BEFORE THE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

MA NO 94/23

IN

ORIGINAL APPLICATION NO. 774/22

GAURAV GARG **APPLICANT**

VERSUS

U.O.I & ORS. **RESPONDENT**

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Date:20/12/2025 **THROUGH**

Place: New Delhi

Priyanka swami, Advocate
Standing Counsel For SEIAA U.P
F-13, Jangpura, New Delhi
110014

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REPLY ON BEHALF OF SEIAA, U.P. WITH AFFIDAVIT

MOST RESPECTFULLY SUBMIT:

1. That SEIAA, U.P. is constituted under the Environment (Protection) Rules pursuant to the EIA Notification, 2006 and is vested with the statutory role of considering and granting prior Environmental Clearance (EC) to projects listed in the Schedule to the Notification within its territorial jurisdiction. The EC process is a site- and location-specific environmental appraisal carried out by SEAC/SEIAA through the statutorily prescribed stages (screening, scoping/ToR, public consultation where applicable, and appraisal).

2. That the present project "Existing Common Bio-Medical Waste Treatment Facility" at Subharti Medical College Campus (Synergy Waste Management Pvt. Ltd.) was processed as a post-facto EC pursuant to the NGT order dated 02.03.2023 which directed the

project proponent to apply for EC and allowed interim operation for limited periods subject to conditions. SEIAA's file record shows that the proponent submitted Form-1/Pre-feasibility on 01.04.2023; SEAC recommended ToR; SEIAA issued amended ToR for the existing CBWTF on 21.10.2024; the EIA was submitted on 07.02.2025; and the proposal was appraised in SEAC/SEIAA meetings culminating in the grant of EC.

3. That the Bio-Medical Waste Management Rules, 2016 assign to the State Pollution Control Boards / Pollution Control Committees the function of the "prescribed authority" for grant of authorisation to occupiers/operators, expressly covering generation, collection, reception, storage, transport, treatment and disposal of biomedical waste. The SPCB is the statutory forum to grant and supervise an operator's authorisation and to record and monitor the coverage/area of operation. SEIAA's EC function is distinct, being limited to environmental appraisal of the site, technology and safeguards under the EIA Notification. SEIAA accordingly recorded the UPPCB authorisation on the project file as the competent administrative record of operational coverage and did not displace the UPPCB's authorisation function. **True copy of Bio-Medical**

Waste (Management and Handling) Rules, 2016 is attached herewith and marked as Annexure No.-1

4. That CPCB's Revised Guidelines for Common Bio-Medical Waste Treatment Facilities clarify the regulatory division of responsibilities: SPCBs are required to maintain inventories, conduct gap analysis for 75 km coverage units, and may authorise CBWTFs to serve beyond 75 km (up to 150 km as per revised guidelines) only where justified and where the 48-hour treatment requirement of the BMWM Rules can be ensured. SPCBs must document the list of districts/places/radii served in the authorisation/checklists. The CPCB guidance thus places the legitimacy and justification of any radius beyond 75 km squarely within the competence of the SPCB. **True copy of Pre-Feasibility Report is attached herewith and marked as Annexure No.-2(Colly)**

5. That SEIAA's appraisal record demonstrates that SEAC/SEIAA examined site suitability, CPCB technical recommendations (including siting, technology and buffer/safeguard criteria), the proponent's technical submissions and responses to CPCB/RO/UPPCB queries, and mandated compliance with CPCB/SEAC conditions. The EC granted by SEIAA is therefore limited to site-specific environmental conditions and expressly provides that

the EC does not substitute other statutory permissions; continued operation is conditioned upon possession of valid UPPCB authorisation/CTO/CCA and compliance with CPCB standards.

6. It is respectfully submitted that the establishment of the facility prior to the 2015 amendment to the EIA Notification, i.e., during 2002–2003, does not result in any transfer or substitution of the statutory powers and functions vested in the State Pollution Control Board in favour of SEIAA. Consequent to the amendment of the EIA Notification in 2015/2016, Environmental Clearance was made mandatory for Common Bio-Medical Waste Treatment Facilities (CBWTFs), and accordingly, SEIAA has duly considered and processed the present ex-post facto Environmental Clearance application strictly in compliance with the directions of the Hon'ble National Green Tribunal and the procedural stages prescribed under the EIA Notification. The said position, including the limited role of SEIAA vis-à-vis grant of EC and the continued statutory mandate of UPPCB with respect to operational authorisation, monitoring, enforcement, and any review or re-examination of the service radius/coverage area of the facility, stands duly recorded and affirmed in the Minutes of the 737th Meeting of SEIAA dated 07.06.2023. It is further submitted that such regulatory oversight

by UPPCB is subject to the supervisory role of the CPCB, as envisaged under the applicable statutory framework. **A true copy of the 737th Meeting of SEIAA dated 07.06.2023 is attched herewith and marked as Annexure-No.3**

7. That the UPPCB's CCA/CTO dated 16.10.2023, available on the project file, further reflects the cooperative and parallel regulatory framework. UPPCB granted interim CTO/CCA subject to disposal of the EC application by SEIAA and imposed specific operational and monitoring conditions, linking continued operation to compliance with UPPCB directions, CPCB guidelines and applicable NGT orders.

8. For the foregoing reasons, SEIAA respectfully submits that:

a) the grant of EC by SEIAA addressed site-specific environmental impacts and conditions mandated under the EIA Notification and CPCB technical guidance

b) SEIAA correctly recorded and relied upon the UPPCB authorisation dated 08.01.2020, as disclosed in the EIA/PPM, as the competent administrative record of operational coverage; **True copy of UPPCB authorisation dated 08.01.2020 is attached herewith and marked as Annexure No.-4**

c) Determination and supervision of the CBWTF's area of operation is a statutory function of the SPCB under the BMWM Rules, 2016 and CPCB guidelines

9. That the answering Respondent respectfully submits that it remains at the disposal of this Hon'ble Tribunal and undertakes to abide by and ensure strict compliance with any further orders or directions that may be passed in the present matter.

Date:20/12/2025 **THROUGH**

Place: New Delhi

Priyanka Swami, Advocate
Standing Counsel For SEIAA U.P
F-13, Jangpura, New Delhi
110014

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U.O.I & ORS. **RESPONDENT**

AFFIDAVIT

1. I, VIDHYOTMA BHARTI, aged about 49 years w/o Dr. G.L. Nigam is presently posted as Assistant Director, Regional Office, Noida, Directorate of Environment, U.P., having an office at E-12/1, Noida, U.P., presently at New Delhi, do hereby solemnly affirm and declare as under: -

2. 1. That I am posted as stated above and well conversant with the facts of the present case and as such competent to swear this affidavit on behalf of Member Secretary, SEIAA before this Tribunal.

3. That the accompanying reply has been drafted by our counsel upon my instructions.

4. That the contents of the accompanying reply are true and correct, and the knowledge has been derived from official records and nothing material has been concealed therefrom.

5. That the Deponent will continue to extend her full cooperation and shall abide by any further directions that the Hon'ble Tribunal may issue.

Seal of Notary Public of India
RENU AGRAWAL
Regd. No. 17307/2019
My Commission
Expire on 23/12/2020

V Bharti

DEPONENT

VERIFICATION

Verified on solemn affirmation at New Delhi on this 20 DEC 2025 day of............2025, that the contents of the foregoing affidavit are true and correct to the best of my knowledge and no part of it is false and nothing material has been concealed therefrom.

The Seal of Notary Public ★ Appointed by Govt. of India ★ RENU AGRAWAL Regd. No. 17306/2019 My Commission Expire on 23/12/2029

V Bharti

DEPONENT

Identify By Priyanka Swami D/4476/20.

Identified the deponent Who has signed in my presence

ATTESTED

NOTARY PUBLIC (INDIA)

20 DEC 2025

[Published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (i)]

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 28th March, 2016

G.S.R. 343(E).-Whereas the Bio-Medical Waste (Management and Handling) Rules, 1998 was published *vide* notification number S.O. 630 (E) dated the 20th July, 1998, by the Government of India in the erstwhile Ministry of Environment and Forests, provided a regulatory frame work for management of bio-medical waste generated in the country;

And whereas, to implement these rules more effectively and to improve the collection, segregation, processing, treatment and disposal of these bio-medical wastes in an environmentally sound management thereby, reducing the bio- medical waste generation and its impact on the environment, the Central Government reviewed the existing rules;

And whereas, in exercise of the powers conferred by sections 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government published the draft rules in the Gazette vide number G.S.R. 450 (E), dated the 3rd June, 2015 inviting objections or suggestions from the public within sixty days from the date on which copies of the Gazette containing the said notification were made available to the public;

And whereas, the copies of the Gazette containing the said draft rules were made available to the public on the 3rd June, 2015;

And whereas, the objections or comments received within the specified period from the public in respect of the said draft rules have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by section 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), and in supersession of the Bio-Medical Waste (Management and Handling) Rules, 1998, except as respects things done or omitted to be done before such suppression, the Central Government hereby makes the following rules, namely:-

1. **Short title and commencement.-** (1) these rules may be called the Bio-Medical Waste Management Rules, 2016.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. **Application.-**

(1) These rules shall apply to all persons who generate, collect, receive, store, transport, treat, dispose, or handle bio medical waste in any form including hospitals, nursing homes, clinics, dispensaries, veterinary institutions, animal houses, pathological laboratories, blood banks, ayush

hospitals, clinical establishments, research or educational institutions, health camps, medical or surgical camps, vaccination camps, blood donation camps, first aid rooms of schools, forensic laboratories and research labs.

(2). These rules shall not apply to,-

(a) radioactive wastes as covered under the provisions of the Atomic Energy Act, 1962(33 of 1962) and the rules made there under;

(b) hazardous chemicals covered under the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 made under the Act;

(c) solid wastes covered under the Municipal Solid Waste (Management and Handling) Rules, 2000 made under the Act;

(d) the lead acid batteries covered under the Batteries (Management and Handling) Rules, 2001 made under the Act;

(e) hazardous wastes covered under the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 made under the Act;

(f) waste covered under the e-Waste (Management and Handling) Rules, 2011 made under the Act; and

(g) hazardous micro organisms, genetically engineered micro organisms and cells covered under the Manufacture, Use, Import, Export and Storage of Hazardous Microorganisms, Genetically Engineered Micro organisms or Cells Rules, 1989 made under the Act.

3. **Definitions.-** In these rules, unless the context otherwise requires, -

(a) "Act" means the Environment (Protection) Act, 1986 (29 of 1986);

(b) "animal house" means a place where animals are reared or kept for the purpose of experiments or testing;

(c) "authorisation" means permission granted by the prescribed authority for the generation, collection, reception, storage, transportation, treatment, processing, disposal or any other form of handling of bio-medical waste in accordance with these rules and guidelines issued by the Central Government or Central Pollution Control Board as the case may be;

(d) "authorised person" means an occupier or operator authorised by the prescribed authority to generate, collect, receive, store, transport, treat, process, dispose or handle bio-medical waste in accordance with these rules and the guidelines issued by the Central Government or the Central Pollution Control Board, as the case may be;

(e) "biological" means any preparation made from organisms or micro-organisms or product of metabolism and biochemical reactions intended for use in the diagnosis, immunisation or the treatment of human beings or animals or in research activities pertaining thereto;

(f) "bio-medical waste" means any waste, which is generated during the diagnosis, treatment or immunisation of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps, including the categories mentioned in Schedule I appended to these rules;

(g) "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;

(h) “Form” means the Form appended to these rules;

(i) “handling” in relation to bio-medical waste includes the generation, sorting, segregation, collection, use, storage, packaging, loading, transportation, unloading, processing, treatment, destruction, conversion, or offering for sale, transfer, disposal of such waste;

(j) “health care facility” means a place where diagnosis, treatment or immunisation of human beings or animals is provided irrespective of type and size of health treatment system, and research activity pertaining thereto;

(k) “major accident” means accident occurring while handling of bio-medical waste having potential to affect large masses of public and includes toppling of the truck carrying bio-medical waste, accidental release of bio-medical waste in any water body but exclude accidents like needle prick injuries, mercury spills;

(l) “management” includes all steps required to ensure that bio- medical waste is managed in such a manner as to protect health and environment against any adverse effects due to handling of such waste;

(m) "occupier" means a person having administrative control over the institution and the premises generating bio-medical waste, which includes a hospital, nursing home, clinic, dispensary, veterinary institution, animal house, pathological laboratory, blood bank, health care facility and clinical establishment, irrespective of their system of medicine and by whatever name they are called;

(n) "operator of a common bio-medical waste treatment facility" means a person who owns or controls a Common Bio-medical Waste Treatment Facility (CBMWTF) for the collection, reception, storage, transport, treatment, disposal or any other form of handling of bio-medical waste;

(o) “prescribed authority” means the State Pollution Control Board in respect of a State and Pollution Control Committees in respect of an Union territory;

(p) "Schedule" means the Schedule appended to these rules.

