BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

SOUTHERN BENCH AT CHENNAI

ORIGINAL APPLICATION NO. 104 OF 2020

IN THE MATTER OF:

RAJESH GHANTAYATH ... **APPLICANT**

VERSUS

UNION OF INDIA AND 7 ORS. ... **RESPONDENTS**

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Date: 08.04.2021

Place: Chennai.

Counsel for 7th Respondent

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

SOUTHERN BENCH AT CHENNAI

ORIGINAL APPLICATION NO. 104 OF 2020

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IN THE MATTER OF:

RAJESH GHANTAYATH ... **APPLICANT**

VERSUS

UNION OF INDIA AND 7 ORS. ... **RESPONDENTS**

OBJECTIONS FILED BY RESPONDENT NO.8 TO THE REPORT OF JOINT COMMITTEE

The Respondent above named respectfully submits as follows:

1. Mother Earth Environ Tech Pvt. Ltd. (MEEPL), the 8th Respondent here in has established a Hazardous Waste Landfill TSDF project at Harohalli Industrial Area and is in close proximity to various Hazardous waste generators located in Karnataka. This TSDF project is one of its kind in the state of Karnataka. The facility has been designed and is being operated to cater to the needs of industries generating hazardous waste in Karnataka State. The facility is scientifically designed and executed in most environment friendly and secured manner. Utmost care is taken in collection, transportation, handling and disposal of hazardous waste. The Company is managed by a group of professionals who have experience in the field of waste management. The Company has obtained regulatory clearances from Ministry of Environment and Forests (MOEF) and Karnataka State Pollution Control Board (KSPCB). MEEPL is a strong and quality conscious corporate, having sound

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foundation in the areas of environmental management leading to infrastructure development. This TSDF project is developed under PPP (public private partnership) Model as a infrastructure development.

2. M/s Mother Earth Environ Tech Pvt Ltd, viz., the 8th Respondent herein, was originally allotted land in Plot No. 217 in Harohalli Industrial Area by an order dated 05.10.2009 by the Karnataka Industrial Area Development Board. Subsequently, the 8th Respondent obtained Environmental Clearance from 28.08.2015 the State Level Environment Impact Assessment Authority - Karnataka (SEIAA) for establishing Hazardous Waste Land Fill with Cell 1 of 50,000 Tons capacity and Cell 2 of 45,000 Tons capacity. The total plot area considered was 14424.6 sq, mtrs at a project cost of Rs.16.55 crores. Based on the Environmental Clearance, the 8th Respondent obtained consent for Establishment dated 04.11.2015 from the Karnataka Pollution Control Board for Establishment of Hazardous Waste Land Fill as described above.

3. Subsequently, upon completion of establishment, the 8th Respondent obtained Consent to operate their Industrial Plantfrom KSPCB both under the Air and Water Act by a Combined Consent Order dated 13.04.2016 valid up to 30.06.2020.

4. The 8th Respondent has also obtained Waste Land under Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 from the Karnataka State Pollution

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Control Board dated 13.04.2016 which is also valid up to 30.06.2020. B

5. The 8th Respondent wanted to expand the capacity of the Landfill facility and accordingly gave a proposal for expansion to increase the capacity for Cell 1 of 50,000 MT to 100000 MT and Cell 2 of 45,000 MT to 51000 MT amounting to a total sum of 1510000 MT and the same was approved and Environmental Clearance for the expanded facility was granted on 11.06.2018 by SEIAA-Karnataka. Based on the same the 8th Respondent also obtained Consent to Establish from the Karnataka Pollution Control Board for the expanded facility on 15.10.2018 and Combined Consent order under Water and Air Acts to operate facility on 23.03.2019 and the said consent is valid till 30.06.2021. The authorization for handling Hazardous Waste was also granted for the expanded facility till 30.06.2020 by order dated 12.06. 2019. The 8th Respondent has applied for renewal of authorization on 07/03/2020 and the same has been granted by the KSPCB on 13.01.2021 valid upto 30.06.2021.

6. It is seen from the above the 8th Respondent has been scrupulously following all Rules and Regulations and have been running their Industrial Plant in full compliance of all Environmental norms. While so, the Applicant in the instant case came up before this Hon'ble Tribunal with the present application as though there are serious violations in operation of the facility. Considering the allegations made in the application this Hon'ble Tribunal was pleased to appoint the Joint Committee by its order dated 10.07.2020 to inspect the

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area in question and find out the Compliance of conditions of Environmental Clearance, Consent to Establish and operate and compliance of Hazardous Waste Rules. The Committee was also directed to verify the compliance of siting criteria for landfills and directions issued by CPCB and KSPCB from time to time. The points referred for report by the Committee are as follows:

7. The existing landfill has filled completely and closing letter along with Inspection letter by Regional Officer is attached to the Honorable NGT court for its information please.

1. To inspect the area in question and find out the compliance of the conditions of Environmental Clearance (EC) and Consent to Establish & Consent to Operate, compliance of the Hazardous and other Wastes (Management, Handling and Trans-boundary Movement) Rules, 2016, sitting criteria of Landfills and also to verify the compliance of directions issued by CPCB & KSPCB.

2. To assess the damage caused to environment on account of the failure of the unit and assess environmental compensation against them for the damage caused to environment.

3. To assess the ground/surface water qualities in that area to ascertain any contamination, if any

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4. To suggest the ways and means to remedy the situation on account of the damage caused, if any

After inspection, the Joint Committee has filed a report dated 27.01.2021 before this Hon'ble Tribunal making certain observations in respect of the 8th Respondent plant. The 8th Respondent is submitting their response to the report of the Joint Committee in the following manner.

8. M/s Mother Earth Environ Tech Pvt Ltdestablished a Treatment, Storage and Disposal Facility (TSDF) for operation at KIADB Industrial Area, Harohalli, Ramanagara District pursuant to the KIADB allotment letter dated 06.08.2011 for hazardous waste land fill with the condition to obtain Environmental clearance.As per the above allotment letter the 8th Respondent applied To SEIAA to obtain EC.M/s Mother Earth Environ Tech Private Limited Obtained Environmental Clearance (EC) from the SEIAA vide order dated 28.08.2015 for a total capacity of 95,000 Tons i.e., Cell 1 of 50,000 Tons and Cell 2 of 45,000 Tons. Based on the EC, the KSPCB has issued consent for establishment vide order dated 04.11.2015 for establishing Hazardous Waste Landfill at KIADB Industrial Area, 2nd Phase, Kanakapura, Ramanagara District for total capacity of 95,000 Tons / 10 Years (Consisting of 2 cells with capacity of 50,000 Tons and 45,000 Tons).The H.W. Authorization issued by the KSPCB for handling of hazardous waste under Hazardous and Other Wastes (Management and Trans- boundary Movement) Rules, 2016 issued on 12.06.2019 with validity up to 30.06.2020.

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9. Subsequently, the State Level Environment Impact Assessment Authority – Karnataka has accorded Environmental Clearance for TSDF expansion i.e., enhancing the Cell 1 from 50,000 MT to 1,00,000 MT and Cell 2 from 45,000 MT to 51,000 MT, with a total capacity of 1,51,000 MT, vide order dated **11.06.2018** combined consent for discharge of effluents under Water Act and emission under Air Act vide order dated 13.04.2016 & 14.06.2016 for carrying out hazardous waste landfill for 95,000 Tons/ 10 Years and CFL dismantling activity as per the CPCB Norms, with a validity up to 30.06.2021.

The following are the point-wise response to the Joint Committee report:

Para 5.2

It is clear from the EIA notification that no public hearing is required for projects situate within industrial area. This observation of the Committee is therefore redundant and unnecessary.

1. Location criteria

Reply: There is no Habitation area existing within 500 meters. Also, the land is allotted for Industrial purpose only by KIADB (Karnataka Industrial Area Development Board). After development of industrial area, extension of habitation has taken place.

2. The Common treatment facility within a distance of 400 km radius ofthe existing TSDFs of hazardous

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waste is not permissible. (MoEF&CC vide O.M. No. 23-122/2016-HSMD, dated 29.08.2016) .The *O.M. mandates that new project of Common treatment facilities within a distance of 400 km radius of the existing TSDFs of hazardous waste is not permissible*.

M/s Mother Earth environ Tech Private limited has got Environmental Clarence to set up TSDF is Environmental clearance-I-Dated 28.08.2015 much prior to issue of the above OM. However, it is submitted that no TSDF with valid EC is in operation within 80 KM from M/s Mother Earth Environ Tech Private limited TSDF.

