May-25	288.46	46.41	2.11	2.10	339.08	
3	03-May-25	279.92	42.69	2.19	2.18	326.98	
4	04-May-25	284.68	45.92	2.06	2.05	334.71	
5	05-May-25	282.59	41.44	2.13	2.12	328.28	
6	06-May-25	285.44	43.76	2.05	2.04	333.29	
7	07-May-25	288.69	39.98	2.18	2.16	333.01	
8	08-May-25	286.01	40.13	2.10	2.09	330.33	
9	09-May-25	289.91	42.08	2.14	2.13	336.26	
10	10-May-25	279.58	46.61	2.07	2.06	330.32	
11	11-May-25	281.04	44.18	2.02	2.01	329.25	
12	12-May-25	285.79	43.99	2.09	2.08	333.95	
13	13-May-25	287.85	41.04	2.16	2.15	333.20	
14	14-May-25	283.69	45.25	2.19	2.18	333.31	
15	15-May-25	280.04	43.31	2.13	2.12	327.60	
16	16-May-25	285.63	45.13	1.98	1.97	334.71	
17	17-May-25	290.87	44.52	2.13	2.12	339.64	
18	18-May-25	281.56	41.25	1.99	1.98	326.78	
19	19-May-25	288.49	46.92	2.01	2.00	339.42	
20	20-May-25	292.15	44.68	1.96	1.95	340.74	
21	21-May-25	287.98	42.82	2.06	2.05	334.91	
22	22-May-25	294.37	45.96	1.97	1.96	344.26	
23	23-May-25	290.65	47.52	1.99	1.97	342.13	
24	24-May-25	284.89	43.67	2.16	2.15	332.87	
25	25-May-25	291.46	41.08	2.03	2.01	336.58	
26	26-May-25	296.69	40.46	1.99	1.98	341.12	
27	27-May-25	282.25	38.16	1.87	1.86	324.14	
28	28-May-25	288.64	42.98	1.90	1.89	335.41	
29	29-May-25	279.25	39.62	1.96	1.95	322.78	
30	30-May-25	280.04	46.09	2.16	2.15	330.44	
31	31-May-25	286.69	44.95	2.13	2.12	335.89	
Total		**8867.28**	**1347.42**	**63.99**	**63.65**	**10342.34**	

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8897737742

RAINBOW INDUSTRIES

(COMMON BIO-MEDICAL WASTE TREATMENT FACILITY)

Authorised by A.P. Pollution Control Board
Office : 12-222, Adarsh Nagar, Opp. IDPL Colony,Quthbullapur, R.R. Dist. - 500 037
E-mail : rainbowindustries@rocketmail.com

To
The Environmental Engineer
A.P.Pollution Controlboard
Srikakulam

Ref. No.

Date : 01.07.25

Sub:- Bio- Medical waste collected & treated from the Srikakulam district for the month of June'25

