



**Central Pollution Control Board  
Zonal Office (South)  
Nisarga Bhavan, Thimmaiah Road,  
Shiva Nagar, Bangalore – 560010.**

**Inspection report of M/s Ramky Energy & Environment Ltd, Common Bio-Medical Waste Treatment Facility (CBMWTF), Mangalore, Karnataka during August, 2013**

A. General				
1.	Name of CBMWTF with address	M/s Ramky Energy & Environment Ltd., Plot No. 47/B, Karnad Industrial Area, KIADB – Mulki, Mangalore, D.K – Dist, Karnataka – 574157.		
2.	Name of the contact person	Shri D.Maruthi Gowda, Manager.		
	Mobile/ Landline / Fax Number/ Email ID	9845922986/0824-3250496/2294966/ reaelmngl@ramky.com		
3.	Total Area for CBWTF (in acres)	1 acre		
4.	Constructed area for CBWTF (in acres)	0.26 acre		
5.	Month/year of establishment	2005		
6.	CBWTF set up by	Ramky		
7.	CBWTF operated by	Ramky		
8.	Air & Water consent (enclose consent copy)	Valid upto: 30.06.2014		
9.	Hazardous waste authorization (enclose authorization copy)	Valid upto: 30.06.2015		
10.	Name of cities/places being covered	Dakshina Kannada & Udupi districts		
11.	Radius of distance covered	120 KM		
12.	Total no. of Healthcare facilities and beds covered	HCF - 836 Nos. & Beds covered-9549 Nos.		
13.	Total quantity of BM waste received (kgs)	<b>Category wise Quantity</b>		
		Yellow	Red	Blue/white
	Incinerable /Deep Burial (kgs)	2100 kg/day of yellow bags		
	Autoclaving (kgs)	1150 kg/day of red bags		
	Others (Please specify)	640 kg/day of blue bags		
14.	Amount charged to health care facilities kg/bed/day	Rs. 5/bed/day		
15.	No. of Vehicles used for Transport	6 vehicles		
16.	Flow chart of Incineration system	Enclosed here with as <b>annexure - I</b>		

17.	Give details of sharp pit / encapsulation facility (size) and quantity disposed into the pit	All treated wastes are sent to TSDF, Dabaspet, Nelamangala Taluk, Bangalore Dist.
18.	No. of Staff Involved for operation of CBWTF	31
19.	Please enclose copy of two source monitoring reports	Enclosed here with as <b>annexure -II</b>

#### B. Source & Quantity of Water used and Waste water generated

Source	Water in Take (cubic m/day)	For Venturi & Scrubber	Sanitary	Vehicle wash water	Waste Water generated	Quantity of Disposal
KIADB Water	5 KLD	3.5 KLD	0.5 KLD	1 KLD. Sent to ETP.	0.4 KLD of Domestic waste water	0.4 KLD. Through septic tank & soak pit.

#### C. Cost as on establishment Year

1	Plinth area	4050 sq. metre.
2	Build up area for Admin., storage Treatment & Incineration	1050 sq. metre.

#### D. Facilities Provided at CBMWTFs

Sl.No	Facilities	Make and supplier	Capacity/size	Cost	Total no. of hours of Operation /day
1	Incinerator	Manikanta lupitech Systems	250 kg/hr.	40 lakhs	8 – 10 hrs.
2	Auto Clave	NAT Steel equipments	400 ltr./cycle	4 lakhs	6 hrs.
3	Shredder	SSV Engineering works	250 kg/hr.	2 lakhs	6 hrs.
4	Venturi	Manikanta lupitech Systems	---	---	---
5	Dry cyclone	Manikanta lupitech Systems	---	---	---
6	Wet Scrubber	Manikanta lupitech Systems	---	---	---
7	Stack	Manikanta lupitech Systems	---	---	---
8	ID fan	Manikanta lupitech Systems	---	---	---
9	ETP items	Manikanta lupitech Systems	---	---	---
10	Generator	Debson & company	62.5 KVA	6 Lakh	Stand by
11	Stack	Area of Monitoring platform	Dia	Height (GL)	Porthole height
		1 sq.m (all round covered)	450 mm	30 m	14 m

#### E. Fuel & Energy Consumption (liters & KWH)

Name of Fuel & Quantity	Electrical Energy consumption in KWH
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For Transport	For Incineration	For DG set	If any	Incineration system	Auto clave	Shredder	Pollution control Equipments	ETP equipments	Others
Diesel ---	Diesel 20ltr/hr	Diesel 5ltr/hr	---						

Total Electrical Energy Consumption is 5000 units per month (ie. 25 days a month). Break up figure is not available.