3. **Catchment report: Ground water and surface water sample result interpretation**

MEEPL have not at all let out any rain water outside. the report only states that leachate quantity is more due to adding of rainwater. As per contour map our TSDF runoff will not reach any lake in the Industrial area. Except part of TSDF falls under the catchment of Ganalu doddi lake located in NE direction. Where samples are been collected, analyzed, reported and contour map is attached here. The slope is from North East direction and EAST direction only. No lake is situated other than Ganaludoddi lake. The result of the samples from Ganaludoddi lake is better than the remaining lakes as per the below table.

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Table 14: Analysis Results of Surface Water

S. No	Parameters	SW 1	SW 2	SW 3	SW4	SW 5	SW6	SW7	Stands*
1	pH at 25°C	7.1	7.3	7.5	7.1	7.6	7.0	7.1	6.5 – 8.5
2	EC at 25°C µs/cm	862	492	735	858	248	1211	1173	-
3	COD, mg/L	27	8	69	18	9	-	-	-
4	BOD_{3d} , 27°C , mg/L	4.1	BDL	3	BDL	BDL	5.0	5.0	-
5	TDS at 180°C, mg/L	536	348	443	543	164	840	810	2000
6	TSS at 103-105°C, mg/L	18	10	32	10	12	6	4	-
7	Chloride, mg/L	143	65	110	104	16	166	164	1000
8	Sulphate, mg/L	5.0	12	33	81	21	33	29	400
9	Nitrate Nitrogen, mg/L	BDL	BDL	0.05	BDL	BDL	5.77	3.12	45
10	Total Hardness as $CaCO_3$, mg /L	292	102	189	193	101	276	260	600

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11	Total Kjeldahl Nitrogen as N, mg/L	6	6	3	BDL	BDL	-	-	-
12	Oxygen dissolved, mg/L	1.3	6.9	5.4	2.2	7.0	4.1	4.4	-
13	Copper,mg/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.5
14	Cadmium,mg/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.003
15	Total chromium, mg/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.05
16	Iron, mg/L	0.2	0.89	0.82	1.15	0.27	0.65	BDL	0.3
17	Manganese, mg/L	0.25	0.15	0.06	0.25	BDL	0.27	BDL	0.3
18	Nickel,mg/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.02
19	Lead,mg/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.01
20	Zincmg/L	BDL	BDL	BDL	BDL	BDL	-	0.27	15
21	Cobalt mg/L	BDL	BDL	BDL	BDL	BDL	-	-	-
22	Arsenic mg/L	BDL	BDL	BDL	BDL	BDL	-	-	0.05

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Note: * IS 10500-2012, permissible limit

where,

SW1 – Hanumegowdanu Dodi Lake (12°40'30"N 77°26'40"E)

SW2 – Bani Kuppe Lake (12°40'0"N 77°26'9"E)

SW3 – River Sornamukki (12°41'22.5"N 77°25'44.2"E)

SW4 – Malliahnakere (12°41'05.2"N 77°25'42.5"E)

SW5 – Ganaludoddi near BWSSB (12°40'24.4"N 77°27'29.2"E)

SW6 – Hodakekere, KulumeBeemasandara Village Lake sample (12°40'48"N77°27'43"E)

SW7 – Soothakatte, Girenahalli Lake sample (12°40'52"N 77°27'18"E)

4. **It is stated in Para 7.4 as follows:**

   The above tables (Para 7.4) reveals that the surface water quality of lakes is found complying with the Drinking Water Standards i.e., IS 10500-2012, permissible limit. The lakes water quality w.r.t TDS is on higher side while comparing with other surface water body in SW6: Harakeke and SW7: Soothakatte, which are located on the downstream of TSDF, may be due to discharge of contaminated surface runoff from TSDF.

Reply: TSDF is not in the catchment of the lakes SW6: Harakere and SW7: Soothanakatte Hence there is no chance of SW6 and SW7 lakes will not receive any runoff water from TSDF. Moreover, as per CPCB classification surface water bodies cannot be compared with Drinking water standards by considering the result of one sample. It is required to be compared with CPCB classification for best use.

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Ground Water

S. No	Parameters	GW 6	GW 7	GW 8	GW9	Standards*
1	pH at 25°C	6.7	6.6	6.9	6.6	6.5 – 8.5
2	EC at 25°C µs/cm	804	1243	877	2680	-
3	COD, mg/L	10	4	BDL	BDL	-
4	BOD_{3d} , 27°C , mg/L	BDL	BDL	BDL	BDL	-
5	TDS at 180°C, mg/L	507	737	529	1567	2000
6	TSS at 103-105°C, mg/L	7	9	BDL	5	-
7	Chloride, mg/L	69	165	65	455	1000
8	Sulphate, mg/L	32	53	41	104	400
9	Nitrate Nitrogen, mg/L	0.29	0.22	BDL	0.26	45
10	Total Hardness as $CaCO_3$, mg /L	278	460	341	839	600
11	Total Kjeldahl Nitrogen as N, mg/L	BDL	3.9	2.8	BDL	-
12	Copper,mg/L	BDL	BDL	BDL	BDL	1.5
13	Cadmium, mg/L	BDL	BDL	BDL	BDL	0.003
14	Total chromium, mg/L	0.07	BDL	BDL	BDL	0.05
15	Iron, mg/L	2.94	0.06	0.30	0.49	0.3
16	Manganese,mg/L	BDL	BDL	0.18	0.08	0.3
17	Nickel,mg/L	BDL	BDL	BDL	BDL	0.02
18	Lead,mg/L	BDL	0.14	BDL	BDL	0.01
19	Zincmg/L	BDL	BDL	BDL	BDL	15
20	Cobalt mg/L	BDL	BDL	BDL	BDL	-
21	Arsenic mg/L	BDL	BDL	BDL	BDL	0.05

Note: * IS 10500-2012, permissible limit

Where,

GW6 - Bore well of M/s Big Drum India Pvt Ltd (12°40'34"N

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77°26'58"E) GW7 - Bore well of M/s DPK Engineers Pvt Ltd (12°40'38"N 77°26'52"E) GW8 -Bore well of M/s Pragathi Controls Unit 2 (12°40'42"N 77°27'01"E) GW9 – Bore well of Hanume Gowdanudoddi (12°40'13.5"N 77°26'40.5"E)

Table 13: Analysis Results of Ground Water

S. No	Parameters	GW10	GW11	GW12	GW13	Stands*
1	pH at 25°C	6.5	6.8	7.4	6.6	6.5 – 8.5
2	EC at 25°C µs/cm	1933	1493	926	2720	-
3	COD, mg/L	BDL	BDL	BDL	BDL	-
4	BOD_{3d} , 27°C , mg/L	BDL	BDL	BDL	BDL	-
5	TDS at 180°C, mg/L	1260	985	591	1632	2000
6	TSS at 103-105°C, mg/L	BDL	15	BDL	BDL	-
7	Chloride, mg/L	321	249	92	434	1000
8	Sulphate, mg/L	110	106	22	130	400
9	Nitrate Nitrogen, mg/L	3.08	0.52	BDL	2.15	45
10	Total Hardness as $CaCO_3$, mg /L	620	482	347	828	600
11	Total Kjeldahl Nitrogen as N, mg/L	BDL	2.2	BDL	3.4	-
12	Copper,mg/L	BDL	BDL	BDL	BDL	1.5
13	Cadmium, mg/L	BDL	BDL	BDL	BDL	0.003
14	Total chromium, mg/L	BDL	0.15	BDL	BDL	0.05
15	Iron, mg/L	0.14	0.05	BDL	BDL	0.3
16	Manganese,mg/L	0.08	BDL	BDL	BDL	0.3
17	Nickel,mg/L	BDL	BDL	BDL	BDL	0.02
18	Lead,mg/L	BDL	BDL	BDL	BDL	0.01
19	Zincmg/L	BDL	BDL	0.07	BDL	15
20	Cobalt mg/L	BDL	BDL	BDL	BDL	-
21	Arsenic mg/L	BDL	BDL	BDL	BDL	0.05

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Note: * IS 10500-2012, permissible limit 13

Where,

GW10 - Bore well of T. Bannikuppe (12°40'26.9"N 77°26'00.8"E)
GW11 - Bore well of Ramsagar (12°41'47.8"N 77°26'31.6"E)
GW12- Bore well of Ganaludoddi (12°40'29.43"N 77°27'18.16"E)
GW13 – Bore well of Medamaranahalli (12°42'6.06"N 77°27'4.80"E)

Reply: The above Borewells GW7,GW8&GW9 are comes under our regular monitoring area and tables reveals that the ground water quality of bore wells located outside TSDF (i.e., in industrial area and villages) are found complying with the Drinking Water Standards i.e., IS 10500-2012, permissible limit.