S.No	Date	Yellow	Red	Blue	White	Total	Remarks
1	01-Jun-25	291.64	53.28	2.41	2.38	349.71	
2	02-Jun-25	295.21	51.04	2.53	2.49	351.27	
3	03-Jun-25	289.99	49.98	2.39	2.37	344.73	
4	04-Jun-25	290.67	52.62	2.29	2.27	347.85	
5	05-Jun-25	293.39	54.19	2.31	2.30	352.19	
6	06-Jun-25	288.99	51.04	2.36	2.35	344.74	
7	07-Jun-25	291.14	48.98	2.27	2.25	344.64	
8	08-Jun-25	285.46	52.64	2.05	2.04	342.19	
9	09-Jun-25	283.82	50.18	2.09	2.08	338.17	
10	10-Jun-25	279.96	51.58	2.01	1.99	335.54	
11	11-Jun-25	290.58	53.64	2.43	2.41	349.06	
12	12-Jun-25	293.62	55.86	2.37	2.35	354.20	
13	13-Jun-25	289.98	52.99	2.29	2.27	347.53	
14	14-Jun-25	282.69	50.09	2.79	2.78	338.35	
15	15-Jun-25	285.99	53.64	2.51	2.48	344.62	
16	16-Jun-25	292.61	55.47	2.39	2.37	352.84	
17	17-Jun-25	284.04	49.65	2.33	2.31	338.33	
18	18-Jun-25	290.88	53.05	2.19	2.17	348.29	
19	19-Jun-25	285.19	47.13	2.22	2.09	336.63	
20	20-Jun-25	287.08	50.05	2.26	2.24	341.63	
21	21-Jun-25	291.64	52.58	2.31	2.29	348.82	
22	22-Jun-25	287.52	49.92	2.34	2.33	342.11	
23	23-Jun-25	283.64	51.04	2.29	2.28	339.25	
24	24-Jun-25	286.91	54.91	2.21	2.19	346.22	
25	25-Jun-25	282.43	50.75	2.33	2.32	337.83	
26	26-Jun-25	294.87	52.58	2.36	2.35	352.16	
27	27-Jun-25	290.34	56.91	2.46	2.44	352.15	
28	28-Jun-25	293.84	53.79	2.31	2.29	352.23	
29	29-Jun-25	292.96	51.46	2.39	2.38	349.19	
30	30-Jun-25	289.99	55.97	2.35	2.34	350.65	
Total		**8667.07**	**1567.01**	**69.84**	**69.20**	**10373.12**	

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RAINBOW INDUSTRIES

Cell. : 9391387742
8897737742

(COMMON BIO-MEDICAL WASTE TREATMENT FACILITY)

Authorised by A.P. Pollution Control Board

Office : 12-222, Adarsh Nagar, Opp. IDPL Colony,Quthbullapur, R.R. Dist. - 500 037

E-mail : rainbowindustries@rocketmail.com

To
The Environmental Engineer
A.P.Pollution Controlboard
Srikakulam

Ref No

Date : 01.07.25

Sub:- Bio- Medical waste collected & treated from the Parvathipuram district for the month of June'25

S.No	Date	Yellow	Red	Blue	White	Total	Remarks
1	01-Jun-25	79.92	23.64	0.46	0.44	104.46	
2	02-Jun-25	82.06	25.09	0.45	0.43	108.03	
3	03-Jun-25	85.69	22.47	0.41	0.39	108.96	
4	04-Jun-25	80.05	24.56	0.44	0.43	105.48	
5	05-Jun-25	83.64	21.98	0.47	0.46	106.55	
6	06-Jun-25	87.56	23.64	0.43	0.42	112.05	
7	07-Jun-25	89.92	20.89	0.49	0.48	111.78	
8	08-Jun-25	86.79	22.06	0.41	0.39	109.65	
9	09-Jun-25	83.47	26.87	0.41	0.40	111.15	
10	10-Jun-25	87.64	24.13	0.35	0.34	112.46	
11	11-Jun-25	90.05	22.58	0.32	0.31	113.26	
12	12-Jun-25	93.64	25.79	0.29	0.28	120.00	
13	13-Jun-25	88.92	23.61	0.27	0.25	113.05	
14	14-Jun-25	91.04	19.92	0.24	0.23	111.43	
15	15-Jun-25	82.69	21.15	0.26	0.25	104.35	
16	16-Jun-25	80.92	20.82	0.23	0.21	102.18	
17	17-Jun-25	83.67	19.25	0.34	0.33	103.59	
18	18-Jun-25	86.91	22.61	0.31	0.28	110.11	
19	19-Jun-25	84.18	20.99	0.36	0.34	105.87	
20	20-Jun-25	88.96	21.16	0.30	0.29	110.71	
21	21-Jun-25	90.07	23.64	0.33	0.32	114.36	
22	22-Jun-25	79.98	25.88	0.31	0.30	106.47	
23	23-Jun-25	83.15	23.64	0.29	0.28	107.36	
24	24-Jun-25	91.57	21.41	0.33	0.31	113.62	
25	25-Jun-25	86.92	24.59	0.30	0.29	112.10	
26	26-Jun-25	84.65	26.43	0.28	0.26	111.62	
27	27-Jun-25	90.82	22.82	0.31	0.30	114.25	
28	28-Jun-25	88.77	24.97	0.29	0.28	114.31	
29	29-Jun-25	91.46	21.79	0.26	0.25	113.76	
30	30-Jun-25	86.92	23.46	0.28	0.27	110.93	
Total		**2592.03**	**691.84**	**10.22**	**9.81**	**3303.90**	

