Guidelines for Monitoring Compliance of Common Biomedical Waste Treatment Facilities by State Pollution Control Boards / Pollution Control Committees

1. Background:

Common Biomedical Waste Treatment Facilities (CBWTFs) are required to function in compliance with standards notified under Biomedical Waste Management Rules, 2016 (BMWM Rules, 2016) and the guidelines issued by Central Pollution Control Board (CPCB). State Pollution Control Boards/Pollution Control Committees are the prescribed authority to ensure implementation of Rules as well as the compliance.

There have been several public complaints regarding open dumping of untreated biomedical waste, burning of waste etc. In one such case, Hon'ble NGT took suo-moto cognizance of illegal disposal of biomedical waste by CBWTFs, in Original Application No. 110 of 2020. In its Order dated 20.07.2020, Hon'ble NGT directed CPCB to prepare separate guidelines to improve monitoring system for Common Biomedical Waste Treatment Facilities. It was also directed that SPCBs shall initiate a special drive to monitor incidents of illegal BMW disposal by CBWTFs.

This guidance document will provide check-lists for monitoring CBWTFs specially to monitor illegal handling of biomedical waste.

2. Monitoring Compliance by CBWTFs

Apart from obtaining Consent to Operate and authorization under BMWM Rules, 2016, the CBWTFs are responsible for environmentally safe handling of biomedical waste in its coverage area. Monitoring of compliance by CBWTFs envisaged in following areas;

(a) Operational Compliance
(b) Adequacy of Infrastructure
(c) Reporting of data
(d) Inspections and Monitoring

2.1 Operational Compliance

Operational compliance by CBWTFs is related to safe collection, handling, transportation, reception, treatment, and disposal, that include compliance to following activities/aspects;

(a) Collection
(b) Use of Personal Protective Equipment (PPEs)
(c) Transportation of BMW
(d) Tracking of BMW
(e) Handling at CBWTFs
(f) Compliance to norms

Part-A of check-list for auditing performance monitoring operational compliance by SPCBs/PCCs is given at **Annexure-I**.

SPCBs shall maintain a separate operational check-list for each of the CBWTFs, which should be linked to authorization file. Operational check-list may be updated at the level of Regional Officers of SPCBs once every month.

2.2 Adequacy of Infrastructure

Adequate infrastructure at CBWTFs is essential for achieving compliance to standards and guidelines. Subsequent to notification of BMWM Rules, 2016, most of the CBWTFs in the country are required to upgrade their facilities so as to comply with revised standards. Target time given under the Rules to CPBWTFs has expired.

The following infrastructure is essential for auditing performance of CBWTFs.

(a) Vehicles
(b) Area of operations
(c) Upgradation of Combustion Chamber
(d) Upgraded APCDs
(e) Waste reception
(f) Treated waste handling

Part - B of check-list for auditing adequacy of CBWTFs based on available infrastructure is given at **Annexure-II**. SPCBs shall issue appropriate directions to CBWTFs for augmenting infrastructure in time bound manner and maintain records of progress made.

2.3 Data Submission

Data reporting is an essential requirement on part of CBWTFs to report compliance to Rules and service provided. Such data is essentials for SPCBs and other departments such as Health Department to monitor compliance by CBWTFs. The data is also essential to assess the gaps in waste generation and disposal, trends in generation, compliance monitoring, need for additional facilities or capacity enhancement, etc.

SPCBs shall ensure that records are maintained by CBWTFs as per Part - C check-list given at **Annexure III**.

2.4 Inspections and Monitoring by SPCBs/PCCs

Periodic inspection of CBWTFs by SPCBs/PCCs is necessary to monitor compliance. SPCBs/PCCs may evolve their own schedule of monitoring and compliance verification, by ensuring the following minimal requirement for inspection and monitoring:

S. No.	Type of inspection and Monitoring	Scope of inspection	Frequency of inspection
1.	Physical Inspection (field visit)	Verification of site conditions, fill-in formats Table-A to C given at Annexures I to Annexure III, log-book verification, OCEMS installation, etc. as per inspection format given at **Annexure IV**	Monthly
2.	Inspection cum Monitoring (field visit)	Physical verification as well as monitoring of incinerator stack, autoclave, shredder, ETP etc. Report outcome as per inspection format given at **Annexure IV**	Quarterly