5. ASSESSMENT OF ENVIORNMENTAL COMPENSATION

The CPC guidelines for imposing environmental compensation is based on Polluter Pay principle. The Joint Committee has cited the allowing cases to consider levy of compensation:

a) Discharges in violation of consent conditions, mainly prescribed standards / consent limits.

b) Not complying with the directions issued, such as direction for closure due to no installation of OCEMS, non-adherence to the action plans submitted etc.

c) Intentional avoidance of data submission or data manipulation by tampering the Online Continuous Emission / Effluent Monitoring systems.

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d) Accidental discharges lasting for short durations resulting into damage to the environment.

e) Intentional discharges to the environment -- land, water and air resulting into acute injury or damage to the environment.

f) Injection of treated/partially treated/ untreated effluents to ground water.

It is submitted that none of these conditions apply to MEEPL since there is no material analysis evidence in the report pertaining to water pollution caused due to TSDF and there is no evidence including the analysis of soil and air, damage to environment with respect to soil and air, Air and water and therefore levy of environmental compensation is per se bad and totally without any application of mind.

Sl No	COMMITTEE REMARKS	MEEPL Reply
5.2	ENVIRONMENTAL CLEARANCE BY SEIAA As per the Environmental Impact Assessment (EIA) Notification, 2006, the Common Hazardous Waste Treatment, Storage and Disposal Facility (TSDF) having landfill only is considered as Category B and required to obtain prior environmental clearance at State level from the State Environment Impact Assessment Authority (SEIAA). Accordingly, the	M/s Mother Earth Environ Tech Private limited is operating a Integrated Common Hazardous Waste Treatment Storage Disposal facility, obtained Environmental Clearance from State Level Environment Impact Assessment Authority (SEIAA), Letter No. SEIAA 1 IND 2015 on dated 28.08. 2015.We have proposed for Hazardous Waste Landfill consists with Cell-01 of 50,000 Mt Capacity and Cell-02 of 45,000 Mt Capacity. MEEPL site is environmental conscious and in order to maintain the Green Belt. As per EC green belt 15 m shall be provided along the periphery of the site. (Environmental

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	project proponent i.e., M/s Mother Earth Environ Tech Private Limited Obtained Environmental Clearance (EC) from the SEIAA vide order dated 28.08.2015 for a total capacity of 95,000 Tons i.e., Cell 1 of 50,000 Tons and Cell 2 of 45,000 Tons (Annexure 5). The important conditions are: o Green belt of 15 meters shall be provided all along the periphery of site/ at least 33% of the total project area. o Regular online monitoring of all the ambient air quality and water quality shall be carried out. As per the Classification of Industrial Sector, the Common Treatment and Disposal Facilities (CETP/TSDF, E-Waste recycling, CBWTF, Effluent Conveyance, Incinerator, Solvent / Acid recovery Plant, MSW sanitary landfill site) are classified as RED but special category projects as these are part of pollution control facilities. The same is not spelled in the EC granted by SIEAA and EC was issued without / exempting public consultation stating that	Clearance copy has been attached (**Annexure**) Then We applied Expansion of Environmental clearance to State Level Environment Impact Assessment Authority (SEIAA) and same has been issued by SEIAA on dated 11.06.2018 vide Letter No. SEIAA 18 IND 2017. The Proposed expansion project facility comprise of enhancing the capacity of cell-01 – from 50,000 Mt to1,00,000 MT and Cell-02 from 45,000 to 51,000 MT with the total Capacity of 1,51,000 mt. As per EC green belt shall be developed in at least 33% of the total Project area. The total green belt development now is more than 33% Our facility is regularly monitored by the KSPCB officers. (Expansion Environmental Clearance copy has been attached Directions are modified as per the letter attached it is 15 Mtr all-round TSDF other than east side.

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	"The project is located within the notified industrial area and hence does not require Public Consultation"	
5.3	CONSENT AND AUTHORISATION BY KSPCB, Based on the EC, the KSPCB has issued consent for establishment vide order dated 04.11.2015 for establishing Hazardous Waste Landfill at KIADB Industrial Area, 2nd Phase, Kanakapura, Ramanagara District for total capacity of 95,000 Tons / 10 Years (Consisting of 2 cells with capacity of 50,000 Tons and 45,000 Tons). Subsequently, KSPCB issued the combined consent for discharge of effluents under Water Act and emission under Air Act vide order dated 13.04.2016 & 14.06.2016 for carrying out hazardous waste landfill for 95,000 Tons/ 10 Years and CFL dismantling activity as per the CPCB Norms, with a validity up to 30.06.2021 (Annexure 6). The important conditions are: 1) Domestic effluent (0.4 KLD) shall be treated in septic tank and soak pit. 2) Leachate from cells, tyre wash water (2KLD) shall be	All compliance reports are regularly submitted as per Consent to operation and as per CPCB protocol 1. Monthly submission 2. Quarterly submission. 3. Environment statement 4. Regular analysis of Air, water and Soil samples

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	handed over to CETP of M/s Govind Solvents Pvt Ltd. for further treatment and disposal. 3) Shall install Multiple Effect Evaporator (MEE) for disposing of leachate generated from the waste within 6 Months. 4) Shall install web camera at the entrance of the gate, finger print sampling station, and treatment area. 5) Shall install hood ducting and air pollution control equipment with chimney to the waste stabilization / processing area to control smell nuisance. 6) Plant three rows of high plantations on the periphery and adequate greenery. 7) All the drums and machinery shall be placed within the shed and floor shall be impervious. The H.W. Authorization issued by the KSPCB for handling of hazardous waste under Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016 issued on 12.06.2019 expired on 30.06.2020 (Annexure 7), and the facility has applied for renewal of the same on	

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	07.03.2020 to KSPCB.	
5.5	HAZARDOUSWASTES HANDLED The above table revels that out of total quantity landfilled, the direct landfilled accounts to 8.1% and the remaining 91.9% accounts to after treatment. As per permitted total capacity of 1,51,000 MT, the facility has completed 94.8% and remaining left is 7880.3 MT (5.2%), the same may be completed in two to three months	We have estimated the quantity expected to our TSDF based on the consideration of other TSDF existing in our state. After we have started operation due to our good service and because of the reason that no environmental clearance has been granted for any other TSDF, all major companies are diverting waste to us hence it was received and there is quarterly submission of the protocol to CPCB and KSPCB it has been intimated to both KSPCB and CPCB. As such there is no violation of any CFO conditions. The remarks are totally uncalled for.
5.6	LEACHATE DISPOSED TO CETP The above table reveals that the generation of leachate is doubled during 2017 – 2020 and the total leachate disposed by MEEPL was 4303 MT to CETPs.	The leachate quantity is varied based on the moisture content. The quantity of leachate generation clearly indicates the proper handling of leachate and disposing to CETP.
7.1	COMPLIANCE OF TSDF SITTING CRITERIA	
e	Habitation: Landfill shall be at least 500 m from a notified habituated area. A Zone of 500 m around a landfill boundary should be declared a no-development buffer zone after landfill location is	There is no Habitation area existing within 500 meters. Also, the land is allotted for Industrial purpose only by KIADB (Karnataka Industrial Area Development Board). WAP COSE report is attached

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	finalized.	
m	Search Radius: The Common treatment facility within a distance of 400 km radius of the existing TSDFs of hazardous waste is not permissible.	M/s Mother Earth environ Tech Private limited has got Environmental Clarence to set up TSDF is Environmental clearance-I-Dated 28.08.2015. No TSDF with valid EC is existing within 80 KM from the M/s Mother Earth environ Tech Private limited TSDF.
7.2	NOTIFICATION OF TSDF, DESIGN & LAYOUT APPROVAL	
	TSDF DESIGN AND LAYOUT APPROVAL As per Section 16(2) of the said Rule, the operator of the facility or occupier of a captive facility shall design and set-up the treatment, storage and disposal facility as per technical guidelines issued by CPCB and shall obtain approval from SPCB for design and layout in this regard. Similar provision prevailed under the Rule 18(2) of HWM Rules, 2008. The facilities such as (a) access roads, (b) equipment shelters, (c) weighing scales, (d) office space, (e) location of waste inspection facility (f) temporary waste storage and / or disposal sites for special wastes, (g)	The CPCB vide letter dated 22.02.2019 and 07.06.2019 has informed to KSPCB to re-examine the design and layout approved by KSPCB through reputed institute i.e., IISC, Bangalore. For that we made payment to Board for re-examination and up to now re-examination has not been completed. Reminder letters also submitted to KSPCB We sent request letters to regional office, KSPCB for re-examine the design and layout approved by KSPCB through reputed institute i.e., IISC, Bangalore our communication dated 30.06.2020 & 28.07.2020 & 05.08.2020. we deposited amount to KSPCB to examine the site as per condition. **Annexure**