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RAINBOW INDUSTRIES

Cell. : 9391387742
8897737742

(COMMON BIO-MEDICAL WASTE TREATMENT FACILITY)

Authorised by A.P. Pollution Control Board

Office : 12-222, Adarsh Nagar, Opp. IDPL Colony,Quthbullapur, R.R. Dist. - 500 037

E-mail : rainbowindustries@rocketmail.com

To
The Environmental Engineer
A.P.Pollution Controlboard
Vizianagaram

Ref. No

Date : 01.07.25

Sub:- Bio- Medical waste collected & treated from the Vizianagaram district for the month of June'25

S.No	Date	Yellow	Red	Blue	White	Total	Remarks
1	01-Jun-25	289.98	49.98	2.31	2.28	344.55	
2	02-Jun-25	287.52	51.13	2.39	2.37	343.41	
3	03-Jun-25	290.08	48.34	2.20	2.18	342.80	
4	04-Jun-25	284.31	50.61	2.04	2.03	338.99	
5	05-Jun-25	281.82	53.26	2.16	2.15	339.39	
6	06-Jun-25	289.69	49.98	2.35	2.33	344.35	
7	07-Jun-25	285.14	51.37	2.21	2.20	340.92	
8	08-Jun-25	287.94	49.65	2.01	2.00	341.60	
9	09-Jun-25	290.27	50.01	2.13	2.11	344.52	
10	10-Jun-25	286.59	53.16	2.09	2.08	343.92	
11	11-Jun-25	283.04	51.67	2.31	2.29	339.31	
12	12-Jun-25	291.56	54.52	2.25	2.21	350.54	
13	13-Jun-25	288.91	51.98	2.36	2.33	345.58	
14	14-Jun-25	279.56	53.49	2.29	2.28	337.62	
15	15-Jun-25	280.05	50.11	2.18	2.15	334.49	
16	16-Jun-25	282.64	48.62	2.09	2.07	335.42	
17	17-Jun-25	286.52	46.85	2.31	2.28	337.96	
18	18-Jun-25	271.98	49.67	2.24	2.21	326.10	
19	19-Jun-25	283.64	51.46	2.36	2.33	339.79	
20	20-Jun-25	277.01	47.18	2.18	2.16	328.53	
21	21-Jun-25	291.23	52.64	2.26	2.25	348.38	
22	22-Jun-25	287.52	50.41	2.30	2.28	342.51	
23	23-Jun-25	285.46	49.93	2.24	2.23	339.86	
24	24-Jun-25	282.14	51.67	2.16	2.15	338.12	
25	25-Jun-25	288.93	53.81	2.29	2.27	347.30	
26	26-Jun-25	284.87	55.49	2.34	2.31	345.01	
27	27-Jun-25	286.96	52.68	2.21	2.19	344.04	
28	28-Jun-25	291.52	50.47	2.29	2.28	346.56	
29	29-Jun-25	287.89	54.16	2.36	2.34	346.75	
30	30-Jun-25	283.41	52.77	2.33	2.31	340.82	
Total		**8568.18**	**1537.07**	**67.24**	**66.65**	**10239.14**	

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Managing Partner

Annexure-5

RAINBOW INDUSTRIES

Off: 12-225, Adarsh Nagar, Opp:IDPL Colony, Quthbullapur, R.R.Dist-500037
E-mail:rainbowindustries@rocketmail.com

SERVICE CERTIFICATE

This is certify that M/s. Tanvi skin and health clinic-Srikakulam.

