



**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**

The Common Bio-Medical Waste Treatment Facility (CBWTF) of M/s Ramky Energy & Environment Ltd., located at Mulki, Mangalore, Dakshina Kannada District was visited by a team of officials from Zonal Office, Bangalore on 23.08.2013 and the compliance is as given below:

1. The consent issued under Water & Air Acts for this CBWTF to treat the Bio-Medical Waste is valid up to 30.06.2014.
2. This CBWTF is treating the Bio-Medical waste of 836 Health Care Facilities located in Dakshina Kannada & Udupi Districts.
3. The facility was found in operation with full load during the visit.
4. 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.
5. The Programmable Logic Control (PLC) based control system installed with the incinerator was found not working and it was noticed during the inspection that the operating parameters of the incinerator were controlled manually.
6. Fugitive emissions inside the facility were observed due to leakage of flue gas from the duct connected to stack.
7. The devices for measuring negative draft in primary chamber, air flow rate in the incinerator chamber and pressure drop across venture scrubber are not attached with the incinerator.
8. The flue gas analyser was not available to measure the parameters like O<sub>2</sub>, CO & CO<sub>2</sub> in the exit stack gas.
9. The automatic recording of the operational parameters of the incinerator and tamper proof PLC based control system for feeding the waste to the incinerator are not installed.
10. There is no provision for mechanical feeding with the autoclave installed in the facility. Also, the automatic recording system is not provided with the autoclave for recording operational parameters such as batch number, temperature, pressure, start and of sterilization of the autoclave.
11. Validation test for autoclave for assessing efficacy of the autoclave is not conducted.
12. The emission from the incinerator stack was monitored and the samples were analysed in CPCB, Zonal Office Laboratory, Bangalore.

The results are reported as below:

Sl. No.	Parameter	Measured Concentration	Tolerance Limit
1	Particulate Matter, mg/Nm <sup>3</sup> (after CO <sub>2</sub> correction)	2029	150
2	Acid Mist, as HCl, mg/Nm <sup>3</sup>	BDL	50
3	O <sub>2</sub>	19.8%	---
4	CO <sub>2</sub>	1.10%	---
5	CO	500PPM	---

13. DG Set is not equipped with acoustic enclosure as required as per the norms
14. 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 measuring devices such as flow meter & pH meter are not installed at the outlet of ETP. The domestic waste water is treated in septic tank & soak pit.
15. 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.

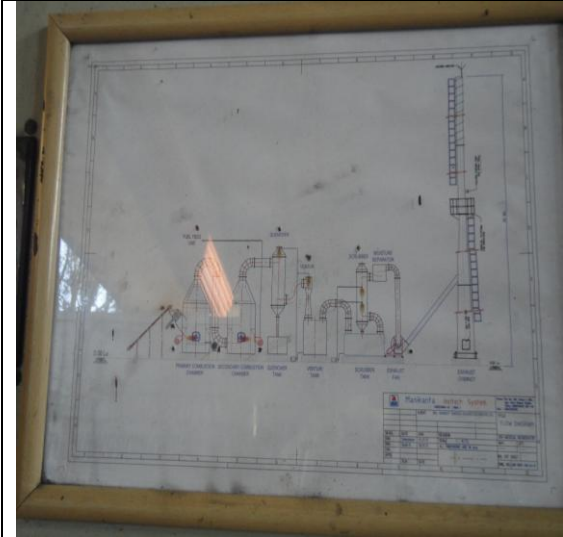
**Photos taken during inspection**



**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**