3	Inspection of dumpsites, illegal dumps, outside CBWTF premises, etc (field visit)		At least 4 random visits per Annum as well as when complaints are received.
4	Inspection of BMW collection and transport (field work in transit)		Random spot checks of vehicles and operations for 3 or 4 occasions in a year.
5	Monitoring of GPS Tracking	Desktop monitoring	Daily
6	Monitoring of COVID19BWM Tracking App	Desktop monitoring	Daily monitoring and reporting to CPCB on App
	Monitoring of Barcode Tracking	Desktop monitoring	Daily
7	OCEMS Data	Desktop monitoring	Daily
8	Inspection of specific complaints (field work)	Field investigation	As and when necessary

3. Mechanism to Monitor illegal activities pf CBWTFs

There have been several complaints against CBWTFs for improper handling of BMW. The type of complaints range from illegal transfer to informal recyclers, dumping, high emissions from incinerators, discharge of untreated wastewater, improper transport etc. It is important redress such complaints on priority since improper treatment or disposal may result into spread of diseases.

In view of the numerous incidents of violations, especially in COVID19 pandemic situation, SPCBs/PCCs may initiate special drive for monitoring activities of CBWTFs. SPCBs may also implement various measures, essentially including the following activities;

(i) Develop complaint redressal mechanism through web portal as well as suitable mobile App like Sameer Platform

(ii) Use social media platform to report incidents

(iii) Collect local intelligence from field staff

(iv) Conduct periodic random checks

(v) Imposition of Environmental Compensation Charges

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Part A: Format for Operational Compliance Verification

Name of Facility: _____ Status for _____ (Month)

S.No	Operational Activity	Requirement	Status - Tick √ or X	Remarks/ Action Taken
1	BMW Collection			
	a.	Waste generated is collected and disposed within 48 hours.		
	b.	Separate compartments for color coded wastes		
2	Use of PPEs	Waste collectors are required to wear adequate PPEs –including three layer masks, splash proof aprons/gowns, gloves, gum boots and safety goggles. Does workers wearing adequate PPEs ?		
3	Transportation			
	a.	Weather dedicated Vehicle used for collection of COVID19 waste?		
	b.	Registration of vehicles with SPCBs		
	c.	Use of separate dedicated vehicle for COVID19 waste		
4.	Tracking of BMW			
	a.	Installation of GPS based devices in vehicles		
	b.	GPS based tracking access to SPCBs/PCCs to monitor location or route of vehicles		
	c.	Use of COVID19 Tracking App at collection point		
5.	Handling at CBWTFs			
	a.	Separate spaces provided for reception of color coded wastes		
	b.	Space adequate for reception of waste		
	c.	Space adequate for storage of treated waste		
6.	Compliance to Standards			

S.No	Operational Activity	Requirement	Status - Tick √ or X	Remarks/ Action Taken
	a.	Compliance to emission Standards - sample collected by SPCB or its agency	Yes/ No/ Partial	
	b.	Compliance to emission Standards - as per NABL/ EPA accredited laboratory		
	c.	Compliance to emission Standards - sample collected by SPCB or its agency		
	d.	Compliance to emission Standards - as per NABL/ EPA accredited laboratory		
	e.	Compliance to Temperature standards		
	f.	Compliance to disinfection standards (Autoclave / Microwave)		

Annexure II

Part B: Format to Assess Adequacy of Infrastructure

Name of Facility: _____ Status for _____ (Month)

S.No.	Infrastructure	Requirement	Status - Tick √ or X	Remarks/ Action Taken
1	Vehicles			
	a.	Whether the unit has adequate fleet to lift BMW daily from bedded HCFs		
	b.	Dedicated Vehicle provided for COVID19 waste		
2	Area available for CBWTF operations			
	a.	Area of operations is more than 0.5 acres?		
3	Upgradation of Combustion Chamber			
	a.	Secondary Combustion Chamber upgraded to 2 sec Retention Time..?		
4.	APCDs upgradation			
	a.	Whether APCDs upgraded to meet revised standards for PM?		
	b.	Control systems for Dioxins and Furans Installed?		
6.	Waste Reception			
	a.	Separate spaces provided for receipt of on untreated colour coded BMW		
	b.	Containers used to receive BMW prior to chagrining into incinerator		
7.	Facilities for treated Waste Handling			
	a.	Covered sheds provided for (i) all treatment/disposal equipment, (ii) handling treated/un-treated wastes, (iii) Ash storage, etc.		