Hospital / Nursing Home / Diagnostic is a member of **Rainbow Industries** bearing Registration No. RI/891/SKLM/2025 Rainbow industries is providing bio-medical waste management service to the institution from 14-07-2025 for a total bed-strength of NIL Beds.

This certificate is valid upto 13-07-2026

RAINBOW INDUSTRIES Hyderabad 500 037

Authorized Signatory with seal

BHARAT ENTERPRISES

Plastic Recycling Unit

Survey No. 1908/A, Nandigam Village, Kothur Mandal, Ranga reddy District - 509001 T.S.
E-mail : bharatenterprises52@gmail.com

TSPCB ORDER NO. 1065/PCB/ROH/MBNR/2017-68

D.C. No. 177 Date 30-04-2025

Company Name: Rainbow Industries
Sy no:-22/1, Patha Kumkam (V), Lavesu (M), Srikakulam (D), 532407

Treated Plastic Waste Material for the Month of :- 01st April-25 To 30th April-25.

Sl.No.	RECYCLING MATERIAL	TOTAL QUANTITY	BAGS	REMARKS
①	Red waste (Recycleable plastic)	1314.5 kgs	x	x
②	Blue waste (Broken glass)	61 kgs	x	x
	—	x	—	x
	TOTAL	1375.5 kgs	x	x

Plant Incharge Signature

Authorised Signature & Stamp

BHARAT ENTERPRISES

BHARAT ENTERPRISES

Plastic Recycling Unit

Survey No. 1908/A, Nandigam Village, Kothur
Mandal, Ranga reddy District - 509001 T.S.
E-mail : bharatenterprises52@gmail.com

TSPCB ORDER NO. 1065/PCB/ROH/MBNR/2017-68

D.C. No. 180 Date 31-05-2025

Company Name: Rainbow Industries
Sy no:- 22/1, Pathakumkam (V),
Lavetu (m), Srikakulam (D), 532407

Treated Plastic Waste Material for the Month of :- 01st may to 31st may-25

Sl.No.	RECYCLING MATERIAL	TOTAL QUANTITY	BAGS	REMARKS
(1)	Red waste			
	(Recyclable plastic)	1347 kgs	x	x
(2)	Blue waste			
	(Broken glass)	64 kgs	x	x
	—	x	—	x
	TOTAL	1411 kgs	x	

Plant Incharge Signature

Authorised Signature & Stamp

BHARAT ENTERPRISES
Hyderabad

BHARAT ENTERPRISES

Plastic Recycling Unit

Survey No. 1908/A, Nandigam Village, Kothur
Mandal, Ranga reddy District - 509001 T.S.
E-mail : bharatenterprises52@gmail.com

TSPCB ORDER NO. 1065/PCB/ROH/MBNR/2017-68

D.C. No. 182 Date 30-06-2025

Company Name: Rainbow industries
Sy no:- 22/1, Patha Kumkam (V),
Lavesu (M), Srikakulam (D), 532407.

Treated Plastic Waste Material for the Month of :- 01st June-25 To 30th June-25.

Sl.No.	RECYCLING MATERIAL	TOTAL QUANTITY	BAGS	REMARKS
(1)	Red waste (Recyclable plastic)	1567 Kgs	x	x
(2)	Blue waste. (Broken glass)	70 Kgs	x	x
	—	x	—	x
	TOTAL	1637 Kgs	x	

Plant Incharge Signature

Authorised Signature & Stamp

BHARAT ENTERPRISES Hyderabad

ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY, D.No.39-33-20/1/4,
Behind RTA Office, Visakhapatnam – 530 018.