#### F. Details of Disposal

Ash Collected from Incinerator	Auto claved materials	Shredded Material	Sludge collected from ETP	Solid waste like Plastics	Treated Sharps	ETP treated water	Others, if any
2200 kg/month (sent to TSDF)	1150 kg/day (sent to Ramki recyclers)	650 kg/day (sent to Ramki recyclers)	1500 kg/month (sent to TSDF)	-----	2000 kg/month (sent to TSDF)	3.5 KLD (100% recycled)	-----

#### G. Miscellaneous Facilities Provided at CBMWTFs

1	Personal Protective Measures	Provided
4	First Aid box/ room	Available
5	Lighting arrangements	Provided
6	Fire fighting and emergency facilities	Provided
7	Measures for control of pests/insects etc.	Available
8	Protective gear for waste handlers	Available
9	Telephone facility	Available

#### H. Observations:

1. The Common Bio-Medical Waste Treatment Facility (CBMWTF), M/s Ramky Energy & Environment Ltd., located at Mulki, Mangalore, Dakshina Kannada District was visited on 23.08.2013.
2. The consent issued under Water & Air Acts (Copy enclosed as **Annexure –III**) for this CBMWTF to treat the Bio-Medical Waste is valid up to 30.06.2014.
3. This CBMWTF is treating the Bio-Medical waste of 836 Health Care Facilities located in Dakshina Kannada & Udupi Districts.
4. During the visit it was found that this facility was in operation with full load.
5. It was found that the process operation was controlled manually as the Programme Logic Control (PLC) unit was not working. As informed, it was not working for the past 4 days. The industry was asked to manually measure the temperature in both primary & secondary chambers. It was measured and found that the required temperatures 850°C & 1050°C were maintained in primary & secondary chambers respectively.
6. A small quantity of Leakage of flue gas in the duct connected to stack was also noticed during inspection.
7. The process involved is as follows:

Weighing of Bio-Medical waste → Loading to conveyer system → Firing in primary chamber (850°C) using Diesel (Retention Time = 1 Sec) → Firing in secondary chamber (1050°C) using Diesel (Retention Time = 1 Sec) → Quencher → Ventury Scrubber → Scrubber → Flue gas discharged through duct to stack.

8. The unit is having a small ETP to treat the waste water. At the end of the day, the re circulated water stored in Quencher, Ventury and Scrubber tanks is taken to ETP where it is neutralized using alkali and then passed through sand filter. The sand filter outlet is collected in a tank called as final treated water tank. This treated water is reused for re circulation in the scrubbers the next day. The vehicle wash water is also treated in a similar fashion in the same ETP and reused for scrubbers. No waste water is discharged from ETP after treatment . The domestic waste water is treated in septic tank & soak pit.
9. Sludge is removed once in 15 days from ETP (Neutralization Tank), Quencher, Ventury and Scrubber tanks and then allowed to dry in sludge drying beds. The dried sludge along with incinerator ash, sharps (after auto clay & shredding) are sent to TSDF, Dabaspet, Nelamangala Taluk, Bangalore Dist. A copy of manifests is enclosed here with as **Annexure – IV**.
10. The emission from the incinerator stack was monitored and the samples were analysed in CPCB, Zonal Office Laboratory, Bangalore. The results (enclosed as **Annexure – V**) are reported as below:

Sl. No.	Parameter	Measured Concentration	Tolerance Limit
1	Particulate Matter, mg/Nm <sup>3</sup>	<b>186</b>	150
2	Acid Mist, as HCl, mg/Nm <sup>3</sup>	BDL	50

**I. Recommendations:**

The violations committed by M/s Ramky Energy & Environment Ltd., are listed below:

1. The measured Particulate Matter concentration is 186 mg/Nm<sup>3</sup> against the consent limit of 150 mg/NM<sup>3</sup>.
2. The operation of CBMWTF without Programme Logic Control(PLC) unit for many days.
3. Leakage of flue gas in the duct connected to stack as a result fugitive emissions inside the facility.

In view of above violations, recommended for issuing of appropriate direction against M/s Ramky Energy & Environment Ltd., CBMWTF, Mulki, Mangalore, Dakshina Kannada District.