4. **Duties of the Occupier.-** It shall be the duty of every occupier to-

(a) take all necessary steps to ensure that bio-medical waste is handled without any adverse effect to human health and the environment and in accordance with these rules;

(b) make a provision within the premises for a safe, ventilated and secured location for storage of segregated biomedical waste in colored bags or containers in the manner as specified in Schedule I, to ensure that there shall be no secondary handling, pilferage of recyclables or inadvertent scattering or spillage by animals and the bio-medical waste from such place or premises shall be directly transported in the manner as prescribed in these rules to the common bio-medical waste treatment facility or for the appropriate treatment and disposal, as the case may be, in the manner as prescribed in Schedule I;

(c) pre-treat the laboratory waste, microbiological waste, blood samples and blood bags through disinfection or sterilisation on-site in the manner as prescribed by the World Health Organisation (WHO) or National AIDs Control Organisation (NACO) guidelines and then sent to the common bio-medical waste treatment facility for final disposal;

(d) phase out use of chlorinated plastic bags, gloves and blood bags within two years from the date of notification of these rules;

(e) dispose of solid waste other than bio-medical waste in accordance with the provisions of respective waste management rules made under the relevant laws and amended from time to time;

(f) not to give treated bio-medical waste with municipal solid waste;

(g) provide training to all its health care workers and others, involved in handling of bio medical waste at the time of induction and thereafter at least once every year and the details of training programmes conducted, number of personnel trained and number of personnel not undergone any training shall be provided in the Annual Report;

(h) immunise all its health care workers and others, involved in handling of bio-medical waste for protection against diseases including Hepatitis B and Tetanus that are likely to be transmitted by handling of bio-medical waste, in the manner as prescribed in the National Immunisation Policy or the guidelines of the Ministry of Health and Family Welfare issued from time to time;

(i) establish a Bar- Code System for bags or containers containing bio-medical waste to be sent out of the premises or place for any purpose within one year from the date of the notification of these rules;

(j) ensure segregation of liquid chemical waste at source and ensure pre-treatment or neutralisation prior to mixing with other effluent generated from health care facilities;

(k) ensure treatment and disposal of liquid waste in accordance with the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974);

(l) ensure occupational safety of all its health care workers and others involved in handling of bio-medical waste by providing appropriate and adequate personal protective equipments;

(m) conduct health check up at the time of induction and at least once in a year for all its health care workers and others involved in handling of bio- medical waste and maintain the records for the same;

(n) maintain and update on day to day basis the bio-medical waste management register and display the monthly record on its website according to the bio-medical waste generated in terms of category and colour coding as specified in Schedule I;

(o) report major accidents including accidents caused by fire hazards, blasts during handling of bio-medical 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;

(p) make available the annual report on its web-site and all the health care facilities shall make own website within two years from the date of notification of these rules;

(q) inform the prescribed authority immediately in case the operator of a facility does not collect the bio-medical waste within the intended time or as per the agreed time;

(r) establish a system to review and monitor the activities related to bio-medical waste management, either through an existing committee or by forming a new committee and the Committee shall meet once in every six months and the record of the minutes of the meetings of this committee shall be submitted along with the annual report to the prescribed authority and the healthcare establishments having less than thirty beds shall designate a qualified person to review and monitor the activities relating to bio-medical waste management within that establishment and submit the annual report;

(s) maintain all record for operation of incineration, hydro or autoclaving etc., for a period of five years;

(t) existing incinerators to achieve the standards for treatment and disposal of bio-medical waste as specified in Schedule II for retention time in secondary chamber and Dioxin and Furans within two years from the date of this notification.

5. **Duties of the operator of a common bio-medical waste treatment and disposal facility.-**It shall be the duty of every operator to -

(a) 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;

(b) ensure timely collection of bio-medical waste from the occupier as prescribed under these rules;

(c) establish bar coding and global positioning system for handling of bio- medical waste within one year;

(d) inform the prescribed authority immediately regarding the occupiers which are not handing over the segregated bio-medical waste in accordance with these rules;

(e) 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;

(f) assist the occupier in training conducted by them for bio-medical waste management;

(g) 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;

(h) ensure occupational safety of all its workers involved in handling of bio-medical waste by providing appropriate and adequate personal protective equipment;

(i) report major accidents including accidents caused by fire hazards, blasts during handling of bio-medical 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;

(i) maintain a log book for each of its treatment equipment according to weight of batch; categories of waste treated; time, date and duration of treatment cycle and total hours of operation;

(k) allow occupier , who are giving waste for treatment to the operator, to see whether the treatment is carried out as per the rules;

(l) shall display details of authorisation, treatment, annual report etc on its web-site;

(m) 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;

(n) supply non-chlorinated plastic coloured bags to the occupier on chargeable basis, if required;

(o) common bio-medical waste treatment facility shall ensure collection of biomedical waste on holidays also;

(p) maintain all record for operation of incineration, hydroor autoclaving for a period of five years; and

(q) upgrade existing incinerators to achieve the standards for retention time in secondary chamber and Dioxin and Furans within two years from the date of this notification.

6. **Duties of authorities.-**The Authority specified in column (2) of Schedule-III shall perform the duties as specified in column (3) thereof in accordance with the provisions of these rules.

7. Treatment and disposal.- (1) Bio-medical waste shall be treated and disposed of in accordance with Schedule I, and in compliance with the standards provided in Schedule-II by the health care facilities and common bio-medical waste treatment facility.

(2) Occupier shall hand over segregated waste as per the Schedule-I to common bio-medical waste treatment facility for treatment, processing and final disposal:

Provided that the lab and highly infectious bio-medical waste generated shall be pre-treated by equipment like autoclave or microwave.

(3) No occupier shall establish on-site treatment and disposal facility, if a service of `common bio-medical waste treatment facility is available at a distance of seventy-five kilometer.

(4) In cases where service of the common bio-medical waste treatment facility is not available, the Occupiers shall set up requisite biomedical waste treatment equipment like incinerator, autoclave or microwave, shredder prior to commencement of its operation, as per the authorisation given by the prescribed authority.

(5) 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.

(6) On receipt of a request referred to in sub-rule (5), the Central Government may determine the standards and operating parameters for new technology which may be published in Gazette by the Central Government.

(7) Every operator of common bio-medical waste treatment facility shall set up requisite biomedical waste treatment equipments like incinerator, autoclave or microwave, shredder and effluent treatment plant as a part of treatment, prior to commencement of its operation.

(8) Every occupier shall phase out use of non-chlorinated plastic bags within two years from the date of publication of these rules and after two years from such publication of these rules, 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. Till the Standards are published, the carry bags shall be as per the Plastic Waste Management Rules, 2011.

(9) 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 such recyclers having valid authorisation or registration from the respective prescribed authority.

(10) 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.

(11) The handling and disposal of all the mercury waste and lead waste shall be in accordance with the respective rules and regulations.

8. Segregation, packaging, transportation and storage.-(1) No untreated bio-medical waste shall be mixed with other wastes.

(2) The bio-medical waste shall be segregated into containers or bags at the point of generation in accordance with Schedule I prior to its storage, transportation, treatment and disposal.

(3) The containers or bags referred to in sub-rule (2) shall be labeled as specified in Schedule IV.

(4) Bar code and global positioning system shall be added by the Occupier and common bio-medical waste treatment facility in one year time.

(5) 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.

(6) 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.

(7) Untreated human anatomical waste, animal anatomical waste, soiled waste and, biotechnology waste shall not be stored beyond a period of forty –eight hours:

Provided that in case for any reason it becomes necessary to store such waste beyond such a period, the occupier shall take appropriate measures to ensure that the waste does not adversely affect human health and the environment and inform the prescribed authority along with the reasons for doing so.

(8) Microbiology waste and all other clinical laboratory waste shall be pre-treated by sterilisation to Log 6 or disinfection to Log 4, as per the World Health Organisation guidelines before packing and sending to the common bio-medical waste treatment facility.

9. **Prescribed authority.-**(1) The prescribed authority for implementation of the provisions of these rules shall be the State Pollution Control Boards in respect of States and Pollution Control Committees in respect of Union territories.

(2) The prescribed authority for enforcement of the provisions of these rules in respect of all health care establishments including hospitals, nursing homes, clinics, dispensaries, veterinary institutions, animal houses, pathological laboratories and blood banks of the Armed Forces under the Ministry of Defence shall be the Director General, Armed Forces Medical Services, who shall function under the supervision and control of the Ministry of Defence.

(3) The prescribed authorities shall comply with the responsibilities as stipulated in Schedule III of these rules.

10. Procedure for authorisation.-Every occupier or operator handling bio-medical waste, irrespective of the quantity shall make an application in Form II to the prescribed authority i.e. State Pollution Control Board and Pollution Control Committee, as the case may be, for grant of authorisation and the prescribed authority shall grant the provisional authorisation in Form III and the validity of such authorisation for bedded health care facility and operator of a common facility shall be synchronised with the validity of the consents.

(1) The authorisation shall be one time for non-bedded occupiers and the authorisation in such cases shall be deemed to have been granted, if not objected by the prescribed authority within a period of ninety days from the date of receipt of duly completed application along with such necessary documents.

(2) In case of refusal of renewal, cancellation or suspension of the authorisation by the prescribed authority, the reasons shall be recorded in writing:

Provided that the prescribed authority shall give an opportunity of being heard to the applicant before such refusal of the authorisation.

(3) Every application for authorisation shall be disposed of by the prescribed authority within a period of ninety days from the date of receipt of duly completed application along with such necessary documents, failing which it shall be deemed that the authorisation is granted under these rules.

(4) In case of any change in the bio-medical waste generation, handling, treatment and disposal for which authorisation was earlier granted, the occupier or operator shall intimate to the prescribed authority about the change or variation in the activity and shall submit a fresh application in Form II for modification of the conditions of authorisation.

11. **Advisory Committee**.-(1) Every State Government or Union territory Administration shall constitute an Advisory Committee for the respective State or Union territory under the chairmanship of the respective health secretary to oversee the implementation of the rules in the respective state and to advice any improvements and the Advisory Committee shall include representatives from the Departments of Health, Environment, Urban Development, Animal Husbandry and Veterinary Sciences of that State Government or Union territory Administration, State Pollution Control Board or Pollution Control Committee, urban local bodies or local bodies or Municipal Corporation, representatives from Indian Medical Association, common bio-medical waste treatment facility and non-governmental organisation.

(2) Notwithstanding anything contained in sub-rule (1), the Ministry of Defence shall constitute the Advisory Committee (Defence) under the chairmanship of Director General of Health Services of Armed Forces consisting of representatives from the Ministry of Defence, Ministry of Environment, Forest and Climate Change, Central Pollution Control Board, Ministry of Health and Family Welfare, Armed Forces Medical College or Command Hospital.

(3) The Advisory Committee constituted under sub-rule (1) and (2) shall meet at least once in six months and review all matters related to implementation of the provisions of these rules in the State and Armed Forces Health Care Facilities, as the case may be.

(4) The Ministry of Health and Defence may co-opt representatives from the other Governmental and non-governmental organisations having expertise in the field of bio-medical waste management.

12. **Monitoring of implementation of the rules in health care facilities.-** (1) The Ministry of Environment, Forest and Climate Change shall review the implementation of the rules in the country once in a year through the State Health Secretaries and Chairmen or Member Secretary of State Pollution Control Boards and Central Pollution Control Board and the Ministry may also invite experts in the field of bio-medical waste management, if required.

(2) The Central Pollution Control Board shall monitor the implementation of these rules in respect of all the Armed Forces health care establishments under the Ministry of Defence.

(3) The Central Pollution Control Board along with one or more representatives of the Advisory Committee constituted under sub-rule (2) of rule 11, may inspect any Armed Forces health care establishments after prior intimation to the Director General Armed Forces Medical Services.

(4) Every State Government or Union territory Administration shall constitute District Level Monitoring Committee in the districts under the chairmanship of District Collector or District Magistrate or Deputy Commissioner or Additional District Magistrate to monitor the compliance of the provisions of these rules in the health care facilities generating bio-medical waste and in the common bio-medical waste treatment and disposal facilities, where the bio-medical waste is treated and disposed of.

(5) The District Level Monitoring Committee constituted under sub-rule (4) shall submit its report once in six months to the State Advisory Committee and a copy thereof shall also be forwarded to State Pollution Control Board or Pollution Control Committee concerned for taking further necessary action.

(6) The District Level Monitoring Committee shall comprise of District Medical Officer or District Health Officer, representatives from State Pollution Control Board or Pollution Control Committee, Public Health Engineering Department, local bodies or municipal corporation, Indian Medical Association, common bio-medical waste treatment facility and registered non-governmental organisations working in the field of bio-medical waste management and the Committee may co-opt other members and experts, if necessary and the District Medical Officer shall be the Member Secretary of this Committee.

13. **Annual report.-**(1) 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.

(2) The prescribed authority shall compile, review and analyse the information received and send this information to the Central Pollution Control Board on or before the 31st July of every year.

(3) The Central Pollution Control Board shall compile, review and analyse the information received and send this information, along with its comments or suggestions or observations to the Ministry of Environment, Forest and Climate Change on or before 31st August every year.

(4) The Annual Reports shall also be available online on the websites of Occupiers, State Pollution Control Boards and Central Pollution Control Board.

14. Maintenance of records.- (1) Every authorised person shall maintain records related to the generation, collection, reception, storage, transportation, treatment, disposal or any other form of handling of bio-medical waste, for a period of five years, in accordance with these rules and guidelines issued by the Central Government or the Central Pollution Control Board or the prescribed authority as the case may be.

(2) All records shall be subject to inspection and verification by the prescribed authority or the Ministry of Environment, Forest and Climate Change at any time.

15. **Accident reporting.-** (1) In case of any major accident at any institution or facility or any other site while handling bio-medical waste, the authorised person shall intimate immediately to the prescribed authority about such accident and forward a report within twenty-four hours in writing regarding the remedial steps taken in Form I.

(2) Information regarding all other accidents and remedial steps taken shall be provided in the annual report in accordance with rule 13 by the occupier.

16. **Appeal.-**(1) 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 .

(2) Any person aggrieved by an order of the Director General Armed Forces Medical Services under these rules may, within thirty days from the date on which the order is communicated to him, prefer an appeal in Form V to the Secretary, Ministry of Environment, Forest and Climate Change.

(3) The authority referred to in sub-para (1) and (2) as the case may be, may entertain the appeal after the expiry of the said period of thirty days, if it is satisfied that the appellant was prevented by sufficient cause from filing the appeal in time.

(4) The appeal shall be disposed of within a period of ninety days from the date of its filing.

17. **Site for common bio-medical waste treatment and disposal facility**.-(1) Without prejudice to rule 5 of these rules, the department in the business allocation of land assignment shall be responsible for providing suitable site for setting up of common biomedical waste treatment and disposal facility in the State Government or Union territory Administration.

(2) The selection of site for setting up of such facility shall be made in consultation with the prescribed authority, other stakeholders and in accordance with guidelines published by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board.

18. **Liability of the occupier, operator of a facility**.- (1) The occupier or an operator of a common bio-medical waste treatment facility shall be liable for all the damages caused to the environment or the public due to improper handling of bio- medical wastes.

(2) 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.