M. SREE RANJANI, M.Sc
SENIOR ENVIRONMENTALSCIENTIST

Ph: 0891- 2719380/481
e-mail: zovsplab-ses2@appcb.gov.in

Lr. No: 13349/PCB/ZL-VSP/2025- **Date: /07/2025**

To

The Joint Chief Environmental Engineer (FAC),
A.P. Pollution Control Board,
Zonal Office, Visakhapatnam.

Sir,

Sub: APPCB -ZL-VSP-Analysis Reports-Submitted - Reg.

Ref: As per the instructions, the team of officials of APPCB & CPCB inspected the CBMWTF as the Hon'ble NGT Order.

***

With reference to the above, please find enclosed herewith the following analysis reports of Stack monitoring, Waste water & Incineration ash samples collected by the team of officials of APPCB & CPCB at **M/s Rainbow Industries, Sy.No.22/1, Pathakunkam (V), Laveru (M), Srikakulam District** on 02.07.2025 for kind information.

Encl: Analysis Reports:

VSPA202507-015
VSP202507-010 to 012
VSPS202507-001

Yours faithfully,

SENIOR ENVIRONMENTAL SCIENTIST

Copy submitted to:
1)The Joint Chief Environmental Engineer (FAC), APPCB, Soil & Building Division,Head Office, Vijaywada for information
2)The Environmental Engineer, APPCB, Regional Office, Srikakulam for information.

ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY :: VISAKHAPATNAM
39-33-20/4/1,Madhavadhara VUDA Colony,
Visakhapatnam - 530018. *Ph : 0891 – 2719380/481*

Form No: APPCB/ZL/VSP/Cl.7.8/FM40

ANALYSIS REPORT

FORM – IV

REPORT BY THE STATE BOARD ANALYST

[See Rule-14]

Report No. VSPA202507-015 **Date:08.07.2025**

I hereby certify that I, M. Sree Ranjani, State Board Analyst duly appointed under sub-section (2) of Section 26 of the Air (Prevention and Control of Pollution) Act, 1981, received on the day of **03.07.2025** from Junior Scientific Officer, Zonal Laboratory, Visakhapatnam, the following stack emission sample of stack attached to the HSD fired incinerator of Capacity 100 Kgs/hr of **M/s Rainbow Industries, Sy.No.22/1, Pathakunkam (V), Laveru (M), Srikakulam District** collected on **02.07.2025** was received in a condition fit for analysis as reported below:

I further certify that I have analyzed the above mentioned samples from 03.07.2025 to 08.07.2025 and declare the result of the analysis to be as follows.

S.No.	Parameter	Unit	Result
1.	Particulate matter (Corrected to 11% Oxygen)	mg/Nm^3	65.0
2.	Nitrogen oxides NO and NO_2 expressed as NO_2 (Corrected to 11% Oxygen)	mg/Nm^3	179.9
3.	Hydrogen Chloride (HCl) (Corrected 11% to Oxygen)	mg/Nm^3	9.12
4.	Mercury (Hg) (Corrected to 11% Oxygen)	mg/Nm^3	0.0001
5.	Oxygen (O_2)	%	17.86
6.	Carbon monoxide (CO)	ppm	367
7.	Carbon dioxide (CO_2)	%	2.37
8.	Combustion efficiency	%	98.5

Remarks of monitoring team:

1. O_2, CO, CO_2 & NO_2 are measured through Testo-350 flue gas analyser.
2. During monitoring, the temperature in the primary chamber is in the range of 890 to 1020 ^0C and the temperature in the secondary chamber is in the range of 1080 to 1120 ^0C.
3. Operating incinerator at capacity of 90 kg/hr against the installed capacity of 100 kg/hr during monitoring.
4. Venturi scrubber, packed bed scrubbers followed by mist eliminator are provided as Air Pollution Control Equipment (APCE), is in operation during stack Monitoring.

Note: 1. Results are related to sample tested.
2. This report shall not be reproduced except in full without the prior approval of Laboratory.

The condition of the seals, fastening and container on receipt was intact.