<b>J. Date of Inspection</b>	23.08.2013	
<b>K. Name &amp; designation of inspecting officers</b>	1. Sh. S. Jeyapaul, Scientist-“C” 2. Sh. S. Iqbal, Senior Technician 3. Sh. Seenivel Raj, JLA	
Signature of Official	<b>S. Jeyapaul Scientist-“C”</b>	
<b>Action Suggested:</b> Appropriate directions may be issued to the facility to comply with all three points mentioned in the recommendations.		
Zonal Officer's name and Signature	<b>S. Suresh Zonal Officer</b>	

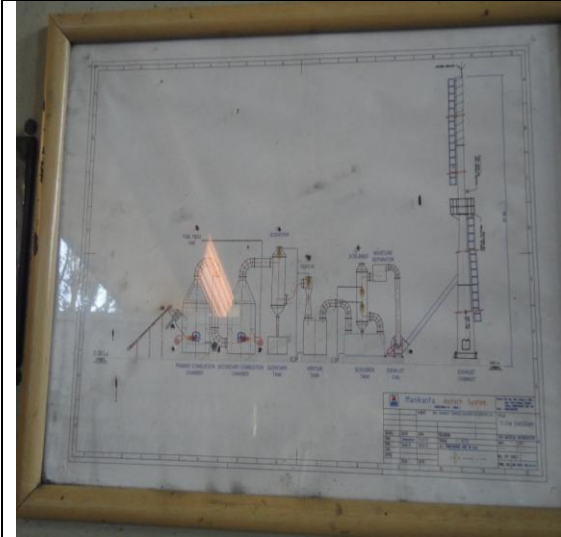
**Photos taken during inspection**



**Fig.1: M/s Ramky Energy & Environment Ltd.**



**Fig.2: Near the entrance of the factory**



**Fig.3: Flow chart of Incineration system**



**Fig.4: Vehicle used to transport Bio-Medical Waste**



**Fig.5: Unloading of Bio-Medical Waste**



**Fig.6: Storage of Bio-Medical Waste**



**Fig.7: Loading of Bio-Medical Waste in Conveyor system**



**Fig.8: Primary & secondary chambers**



**Fig.9: Quencher & Ventury Scrubber**



**Fig.10: Shredder**



**Fig.11: ETP**



**Fig.12: Sludge Drying Bed**

September 23, 2013

To

The Member Secretary  
Central Pollution Control Board  
Parivesh Bhawan, East Arjun Nagar  
Delhi-110 032

**Sub:** Inspection report of Common Bio-Medical Waste Treatment Facility (CBMWTF) of M/s Ramky Energy & Environment Ltd, Mangalore, Karnataka - reg.

Sir,

With reference to the above subject, the Common Bio-Medical Waste Treatment Facility(CBMWTF)of M/s Ramky Energy & Environment Ltd, Mulki, Mangalore, Karnataka was visited on August 23, 2013 by a team of officials from CPCB, Bangalore. In this regard, the inspection report is enclosed herewith for kind perusal.

Yours faithfully

**(S. Suresh)**  
**Zonal Officer**

Encl: As above

**Central Pollution Control Board  
Zonal Office - Bengaluru**

Monitoring Results

- Name of the industry : M/s Ramky Energy & Environment Ltd,
- Address : Plot No. 47/B, Karnad Industrial Area,  
KIADB – Mulki, Mangalore, D.K – Dist,  
Karnataka – 574157.
- Type of Industry : Bio-Medical Waste Treatment Facility
- Date of monitoring : 23.08.2013
- Source emission monitoring results : Reported in the Table below.

Table: Monitoring report of M/s Ramky Energy & Environment Ltd

Stack Identity	Stack connected to Incinerator	Standard
Date of monitoring	23.08.2013	-
Stack gas temperature (°C)	73	-
Stack height (m)	30	-
Stack Diameter (m)	0.45	-
Avg. Stack flue gas velocity (m/s)	15.5	-
Particulate Matter (mg/NM <sup>3</sup> )	<b>186</b>	150
Acid Mist as HCl (mg/NM <sup>3</sup> )	BDL	50

- **Remarks:** Particulate Matter exceeds the consent limit of 150 mg/NM<sup>3</sup> and the Acid Mist as HCl found less than the Detectable Limit of 6mg/NM<sup>3</sup>. The consent limit for HCl is 50 mg/NM<sup>3</sup>.