SCHEDULE I
[See rules 3 (e), 4(b), 7(1), 7(2), 7(5), 7 (6) and 8(2)]
Part-1

Biomedical wastes categories and their segregation, collection, treatment, processing and disposal options

Category	Type of Waste	Type of Bag or Container to be used	Treatment and Disposal options
(1)	(2)	(3)	(4)
Yellow	**(a) Human Anatomical Waste:** Human tissues, organs, body parts and fetus below the viability period (as per the Medical Termination of Pregnancy Act 1971, amended from time to time).	Yellow coloured non-chlorinated plastic bags	Incineration or Plasma Pyrolysis or deep burial*
	(b)Animal Anatomical Waste : Experimental animal carcasses, body parts, organs, tissues, including the waste generated from animals used in experiments or testing in veterinary hospitals or colleges or animal houses.		
	(c) Soiled Waste: Items contaminated with blood, body fluids like dressings, plaster casts, cotton swabs and		Incineration or Plasma Pyrolysis or deep burial* In absence of above facilities, autoclaving or micro-waving/

	bags containing residual or discarded blood and blood components.		hydroclaving followed by shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent for energy recovery.
	(d) Expired or Discarded Medicines: Pharmaceutical waste like antibiotics, cytotoxic drugs including all items contaminated with cytotoxic drugs along with glass or plastic ampoules, vials etc.	Yellow coloured non-chlorinated plastic bags or containers	Expired `cytotoxic drugs and items contaminated with cytotoxic drugs to be returned back to the manufacturer or supplier for incineration at temperature >1200 ^{0}C or to common bio-medical waste treatment facility or hazardous waste treatment, storage and disposal facility for incineration at >1200^{0}C Or Encapsulation or Plasma Pyrolysis at >1200^{0}C. All other discarded medicines shall be either sent back to manufacturer or disposed by incineration.
	(e) Chemical Waste: Chemicals used in production of biological and used or discarded disinfectants.	Yellow coloured containers or non-chlorinated plastic bags	Disposed of by incineration or Plasma Pyrolysis or Encapsulation in hazardous waste treatment, storage and disposal facility.
	(f) Chemical Liquid Waste : Liquid waste generated due to use of chemicals in production of biological and used or discarded disinfectants, Silver X-ray film developing liquid, discarded Formalin, infected secretions, aspirated body fluids, liquid from laboratories and floor washings, cleaning, house-keeping and disinfecting activities etc.	Separate collection system leading to effluent treatment system	After resource recovery, the chemical liquid waste shall be pre-treated before mixing with other wastewater. The combined discharge shall conform to the discharge norms given in Schedule-III.
	(g) Discarded linen, mattresses, beddings contaminated with blood or body fluid.	Non-chlorinated yellow plastic bags or suitable packing material	Non- chlorinated chemical disinfection followed by incineration or Plazma Pyrolysis or for energy recovery. In absence of above facilities, shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent for energy recovery or incineration or Plazma Pyrolysis.

	(h) Microbiology, Biotechnology and other clinical laboratory waste: Blood bags, Laboratory cultures, stocks or specimens of micro-organisms, live or attenuated vaccines, human and animal cell cultures used in research, industrial laboratories, production of biological, residual toxins, dishes and devices used for cultures.	Autoclave safe plastic bags or containers	Pre-treat to sterilize with non-chlorinated chemicals on-site as per National AIDS Control Organisation or World Health Organisation guidelines thereafter for Incineration.
Red	**Contaminated Waste (Recyclable)** (a) Wastes generated from disposable items such as tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes (without needles and *fixed needle syringes*) and vaccutainers with their needles cut) and gloves.	Red coloured non-chlorinated plastic bags or containers	Autoclaving or micro-waving/ hydroclaving followed by shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent to registered or authorized recyclers or for energy recovery or plastics to diesel or fuel oil or for road making, whichever is possible. Plastic waste should not be sent to landfill sites.
White (Translucent)	**Waste sharps including Metals:** Needles, syringes with fixed needles, needles from needle tip cutter or burner, scalpels, blades, or any other contaminated sharp object that may cause puncture and cuts. This includes both used, discarded and contaminated metal sharps	Puncture proof, Leak proof, tamper proof containers	Autoclaving or Dry Heat Sterilization followed by shredding or mutilation or encapsulation in metal container or cement concrete; combination of shredding cum autoclaving; and sent for final disposal to iron foundries (having consent to operate from the State Pollution Control Boards or Pollution Control Committees) or sanitary landfill or designated concrete waste sharp pit.
Blue	**(a) Glassware:** Broken or discarded and contaminated glass including medicine vials and ampoules except those contaminated with cytotoxic wastes.	Cardboard boxes with blue colored marking	Disinfection (by soaking the washed glass waste after cleaning with detergent and Sodium Hypochlorite treatment) or through autoclaving or microwaving or hydroclaving and then sent for recycling.

	(b) Metallic Body Implants	Cardboard boxes with blue colored marking	

[*]**Disposal by deep burial is permitted only in rural or remote areas where there is no access to common bio-medical waste treatment facility. This will be carried out with prior approval from the prescribed authority and as per the Standards specified in Schedule-III. The deep burial facility shall be located as per the provisions and guidelines issued by Central Pollution Control Board from time to time.**

Part -2

(1) All plastic bags shall be as per BIS standards as and when published, till then the prevailing Plastic Waste Management Rules shall be applicable.

(2) Chemical treatment using at least 10% Sodium Hypochlorite having 30% residual chlorine for twenty minutesor any other equivalent chemical reagent that should demonstrate $Log_{10}4$ reduction efficiency for microorganisms as given in Schedule- III.

(3) Mutilation or shredding must be to an extent to prevent unauthorized reuse.

(4) There will be no chemical pretreatment before incineration, except for microbiological, lab and highly infectious waste.

(5) Incineration ash (ash from incineration of any bio-medical waste) shall be disposed through hazardous waste treatment, storage and disposal facility, if toxic or hazardous constituents are present beyond the prescribed limits as given in the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 or as revised from time to time.

(6) Dead Fetus below the viability period (as per the Medical Termination of Pregnancy Act 1971, amended from time to time) can be considered as human anatomical waste. Such waste should be handed over to the operator of common bio-medical waste treatment and disposal facility in yellow bag with a copy of the official Medical Termination of Pregnancy certificate from the Obstetrician or the Medical Superintendent of hospital or healthcare establishment.

(7) Cytotoxic drug vials shall not be handed over to unauthorised person under any circumstances. These shall be sent back to the manufactures for necessary disposal at a single point. As a second option, these may be sent for incineration at common bio-medical waste treatment and disposal facility or TSDFs or plasma pyrolys is at temperature >1200 ^{0}C.

(8) Residual or discarded chemical wastes, used or discarded disinfectants and chemical sludge can be disposed at hazardous waste treatment, storage and disposal facility. In such case, the waste should be sent to hazardous waste treatment, storage and disposal facility through operator of common bio-medical waste treatment and disposal facility only.

(9) On-site pre-treatment of laboratory waste, microbiological waste, blood samples, blood bags should be disinfected or sterilized as per the Guidelines of World Health Organisation or National AIDS Control Organisation and then given to the common bio-medical waste treatment and disposal facility.

(10) Installation of in-house incinerator is not allowed. However in case there is no common biomedical facility nearby, the same may be installed by the occupier after taking authorisation from the State Pollution Control Board.

(11) Syringes should be either mutilated or needles should be cut and or stored in tamper proof, leak proof and puncture proof containers for sharps storage. Wherever the occupier is not linked to a disposal facility it shall be the responsibility of the occupier to sterilize and dispose in the manner prescribed.

(12) Bio-medical waste generated in households during healthcare activities shall be segregated as per these rules and handed over in separate bags or containers to municipal waste collectors. Urban Local Bodies shall have tie up with the common bio-medical waste treatment and disposal facility to pickup this waste from the Material Recovery Facility (MRF) or from the house hold directly, for final disposal in the manner as prescribed in this Schedule.

SCHEDULE II
[See rule 4(t), 7(1) and 7(6)]

STANDARDS FOR TREATMENT AND DISPOSAL OF BIO-MEDICALWASTES

1. STANDARDS FOR INCINERATION.-

All incinerators shall meet the following operating and emission standards-

A. Operating Standards

1). Combustion efficiency (CE) shall be at least 99.00%.

2). The Combustion efficiency is computed as follows:

$$C.E. = \frac{\%C0_2}{\%C0_2 + \%\ CO} \times 100$$

3). The temperature of the primary chamber shall be a minimum of 800 ^{0}C and the secondary chamber shall be minimum of 1050^{0}C + or - 50^{0}C.

4). The secondary chamber gas residence time shall be at least two seconds.

B. Emission Standards

Sl. No.	Parameter	Standards	
(1)	(2)	(3)	(4)
		Limiting concentration in mg Nm^3 unless stated	**Sampling Duration in minutes, unless stated**
1.	Particulate matter	50	30 or $1NM^3$ of sample volume, whichever is more
2.	Nitrogen Oxides NO and NO_2 expressed asNO_2	400	30 for online sampling or grab sample
3.	HCl	50	30 or $1NM^3$ of sample volume, whichever is more
4.	Total Dioxins and Furans	$0.1ngTEQ/Nm^3$ (at 11% O2)	8 hours or $5NM^3$ of sample volume, whichever is more
5.	Hg and its compounds	0.05	2 hours or $1NM^3$ of sample volume, whichever is more

C. Stack Height: Minimum stack height shall be 30 meters above the ground and shall be attached with the necessary monitoring facilities as per requirement of monitoring of 'general parameters' as notified under the Environment (Protection) Act, 1986 and in accordance with the Central Pollution Control Board Guidelines of Emission Regulation Part-III.

Note:

(a) The existing incinerators shall comply with the above within a period of two years from the date of the notification.

(b) The existing incinerators shall comply with the standards for Dioxins and Furans of $0.1ngTEQ/Nm^3$, as given below within two years from the date of commencement of these rules.

(c) All upcoming common bio-medical waste treatment facilities having incineration facility or captive incinerator shall comply with standards for Dioxins and Furans.

(d) The existing secondary combustion chambers of the incinerator and the pollution control devices shall be suitably retrofitted, if necessary, to achieve the emission limits.

(e) Wastes to be incinerated shall not be chemically treated with any chlorinated disinfectants.

(f) Ash from incineration of biomedical waste shall be disposed of at common hazardous waste treatment and disposal facility. However, it may be disposed of in municipal landfill, if the toxic metals in incineration ash are within the regulatory quantities as defined under the Hazardous Waste (Management and Handling and Transboundary Movement) Rules, 2008 as amended from time to time.

(g) Only low Sulphur fuel like Light Diesel Oil or Low Sulphur Heavy Stock or Diesel, Compressed Natural Gas, Liquefied Natural Gas or Liquefied Petroleum Gas shall be used as fuel in the incinerator.

(h) The occupier or operator of a common bio-medical waste treatment facility shall monitor the stack gaseous emissions (under optimum capacity of the incinerator) once in three months through a laboratory approved under the Environment (Protection) Act, 1986 and record of such analysis results shall be maintained and submitted to the prescribed authority. In case of dioxins and furans, monitoring should be done once in a year.

(i) The occupier or operator of the common bio-medical waste treatment facility shall install continuous emission monitoring system for the parameters as stipulated by State Pollution Control Board or Pollution Control Committees in authorisation and transmit the data real time to the servers at State Pollution Control Board or Pollution Control Committees and Central Pollution Control Board.

(j) All monitored values shall be corrected to 11% Oxygen on dry basis.

(k) Incinerators (combustion chambers) shall be operated with such temperature, retention time and turbulence, as to achieve Total Organic Carbon content in the slag and bottom ashes less than 3% or their loss on ignition shall be less than 5% of the dry weight.

(l) The occupier or operator of a common bio-medical waste incinerator shall use combustion gas analyzer to measure CO_2, CO and O_2.

2. **Operating and Emission Standards for Disposal by Plasma Pyrolysis or Gasification:**

A. Operating Standards:

All the operators of the Plasma Pyrolysis or Gasification **s**hall meet the following operating and emission standards:

1) Combustion Efficiency (CE) shall be at least 99.99%.

2) The Combustion Efficiency is computed as follows.

$$C.E = \frac{\%\ CO_2}{(\%\ CO_2 + \%\ CO)} \times 100$$

3) The temperature of the combustion chamber after plasma gasification shall be $1050 \pm 50\ ^{o}C$ with gas residence time of at least 2(two) second, with minimum 3 % Oxygen in the stack gas.

4) The Stack height should be minimum of 30 m above ground level and shall be attached with the necessary monitoring facilities as per requirement of monitoring of 'general parameters' as notified under the Environment (Protection) Act, 1986 and in accordance with the CPCB Guidelines of Emission Regulation Part-III.

B. Air Emission Standards and Air Pollution Control Measures

(i) Emission standards for incinerator, notified at Sl No.1 above in this Schedule, and revised from time to time, shall be applicable for the Plasma Pyrolysis or Gasification also.

(ii) Suitably designed air pollution control devices shall be installed or retrofitted with the 'Plasma Pyrolysis or Gasification to achieve the above emission limits, if necessary.

(iii) Wastes to be treated using Plasma Pyrolysis or Gasification shall not be chemically treated with any chlorinated disinfectants and chlorinated plastics shall not be treated in the system.

C. Disposal of Ash Vitrified Material: The ash or vitrified material generated from the 'Plasma Pyrolysis or Gasification shall be disposed off in accordance with the Hazardous Waste (Management, Handling and Transboundary Movement) Rules 2008 and revisions made thereafter in case the constituents exceed the limits prescribed under Schedule II of the said Rules or else in accordance with the provisions of the Environment (Protection) Act, 1986, whichever is applicable.

3. STANDARDS FOR AUTOCLAVING OF BIO-MEDICAL WASTE.-

The autoclave should be dedicated for the purposes of disinfecting and treating bio-medical waste.

(1) When operating a gravity flow autoclave, medical waste shall be subjected to:

(i) a temperature of not less than 121° C and pressure of 15 pounds per square inch (psi) for an autoclave residence time of not less than 60 minutes; or

(ii) a temperature of not less than 135° C and a pressure of 31 psi for an autoclave residence time of not less than 45 minutes; or

(iii) a temperature of not less than 149° C and a pressure of 52 psi for an autoclave residence time of not less than 30 minutes.

(2) When operating a vacuum autoclave, medical waste shall be subjected to a minimum of three pre-vacuum pulse to purge the autoclave of all air. The air removed during the pre-vacuum, cycle should be decontaminated by means of HEPA and activated carbon filtration, steam treatment, or any other method to prevent release of pathogen. The waste shall be subjected to the following:

(i) a temperature of not less than 121°C and pressure of 15 psi per an autoclave residence time of not less than 45 minutes; or

(ii) a temperature of not less than 135°C and a pressure of 31 psi for an autoclave residence time of not less than 30 minutes;

(3) Medical waste shall not be considered as properly treated unless the time, temperature and pressure indicators indicate that the required time, temperature and pressure were reached during the autoclave process. If for any reasons, time temperature or pressure indicator indicates that the required temperature, pressure or residence time was not reached, the entire load of medical waste must be autoclaved again until the proper temperature, pressure and residence time were achieved.

(4) **Recording of operational parameters:** Each 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.