Signed this: 08.07.2025

Address:
Smt. M. Sree Ranjani,
Senior Environmental Scientist,
Zonal Laboratory,
APPCB, Visakhapatnam.

SIGNATURE OF THE STATE BOARD ANALYST

ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY :: VISAKHAPATNAM
39-33-20/4/1,Madhavadhara VUDA Colony,
Visakhapatnam - 530018. *Ph : 0891 – 2719380/481*

Form No: APPCB/ZL/VSP/Cl.7.8/FM38 B

ANALYSIS REPORT

(FORM – X)
REPORT BY THE BOARD ANALYST
(See Rule 26)

Report No. VSP202507-010 to 012

Date: 08.07.2025

I hereby certify that I, Smt. M. Sree Ranjani, State Board Analyst, Zonal Laboratory duly appointed under sub-section (3) of section 53 of the Water (Prevention and Control of Pollution) Act,1974 (6 of 1974) received from the Junior Scientific Officer, Zonal Laboratory, Visakhapatnam on the day of 03.07.2025, the following samples for analysis

VSP202507-010: Scrubber outlet, which is joining into collection tank.

VSP202507-011: Inlet of ETP (Collection tank)

VSP202407-012: Outlet of ETP after carbon filter, which is being used for scrubber makeup and partly for onland for gardening

of **M/s Rainbow Industries, Sy.No.22/1, Pathakunkam (V), Laveru (M), Srikakulam District** collected on 02.07.2025. The samples were in a condition fit for analysis reported below:

I further certify that I have analyzed the above mentioned samples from 03.07.2025 to 08.07.2025 and declare the result of the analysis to be as follows.

S. No.	Parameter	SAMPLE CODE			Test Method
		010	011	012	
		Result			
1.	pH @ 25^{0}C	< 2	3.27	7.02	4500-H+B
2.	Total Suspended Solids (at 105^{0}C)	248	177	42	2540- D
3.	Total Dissolved Solids (at 180^{0}C)	16896	7640	972	2540- C
4.	Chemical Oxygen Demand (COD)	1040	848	36	5220- B
5.	Biochemical Oxygen Demand (BOD) 3 days @ 27^{0}C	372	212	12	IS 3025 (Part 44)
6.	Oil & Grease	<1.0	<1.0	<1.0	5520-B

Note: 1. All results are expressed in mg/lt. except pH
2. Results are related to sample tested

The condition of the seals, fastening and container on receipt was intact.

Signed this: 08.07.2025

Address:
Smt. M. Sree Ranjani,
Senior Environmental Scientist,
Zonal Laboratory,
APPCB, Visakhapatnam.

8/7/2025

SIGNATURE OF THE STATE BOARD ANALYST

ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY :: VISAKHAPATNAM
39-33-20/4/1,Madhavadhara VUDA Colony,
Visakhapatnam - 530018. ***Ph : 0891 – 2719380/481***

Form No: APPCB/ZL/VSP/Cl.7.8/FM38 C

ANALYSIS REPORT

Report No : **VSPS202507-001**

Customer Name : Environmental Engineer, APPCB, Regional Office, Srikakulam

Sample source /Address : M/s Rainbow Industries,
Sy.No.22/1, Pathakunkam (V),
Laveru (M), Srikakulam District.

Sample Code No.		**Sample description**
VSPS202507-001	:	Sample of Incinerator ash

Sample collected on	:	02.07.2025	**Sample received on**	:	03.07.2025
Sample collected by	:	Team of Officials from APPCB & CPCB	**Purpose of sampling**	:	As per the Hon'ble NGT Order
Sample quantity	:	1 Kg in Polythene Cover	**Sample Conditions**	:	Fit for analysis
Report issued on	:	08.07.2025	**Page No**	:	1 of 1

It is to certify that the aforementioned samples were analyzed from 03.07.2025 to 08.07.2025 and declare the analysis results as follows:

S.No.	Parameter	Units	Result
1.	Physical State	--	Solid
2.	pH (1: 5 Ratio)	--	11.32
3.	Electrical Conductivity (1: 5 Ratio)	µS/cm	55800
4.	Loss on Ignition (LOI) (on dry basis)	%	19.97
5.	Loss on Drying (LOD)	%	20.26
6.	% Organic Carbon	%	3.72

Note:

1. Result is related to sample as received and tested.
2. This report shall not be reproduced except in full without the prior approval of Laboratory.