Annexure III

Part C: Format to verify data submission by CBWTFs

Name of Facility: _____ Status for _____ (Month)

S.No	Records	Requirement	Status - Tick √ or X	Remarks/ Action Taken
1	Daily COVID19 data upload			
		Usage of COVID19BWM Tracking App to report COVID19 waste collection and disposal		
2	Barcode based Tracking data			
		Implemented Barcode Labelling and tracking System as per BMWM Rules, 2016 – Provided Login and data access to SPOCBs/PCCs		
3	Logbook on maintenance			
		Logbook maintained and shown to SPCBs/PCCs, as when asked for.		
4	Web-site information			
		Displays details of authorization, treatment, annual report etc. on web-site		
5	Annual Report Submission			
		Whether submitted for previous year?		
6	Reporting of incidents	Incidental reporting of fires, accidents during handling, spillages,		

Annexure IV

Part A – General Information

S.No.	Details		Particulars
1.	Name of CBWTF with contact details	:	
2.	Month / year of establishment and the Consents status	:	Establishment Month/Year :
3.	CBWTF operated by	:	
4.	Contact Details		Contact Person: E-Mail: Telephone: Mobile phone:
5.	Consent under Water (Prevention and Control of Pollution) Act, 1974	:	Consent is valid upto ……. and issued by ……..SPCB/PCC vide letter dated ……
6.	Consent under Air (Prevention and Control of Pollution) Act, 1981	:	Consent is valid upto ……. and issued by ……..SPCB/PCC vide letter dated ……
7.	Environmental Clearance (EC)		EC issued by MoEF vide letter dated ……
8.	Authorization Status	:	Authorisation is valid upto ……. and issued by ……..SPCB/PCC vide letter dated ……
9.	Area or plot size of CBWTF (in Sq. ft.)	:	
10.	Name of Districts/Cities / places being covered	:	
11.	Cost charged to the healthcare facilities	:	
12.	Separate space for treatment equipment room	:	□ Yes □ No
13.	Separate space for treated and untreated waste	:	□ Yes □ No

Part-B: Operational Information

S.No.	Details		Particulars
1.	Total number of healthcare facilities and beds covered (as on date of visit)	:	Total no. of HCFs : Bedded HCFs : Non-bedded HCFs : No. of Beds : No. of beds upto 75 KM radius : No. of beds more than 75 KM radius, if any:

2.	Total Bio-medical Waste Treatment Capacity of CBWTF (in kg / day)	:	Incineration : (in kg/day) Autoclave : (in kg/day) Any other treatment and disposal: Total: ETP Capacity……. KLD	
3.	Daily operation schedule (timings)	:	Collection : …. Am/pm to …. Am/pm. Treatment through incinerator (in hrs): Treatment through autoclave (in hrs):	
4.	**Average quantity of bio-medical waste Collected As per records (if required, one moth data may be checked)**		Non-COVID waste	COVID waste
	Yellow	:	……. Kg /day	……. Kg /day
	Red	:	……. Kg/day	……. Kg/day
	white	:	……. Kg/day	……. Kg/day
	Blue	:	……. Kg/day	……. Kg/day
5.	**Average quantity of bio-medical waste treated As per records (if required, one moth data may be checked)**		Non-COVID waste	COVID waste
	Yellow	:	……. Kg /day	……. Kg /day
	Red	:	……. Kg/day	……. Kg/day
	white	:	……. Kg/day	……. Kg/day
	Blue	:	……. Kg/day	……. Kg/day
6.	**Information related to Incinerator**		Upgraded to 2 second residence time □ Yes □ No Temperature in Primary Chamber : Temperature in Secondary Chamber : OCEMS installed : □ Yes □ No OCEMS connected with CPCB/SPCB server : □ Yes □ No Also, daily record of operational parameters may be checked through OCEMS server for: Temperature in combustion chambers: Combustion Efficiency of incinerator:	
7.	**Type of APCDs attached with incinerator**		Unit operations [pl. tick all applicable boxes] □ High rate Ventury scrubber; □ spray scrubber; □ packed bed tower; □ flue gas cooling system; □ dry chemical injection (for activated carbon / lime / other chemicals) prior to bag filers; □ carbon slurry scrubber; □ bag filers; □ waste heat recovery system; □ ceramic scrubbers; □ cooling tower; □ dry-adsorption reactor prior to bag filter; If any other units please specify: ……	
8.	**Information related to red category waste**		Operational parameters for Autoclave or Microwave:	