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	demarcation of the landfill areas and areas for stockpiling cover material and liner material, (h) location of surface water drainage facilities, (i) location of landfill leachate management facilities, (j) location of gas management facilities, (k) location of monitoring wells/ environment monitoring facilities, (l) fencing and green belt along the peripheral boundary and (m) emergency exit has to be located in the layout. 24 With respect to Layout approval, the Committee observed that CPCB has issued direction under Section 5 of the Environment (Protection) Act, 1986 to the Chairman, KSPCB vide order dated November 14, 2018 to ensure the compliance of above. The copy of direction is given as Annexure 10. Accordingly, the KSPCB approved the Layout of TSDF as per Rule 16(2) of the Hazardous and Other Waste (Management, Handling & Trans boundary) Rules, 2016 vide letter dated 27.10.2018. The copy of the approved layout plan is	



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	given as Annexure 11. The Joint Committee reviewed the approval of the Layout plan and noticed that the M/s Mother Earth Environ Tech Pvt Ltd has submitted a layout plan vide letter No. MEEPL/LAB/18-19/017 dated 26.09.2018 to the Regional Office, KSPCB, Ramanagara including the buffer area of 15m x 175.5m (2632.5 m2) belong to KIADB, accordingly without verification KSPCB has approved layout plan including KIADB land, which need be withdrawn and reissued. KIADB official clarified to the Joint Committee on 03.09.2020 that permission was given to MEEPL only to maintain the additional buffer area adjacent to MEEPL site on their East side i.e., 15m x 175.5m, but they can't claim any ownership or as their green belt and can't include in their layout plan. Also, observed that there is no plantation / green belt developed in the additional buffer area till date neither by KIADB nor by MEEPL As per the Directions of CPCB issued u/s 5 of EPA	

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	1986 to KSPCB on 20.03.2018, KSPCB vide lr. no. PCB/WMC/2800/HWM/2018/ 1094 dated 15.05.2019 requested Indian Institute of Science (IISc) to inform their willingness to take up the work i.e., Evaluation of Design and Layout of TSDF. IISc has submitted their willingness to KSPCB on 13.06.2019. But, the assigned task of evaluation of Design and Layout of TSDF is not yet complied. The MEEPL is not having designated equipment shelters, disposal site for special wastes, and lack in fencing and green belt along the peripheral boundary and emergency exit. Gas management facility is yet to be developed along with closure plan.	
7.4.1	LEACHATE MANAGEMENT AND ITS QUALITY The above table reveals that the raw leachate is having very high TDS and COD load, and the pre – treated wastewater is complying with inlet standard of CETP. However, the reductions in pollution load w.r.t BOD, COD are	Leachate generated from lab washing, stabilization process and along with leachate of landfill site, it shall be collected in a leachate Sump after primary treatment and the same shall be handover to CETP for further treatment and disposal. The Disposal of Leachate quantity details and Manifest copy M/s MEEPL was submitted to Regional Office-Karnataka State Pollution Control

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	uncertain, may be due to rainwater dilution and old sample. The surface runoff water was having COD > 250 mg/L needs treatment for disposal. The unit dispose the same along with raw leachate to CETPs.	Board. The Manifest Copy-01 of generated leachate sent to Common Effluent Treatment Plant (CETP) for treatment purpose. Our Primary treatment process is explained below **Purpose:** The purpose of this standard operating procedure is to describe the procedure for Operating of Leachate Primary Treatment Plant. **Principle**: Tank-1=Fenton reaction; Tank-2=Coagulation; Tank-3=Settling. Procedure: **Step-1**: Fill Tank 1 with 5KL of Leachate and start Air blower to give aeration to Tank-1&2. **Step-2:** Chemical dosing process to Fenton treatment in Tank-1: Add HCL and adjust the pH (near 3-4), Add 250 g of FeSo4 by mixing with 10L to 20L of Water, add 120 kg of H2O2 using dosing pump and use antifoam to arrest foaming. **Step-3:** Fenton Reaction process for COD reduction in Tank-1: Keep the recirculation and aeration for 4 Hours. **Step-4:** Coagulation Process in Tank-1: Add Lime by mixing with water to adjust the pH 8-9, Add alum by mixing with water. Then slowly Transfer effluent to Tank-2; record the effluent quantity using flow meter.

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		Step-5: Aeration in Tank-2: Feed the effluent to Tank-2 from Tank-1 slowly and allow it for aeration **Step-6:** Settling in Tank-3: Sludge will settle in bottom of tank-3. Transfer the settled sludge to Stabilization bin. Supernatant will be collected to 40KL Temporary Leachate Storage Tank by gravity flow. (Primary Treatment Process copy Attached Annexure-10) **Annexure-6**
7.4.2	GROUND WATER QUALITY WITHIN TSDF PREMISES The above table reveals that the ground water quality is meeting the Drinking Water Standards i.e., IS 10500-2012, permissible limit. However, there is increase in pollutant concentration (COD) in Bore wells No. 3, 4 & 5 while comparing with other Bore wells. These bore wells are located close to TSDF – Cells.	M/s MEEPL are regularly monitoring ground water quality which is meeting standards and results are regularly being communicated to the board. Even KSPCB, is monitoring the ground water regularly. To estimate the impact, the water quality of bore well is required to be compared with the base line data. The Committee has not looked into the baseline data. The base line data with respect to 3 and 4 is enclosed and the results indicate that there is no variation.
7.4.4	SURFACE WATER (LAKES) QUALITY The above tables reveals that the surface water quality of lakes is found complying with the Drinking Water Standards i.e., IS 10500-2012, permissible limit. The lakes water quality w.r.t TDS is on higher side while	The samples have been collected from the Seven (7) water bodies located in and around the entire industrial area. The conclusions un that Hodakekere and Soonthana Kattie are located downstream and it is reflected as TSDF comes in direct catchment of those two lakes is incorrect. Our TSDF is coming in the catchment of SW5-Ganaludoddi

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	comparing with other surface water body in SW6: Hodakekere and SW7: Soothakatte, which are located on the downstream of TSDF, may be due to discharge of contaminated surface runoff from TSDF.	(Contour map enclosed as **Annexure)** As per the analysis report indicated in para7. 4.., the water quality is good among all the lakes. CPCB has notified standards for best water quality for best use. The water quality meets Class 'A' which is best among all i.e.-Drinking Water Source without conventional treatment but after disinfection. The Topo map/Contour map Report attached as **Annexure.**
7.5	MANAGEMENT OF SURFACE RUN OFF The analysis results of surface run off water of TSDF shown at Point 7.4.1 is having COD of 325 mg/L and TDS of 1521 mg/L confirms the contamination due to TSDF activities and need of treatment and safe disposal. In case of discharge of the same will lead to the surface water pollution of Lakes located in its downstream i.e., SW6: Hodakekere and SW7: Soothakatte.	In this regard it is to be noted that the gradient is towards East and flow cannot be towards lakes. There is no discharge to outside the Periphery. TSDF is not coming in the catchment of two lakes as mentioned in this para. Further There is primary treatment plant for treatment before handing over to CETP. In the table T-3 results of primary treated water quality which is well within the limit of Inlet standards of CETP 9 AVAILABLE IN THE SAME TABLE)
8.0	DESIGN VERIFICATION OF TSDF The observation / remarks of NITK were communicated to MEEPL by Mail on 15.12.2020 to clarify and submit information as per remarks. But, MEEPL failed to provide the same until so far. The above table reveals that there are three agencies IISc, WAPCOS and M/s Yashaswini Engineering	MEEPL Layout plan has been approved KSPCB as per Hazardous Waste Rules16(2),2016.The design of TSDF has been done by the professor Dr.P.V. Siva Pullaiah of Indian Institute of science .The MoEF has got the design verified by the WAPCOS, Further KSPCB is intend to get design approved from reputed institution as per CPCB direction between which we deposited Money as per CPCB direction a Government of India undertaking.