Authorized Signatory

(M. SREE RANJANI)
STATE BOARD ANALYST
Senior Environmental Scientist
Zonal Laboratory, Visakhapatnam.

END OF THE REPORT

FORM 10

Annexure-8

[See rule 19 (1)]

MANIFEST FOR HAZARDOUS AND OTHER WASTE

1	Sender's Name & Mailing Address (including PhoneNo. and email)	**Name :** Rainbow Industries (CBMWTF) **Address:** Sy.No.21/1, Patha Kunkam (V), Laveru (M), **Phone No :** 9391387742 **Email:** rainbowindustries@rocketmail.com
2	Sender's Authorisation No:	APPCB/VSP/SKLM/CFO/HO/2009
3	Manifest Document No:	215925
4	Transporter Name & Mailing Address: (including PhoneNo. and email):	**Name:** Sri Veeranjaneya Transport **Address:** Ramky Enviro Engineers Limited, Coastal Waste Management Project, Road No.20/5,JNPC,Parwada,Vishakapatnam-531021 **Phone No :** 9989158658 **Email :** asragavarao@gmail.com
5	Type of Vehicle:	Truck
6	VehicleRegistration No:	AP21W3122
7	Receiver's Name& mailingAddress, (including PhoneNo. and Email:	**Name :** Coastal Waste Management Project,A Division of Re Sustainability Limited **Address:** JN Pharmacity, Parawada, Visakhapatnam District. **Phone No :** 9701065712 **Email:** sambasivarao.yvn@resustainability.com
8	Receiver's Authorisation No:	APPCB/VSP/VSP/CWMP-VSP/CFO/HO/2018
9	Waste Description:	a) HW - Land Fillable Waste - 37.2 Ash from incinerator and flue gas cleaning residue , incineration ash
10	Total Quantity No. of Containers:	a) 17.140 - Tonnes, 857 Bags
11	Physical Form:	a) Solid
12	Special Handling Instructions & Additional Information:	Use PPE, use hand glove, use helmet
13	Sender's Certificate:	I hereby declare that the contents of the consignment are fully and accuratelydescribed above by proper shipping name and are categorised, packed, marked and labelled, and are in all respects in proper conditions for transport by roadaccording to applicable national government regulations.
	Name and stamp:	Signature: Acknowledged from IP: 103.121.151.136 D D M M Y Y Y Y 2 4 0 6 2 0 2 5
14	Transporter acknowledgement of receipt of Wastes:	
	Name and stamp:	Signature: Acknowledged from IP: 103.138.1.162 D D M M Y Y Y Y 2 5 0 6 2 0 2 5
15	Receiver's certification for receipt of hazardous and other waste:	
	Name and stamp:	Signature: Acknowledged from IP: 103.138.1.162 D D M M Y Y Y Y 2 5 0 6 2 0 2 5

Copy number with colour code	Purpose	
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.	☐

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE BENCH, CHENNAI
ORIGINAL APPLICATION NO. 118 OF 2025 (SZ)
[EARLIER ORIGINAL APPLICATION NO. 207 OF 2025 (PB)]

IN THE MATTER OF:

K Vijay Laxmi and
Ors. APPLICANT(S)

Vs

Central Pollution Control Board,
Through its Member Secretary,
New Delhi and Ors. RESPONDENT(S)

REPLY FILED ON BEHALF OF RESPONDENT NO. 2, CENTRAL POLLUTION CONTROL BOARD (CPCB)

M/s.R.Thirunavukarasu

Counsel for the 2nd Respondent

M-9444012986