<table>
<tr><td></td><td></td><td></td><td>Temperature:

Pressure:

Time:</td></tr>
<tr><td>9.</td><td>Information related white category Waste</td><td>:</td><td>Sharp Pit provided : □ Yes □ No
Is it as per CPCB guideline : □ Yes □ No
Records maintained : □ Yes □ No
Total quantity of waste sharps stored (in Kg):
Total quantity of waste sharps treated and disposed (in Kg):</td></tr>
<tr><td>10.</td><td>Information related blue category Waste</td><td></td><td>Mode of treatment : □ Autoclaving
□ Microwaving
□ Hydroclaving
□ By Chemical Disinfection (sodium hypochlorite)
After Sterilization, facility for rinsing and washing of glass containers
□ Yes □ No
Detergent waste: □ Yes □ No
Residual chemicals collected : □ Yes □ No □ NA</td></tr>
<tr><td>11.</td><td>Wastewater management</td><td></td><td>ETP capacity : …. KLD
Quantum of wastewater treated : …. KLD
Final mode of disposal of treated water:
…….</td></tr>
<tr><td>12.</td><td>Frequency of incinerator / autoclave / microwave / hydroclave / ETP discharge effluent testing and name of the laboratory (specify approved or not).</td><td>:</td><td>Monthly/Quarterly/Yearly

Copies of the analysis reports of treated effluent, incinerated ash, stack monitoring …….</td></tr>
<tr><td>13.</td><td>Monitoring Results :</td><td></td><td></td></tr>
<tr><td>14.</td><td>Incinerator stacks 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>Total Dioxin & furans</th><th>HCl</th><th>NOx</th><th>Hg and its compounds</th><th>C.E.</th></tr>
<tr><td>Value</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
Date of monitoring:
All values are in mg/Nm^3, except CE</td></tr>
<tr><td>15.</td><td>Incineration ash characteristics</td><td>:</td><td>Is it hazardous waste as per HWM Rules:
□ Yes □ No
Transboundary</td></tr>
<tr><td>16.</td><td>ETP inlet/outlet characteristics</td><td>:</td><td>
<table>
<tr><th>Parameter</th><th>pH</th><th>TSS</th><th>COD</th><th>BOD</th><th>O&G</th></tr>
<tr><td>ETP Outlet Analysis Result</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
All values are in mg/l except pH</td></tr>
</table>

17.	No. of Vehicles used for collection of waste from member HCFs	:	Number of vehicles used for non-COVID waste collection: Number of vehicles used for COVID-19 waste collection:
18.	Whether Bar code system is adopted or not?		□ Yes □ No

Part C – COVID-19 waste related Information

16.1	Member HCFs for COVID-19 generation	:	….. Isolation Centers ……HCFs …..quarantine camps/homes ……sample collection center …..laboratories
16.2	Quantity of COVID waste collection per day and COVID waste treatment per day.		Collection: …..per day Disposal : ….per day (Record of COVID waste collected and treated since March, 2020)
16.3	Whether COVID waste collected is treated on same day?		□ Yes □ No
16.4	Whether COVID and non-COVID waste has been stored separately?		□ Yes □ No
16.5	Member HCFs registered in COVID19BWM App.	:	….. Isolation Centers ……HCFs …..quarantine camps/homes ……sample collection center …..laboratories
16.6	Whether CBWTF have registered on COVID19BWM App developed by CPCB and register all the vehicles dedicated for COVID waste generation?		□ Yes □ No If yes…..number of vehicles dedicated for COVID waste generation (record of usage of App for last one week)
16.7	Whether sanitization of vehicles dedicated for COVID waste collection has been done daily?		□ Yes □ No Chemical used ……
16.8	Is PPEs used by workers involved in handling and collection of biomedical waste is adequate?		□ Yes □ No