(5) **Validation test for autoclave:** The validation test shall use four biological indicator strips, one shall be used as a control and left at room temperature, and three shall be placed in the approximate center of three containers with the waste. Personal protective equipment (gloves, face mask and coveralls) shall be used when opening containers for the purpose of placing the biological indicators. At least one of the containers with a biological indicator should be placed in the most difficult location for steam to penetrate, generally the bottom center of the waste pile. The occupier or operator shall conduct this test three consecutive times to define the minimum operating conditions. The temperature, pressure and residence time at which all biological indicator vials or strips for three consecutive tests show complete inactivation of the spores shall define the minimum operating conditions for the autoclave. After determining the minimum temperature, pressure and residence time, the occupier or operator of a common biomedical waste treatment facility shall conduct this test once in three months and records in this regard shall be maintained.

(6) **Routine Test:** A chemical indicator strip or tape that changes colour when a certain temperature is reached can be used to verify that a specific temperature has been achieved. It may be necessary to use more than one strip over the waste package at different locations to ensure that the inner content of the package has been adequately autoclaved. The occupier or operator of a common bio medical waste treatment facility shall conduct this test during autoclaving of each batch and records in this regard shall be maintained.

(7) Spore testing: The autoclave should completely and consistently kill the approved biological indicator at the maximum design capacity of each autoclave unit. Biological indicator for autoclave shall be Geobacillusstearothermophilus spores using vials or spore Strips; with at least $1X10^6$ spores. Under no circumstances will an autoclave have minimum operating parameters less than a residence time of 30 minutes, a temperature less than 121^o C or a pressure less than 15 psi. The occupier or operator of a common bio medical waste treatment and disposal facility shall conduct this test at least once in every week and records in this regard shall be maintained.

4. **STANDARDS OF MICROWAVING.-**

(1) Microwave treatment shall not be used for cytotoxic, hazardous or radioactive wastes, contaminated animal carcasses, body parts and large metal items.

(2) The microwave system shall comply with the efficacy test or routine tests and a performance guarantee may be provided by the supplier before operation of the limit.

(3) The microwave should completely and consistently kill the bacteria and other pathogenic organisms that are ensured by approved biological indicator at the maximum design capacity of each microwave unit. Biological indicators for microwave shall be Bacillus atrophaeusspores using vials or spore strips with at least 1×10^4sporesper detachable strip. The biological indicator shall be placed with waste and exposed to same conditions as the waste during a normal treatment cycle.

5. **STANDARDS FOR DEEP BURIAL.-** (1) A pit or trench should be dug about two meters deep. It should be half filled with waste, then covered with lime within 50 cm of the surface, before filling the rest of the pit with soil.

(2) It must be ensured that animals do not have any access to burial sites. Covers of galvanised iron or wire meshes may be used.

(3) On each occasion, when wastes are added to the pit, a layer of 10 cm of soil shall be added to cover the wastes.

(4) Burial must be performed under close and dedicated supervision.

(5) The deep burial site should be relatively impermeable and no shallow well should be close to the site.

(6) The pits should be distant from habitation, and located so as to ensure that no contamination occurs to surface water or ground water. The area should not be prone to flooding or erosion.

(7) The location of the deep burial site shall be authorised by the prescribed authority.

(8) The institution shall maintain a record of all pits used for deep burial.

(9) The ground water table level should be a minimum of six meters below the lower level of deep burial pit.

6. STANDARDS FOR EFFICACY OF CHEMICAL DISINFECTION

Microbial inactivation efficacy is equated to "Log10 kill" which is defined as the difference between the logarithms of number of test microorganisms before and after chemical treatment. Chemical disinfection methods shall demonstrate a 4 Log10 reduction or greater for Bacillus Subtilis (ATCC 19659) in chemical treatment systems.

7. STANDARDS FOR DRY HEAT STERILIZATION

Waste sharps can be treated by dry heat sterilization at a temperature not less than 185^0C, at least for a residence period of 150 minutes in each cycle, which sterilization period of 90 minutes. There should be automatic recording system to monitor operating parameters.

(i) Validation test for Shaprs sterilization unit

Waste shaprs sterilization unit should completely and consistently kill the biological indicator GeobacillusStearothermophillus or Bacillus Atropheausspoers using vials with at least $\log_{10} 6$ spores per ml. The test shall be carried out once in three months

(ii) Routine test

A chemical indicator strip or tape that changes colour when a certain temperature is reached can be used to verify that a specific temperature has been achieved. It may be necessary to use more than one strip over the waste to ensure that the inner content of the sharps has been adequately disinfected. This test shall be performed once in week and records in this regard shall be maintained.

8. **STANDARDS FOR LIQUID WASTE.-**

(1) The effluent generated or treated from the premises of occupier or operator of a common bio medical waste treatment and disposal facility, before discharge into the sewer should conform to the following limits-

PARAMETERS	PERMISSIBLE LIMITS
pH	6.5-9.0
Suspended solids	100 mg/l
Oil and grease	10 mg/l
BOD	30 mg/l
COD	250 mg/l
Bio-assay test	90% survival of fish after 96 hours in 100% effluent.

(2) Sludge from Effluent Treatment Plant shall be given to common bio-medical waste treatment facility for incineration or to hazardous waste treatment, storage and disposal facility for disposal.

Schedule III

[See rule 6 and 9(3)]

List of Prescribed Authorities and the Corresponding Duties

Sl. No. (1)	**Authority (2)**	**Corresponding Duties (3)**
1	Ministry of Environment, Forest and Climate Change, Government of India	(i) Making Policies concerning bio-medical waste Management in the Country including notification of Rules and amendments to the Rules as and when required. (ii) Providing financial assistance for training and awareness programmes on bio-medical waste management related activities to for the State Pollution Control Boards or Pollution Control Committees. (iii) Facilitating financial assistance for setting up or up-gradation of common bio-medical waste treatment facilities. (iv) Undertake or support operational research and assessment with reference to risks to environment and health due to bio-medical waste and

		previously unknown disposables and wastes from new types of equipment. (v) Constitution of Monitoring Committee for implementation of the rules. (vi) Hearing Appeals and give decision made in Form-V against order passed by the prescribed authorities. (vii) Develop Standard manual for Trainers and Training. (viii) Notify the standards or operating parameters for new technologies for treatment of bio medical waste other than those listed in Schedule- I.
2	Central or State Ministry of Health and Family Welfare, Central Ministry for Animal Husbandry and Veterinary or State Department of Animal Husbandry and Veterinary.	(i) Grant of license to health care facilities or nursing homes or veterinary establishments with a condition to obtain authorisation from the prescribed authority for bio-medical waste management. (ii) Monitoring, Refusal or Cancellation of license for health care facilities or nursing homes or veterinary establishments for violations of conditions of authorisation or provisions under these Rules. (iii) Publication of list of registered health care facilities with regard to bio-medical waste generation, treatment and disposal. (iv) Undertake or support operational research and assessment with reference to risks to environment and health due to bio-medical waste and previously unknown disposables and wastes from new types of equipment. (v) Coordinate with State Pollution Control Boards for organizing training programmes to staff of health care facilities and municipal workers on bio-medical waste. (vi) Constitution of Expert Committees at National or State level for overall review and promotion of clean or new technologies for bio-medical waste management.

		(vii) Organizing or Sponsoring of trainings for the regulatory authorities and health care facilities on bio-medical waste management related activities. (viii) Sponsoring of mass awareness campaigns in electronic media and print media.
3	Ministry of Defence	(i) Grant and renewal of authorisation to Armed Forces health care facilities or common bio-medical waste treatment facilities (Rule 9). (ii) Conduct training courses for authorities dealing with management of bio-medical wastes in Armed Forces health care facilities or treatment facilities in association with State Pollution Control Boards or Pollution Control Committees or Central Pollution Control Board or Ministry of Environment, Forest and Climate Change. (iii) Publication of inventory of occupiers and bio-medical waste generation from Armed Forces health care facilities or occupiers (iv) Constitution of Advisory Committee for implementation of the rules. (v) Review of management of bio-medical waste generation in the Armed Forces health care facilities through its Advisory Committee (Rule 11). (vi) Submission of annual report to Central Pollution Control Board within the stipulated time period (Rule 13).
4.	Central Pollution Control Board	(i) Prepare Guidelines on bio-medical waste Management and submit to the Ministry of Environment, Forest and Climate Change. (ii) Co-ordination of activities of State Pollution Control Boards or Pollution Control Committees on bio-medical waste. (iii) Conduct training courses for authorities dealing with management of bio-medical waste. (iv) Lay down standards for new technologies for

		treatment and disposal of bio-medical waste (Rule 7) and prescribe specifications for treatment and disposal of bio-medical wastes (Rule 7). (v) Lay down Criteria for establishing common bio-medical waste treatment facilities in the Country. (vi) Random inspection or monitoring of health care facilities and common bio-medical waste treatment facilities. (vii) Review and analysis of data submitted by the State Pollution Control Boards on bio-medical waste and submission of compiled information in the form of annual report along with its observations to Ministry of Environment, Forest and Climate Change . (viii) Inspection and monitoring of health care facilities operated by the Director General, Armed Forces Medical Services (Rule 9). (ix) Undertake or support research or operational research regarding bio-medical waste.
5.	State Government of Health or Union Territory Government or Administration	(i) To ensure implementation of the rule in all health care facilities or occupiers. (ii) Allocation of adequate funds to Government health care facilities for bio-medical waste management. (iii) Procurement and allocation of treatment equipments and make provision for consumables for bio-medical waste management in Government health care facilities. (iv) Constitute State or District Level Advisory Committees under the District Magistrate or Additional District Magistrate to oversee the bio-medical waste management in the Districts. (v) Advise State Pollution Control Boards or Pollution Control Committees on implementation of these Rules. (vi) Implementation of recommendations of the Advisory Committee in all the health care facilities.

6.	State Pollution Control Boards or Pollution Control Committees	(i) Inventorisation of Occupiers and data on bio-medical waste generation, treatment & disposal. (ii) Compilation of data and submission of the same in annual report to Central Pollution Control Board within the stipulated time period. (iii) Grant and renewal, suspension or refusal cancellation or of authorisation under these rules (Rule 7, 8 and 10). (iv) Monitoring of compliance of various provisions and conditions of authorisation. (v) Action against health care facilities or common bio-medical waste treatment facilities for violation of these rules (Rule 18). (vi) Organizing training programmes to staff of health care facilities and common bio-medical waste treatment facilities and State Pollution Control Boards or Pollution Control Committees Staff on segregation, collection, storage, transportation, treatment and disposal of bio-medical wastes. (vii) Undertake or support research or operational research regarding bio-medical waste management. (viii) Any other function under these rules assigned by Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time. (ix) Implementation of recommendations of the Advisory Committee. (x) Publish the list of Registered or Authorised (or give consent) Recyclers. (xi) Undertake and support third party audits of the common bio-medical waste treatment facilities in their State.
7	Municipalities or Corporations, Urban Local Bodies and Gram Panchayats	(i) Provide or allocate suitable land for development of common bio-medical waste treatment facilities in their respective jurisdictions as per the guidelines of

		Central Pollution Control Board. (ii) Collect other solid waste (other than the bio-medical waste) from the health care facilities as per the Municipal Solid Waste (Management and handling) Rules, 2000 or as amended time to time. (iii) Any other function stipulated under these Rules.

SCHEDULE IV
[See rule 8(3) and (5)]
Part A

LABEL FOR BIO-MEDICAL WASTE CONTAINERS or BAGS

HANDLE WITH CARE

CYTOTOXIC HAZARDSYMBOL

HANDLE WITH CARE

Part B

LABEL FOR TRANSPORTING BIO-MEDICAL WASTE BAGS OR CONTAINERS

Day .....Month .....
Year .....
Date of generation .....

Waste category Number .....
Waste quantity……

Sender's Name and Address
Phone Number .....
Fax Number.....
Contact Person .....

Receiver's Name and Address:
Phone Number .....
Fax Number .....
Contact Person .....

In case of emergency please contact :
Name and Address :
Phone No.

Note :Label shall be non-washable and prominently visible.

FORM – I
[(See rule 4(o), 5(i) and 15 (2)]

ACCIDENT REPORTING

1. Date and time of accident :

2. Type of Accident :

3. Sequence of events leading to accident :

4. Has the Authority been informed immediately :

5. The type of waste involved in accident :

6. Assessment of the effects of the accidents on human health and the environment:

7. Emergency measures taken :

8. Steps taken to alleviate the effects of accidents :

9. Steps taken to prevent the recurrence of such an accident :

10. Does you facility has an Emergency Control policy? If yes give details:

Date : …… Signature ……
Place: …… Designation ……..

FORM - II

(See rule10)

APPLICATION FOR AUTHORISATION OR RENEWAL OF AUTHORISATION

(To be submitted by occupier of health care facility or common bio-medical waste treatment facility)

To

The Prescribed Authority
(Name of the State or UT Administration)
Address.

1. Particulars of Applicant:

(i) Name of the Applicant:
(In block letters & in full)

(ii) Name of the health care facility (HCF) or common bio-medical waste treatment facility (CBWTF) :

(iii) Address for correspondence:

(iv) Tele No., Fax No.:

(v) Email:

(vi) Website Address:

2. Activity for which authorisation is sought:

Activity	Please tick
Generation, segregation	
Collection,	
Storage	
packaging	
Reception	
Transportation	
Treatment or processing or conversion	
Recycling	
Disposal or destruction	
use	
offering for sale, transfer	
Any other form of handling	

3. Application for □ fresh or □ renewal of authorisation (please tick whatever is applicable):

(i) Applied for CTO/CTE Yes/No

(ii) In case of renewal previous authorisation number and date:

(iii) Status of Consents:

(a) under the Water (Prevention and Control of Pollution) Act, 1974

(b) under the Air (Prevention and Control of Pollution) Act, 1981:
---

4. (i) Address of the health care facility (HCF) or common bio-medical waste treatment facility (CBWTF):

(ii) GPS coordinates of health care facility (HCF) or common bio-medical waste treatment facility (CBWTF):

5. Details of health care facility (HCF) or common bio-medical waste treatment facility (CBWTF):
(i) Number of beds of HCF:
(ii) Number of patients treated per month by HCF:
(iii) Number healthcare facilities covered by CBMWTF: _____
(iv) No of beds covered by CBMWTF: _____
(v) Installed treatment and disposal capacity of CBMWTF:_____ Kg per day
(vi) Quantity of biomedical waste treated or disposed by CBMWTF:_____ Kg/ day
(vii) Area or distance covered by CBMWTF:_____

(pl. attach map a map with GPS locations of CBMWTF and area of coverage)

(viii) Quantity of Biomedical waste handled, treated or disposed:

Category	Type of Waste	Quantity Generated or Collected, kg/day	Method of Treatment and Disposal (Refer Schedule-I)
(1)	(2)	(3)	(4)
Yellow	(a) Human Anatomical Waste:		
	(b)Animal Anatomical Waste :		
	(c) Soiled Waste:		
	(d) Expired or Discarded Medicines:		
	(e) Chemical Solid Waste:		
	(f) Chemical Liquid Waste :		
	(g) Discarded linen, mattresses, beddings contaminated with blood or body fluid.		
	(h) Microbiology, Biotechnology and other clinical laboratory waste:		
Red	Contaminated Waste (Recyclable)		
White (Translucent)	Waste sharps including Metals:		
Blue	Glassware:		
	Metallic Body Implants		

6. Brief description of arrangements for handling of biomedical waste (attach details):

(i) Mode of transportation (if any) of bio-medical waste:

(ii) Details of treatment equipment (please give details such as the number, type & capacity of each unit)

	No of units	Capacity of each unit
Incinerators :		
Plasma Pyrolysis:		
Autoclaves:		
Microwave:		
Hydroclave:		
Shredder:		
Needle tip cutter or destroyer		
Sharps encapsulation or concrete pit:		
Deep burial pits:		
Chemical disinfection:		
Any other treatment equipment:		

7. Contingency plan of common bio-medical waste treatment facility (CBWTF)(attach documents):
8. Details of directions or notices or legal actions if any during the period of earlier authorisation

9. Declaration

I do hereby declare that the statements made and information given above are true to the best of my knowledge and belief and that I have not concealed any information.