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	Consultants involved in design and execution of Landfill, but each of their roles is not clearly specified. The communication between MEEPL and IISc did not mention about the project details to verify the capacity of TSDF. The EIA extract submitted is not having any analysis on Engineering Parameters. As per drawing the clearance given between Cell-1 and compound wall is not complying with the EC condition requirement to develop 15 m Green belt development, serious violation during design stage itself. The MEEPL failed to produce official communication to IISc regarding increase in capacity design of Cell 1 and Cell 2. The drawing submitted is showing the maximum height of final cover only, not exactly the design capacity. The MEEPL failed to address any unforeseen, since the land fill embankment starts from the compound wall without leaving adequate buffer, in case of collapse of embankment, there is a possibility of hazardous waste coming on the road or adjacent industry. The existing compound wall would not able to withstand such load.	We paid prescribed fee as instructed by Karnataka State pollution control board to IISC for re-examination of design and layout of M/s Mother Earth Environ Tech Private limited same has been attached as **Annexure.** We are the only one Treatment, Storage and Disposal Facility (TSDF) who is having Environmental Clearance (EC) and obtained Consent for Establishment and Consent For Operation under the Water (Prevention & Control of Pollution) Act,1974 & the Air (Prevention & Control of Pollution) Act, 1981 from Karnataka State Pollution Control Board. So, all industries sending their waste to M/s MEEPL only. We followed all safety measures as mentioned Central Pollution Control Board and Ministry of Environment forest & Climate Change published rules of Hazardous Waste Management Series: HAZWAMS/17-2000-21

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	It is clear indication that looking at the rate of H.W. land filling happened to achieve its 94.8% in less than half of its permitted period i.e., 10 years and with increase in filling rate than the operation capacity, MEEPL has not planned for phase and lift properly / rather it was filled unscientifically, which is serious violation against the Criteria for Hazardous Waste Landfills.	
9.0	**COMPLIANCE TO ENVIRONMENTAL CLEARANCE (EC) CONDITIONS**	
2	The green belt shall be developed in at 33 % of the total project area. Planting aromatic and flowering climbers to cover the compound shall be under taken.	MEEPL site is environmental conscious and in order to maintain the Green Belt. In this regard greenery has been implemented and total Green belt is more than 33%. Our facility is not only being regularly monitored by the KSPCB officers but also the site was inspected by Officers from Ministry of Environment, Forest and Climatic Change. Whatever the few suggestions given by them have all been implemented and communicated to them. **Annexure enclosed**
3	The proponent should obtain necessary clearance from the ground water authority.	As per the Karnataka Ground water (Regulation & control of development and management), Act 2011, neither Ramanagara district orKanakapura taluk has been declared as a notified area till date. Hence, No separate permit /clearance may be required. Ref No: -

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		dpal.kar.nic.in/ao2011/250f2011€.pdf+ notified area list). Nevertheless, MEEPL has applied for for necessary clearance to the Ground water authority already out of abundant caution.
4	The project proponent should prepare and implement an Onsite Emergency Management Plan.	We have updated EMP plan and the same is being followed. (**Annexure enclosed)**
6	Regular online monitoring of the ambient air quality	Online Monitoring is not mandatory for small red category Industry like MEEPL. Regular Monitoring of Ambient air quality, Stack, Noise, Ground water and soil are being carried out as per periodical frequency stipulated in the consent order issued by KSPCB. (**Annexure-)**
7	The PA shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the Environment.	Community Health Camps, Initiated and maintenance of Green belt has developed. (**Annexure-**
8	Advertisement of EC for expansion	We have advertised in Both language English and Kannada (**Annexure-)**
10.1	STABILISATION OF HAZARDOUS WASTE & MANAGEMENT OF LEACHATE GENERATED MANAGEMENT OF SURFACE RUN OFF	

Mother Earth Environ Tech Pvt. Ltd. Bengaluru

	Mechanized cover system having arrangement of waste conveyor system, mixing unit with mechanized mixing arrangement, suction duct / hood, scrubber system and stack (or) ii. Stabilization in pit by mixing with excavator / backhoe loader having hood over the pit with adequate suction arrangement to arrest dust / fumes followed by scrubber and stack.	Mother Earth Environ Tech Private Limited has adequate size of stabilization pit with excavator/ backhoe loader in place. The mixing is done in the pit with adequate moisture content in the mixture to avoid emissions and gases Passes through scrubber and stack Emissions.
	The commissioning of Leachate Pre-treatment plant was communicated to CPCB vide letter. Dated 27.01.2020. Hence there is delay in compliance of CPCB direction of more than 15 months	There was no delay in commissioning of Pre- Treatment plant for leachate was there we have upgraded by selecting suitable technologies for the same.
10.2	**TO STOP THE COLLECTION AND DISPOSAL OF H.W. IMMEDIATELY BY MEEPL**	
	The Joint committee reviewed the directions and concluded that the CPCB directions are not yet complied and the MEEPL is allowed to continue their operation in spite of non – compliances. The total hazardous waste handled after the date of Direction by CPCB i.e., April 2018 to 02.09.2020 (until date of inspection) is as follows: Out of total quantity handled	We have operated as per CFO and authorization issued to us and monthly, quarterly submitted the reports to legal authorities.

Mother Earth Environ Tech Pvt. Ltd. Bengaluru

	and disposed i.e., 143119.7 MT, the quantity handled after the CPCB directions i.e. "Not to allow collection and disposal of hazardous waste by M/s MEEPL into their common SLF unless State arrives sitting is absolutely essential in the State" is 61.18%. It is noticed that during these three years i.e., 2018 to 2020, TSDF was operated at the rate of 5.79 times than the average consented operating capacity of 15,100 MT/Year. Non implementation of CPCB directions resulted in the additional dumping of 61.8% (87,565 MT) in three years. The CPCB directions are not yet complied fully.	
11.0	**NON-COMPLIANCE OBSERVED BY KSPCB**	
	The above table reveals that there is violation from the date of inception of the facility w.r.t sitting criteria, buffer area / green belt development, leachate & surface water management, compound wall, housekeeping, environmental monitoring, record keeping, notification of site & layout and discharge of surface run off to the agricultural land.	Whatever observation/notices/ condition / suggestions ordered by KSPCB, CPCB and MoEF we have complied by giving Relevant document and records.
12.0	**ASSESSMENT OF ENVIRONMENTAL**	

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	COMPENSATION	
	The above table reveals that the non –compliance period observed by KSPCB, CPCB, and MoEF& CC are overlapping, hence it is decided to take the total non-compliance period from the initial observation i.e. 24.10.2017 to 03.09.2020 (Joint committee inspection), so the total days of violation took place is 1045 days. EC = PI * N * R * S * LF = 80* 1045 * 250 * 1.5 * 1.0 = 3,13,50,000/- The Environmental Compensation (EC) estimated is 3,13,50,000/- (Rupees Three Crores Thirteen Lakh Fifty Thousand only).	As indicated in Para 12 of the report of the committee, Cases that are to be considered for laving Environmental Compensation. Our company has never fallen under any of the cases as detailed below
Sl no	**Cases**	**Applicability to Mother Earth**
a	Discharges in violation of consent conditions, mainly prescribed standards/ consent limits	No Violation of discharges in excess of prescribed limits/consent charges and also there is no mention of violation in the committee report
b	Intentional avoidance of data submission or data manipulation by tampering the Online continuous emission/Effluent Monitoring Systems	No cases of Intentional avoidance of data submission or data manipulation by tampering the Online Continuous Emission/Effluent Monitoring systems - there is no mention of violation in the committee report
c	Accidental discharges lasting for short durations resulting into damage to the environment	No case of accidental discharges - there is no mention of violation in the committee report

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d	Intentional discharges to the environment -land, water and air resulting into acute injury or damage to the environment	Intentional discharges to the environment -land, water and air – there is no mention of violation in the committee report
e	Injection of treated/partially treated/untreated effluents to ground water	Intention of treated /partially treated/untreated effluents of ground water -there is no mention of violation in the committee report.

Sl. No	Non-compliances (NC) noticed	MEEPL JUSTIFICATION
1	Noncompliance to the EC condition i.e., green belt of 15 m all along the boundary/ 33 % of total area should be provided.	M/s Mother Earth Environ Tech Private limited is operating a Integrated Common Hazardous Waste Treatment Storage Disposal facility, obtained Environmental Clearance from State Level Environment Impact Assessment Authority(SEIAA), Letter No. SEIAA 1 IND 2015 on dated 28.08. 2015.We have proposed for Hazardous Waste Landfill consists with Cell-01 of 50,000 Mt Capacity and Cell-02 of 45,000 Mt Capacity. MEEPL site is environmental conscious and in order to maintain the Green Belt. As per EC green belt 15 m shall be provided along the periphery of the site. (Environmental Clearance copy has been attached **Annexure)** Then We applied Expansion of Environmental clearance to State Level Environment Impact Assessment Authority(SEIAA) and same has been issued by SEIAA on dated 11.06.2018 vide Letter No. SEIAA 18 IND 2017. The Proposed

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	a) NOC from Ground Water Authority b) Onsite Emergency Plan Online continuous monitoring of Ambient Air Quality. Undertake Eco developmental including welfare a) Measures community	expansion project facility comprise of enhancing the capacity of cell-01 – from 50,000 Mt to1,00,000 mt and Cell-02 from 45,000 to 51,000 Mt with the total Capacity of 1,51,000 mt. As per EC shall be developed in at least 33% of the total Project area. We explained to SEIAA in the meeting then Given NEW EC to MEEPL site. and M/s MEEPL environmental conscious and in order to maintain the Green Belt. In this regard greenery has been implemented and total Green belt is more than 33%. Our facility is regularly monitored by the KSPCB officers. (Expansion Environmental Clearance copy has been attached (**Annexure-02**) As per Ground water Authority Harohalli Industrial will not come under critically exploited area during construction TSDF hence NOC is not required There is Emergency Response plan at site and submitted to team Since there is small category Red industry and there is no air pollution source at site hence Continuous Ambient Air quality station is not necessary. However, we have monitoring air quality in all four directions once in a month and report is attached Periodic health checkups are conducting regularly for outside our TSDF.