**(S. Suresh)**  
**Zonal Officer**



**Specific Information on the following points are furnished as desired:**

Sl. No.	Item	Yes/No	Remarks, if any
1	Does the facility have a valid authorization issued by Karnataka SPCB	Yes	Authorization Copy enclosed.
2	Does the facility have a system for automatic recording of the operational parameters of the incinerator	Yes	The Programme Logic Control (PLC) system installed for this purpose found not working during inspection.
3	Devices for measuring i)negative draft in primary chamber ii)Air flow rate in the incinerator chamber and iii)Pressure drop across venture scrubber attached with the incinerator	No	
4	Flue gas analyzer available for measurement of CO, O <sub>2</sub> , CO <sub>2</sub> level in the stack gases	No	
5	Maintenance of records of the parameters are as per CPCB guidelines	No	
6	Records pertaining to the operational parameters of incinerator, autoclave & shredder	yes	
7	Provision for mechanical feeding system with autoclave	No	
8	Does the facility has automatic recording system in autoclave for recording operational parameters such as batch number, temperature, pressure, start and end of sterilization of the autoclave as per provision of BMW Rules	No	
9	Validation test for autoclave done for assessing efficacy of the autoclave as per provision of BMW Rules	No	
10	Measuring devices (flow meters) provided at the outlet of ETP to measure the quantum of waste water treated	No	
11	Separate rooms provisions with bio-hazard symbol for i) treatment equipment room ii)main waste storage room iii)treated waste storage room etc. for the handling of bio-medical waste made as per the provisions of CPCB guidelines	yes	
12	Acoustic enclosure & height of the stack attached with DG set is as per DG set norms	---	DG Set is kept in a separate room without acoustic enclosure & stack height is 3m above the height of the

			building where DG Set is installed.
13	High walls, fencing and guarded gates provided at the facility to prevent unauthorized access to the site by human and live stock	Yes	
14	Vehicles used for collection & transportation of bio-medical waste from member healthcare units are designed as per CPCB guidelines and are labeled properly as stipulated under the BMW Rules	Yes	
15	Labeling and colour coding of containers as stipulated under Schedule II of the BMW Rules for storage and handling of bio-medical waste	Yes	
16	Does the facility is sending treated/sterilized plastic waste to actual users permitted by SPCB	Yes	Sent to M/s Ramky Reclamation & Recycling Ltd., Somajiguda, Hyderabad-500082.
17	Records / Documents such as collection invoices taken from healthcare units for each category of waste, records of waste collection, storage, movements, log book for the equipments and site records are maintained	Yes	

To

The Incharge,  
Hazardous Waste Management Division,  
Central Pollution Control Board,  
Parivesh Bhawan,  
Shadara, East Arjun Nagar,  
Delhi-110 032

Sub: Information sought on the inspection report of Common Bio-Medical Waste Treatment Facility (CBMWTF) of M/s Ramky Energy & Environment Ltd, Mangalore, Karnataka - **reg.**

Ref.: Your letter No.B-31011 (BMW)/30/93/HWMD dt.15.10.2013

Sir,

With reference to the above, please find enclosed here with the information sought on certain points in connection with the inspection report of Common Bio-Medical Waste Treatment Facility(CBMWTF)of M/s Ramky Energy & Environment Ltd, Mulki, Mangalore, Karnataka.

As this office is regularly carrying out inspection & monitoring of CBMWTF in South Zone, it will be very useful if a common standard format/ updated Questionnaire is available for inspection of these facilities. Hence, it is requested to make available a copy of the above, if any, to this office through mail.

Yours faithfully

**(S. Suresh)**  
**Zonal Officer**

Encl: As above

**CENTRAL POLLUTION CONTROL BOARD**  
**ZONAL OFFICE (SOUTH), BANGALORE**

F.Tech/24/Bio Med./ZOB/2013-14/

December 6, 2013

To

M/s Ramky Energy & Environment Ltd.  
Plot No. 47/B, Karnad Industrial Area  
KIADB – Mulki, Mangalore, D.K – Dist  
Karnataka – 574157

Sub: Compliance status of Direction issued under Section 5 of The Environment (Protection) Act, 1986.

Sir,

The Directions under Section 5 of Environment (Protection) Act, 1986 was issued by Central Pollution Control Board, Delhi on November 6, 2013 to your firm for violation of the Standards and Rules relating to Bio-Medical Waste and has directed to submit the followings:

1. A time bound action plan within 15 days from the date of issue of directions for completing the corrective actions against each observations as mentioned and
2. A Bank Guarantee of Rs. 10 lakhs (Rupees ten lakhs only) in favour of CPCB within 15 days of the issue of these directions for ensuring compliance of the above said directions.

In view of the above, you are hereby instructed to submit the compliance status of the above directions to CPCB, Delhi under intimation to this office immediately to decide the future course of action.

Yours faithfully,

(S.Suresh)

Zonal Officer

Copy to:

1. I/C, HWMD, CPCB, Delhi : For information please
2. Office copy

(S.Suresh)

Zonal Officer