I do also hereby undertake to provide any further information sought by the prescribed authority in relation to these rules and to fulfill any conditions stipulated by the prescribed authority.

Date : Signature of the Applicant

Place : Designation of the Applicant

FORM –III
(See rule 10)

AUTHORISATION

(Authorisation for operating a facility for generation, collection, reception, treatment, storage, transport and disposal of biomedical wastes)

1. File number of authorisation and date of issue……

2. M/s _____ an occupier or operator of the facility located at _____ is hereby granted an authorisation for;

Activity	Please tick
Generation, segregation	
Collection,	
Storage	
packaging	
Reception	
Transportation	
Treatment or processing or conversion	
Recycling	
Disposal or destruction	
use	
offering for sale, transfer	
Any other form of handling	

3. M/s _____ is hereby authorized for handling of biomedical waste as per the capacity given below;

(i) Number of beds of HCF:
(ii) Number healthcare facilities covered by CBMWTF: _____

(iii) Installed treatment and disposal capacity:_____ Kg per day
(iv) Area or distance covered by CBMWTF:_____
_____
(v) Quantity of Biomedical waste handled, treated or disposed:

Type of Waste	Category	Quantity permitted for Handling
	Yellow	
	Red	
	White (Translucent)	
	Blue	

3. This authorisation shall be in force for a period of ……. Years from the date of issue.

4. This authorisation is subject to the conditions stated below and to such other conditions as may be specified in the rules for the time being in force under the Environment (Protection) Act, 1986.

Date …… Signature……..
Place: …… Designation ……..

Terms and conditions of authorisation *

1. The authorisation shall comply with the provisions of the Environment (Protection) Act, 1986 and the rules made there under.
2. The authorisation or its renewal shall be produced for inspection at the request of an officer authorised by the prescribed authority.
3. The person authorized shall not rent, lend, sell, transfer or otherwise transport the biomedical wastes without obtaining prior permission of the prescribed authority.
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. It is the duty of the authorised person to take prior permission of the prescribed authority to close down the facility and such other terms and conditions may be stipulated by the prescribed authority.

Form - IV
(See rule 13)
ANNUAL REPORT

[To be submitted to the prescribed authority on or before 30th June every year for the period from January to December of the preceding year, by the occupier of health care facility (HCF) or common bio-medical waste treatment facility (CBWTF)]

Sl. No.	Particulars		
1 .	Particulars of the Occupier	:	
	(i) Name of the authorised person (occupier or operator of facility)	:	

	(ii) Name of HCF or CBMWTF	:	
	(iii) Address for Correspondence	:	
	(iv) Address of Facility		
	(v)Tel. No, Fax. No	:	
	(vi) E-mail ID	:	
	(vii) URL of Website		
	(viii) GPS coordinates of HCF or CBMWTF		
	(ix) Ownership of HCF or CBMWTF	:	(State Government or Private or Semi Govt. or any other)
	(x). Status of Authorisation under the Bio-Medical Waste (Management and Handling) Rules	:	Authorisation No.: …… ……..valid up to ……..
	(xi). Status of Consents under Water Act and Air Act	:	Valid up to:
2.	Type of Health Care Facility	:	
	(i) Bedded Hospital	:	No. of Beds:…..
	(ii) Non-bedded hospital (Clinic or Blood Bank or Clinical Laboratory or Research Institute or Veterinary Hospital or any other)	:	
	(iii) License number and its date of expiry		
3.	Details of CBMWTF	:	
	(i) Number healthcare facilities covered by CBMWTF	:	
	(ii) No of beds covered by CBMWTF	:	
	(iii) Installed treatment and disposal capacity of CBMWTF:	:	_____ Kg per day
	(iv) Quantity of biomedical waste treated or disposed by CBMWTF	:	_____ Kg/day
4.	Quantity of waste generated or disposed in Kg per annum (on monthly average basis)	:	Yellow Category :
			Red Category :
			White:
			Blue Category :
			General Solid waste:
5	Details of the Storage, treatment, transportation, processing and Disposal Facility		
	(i) Details of the on-site storage facility	:	Size :
			Capacity :
			Provision of on-site storage : (cold storage or any other provision)

	disposal facilities		Type of treatment equipment / No of units / Capacity Kg/day / Quantity treated or disposed in kg per annum Incinerators Plasma Pyrolysis Autoclaves Microwave Hydroclave Shredder Needle tip cutter or destroyer - Sharps encapsulation or concrete pit - Deep burial pits: Chemical disinfection: - Any other treatment equipment:
	(iii) Quantity of recyclable wastes sold to authorized recyclers after treatment in kg per annum.	:	Red Category (like plastic, glass etc.)
	(iv) No of vehicles used for collection and transportation of biomedical waste	:	
	(v) Details of incineration ash and ETP sludge generated and disposed during the treatment of wastes in Kg per annum		Quantity generated / Where disposed Incineration Ash ETP Sludge
	(vi) Name of the Common Bio-Medical Waste Treatment Facility Operator through which wastes are disposed of	:	
	(vii) List of member HCF not handed over bio-medical waste.		
6	Do you have bio-medical waste management committee? If yes, attach minutes of the meetings held during the reporting period		
7	Details trainings conducted on BMW		
	(i) Number of trainings conducted on BMW Management.		

	(ii) number of personnel trained		
	(iii) number of personnel trained at the time of induction		
	(iv) number of personnel not undergone any training so far		
	(v) whether standard manual for training is available?		
	(vi) any other information)		
8	Details of the accident occurred during the year		
	(i) Number of Accidents occurred		
	(ii) Number of the persons affected		
	(iii) Remedial Action taken (Please attach details if any)		
	(iv) Any Fatality occurred, details.		
9.	Are you meeting the standards of air Pollution from the incinerator? How many times in last year could not met the standards?		
	Details of Continuous online emission monitoring systems installed		
10.	Liquid waste generated and treatment methods in place. How many times you have not met the standards in a year?		
11	Is the disinfection method or sterilization meeting the log 4 standards? How many times you have not met the standards in a year?		
12.	Any other relevant information	:	(Air Pollution Control Devices attached with the Incinerator)

Certified that the above report is for the period from

……..……
……
……
……..

Name and Signature of the Head of the Institution

Date:
Place

FORM –V

(See rule 16)

Application for filing appeal against order passed by the prescribed authority

1. Name and address of the person applying for appeal :

2. Number, date of order and address of the authority which passed the order, against which appeal is being made (certified copy of order to be attached):

3. Ground on which the appeal is being made:

4. List of enclosures other than the order referred in para 2 against which appeal is being filed:

Signature ……..

Date : Name and Address……..

[F. No. 3-1/2000-HSMD]

(Bishwanath Sinha)
Joint secretary to the Government of India

******

PRE-FEASIBILITY REPOERT

For

Existing Common Bio-Medical Waste Treatment Facility

at Subharti Medical College Campus, Subharti Puram, Meerut, Uttar Pradesh – 250 005

BMW Treatment Facility - Item 7(da); "Category B"

By-

M/s Synergy Waste Management Pvt. Ltd.

Regd. Office: 517-518, 5th Floor, D-MALL, Sector-10, Rohini, New Delhi-110 085

Contents

1. Executive Summary

The existing bio-medical waste treatment facility established by M/s Synergy Waste Management Pvt. Ltd. is established and operating since 2002. at Subharti Medical College Campus, Subharti Puram, Meerut, Uttar Pradesh – 250 005. The existing Bio-medical Waste Treatment Facility is authorized by the UP Pollution Control Board [vide letter no. H46106/C3/BMW-08/ 20 dated 08/01/2020] for collection, reception, treatment, storage, transport and disposal of bio-medical wastes from health care units located within a radius of 150 Km. The authorization is valid upto 31/12/2024. The facility has also obtained Consent to Operate and Hazardous Waste Authorization from the state Pollution Control Board. This plant is requiring Post-Facto EC Approval as per NGT order dated 02/03/2023.

The objective to continue the existing project is to:

- Continue to operate the common bio-medical waste Management facility with the incineration plant, autoclave and shredder in compliance with EIA Notification dated 14 September 2006.
- Cater the health care units in the region in collection of segregated bio-medical waste and its transportation, storage, treatment and disposal following the guideline of CPCB in accordance with the Biomedical Waste Management Rules 2016 and amendments thereof.
- Comply with statutory and environmental norms.
- Develop concise waste management principles.
- Continue waste management education program for all staff to increase awareness of Occupational Health & Safety issues and waste minimization principles.
- Adopt policies and procedures to minimize the environmental impacts of waste treatment and disposal.

S. No.	Parameters	Description
1	Project	Existing Common Biomedical Waste Treatment Facility
2	Identification of project	Project falls under Category "B" of item 7 (da) as per EIA Notification dated 14th September, 2006 and its subsequent amendments thereof.
4	Project Proponent	**M/s Synergy Waste Management Pvt. Ltd.**
5	Brief description of nature of the project	The existing Bio-medical Waste Treatment Facility is authorized to collect and treat bio-medical wastes from health care units located within a radius of 150 Km and at present covers 4788 nos. of health care units. The project is

		located within the campus of Subharti Medical College on an area of approx. 1242 sq m. The area has been allocated by the Medical College Authority on rent basis.
Salient Features of the Project		
6	Plant capacity	• Incinerator [capacity 300 Kg/hour] • Autoclave [capacity – 300 Lit/batch] • Shredder [capacity - 300 kg/hour]
7	Allocated Plot Area	approx. 1242 sq m
8	Location	Subharti Medical College Campus, Subharti Puram, Meerut, Uttar Pradesh – 250 005 **Site coordinates -** 28°57'46.02" N, 77° 37'58.64"E
9	Water requirement	Fresh water requirement – 3 KLD Total water requirement including recycled treated wastewater from onsite ETP - 5 KLD
10	Source of water	Fresh water source – Onsite ground water abstraction through tube-well. Necessary permission has been obtained. Recycled water source: Onsite ETP treated wastewater.
11	Wastewater	Wastewater is generated from equipment washing, floor washing, vehicle washing operations etc. and treated in onsite effluent treatment plant of capacity 5 KLD.
12	Manpower	At present, a total of 113 employees [direct 62 including vehicles helpers and staff + contractual 51 drivers] persons are engaged with the operational activities of the facility.
13	Electricity/ Power requirement	Power Requirement: 49 KW Source: UP Power Corporation Limited Emergency backup – one DG set of 62.5 KVA
14	Total Project Cost	INR 94.71 lakh
15	Nearest Railway Station/ airport along with distance in Km	Meerut City Junction – aerial distance 4.5 Km on NE Dr. B.R. Ambedkar Airstrip – 7.2 Km on SW
16	Village, Panchayats, Zilaparishad, Municipal corporation, Local Body	Meerut Municipal Corporation
17	Address for correspondence	Name: Mr. Neeraj Aggarwal Designation: Managing Director Address: 517-518, 5th Floor, D-MALL, Sector-10, Rohini, New Delhi-110 085

2. Introduction of the Project/ Background Information

Management of bio-medical wastes [BMW] was first time governed under the Bio-Medical Waste Management and Handling Rule, 1998 and its subsequent amendments. Currently the Bio-Medical Waste Management Rules 2016 is in place.

Due to increase in population, the BMW generation is increasing. Bio-Medical waste includes all the waste generated from the Health Care Facility [HCF] which can have any adverse effect to the health of a person or to the environment in general if not disposed properly. All such waste which can adversely harm the environment or health of a person is considered as infectious and such waste has to be managed as per BMWM Rules, 2016. Amount of infectious bio-medical waste from health care facility is around 15% whereas amount of non-infectious general wastes constitutes nearly 85%. In absence of proper segregation, the non-infectious waste becomes infectious and poses environmental threat to the society.

With the concern over management and disposal of bio-medical wastes, the company had established the Common bio-medical waste treatment facility in 2003 within the campus of Subharti Medical College at Meerut with active intervention of UP Pollution Control Board. Since then, the facility is operating in compliance with the applicable rules and standards thereof.

3. Identification of Project and Project Proponent

3.1 Identification of Project

The existing common BWTF falls under Category B, schedule 7(da) as per the EIA notification 14th Sep, 2006 and subsequent amendments. The project is existing and operating since 2002 and it is one of the first of this kind of facility in the state. However, the project requires post facto Environmental Clearance as per NGT order dated 02/03/2023

3.2 Project Proponent

Synergy Waste Management [SWM] is a leading pro-environment company. It understands health hazard and the quantum of damage Bio Medical Waste can cause to the lives of humans and that of animal species. The company kick started managing bio-medical Waste back in 2001 when waste disposal wasn't looked at as hazardous threat to life. Waste irrespective of nature calls for proper disposal and over the years with premium services and dedicated team work with likeminded environmentalists and entrepreneurs, the company has built a robust self-sustaining work model.

Over the years Synergy Waste Management Pvt. Ltd. has set up 8 CBWTFs in different states with own its resources and capability. Today, Synergy Waste Management Pvt. Ltd. stands amongst the highest ranked organizations contributing in the field of environment and forest climate change. SWM's footprint has over the years catered over 8,000 hospital beds and 10,000 health care establishments with structural models that are economically sustainable and 100% eco-friendly. The company operates with a dedicated fleet of over 150 vehicles covering more than 17000 Km every day and has been recognized and awarded for the work by various government and private bodies that are equally committed to the environment.