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2	Non-compliance toCPCBdirections issued under Section 5 of EPA dated 13.6.2018 w.r.t. stabilization and leachate management	Detailed compliance letter submitted to CPCB and State PCB.
3	Non-compliance to CPCB Direction issued under Section 5 of EPA dated 20.3.2018 w.r.t not to allow operation of TSDF, approval of TSDF Design and Layout, to levy financial penalty, notification of TSDF site etc.	Detailed compliance letter submitted to CPCB and State PCB and compliance letter annexed.
4	Leachate contaminated water flown outside the TSDF has resulted in downstream bodies.	No evidence shown
5	Discharge of brown liquid with white scum patches originating from the north eastern periphery of TSDF & flowing towards the northern direction to join a large drain to continue its flowing further which will have a serious impact on quality of Arkavathy River Water since the TSDF is located at micro catchment to the River Arkavathy.	False complaint and the same has been clarified through personal hearing.
6	TSDF is a chronic violator showing the authorities negligent attitude towards environment & pollution control laws	We have operated as per the conditions stipulated and obtained all required permissions
7	Polluting the water & posing danger to the health of flora, fauna & create imbalance of the ecosystem	There is no evidence for Polluting the water & posing danger to the health of flora, fauna & create imbalance of the ecosystem Annexure-

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It is submitted that the Joint Committee has failed to look into the various compliance letters forwarded to them in order to show that the 8th Respondent has been operating the TSDF in full compliance of all Rules and Regulations. Therefore, the remarks stated in the report of the Joint Committee and the levy of Environmental Compensation to the tune of Rs.3,13,50,000/- is totally unsustainable and unwarranted. The suggestions of the committee to improve the quality and the functioning of TSDF can always be implemented. But however, levy of Environmental Compensation and being critical of the functioning of TSDF appear to be totally incorrect.

The 8th Respondent, apart from the Annexures filed along with these objections, also craves leave of this Hon'ble Tribunal to file a separate reply to the main O.A. along with further documents in order to substantiate their stand that the 8th Respondent is following all Environmental Rules and Regulations and is not guilty of any violations.

The entire set of documents which were supplied to the Committee but not considered by the committee is enclosed as **Annexures**. The committee has not carried out any soil & Air quality monitoring. The water (Surface & Ground water) samples indicate the parameters are well within limits which clearly indicates that there is no Environmental damage caused due to the operation of TSDF.

It is therefore prayed that this Hon'ble Tribunal may be pleased to take these Objections on record and pass suitable

Mother Earth Environ Tech Pvt. Ltd. Bengaluru

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orders in the application and thus render justice.

Dated at Bangalore on this 9th the day of April 2021

Mother Earth Environ Tech Pvt. Ltd. Bengaluru

8TH RESPONDENT

VERIFICATION

I, T N Paramesh, S/o Ninge Gowda, aged about 55 years, Managing Director, M/s Mother Earth Environ Tech Pvt. Ltd. Bangalore do hereby verify and declare that what is stated in the above paragraphs are true to the best of my knowledge and belief.

Mother Earth Environ Tech Pvt. Ltd. Bengaluru

8th RESPONDENT

Date : 9/4/21

Place: Bangalore

NOTARY PUTTARAMAIAH Bangalore Reg. No.: Law 130 LCL 2015 GOVT. OF KARNATAKA

ATTESTED BY ME

PUTTARAMAIAH, B.A., LL.B
ADVOCATE & NOTARY
65/1, 2nd Cross, 4th Main,
Near Jain Temple, Gandhinagar,
BANGALORE - 560 009.

09 APR 2021

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KARNATAKA INDUSTRIAL AREAS DEVELOPMENT BOARD
(A Government of Karnataka Undertaking)
14/3, 2nd Floor, R.P. Building, Nrupathunga Road, Bangalore - 560 001
Phone : 22215383, 22215079, 22242006, 22215069, Fax : 080- 21770
Website : www.kiadb.in e-mail : kiadb@mail.kar.nic.in

No. IADB/HO/AS-2/6779/2011-12 Dated: 06.08.2011

RPAD

M/s Mother Earth Environtech,
No. 30, 1st Floor,
5th Main road,
Gandinagar,
Bangalore-560 009.

Sir,

Sub: Allotment of land in plot No. 217 of Harohalli I.A., 2nd phase, change of name and endproduct-Reg.

Ref: 1. SLSWCC meeting dated 20.09.2006.
2. Allotment letter No. IADB/HO/Allot/AS-2/16211/7512/09-10, Dated: 05.10.2009.
3. SLSWCC Meeting dated 26.02.2011.
4. Your letter dated: 29.10.2010 & 10.06.2011.

****

In consideration of your request and as per project clearance accorded by State Level SWCC in its meeting dated 26.02.2011 for change of name and change of activity this is to inform you that, approval is hereby accorded for change of name of the company from M/s Chaitra Irrigations to M/s Mother Earth Environtech proprietor Sri. T.M. Paramesh and change of activity from manufacture of Drip/Micro Irrigation Systems LLDPE / HDPE pipes and Accessories to hazardous waster land fill site project, in 4.00 acres of land allotted in your favour in plot No. 217 of Harohalli I.A 2nd phase subject to obtaining prior clearance from KSPCB and MOEF,

Further, your request for allotment of land at the consessional price has been considered in the Board meeting dated 25.07.2011 and the Board has resolved to grant 50% concession on the prevailing tentative

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KARNATAKA INDUSTRIAL AREAS DEVELOPMENT BOARD
(A Government of Karnataka Undertaking)
14/3, 2nd Floor, R.P. Building, Nrupathunga Road, Bangalore - 560 001
Phone : 22215383, 2221 679, 22242006, 22215069, Fax : 080-2221770
Website : www.kiadb.in e-mail : kiadb@...

allotment rate of Rs. 60.00 lakhs per acre in respect of 4.00 acre allotted in your favour at Harohalli I.A, 2nd phase. Therefore, you are requested to pay the balance cost in respect of the said land is detailed below:

1.	Cost of 4.00 acres of land at prevailing tentative price of Rs. 60.00 lakhs per acre + 10% corner plot charges.	Rs. 2,64,00,000.00
2.	50% of the prevailing tentative cost for 4.00 acres.	Rs. 1,32,00,000.00
3.	Less amount already paid.	(-) Rs. 16,00,000.00
4.	Balance land cost payable.	Rs. 1,16,00,000.00

Therefore, you are requested to pay the balance land cost of Rs. 1,16,00,000.00 together with the slum cess of Rs. 40,418/- with in one month from the date of receipt of this letter.

- All other terms and conditions stipulated in the allotment letter dated 05.10.2009 remains unaltered.

Yours faithfully,

Assistant Secretary-2

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वैज्ञानिक तथा औद्योगिक परामर्श केन्द्र
CENTRE FOR SCIENTIFIC & INDUSTRIAL CONSULTANCY
भारतीय विज्ञान संस्थान / INDIAN INSTITUTE OF SCIENCE
बेंगलूर / Bangalore - 560 012, . भारत / INDIA
दूरभाष / TEL : 91-80-23340134/22932446/22932516/22932470
फैक्स / FAX: 91-80-23314845/23600683 ई-मेल /EMAIL : Chairman@csic.iisc.ernet.in

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CP 6800/0505/12

Date: 12th June 2012

Mr. T N Paramesh
Managing Director
Mother Earth Environ Tech Private Limited
No.30, 1st Floor, 5th Main Road
Gandhinagar
Bangalore – 560 009

Dear Sir,

Sub: Design for hazardous waste landfill

The Indian Institute of Science will be happy to undertake the above work as a Consultancy Project, the terms and conditions are given below:

Consultant	Prof. P V Sivapullaiah Dept. of Civil Engineering
Scope of work	Plan for various unites of hazardous landfill drawings for different units
Duration	Three months
Project fee	The project fee will be Rs. 2,75,282/- (Rupees two lakh seventy five thousand two hundred eighty two only). Includes service tax of Rs.30,282/- @ 12.36%.
Mode of payment	Complete project fee will be payable in advance through a DD drawn in favour of the **Registrar, Indian Institute of Science, Bangalore,** and mailed to the **Chairman, Centre for Scientific & Industrial Consultancy, Indian Institute of Science, Bangalore -560 012**. Any Bank Commission for DD and TDS will have to be borne by your office. This is in addition to the project fee.
Other conditions	The project will be effective from the date of receipt of the project fee. Trave to site, soil test data to be provided by the client. Further, unless otherwise specified, IISc will not be responsible for any legal disputes that may arise out of this project.

Thanking you,

Yours sincerely,

अध्यक्ष / Chairman
सी.एस.आई.सी., आई.आई.एस.सी.
CSIC., IISc.,

Shiva Prasad.. P

40

Centre for Scientific & Industrial Consultancy
Indian Institute of Science, Bangalore-560 012
Tel: 2293 2446/2516 Fax: 2331 4845
EMAIL: chairman@csic.iisc.ernet.in

Receipt

CP 6800/0505/12

Date: 25th June 2012

M/s. Mother Earth Environ Tech Pvt Ltd
#3, 5th C Main Road, Opp. Tata Motors
K R Road, Tata Silk Farm
Bangalore - 560 070

Received with thanks Rs.2,75,282/- (Rupees two lakh seventy five thousand two hundred eighty two only) through the Ch/DD No.569249 dated 21st June 2012 towards the consultancy project fee.

CHAIRMAN

Department of Civil Engineering
Indian Institute of Science
Bangalore - 560 012, INDIA

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Web : http://civil.iisc.ernet.in/~siva

Dr. P. V. Sivapullaiah
Professor

3rd December 2013

M/s. Mother earth Environ Tech Private Ltd
No. 3, 5th C Main Road,
Opp: Tata Motors,
K R Road, Tata Silk Farm,
Bangalore -70

Dear Sir,

Ref : CP/6800/0505/12

We have been engaged with you for providing necessary technical guidance and monitoring implementation of your hazardous landfill facility at Harohally KIADB area. We have also prepared the Technical Project report in this regard and Civil Works estimate.

As agreed we will monitor and coordinate the implementation of the project. On successful implementation and testing, we will continue to engage with you as technical consultants for monitoring during the operational stage as well. Towards this end we are open to enter into an agreement with your company after the implementation of the project.

Thanking you

Yours faithfully

P V Sivapullaiah

(P V Sivapullaiah)

	Providing and fixing MS gate of approved design using necessary MS sections cut to length, welded to form the required shape, corners grinded, applying two coats of synthetic enamel painting over a coat of primer, etc., complete as per specification and direction.	SqM	50	4,500=00	2,25,000=00
	Providing and constructing Security Shed of approved design with necessary foundation, super structure and RCC roof as per specification and direction.	SqM	25	20,000=00	5,00,000=00
	Providing and constructing Testing Laboratory – framed structure with solid block masonry and RCC roof as per detailed drawings, specifications and directions.	SqM	300	20,000=00	60,00,000=00
	Providing and constructing Office room – framed structure with solid block masonry and RCC roof as per detailed drawings, specifications and directions.	SqM	300	20,000=00	60,00,000=00
	<u>Construction of sheds and platforms:</u>				
	Shed 1 – for collection of waste for sending to landfill directly without treatment	SqM	35	15,000=00	5,25,000=00
	Shed 2 – for collection of waste for sending to landfill after treatment	SqM	24.5	15,000=00	3,67,500=00
	Shed 3 – for collection of materials after stabilization	SqM	24.5	15,000=00	3,67,500=00
	Shed 4 – Store for stabilizing/processing materials (Ash, Cement, Lime, Slag, etc.	SqM	21	15,000=00	3,15,000=00
	Shed 5 – Platform for stabilization of waste (mixing)	SqM	420	15,000=00	63,00,000=00
	<u>Construction of Liquid/Leachate Underground Tank:</u>				
	Leachate Treatment System	CuM	1400	3,500=00	49,00,000=00
	Equalization Tank	CuM	6	3,500=00	21,000=00
	Neutralization Tank	CuM	7.2	3,500=00	25,200=00
	Settling Tank	CuM	4.5	3,500=00	15,750=00
	Filter Press	L/S			8,00,000=00
15.	Miscellaneous and unforeseen items of work & rounding off	L/S			7,05,550=00
	TOTAL				**6,75,00,000**

(Rupees Six Crore Seventy five Lakhs only).

P. V. Sivapullaiah,

Dr. P. V. Sivapullaiah
Professor
Department of Civil Engineering
Indian Institute of Science
Bangalore 560012, INDIA

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State Level Environment Impact Assessment Authority-Karnataka

(Constituted by MoEF, Government of India, under section 3(3) of E(P) Act, 1986)

No. SEIAA 1 IND 2015 Date: 28-08-2015

To,

M/s Mother Earth Environ Tech Private Limited
#2542, 28th Cross, 17th Main Road,
Banashankari 2nd Stage
Bangalore-560 070

Sir,

Sub: Establishment of Hazardous Waste Landfill at Plot. No. 217 of Harohalli Industrial area, 2nd Phase, Kanakapura Taluk, Ramanagar District By M/s Mother Earth Environ Tech Private Limited – Issue of Environmental Clearance – Reg.

*****

This has reference to your application dated 29th December 2014 addressed to SEIAA, Karnataka and subsequent letters addressed to SEIAA/SEAC, Karnataka seeking prior environmental clearance for the above project under the EIA Notification, 2006. The proposal has been appraised as per prescribed procedure in the light of the provisions under the EIA Notification, 2006 on the basis of the mandatory documents enclosed with the application viz., the Application in Form 1, EIA Report and the additional clarifications furnished in response to the observations of the SEAC, Karnataka. SEAC has recommended for issue of Environmental Clearance in its meetings held on 13th & 14th July 2015.

2. It is, inter-alia, noted that M/s Mother Earth Environ Tech Private Limited have proposed for Hazardous Waste Landfill consists with Cell-1 of 50,000 Tons capacity and Cell-2 of 45,000 Tons capacity. The total plot area is 14,424.6Sqm. Total water consumption is 3 KLD will be met from KIADB supply, out of which 0.5 KLD for domestic purpose and 2 KLD for green belt. One number DG set of 100 KVA will be installed for emergency power back-up. The total cost of the project is Rs.16.55 Crores.

3. The wastewater generation will be 0.4 KLD domestic sewage shall be treated in Septic tank and Soak pit and 2KLD Leachate generated from landfill waste. The solid waste generated is inorganic and organic of quantity

Room No. 706, 7th Floor, 4th Gate, M.S. Building, Bangalore - 560 001 Phone : 080-22032497 Fax: 080-22254377
e-mail: mseiaakarnataka@gmail.com Website : http://seiaa.kar.nic.in

1.2Kg/day and 0.8 Kg/day respectively shall be composted and used as manure for landscape. The Hazardous waste such as used oil/lubricant oil of 50 Ltr/Annum and Used bags of 50 Bag/day shall be send to Authorized reprocesser.

4. The project proposal has been considered by SEAC during the meeting held on 9th, 10th and 11th February 2015 and ToR was issued on 3rd March 2015 for conducting Environment Impact Assessment (EIA) Study. The project is located within the notified industrial area and hence does not require public consultation. The EIA has been conducted and report submitted by M/s. Aqua Tech Enviro Engineers, No. 3391, 6th Main, 3rd Cross, RPC Layout, Vijayanagar 2nd Stage, Bangalore-560 040. The O. M dated 02.12.2009, 18.03.2010 and 28.06.2010 issued by the MoEF, GoI, regarding mandatory accreditation of environmental consultants from NABET/QCI is not applicable in this case in view of the stay granted by High Court of Karnataka in W. P. No. 15575/2012 (GM-RES): (Sri. K R Sreeharsha S/o Late K V Ramaswamy, R/AT No. 5/76, IV main N R Colony, Bangalore-560 009 V/s M/s. Union of India represented by MoEF, GoI & DFEE, GoK) on 18.05.2012. The proponent has submitted the EIA report on 19th June 2015.

5. Based on the information submitted by you and your consultant M/s. M/s. Aqua Tech Enviro Engineers, No. 3391, 6th Main, 3rd Cross, RPC Layout, Vijayanagar 2nd Stage, Bangalore-560 040. The State Level Expert Appraisal Committee (SEAC) examined the proposal in the meeting held on 13th and 14th July 2015 and has recommended for issue of Environmental Clearance.