Synergy Group has successfully built its customer base and contracts with government HCEs proving its worth and sustainability as a one stop shop to all Bio Medical Waste Solutions, Services under one roof.

M/s Synergy Waste Management Pvt. Ltd.
Authorized Signatory- Mr. Neeraj Agarwal
Designation: Managing Director
Address: 517-518, 5th Floor, D-MALL, Sector-10, Rohini, New Delhi-110 085
Telephone No.: 011-27933371, 81, 82

Dr. Neeraj Aggarwal, Managing Director – Dr. Neeraj Aggarwal is a dynamic and enthusiastic PhD entrepreneur. He began his journey fairly young and pioneered under the leadership of his father Shri Ramesh Aggarwal. Bio-medical Waste Management Rules (Amended Rules) came into existence in the year 2000. With the vision of protecting the environment, while contributing towards a healthier and safer tomorrow. Synergy Waste Management Company, a proprietary firm in the name and style of Mr. Neeraj Aggarwal, Synergy had setup its first CBWTF (Common Bio-medical Waste Treatment Facility) in February 2001 in the national capital of the country. In the year 2005, the constitution of Synergy Waste Management Company was converted to a Private Limited Company with Dr. Neeraj Aggarwal and Mr. Dheeraj Aggarwal holding 50% stake each.

Dr. Aggarwal is an ardent learner and has a sharp eye to detail. His ability to execute swift decisions and mitigate risk has allowed him to grow steadfast over the years. His inclination towards adapting new technologies drove him to pursue his PhD in Waste Management in 2016 upholding the title of Doctor Neeraj Aggarwal thereon. His vision is to establish Synergy Group as one of the leading promoters of Bio-medical Waste Management and Treatment in the country.

4. Brief Description of Nature of the Project

A Bio-medical Waste Treatment Facility (BWTF) is a setup where biomedical waste, generated from healthcare units, is suitably treated and disposed to reduce adverse effects that these wastes may pose. The treated waste is finally sent for disposal in a secured landfill or for recycling purposes. The existing Bio-medical Waste Treatment Facility includes incinerator, autoclave, and shredder.

5. Need for the Project and Its Importance to the Country and State

Ministry of Environment & Forests (MOEF), Govt. of India had first notified the Bio- Medical Waste (Management & Handling) Rules in 1998. In accordance to the rule, every occupier of a health care establishment (HCE) shall ensure requisite treatment of the bio-medical waste at an approved Common Biomedical Waste Treatment Facility. No untreated bio-medical waste shall be kept stored beyond a period of 48 hours. A huge amount of Bio-medical waste is generated from health care units and therefore, with active intervention of the state Pollution Control Board, the units was set up in 2002. Since then the unit is serving the health care units in the region and has been treating and disposing BMW uninterruptedly. As authorized by the UP Pollution Control Board, the unit covers health care units within 150 radius of the site.

6. Demand –Supply Gap

The unit is authorized to cover a radius of 150 Km and presently covers approx. 4788 health care units in the region.

7. Employment Generation (Direct & Indirect)

Number of persons engaged with the facility is given below-

Table No. 1. Manpower Engaged

SN	Manpower/Profile	Direct employee	Contractual
1	Staff	11	Nil
2	Vehicle Helpers	51	Nil
2	Vehicle Drivers	00	51
	Total	62	51

8. Project Description

8.1 Type of Project

This is an existing Bio-medical Waste Treatment Facility (CBWTF) operating since 2002. The project comes under category 7(da) of EIA Notification, 2006.

This Bio-medical Waste Treatment Facility (CBWTF) is required for the treatment of the biomedical waste generated from the health care units [government as well private] in the region to reduce adverse effects that this waste may pose. Existing project includes incinerator, autoclave, shredder along with Effluent Treatment Plant.

8.2 Location of the Site

Site is located within the campus of Subharti Medical College, Meerust. An area of 1242 sq m is allocated by the Medical College Authority on rent basis.

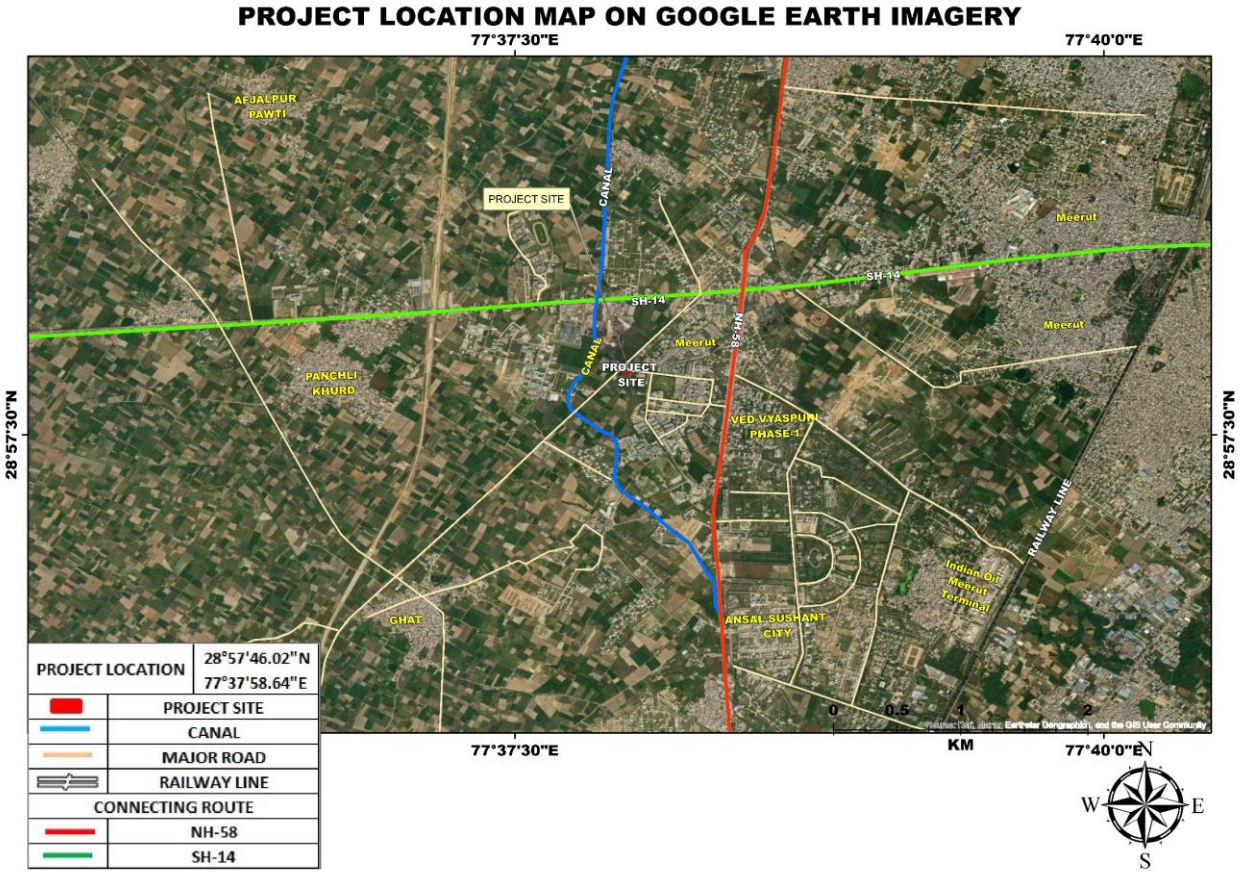


Fig. 2: Showing project Location Map of Proposed Site

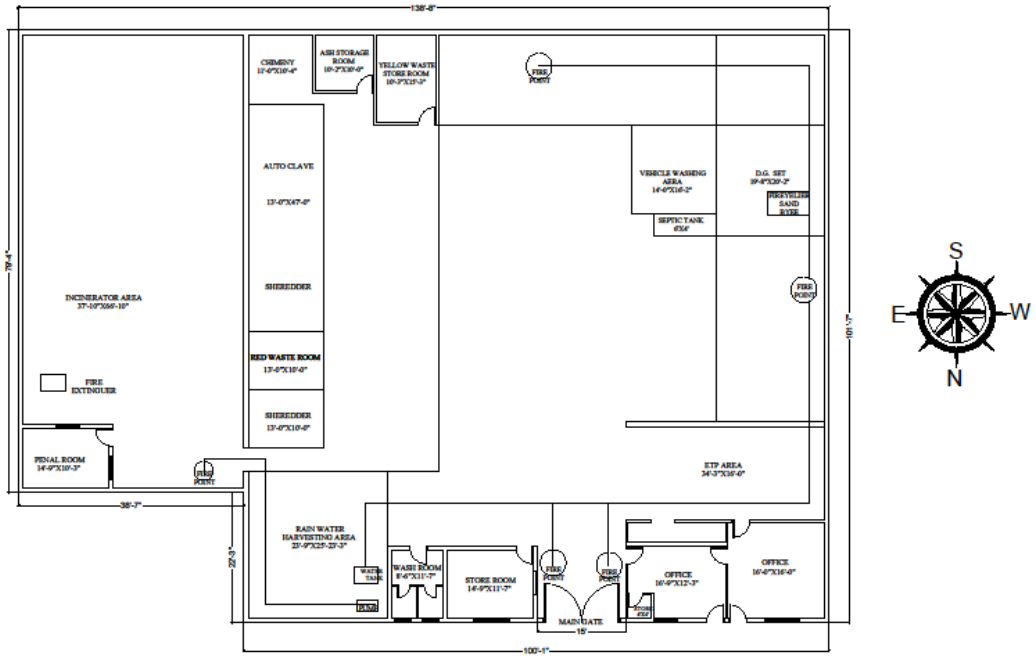


Fig. 3: Layout of the existing common biomedical waste treatment facility

8.3 Details of Alternate Sites

Not applicable as it is an existing project.

8.4 Size and Magnitude of Project

The propjet proponent has taken an area of 1272 sqm within the campus of Subharti Medical College, Meerut on rest basis. The total cost of the project is INR 94 lakh approx. The following components have been provided in the facility.

List of components

SN	Equipment	Installed Capacity	Number
01	Incinerator	300 Kg/hr	01
02	Autoclave	300 Kg/batch	01
03	Shredder	300 Kg/hr	01
04	Onsite ETP	5 KLD	-
04	Waste carrying vehicles with GPS	-	51

9. Technology and Process Details

9.1 Components of Bio-Medical Waste Management

An integrated waste management system for bio-medical waste must look into various stages of the process. These key components can be broadly classified into the following:

Waste Segregation:

Waste segregation reduces the load of bio-medical waste from about 2.0 kgs/bed-day to about 0.2 kg/bed/day and also minimize the environmental impacts associated with further processing. Waste will have to be segregated into domestic refuse, hazardous waste and infectious waste separately. Further the infectious wastes have to be segregated into plastics, metals, and other infectious waste generated. Segregation is done effectively if performed at source. CPCB has issued clear guidelines for colour coded segregation.

Waste Collection and Transport:

Facility has to ensure that there are no environmental or human health impacts while collecting & transporting Bio-Medical waste.

Treatment/ Storage/ Disposal:

Treatment/ Storage and disposal of the waste have various options available. Waste treatment can be effectively performed by two operations running parallel to each other:

A Disinfecting Unit

A Disinfecting unit is one that will effectively kill all the microorganisms. Autoclaving, Microwaving, Hydroclaving and Chemical disinfection processes are the most prevalent technologies used for disinfection of pathogens from the bio-medical waste. Autoclave used for the purpose of bio-medical waste management is expected to operate under standards specified by CPCB. Medical Waste shall not be considered treated unless the time, temperature and pressure indicated in the standards are reached (for eg. 121° C, 15 psi for 1 hour for normal autoclave) Microwave and Hydroclave disinfection units are similar in application to that of an autoclave. Microwave technology cannot be applied for cytotoxins, hazardous or radioactive waste, contaminated animal carcasses, body parts and large metal items. Microwave should completely and consistently kill the bacteria and other microorganisms. Chemical disinfection is a process of disinfection wherein chemical disinfectants like chlorine and its derivatives or their disinfectants are used in a closed process to attain complete killing of the pathogens.

A Destruction Unit

A Destruction unit is one that will completely destroy the waste into safe end products. High temperature incinerators or plasma pyrolysis technology are used to achieve this. Incineration is a process by which combustible materials are burnt, producing combustion gases and non-combustible residue and ash while plasma pyrolysis technology is a non-incineration thermal process that uses extremely high temperature in an oxygen starved environment to completely dissociate waste in to their elemental constituents. The combustible gases are vented into the air after treatment through air pollution control devices. Ash and other non-combustible residue remain after the destruction/incineration process is disposed securely through common HWTSDF.

Waste Storage

Waste Storage is an applicable option for effective storage of certain hazardous waste like mercury and cytotoxins that do not have a cost-effective treatment technology as yet. Waste Disposal is primary performed by deep burial of waste into secure landfills.

Waste disposal

Waste disposal is an option which remains to exist irrespective of the treatment options, in case of disinfection waste material post-disinfection needs to be land filled and in case of pyrolysis the pyrolysis residue will be stored at site and disposed through the Common HWTSDF as per rules. Used plastic bottles will be autoclaved and shredded into pieces. Resulting pieces will be later sold to recyclers. ETP sludge will be disposed through the Common HWTSDF as per rules.

9.2 Process Description

This is an existing unit operating with incinerator, autoclave and shredder.

9.3 Treatment Technology

Incineration Plant

This is a high temperature thermal process employing combustion of the waste under controlled condition for converting it into inert material and gases. Existing incinerator is HSD fired and has primary and secondary combustion chambers to ensure optimal combustion. These are refractory lined. Solid phase combustion takes place in the primary chamber whereas the secondary chamber is for gas phase combustion. These are referred to as excess air incinerators because excess air is present in both the chambers. Thus, the waste is incinerated in two stages i.e., the primary chamber and the secondary combustion chamber which are positioned adjacent to each other. The

flue gases then pass through the high pressure drop Venturi Scrubber, droplet separator and are let out to atmosphere via ID fan and chimney. The Primary Combustion Chamber operates under near pyrolytic condition where the wastes are decomposed & all volatiles are released. The substrate remaining gets converted into sterile ash. The volatiles released from the Primary Combustion Chamber are then completely burnt in the Secondary Combustion Chamber under high temperature & excess air.

Air Pollution Control Device (APCD)

The gases after being burnt at 1050oC shall pass through a ventury scrubber followed by a flooded scrubber with water quenching arrangement. The scrubber shall be an alkaline scrubber to neutralize the gases and ensure trapping of any pollutants escaping into the environment. The purpose of water quenching is to reduce the temperature of the gases which are at high temperature. The clean gases are let out into the environment. The scrubbed water shall be collected into a sump, where the water is neutralized, and then sent into a cooling tower from where the water is recirculated into the scrubber after cleaning them of their particulates by way of pressure sand filter and activated carbon filter. The system is thus a zero discharge system in terms of water discharges and is pollution free.

Autoclave

The primary purpose of autoclave is to sterilise/ dis-infect the waste with steam. Microorganisms which contribute to infection do not survive beyond 80ºC. However, as a precaution MoEF&CC has stipulated a temperature of 121ºC with 15psi pressure to ensure distribution of temperature. At this temperature and pressure, microorganisms are completely destroyed and thus render the wastes infection free. Decontamination is the reduction of contamination to a level where it is no longer a hazard to people or the environment.. To ensure safety and quality control, all bio-hazardous materials and items contaminated with potentially infectious agents should be decontaminated before use or disposal. Such items include, but are not limited to: culture media, surgical instruments, laboratory equipment, glassware, and biomedical waste including sharps.

Shredder

Shredding is a process by which waste are de-shaped or cut into smaller pieces so as to make the waste unrecognizable. Shredder has non- corrosive sharp blades capable for shredding of plastic waste, sharps, bottles, needles, tubing’s, and other general waste. The low speed two shaft system is effective for shredding hard and solid waste.

Project has provided a shredder of capacity 300 Kg/hour, thus rendering the waste free from infection. The dis-infected wastes are segregated into HDPE, PP, rubber, latex, glass and metal.

The segregated materials are then shredded completing the process of dis-infection and ensuring non-recycling of the waste materials for medical/ food grade purposes.

Waste Treatment and Disposal Scheme

Depending on the category/nature of the waste the following treatment and disposal method are employed according to Bio-Medical Waste Management Rules, 2016.

Category of Waste

Categories	Waste Type	Treatment/Disposal Methods
Category No. 1	**Human Anatomical Waste** (human tissue, organs, body parts)	Incineration /Plasma Pyrolysis
Category No. 2	**Animal Waste** (animal tissues, organs, body parts, carcasses, bleeding parts, fluid, blood and experimental animals used in research, waste generated by Veterinary hospitals/colleges, discharges from hospitals, animals' houses)	Incineration /Plasma Pyrolysis
Category No. 3	**Microbiology &Biotechnology Waste and other laboratory waste** (waste from clinical samples, pathology, biochemistry, haematology, blood bank, laboratory, cultures, stocks or specimens of microorganisms, live or attenuated vaccines, human and animal cell cultures used in research and infectious agents from research and industrial laboratories, waste from production of biological, toxins and devices used for transfer of cultures)	Disinfection at source by chemical treatment or Autoclaving/microwaving followed by mutilation/shredding and after treatment final disposal in secured landfill or disposal of recyclable (plastics or glasses) waste through registered or authorized recyclers.
Category No. 4	**Waste Sharps** (Needles, glass syringes or syringes with fixed needles, scalpels, blades, glass, etc. that may cause puncture and cuts. This includes both used and unused sharps)	Disinfection by chemical Treatment or destruction of needle and tip cutters autoclaving/ microwaving followed by mutilation/shredding and after treatment final disposal in secured landfill or designated

		concrete waste sharp pits
Category No. 5	**Discarded Medicine and Cytotoxic Drugs** (Waste comprising of outdated, contaminated and discarded medicines)	Disposal in secured landfill or Incineration
Category No. 6	**Solid Waste** (Items contaminated with and body fluids including cotton, dressings, solid plaster casts, linen, beddings, and other materials contaminated with blood.)	Incineration / Plasma Pyrolysis
Category No. 7	**Infectious Solid Waste** (Waste generated from disposable items other than the waste sharps such as tubing's, hand gloves, saline bottles with IV tubes, catheters, intravenous sets etc.)	Disinfection by chemical treatment or Autoclaving followed by shredding and after treatment final disposal in through registered or authorized recyclers
Category No. 8	**Liquid Waste** (Waste generated from laboratory & Washing, Cleaning, housekeeping and disinfecting activities).	Disinfections by chemical treatment and discharge into drain.
Category No. 9	**Incineration Ash** (ash from incineration of any bio medical waste)	Disposal in landfill
Category No. 10	**Chemical Waste** (Chemicals used in production of biological, chemicals used in disinfection, insecticides etc.)	Chemical treatment and discharge into drains meeting the norms of Biomedical Rules and solids disposed in secured landfill

9.4 Collection and Transportation of Bio medical Waste

Biomedical Waste segregated in colour coded containers as per Biomedical Waste Management Rules. The collected wastes are transported in specially designed closed vehicle to the BMWTF for treatment and disposal. At present, the unit has employed 51 GPS enabled vehicles for the purpose and has adopted the conditions specified in the BMW Management Rules-2016.

9.5 Resource optimization/Recycling and reuse

The entire wastewater generated from the washing operations are collected at the water sump which is treated in onsite ETP of capacity 5 KLD and recycled in air pollution control device of the incinerator. The plastic waste after disinfection & shredding are given to registered recyclers.

9.6 Availability of water its source, Energy/Power requirement and Source

Fresh water Requirement for the existing facility is 3 KLD which is sourced through onsite ground water abstraction. The unit has obtained permission for the onsite tube-well. Recycled wastewater from the onsite ETP is approx. 2 KLD.

49 KVA power is required for the existing plant which is sourced through UPPCL. One DG set of 62.5 KVA is used as emergency backup.

9.7 Quantity of waste to be generated (liquid and solid) and scheme for their Management / disposal

The Treated effluent complies with the discharge standards laid down by MoEFCC/SPCB for disposal/reuse. The treated wastewater from the ETP is used in the air pollution control device of the incinerator.

Incineration residue is stored onsite and disposed through Common HWTSDF. ETP sludge is stored onsite and disposed to Common HWTSDF.

10. Site Analysis

10.1 Connectivity

The proposed site is located on West of Delhi Haridwar Road within the campus of Subharti Medical College, Meerut, UP. Meerut main city is located at a distance of 2.5 Km on NE direction. The site has good connectivity with road.

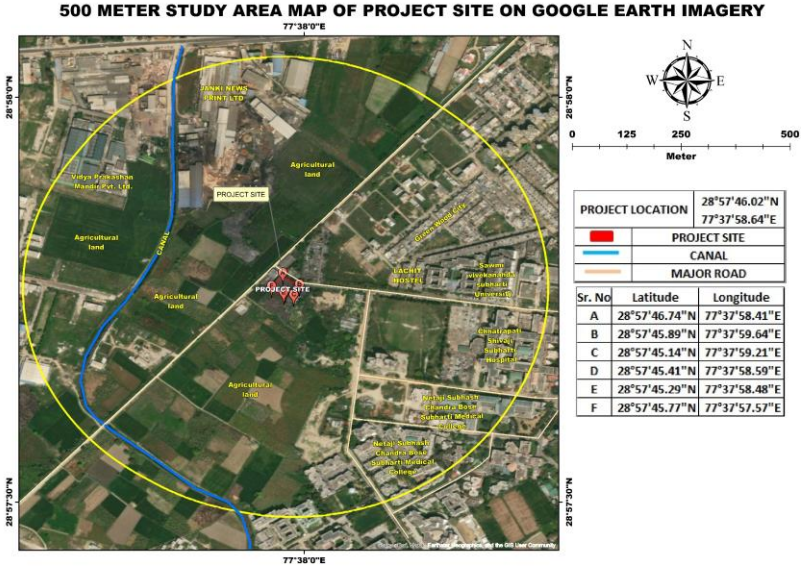


Fig.3: Showing 500 Meter Buffer Map of the site

Railway line:

- Meerut City Junction is situated at an aerial distance of 4.5 Km on NW direction.
- Partapur Train station is situated at an aerial distance of 4.7 Km on SE direction

Roadways: The site is well connected by road ways

- Delhi- Haridwar Bypass [SNH 58] passes at an aerial distance of 673 m East.
- SH 14 passes at an aerial distance of 534 m on North.

Airways:

- Dr. B.R. Ambedkar Airstrip is situated at an aerial distance of 7.2 Km on SW.

10.2 Land Form, Land use and Land ownership

The bio-medical waste management facility is operating within the campus of Subharti Medical College. The plot has been allocated by the Medical College Authority on rent basis.

10.3 Topography

The land within the premises is flat without any major undulations. Prior to allocation by the Medical College Authority, the land was already developed.

10.4 Existing Land Use pattern

The unit is operating within the campus of the Subharti Medical College since 2002

10.5 Existing Infrastructure

All required infrastructures like human settlement, schools, hospitals, healthcare centers, fire brigade, public transport, etc. are available.

11. INFRASTRUCTURES

11.1 Industrial area (processing area)

Being a CBMWTF, adequate infrastructural facilities have been provided such as

- ❖ Incinerator
- ❖ Shredder
- ❖ Autoclave
- ❖ Segregated waste storage shed
- ❖ Effluent Treatment Plant
- ❖ Container Washing facility
- ❖ Vehicle Disinfection Area
- ❖ Wash room
- ❖ Utility requirement like power, water etc

- Material handling and Transportation equipments
- Store Room
- Personal Protective Equipment (PPE)
- Gate and Security Room.

11.2 Residential Area (Non processing)

The majority of the employees are hired locally. No residential facility is proposed.

11.3 Green Belt

No green area has been developed as the facility has been allocated only 1242 sq m area.

11.4 Social Infrastructure

Schools, Colleges, Hospitals & Healthcare Centers, Shops & Bazaars, Community Centres, etc. are all available in nearby area.

11.5 Solid Waste Management

Solid waste generated during the Bio-medical waste treatment process and wastewater treatment process is mainly incinerator ash, flue gas cleaning residue and ETP sludge which is generated depending upon the load. Incinerator residue is stored at site and disposed to the Common HWTSDF as per rules, Waste plastic bottles are autoclaved and shredded into pieces. Resulting pieces are later sold to recyclers. ETP sludge is disposed through the Common HWTSDF.

11.6 Power Requirement & Supply/source

Power requirement for the operation of the project is 49 KVA. Supply source– UP Power Corporation Limited (UPPCL).

12. Rehabilitation and Resettlement (R & R) Plan

No, Rehabilitation and Resettlement (R & R) Plan required.

13. Project Schedule & Cost Estimates

The plant is having all facilities with state of art infrastructure. The components installed at the plant do follow all the Criteria that are mentioned in the Guidelines.

14. Conclusion (Final Recommendations)

The existing Bio-medical Waste Treatment Facility is having a wide coverage to provide of treatment of bio-medical waste, generated from health care units located within 150 Km radius. It helps in controlling dreadful infection caused by Bio-medical waste. The program under taken by the unit is based on the approved technology like incineration, Shredding & Autoclaving for the disposal of Bio-Medical Wastes. Looking at financial aspects, the project is viewed as technically feasible and economically viable.

The project is operating for treatment of biomedical wastes from health care units and prevents proliferation of health hazard and disease in the area. It also reduces pressure on regulatory agencies for compliance monitoring. By operating the plant at its full capacity, the cost of treatment per kilogram gets significantly reduced.

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

(December 21, 2016)

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**.

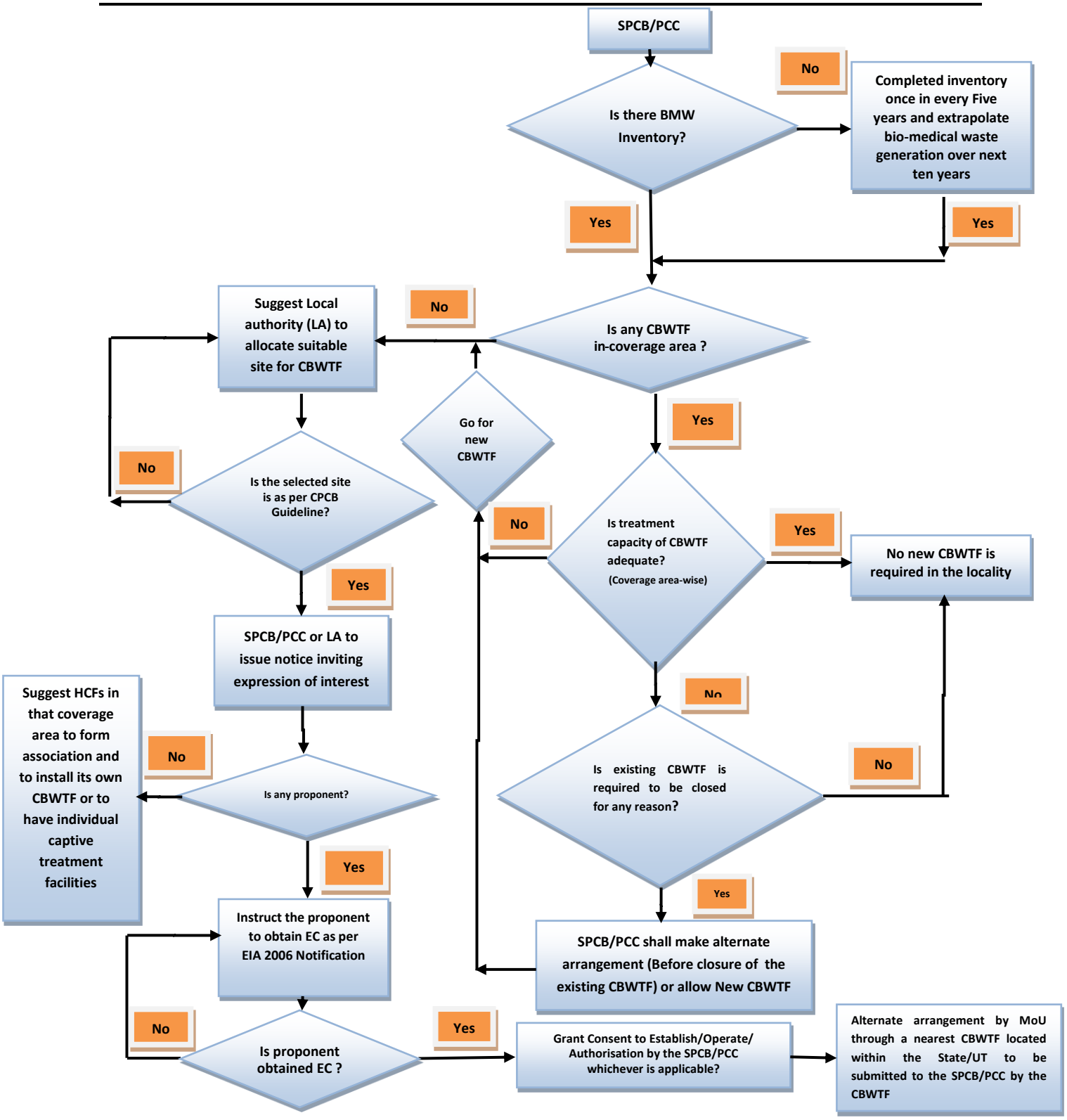


Figure 1. Criteria for Development of a CBWTF in a coverage area

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^{0}C, 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.

-- OO --

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)
				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

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

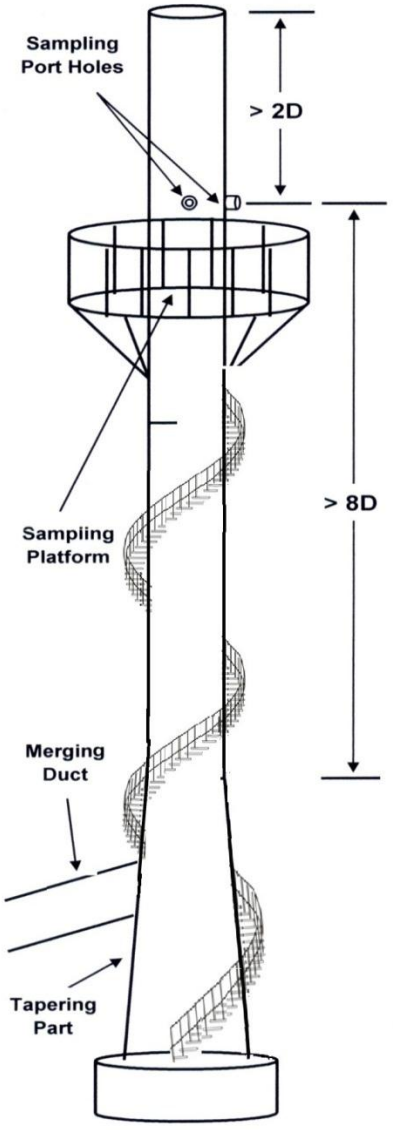
S.No.	Details		Particulars
	holidays?		
30.7	Whether waste treatment criterion of 48 hours is complied?		□ Yes □ No
31.	**Disposal of treated waste:**		
31.1	Plastic waste after treatment	:	Plastic waste Sold to: M/s. ..... and approved by .....SPCB/PCC
31.2	Treated sharps	:	Treated syringes disposal 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



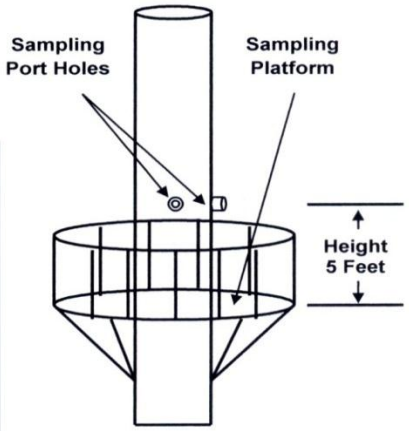
Number of Port Holes : Minimum two numbers of Port Holes at 90° apart from each other at a horizontal plane.

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.

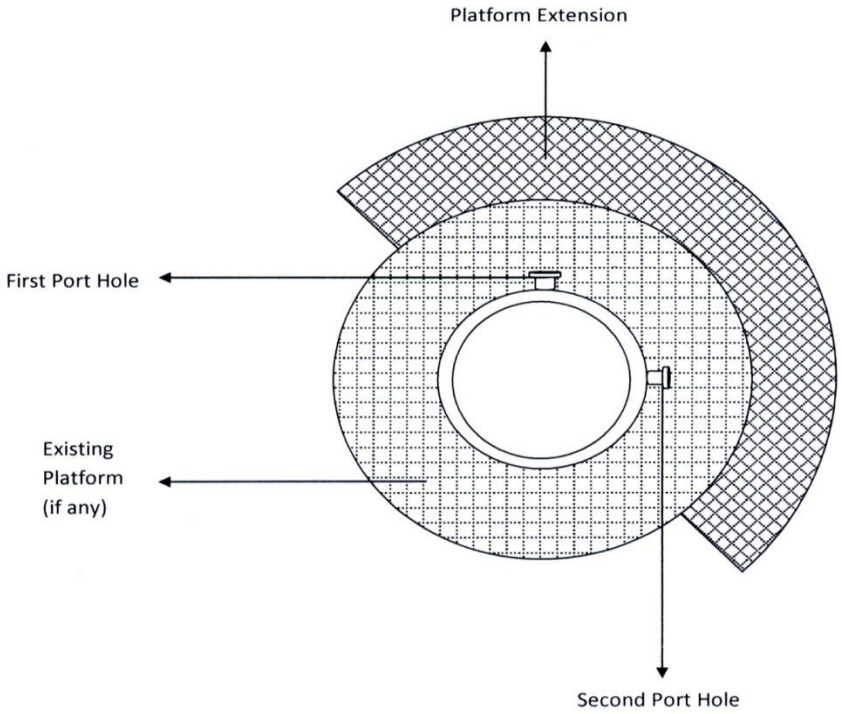
Location of Sampling Platform : 5 feet upstream (downward direction of stack) from the Port Hole as determined above.

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).

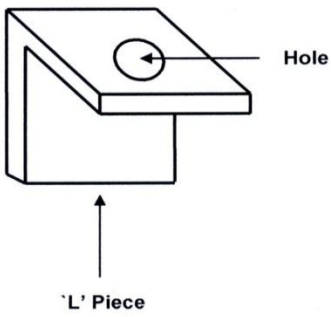
Sampling Platform Modification : A semi-circular extension of the existing platform (width extending outward by 6 feet from outside wall of the stack and covering at least one third of the circumference) may be provided for access to both the Port Holes. This area can be extended from the existing Platform 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.



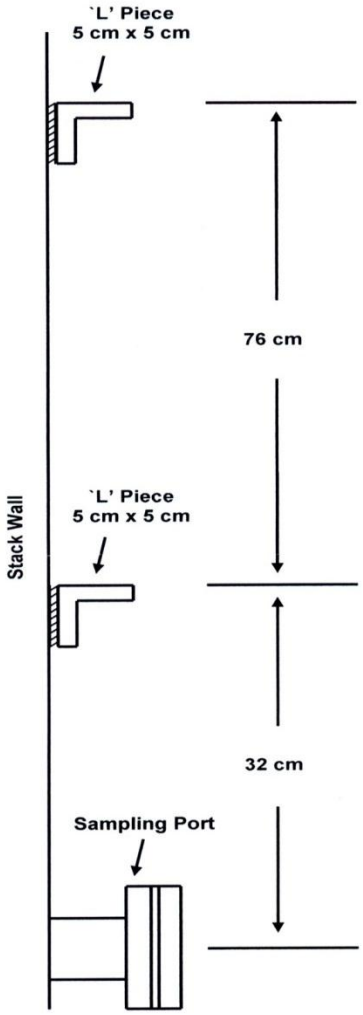
Note: Alternatively, safe access to monitoring platform may be provided with seperate scaffolding-cum-staircase arrangement



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.

-- OO --

2. **"Commercial Complex" at Plot No.- MPC2, Sector - 72, Noida, District- Gautam Buddha Nagar, Shri Rajeev Arora, M/s Monte Vista Pvt. Ltd., File No. 7728/7223/ Proposal No. SIA/UP/INFRA2/ 423185/2023**

SEIAA noted the comment of SEAC that the matter will be discussed after submission of online information on prescribed portal.

3. **(7) Existing Common Bio-Medical Waste Treatment Facility at Subharti Medical College Campus, Subharti Puram, Meerut, Shri Neeraj Aggarwal, M/s Synergy Waste Management Pvt. Ltd., File No. 7761/ Proposal No. SIA/UP/INFRA2/424451/2023**

SEIAA noted that SEAC has recommended to grant ToR to the above project. SEIAA gone through file and documents and opined that the project proponent shall submit authorization for 150 km radius coverage, ground water permission, details of 4788 health care unit like districts, no. of beds etc., only site coordinate given, geo-coordinate of the area should be submitted.

4. **(8) IT/ITES Office Building at Plot No.- 17, Sector-127, Noida, Shri Rajeev Sharma, M/s Vaishali Financial Services Pvt. Ltd., File No. 7331/ Proposal No. SIA/UP/INFRA2/ 405633/2022**

SEIAA noted that SEAC has recommended to grant EC to the above project. SEIAA gone through file and documents and opined that the project proponent shall submit approved building plan and e-waste disposal details.

5. **(9) Expansion of 32 KLD to 100 KLD Grain Based Distillery including Liquor Bottling at Village – Begumabad, Modinagar, District – Ghaziabad, U.P., M/s Modi Distillery, Modinagar., File No. 7368/ Proposal No. SIA/UP/IND2/407173/2022**

SEIAA agreed with the recommendation of SEAC to issue ToR to the above project adding one condition:-

1. The project proponent shall follow CAQM guidelines for NCR region.

6. **(10) Discussion on letter of Arvind Kumar Rai, Advocate dated 27-02-2023 regarding taking Cognizance of my earlier legal Notices.**

- **Environment Clearance granted in the favour of 'M/s MIGSUN KIAAN' Residential Complex at Plot No.-1, Sector-14, Vasundhara, Ghaziabad Mahalaxmi Consortium Pvt. Ltd. File No. 3865/Proposal No. SIA/UP/70887**

SEIAA noted the comments of SEAC and agreed to send a letter to Member Secretary, UPPCB for information and necessary action.

- **Environment Clearance granted in the favor of Group Housing Project "UNINAV BLISS" Khasra No. 1085,1089,1091,1091/1 Village Noor Nagar, Ghaziabad, M/s UNINAV DEVELOPERS PVT LTD project on Dated 31/January/2020 as File No. 5058/Proposal No. SIA/UP/116089**

SEIAA noted the comments of SEAC that the compliant letter should be shared to Project Proponent/Consultant with the direction that point wise reply on the issues raised in compliant letter should be submitted within 15 days. After getting the reply from

उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड
UTTAR PRADESH POLLUTION CONTROL BOARD

संदर्भ सं० HMG106 /C-3/BMW-08/20 दिनांक 08-1-2020

To,

Director,
M/s Synergy Waste Management (P) Ltd.,
Subharti Medical College Campus, Subharti Puram,
Delhi Haridwar Bypass Road,
Meerut

Sub: Authorization for operating facility for (Collection, Reception, treatment, storage, transport and disposal of biomedical waste) under the provision of Bio-Medical Waste Management Rules, 2016.

Sir,

With reference to your application received in this office on date. 18.12.2019 an Authorization No.[illegible] dated.....8.1.2020.....as prescribed under rule 10 of the Bio Medical Waste Management Rules 2016.

You are requested to strictly comply with all conditions and send monthly progress report to the Board, The authorization is valid for a period up to 31-12-2024 from the date of issue.

Yours Sincerely,

(N.K.Chauhan)
Chief Env. Officer (Circle-3)

Copy to:The Regional Officer, U.P. Pollution Control Board, Meerut for information and necessary action and with direction to send the point wise compliance report at the earliest.

Chief Env. Officer (Circle-3)

टी.सी. 12वी, विभूति खण्ड,
गोमती नगर, लखनऊ - २२६०१०
दूरभाष: 2720828, 2720691, 2720681
फैक्स : 0522-2720764
ई-मेल : info@uppcb.com

T.C. 12V, Vibhuti Khand
Gomti Nagar, Lucknow - 226010
Phone :,2720828, 2720691, 2720681
Fax : 0522 -2720764
e - mail : info@uppcb.com

UTTAR PRADESH POLLUTION CONTROL BOARD
T.C. 12V, VIBHUTI KHAND, GOMTI NAGAR, LUCKNOW

Ref:..... Dated:.....

AUTHORISATION

(Authorisation under Bio-Medical Waste Management Rules, 2016 for operating a facility for generation, collection, reception, treatment, storage, transport and disposal of biomedical waste)

1. Number of Authorisation and date of issue:
2. Mr. Neeraj Aggarwal, Director of M/s Synergy Waste Management (P) Ltd., Subharti Medical College Campus, Subharti Puram, Delhi Haridwar Bypass Road, Meerut (CBMWTF) is hereby granted an authorisation for;
   - (i) Generation, segregation
   - (ii) Collection (Temporary)
   - (iii) Storage (Temporary)
   - (iv) Packaging
   - (v) Disposal (Through CBMWTF)
3. Director of M/s Synergy Waste Management (P) Ltd., Subharti Medical College Campus, Subharti Puram, Delhi Haridwar Bypass Road, Meerut (CBMWTF) is hereby Authorised for handling of biomedical waste as per the capacity given below:

(i)	Number of Beds of HCF....	----
(ii)	Number healthcare facilities covered by CBMWTF	2469
(iii)	Installed treatment and disposal capacity	19800 Kg/day
(iv)	Area or distance covered by CBMWTF	Radius of 150 Km.

(v) Quantity of Biomedical Waste handled, treated or disposed (As Below)

Type of Waste Category	Quantity permitted for Handling
Yellow	2685 Kg/ day (Approx)
Red	730 Kg/ day (Approx)
White (Translucent)	14 Kg/day (Approx)
Blue	280 Kg/ day (Approx)

4. This authorisation shall be in force for a period up to **31-12-2024** from the date of issue.
5. This authorisation is subject to the conditions stated below and to such other conditions as may be specified in the rules for the time being in force under the Environment (Protection) Act, 1986.

TERM AND CONDITIONS OF AUTHORISATION

1. The Authorisation shall comply with provisions of the Environment (Protection) Act, 1986 and the rules made there under.
2. The Authorisation or its renewal shall be produced for inspection at the request of on officer Authorised by the prescribed authority.
3. The Authorised person shall not rent, lend, transfer or otherwise transport the Bio-Medical waste without obtaining prior permission of the prescribed authority.
4. Any unauthorised change in personal, equipment or working conditions as mentioned in the application by the person authorized shall constitute a breach of this authorization.
5. It is the duty of the Authorised person to take prior permission of the prescribed authority to close down the facility and such other terms and conditions may be stipulated by the prescribed authority.

(N.K.Chauhan)
Chief Env. Officer (Circle-3)