6. The SEIAA Karnataka has considered the project in its meeting held on 25th July 2015 and after due consideration of the relevant documents submitted by the project proponent and additional clarifications furnished in response to its observations and the appraisal and recommendation of the SEAC, have accorded environmental clearance as per the provisions of Environmental Impact Assessment Notification-2006 and its subsequent amendments, subject to strict compliance of the following terms and conditions:-

Part A- SPECIFIC CONDITIONS

1. 'Consent to Establish' shall be obtained from State Pollution Control Board under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.
2. Transportation and handling of Hazardous Wastes shall be as per the Hazardous Wastes (Management, Handling and Trans-boundary Movement)) Rules, 2008 including the section 129 to 137 of Central Motor Vehicle Rules, 1989.
3. Necessary provision shall be made for firefighting facilities within the complex.
4. The Project Proponent should carryout periodical air quality monitoring in and around the site including VOC, HC.
5. The Project Proponent should develop green belt all along the periphery.

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY * KARNATAKA *

of the TSDF with plant species that are significant and used for the pollution abatement.

6. The proponent should ensure that the project fulfills all the provisions of Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 including collection and transportation.
7. The gas generated from the Landfill facility shall be collected and disposed as per rules
8. The Leachate from the facility shall be collected and treated to meet the prescribed standards before disposal.
9. The proponent should obtained necessary clearance from the Ground Water Authority.
10. The depth of the land fill should be decided based on the ground water level at the site.
11. Project proponent should prepare and implement an On Site Emergency Management Plan.
12. Project proponent should carryout periodical ground water/ monitoring soil in and around the site to check the contamination.
13. Project proponent should carryout periodical ground water/ soil monitoring in and around the site to check the contamination including TCLP test for heavy metals.
14. Green belt of 15 meters shall be provided all along the periphery of the site, as committed. The green belt area shall not be used for any other purpose.
15. All measures for air pollution control shall be adopted.
16. Rain water runoff from the landfill area and other hazardous waste management area shall be collected and diverted to the leachate treatment plant.
17. There shall not be any spillage from the transportation vehicles.
18. Zero discharge system shall be adopted.
19. Double containment system shall be provided for all waste transport vehicles to avoid spillage. The spillage shall be cleared immediately.
20. Vehicles should prominently display complaint numbers for use of public as well as antidotes to any toxic waste.
21. All the recommendations of EMP/DMP shall be strictly complied.
22. The project proponent will set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.
23. Untreated domestic effluent should not be discharged into open drain. Till the sewerage system in the Industrial Estate, which is presently being laid, is completed, the domestic effluent should be treated in a well designed septik tank with soak pit, as committed. As soon as the sewerage system is made operational the domestic effluent from the project should be discharged only into the sewerage system for treatment in terminal STP.
24. Final disposal measures - the hazardous wastes should prevent contamination of ground water, surface water and ambient air quality.

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY * KARNATAKA *

25. Facility for land filling should be designed with protective measures against pollution of ground water, surface water and air fugitive dust, wind-blown litter, bad odour, fire hazard, bird menace, pests or rodents, greenhouse gas emissions, slope instability and erosion.
26. Proper mechanism should be adopted for extraction of leachate and treatment of the same as committed.
27. The facility capacity shall handle only to the maximum designated capacity.
28. Stray animals shall not be allowed to move around the facilities.
29. Manual handling of waste shall be prohibited. If unavoidable due to constraints, manual handling shall be carried out under proper precaution with due care for safety of workers.
30. Vehicles used for transportation of wastes shall be covered. Waste should not be visible to public, nor exposed to open environment preventing their scattering.
31. Transportation vehicles shall be so designed that multiple handling of wastes, prior to final disposal, is avoided.
32. First aid and sanitation arrangements shall be made for the drivers and other contract workers.
33. Regular online monitoring of the ambient air quality and water quality shall be carried out in monitoring stations and frequency of monitoring shall be decided in consultation with the State Pollution Control Board. Periodic reports shall be submitted to the SEIAA Karnataka, Department of Ecology and Environment, Government of Karnataka, Bangalore/ KSPCB.
34. Green belt shall be developed in at least 33% of the total project area as committed with suitable species of the plants as per the CPCB guidelines. Planting aromatic and flowering climbers to cover the compound shall be undertake further 4 to 6 rows of bamboo mixed with aromatic trees. Grafted 'Kenda Sampige 'shall get priority.
35. The result of online monitoring shall be displayed in the project site in such a way that it is predominantly visible to the general public.
36. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
37. The project Authority shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
38. Vehicles used for transportation of the municipal solid waste shall be properly cleaned and sanitized after every load is unloaded at the site. No un-cleaned vehicle shall be allowed to ply on the roads of the city.
39. The project Authority shall establish odour control system comprising of Air ventilation system and odour removal system. Bio filters shall also be provided for odour control over area such as waste reception pit, pre-sorting area, windrow composting pads and curing sheds and screening & packing.
40. All the required mitigation measures shall be employed to avoid hazards arising out of land fill site.

41. The project authority shall not handle the Hazardous waste other than those listed in the project proposal.
42. The project Authority shall take extra care while handling the hazardous waste containing heavy metal such as Lead, Mercury, Arsenic, Cadmium, Zinc, Cobalt etc., if Any to avoid the accidental entry into the Eco-system and to contain safely in the cells appropriately if such heavy metal cannot be recovered.

B. GENERAL CONDITIONS;

1. The project proponent should set up necessary facility for onsite testing of wastes to decide the requirement of treatment if any, before disposal.
2. The implementation of the project vis-à-vis environmental action plans shall be monitored by MoEF Regional Office at Bangalore / KSPCB/ CPCB/ and the Department of Environment & Ecology, Government of Karnataka, Bangalore. A six monthly compliance status report shall be submitted to monitoring agencies.
3. The project authorities shall strictly adhere to the stipulations made by the Karnataka State Pollution Control Board.
4. No further expansion or modifications in the plant shall be carried out without prior approval of the SEIAA/Ministry of Environment and Forests as the case may be. In case of deviations or alterations in the project proposal from those submitted to this Authority for clearance, a fresh reference shall be made to the Authority to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
5. The project proponent shall also comply with all the environmental protection measures and safeguards as per the information provided.
6. In case of any deviation or alteration in the project proposed from that submitted to SEIAA, Karnataka for clearance, a fresh reference shall be made to the SEIAA, Karnataka to assess the adequacy of the condition (S) imposed and to incorporate additional environmental protection measures required, if any.
7. A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parisad/Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.
8. The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the KSPCB. The criteria pollutant levels namely; SPM, RSPM, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.
10. A separate environment management cell with qualified staff shall be set up for implementation of stipulated environmental safeguards.

11. Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These cost shall be included as part of project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure shall be reported to the Ministry.
12. The environmental clearance accorded shall be valid for a period of 5 years to start of the project.
13. The project authorities shall inform the MoEF Regional Office at Bangalore / KSPCB/ CPCB/ and the Department of Environment & Ecology, Government of Karnataka, Bangalore, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.
14. The SEIAA, Karnataka reserves the right to stipulate additional conditions, if found necessary.
15. The above conditions will be enforced, inter-alia under the provisions of the Hazardous Wastes (Management, Handling and Trans-boundary Movement) Rules, 2008 along with their amendments and rules.
16. Officials from the Department of Environment and Ecology, Government of Karnataka, Bangalore/ Regional Office of MoEF, Bangalore, KSPCB who would be monitoring the implementation of Environmental safeguards should be given full cooperation, facilities and documents/ data by the project proponents during their inspection. A complete set of all the documents submitted to SEIAA should be forwarded to the CCF, Regional Office of MoEF, Bangalore/ Department of Environment and Ecology, Government of Karnataka, Bangalore and KSPCB.
17. The Authority reserves the right to add additional safeguard measures subsequently, if found necessary, and to take action including revoking of the environment clearance under the provisions of the Environment (Protection) Act, 1986, to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner.
18. The project proponent should advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded environmental Clearance and copies of clearance letters are available with the Karnataka State Pollution Control board and may also be seen on the website of the Ecology and Environment Department at http://seiaa.kar.nic.in or http://seiaa.karnataka.gov.in The advertisement should be made within 7 days from the day of issue of the clearance letter and a copy of the same should be forwarded to the Regional Office of MOEF at Bangalore/ Department of Ecology and Environment, Government of Karnataka, Bangalore.
19. These stipulations would be enforced among others under the provisions of water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification, 2006.

20. The SEIAA, Karnataka may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

Yours faithfully,

28/8/15

(RAMACHANDRA)
Member Secretary,
SEIAA - Karnataka.

Copy to:

1) The Secretary, Ministry of Environment & Forests, Government of India, Paryavaran Bhavan, CGO Complex, Lodi Road, New Delhi-110003.
2) The Member Secretary, Karnataka State Pollution Control Board, Bangalore.
3) The APCCF, Regional Office, Ministry of Environment & Forests (SZ), Kendriya Sadan, IV Floor, E & F wings, 17th Main Road, Koramangala II Block, Bangalore – 560 034.
4) Guard File.

(6)

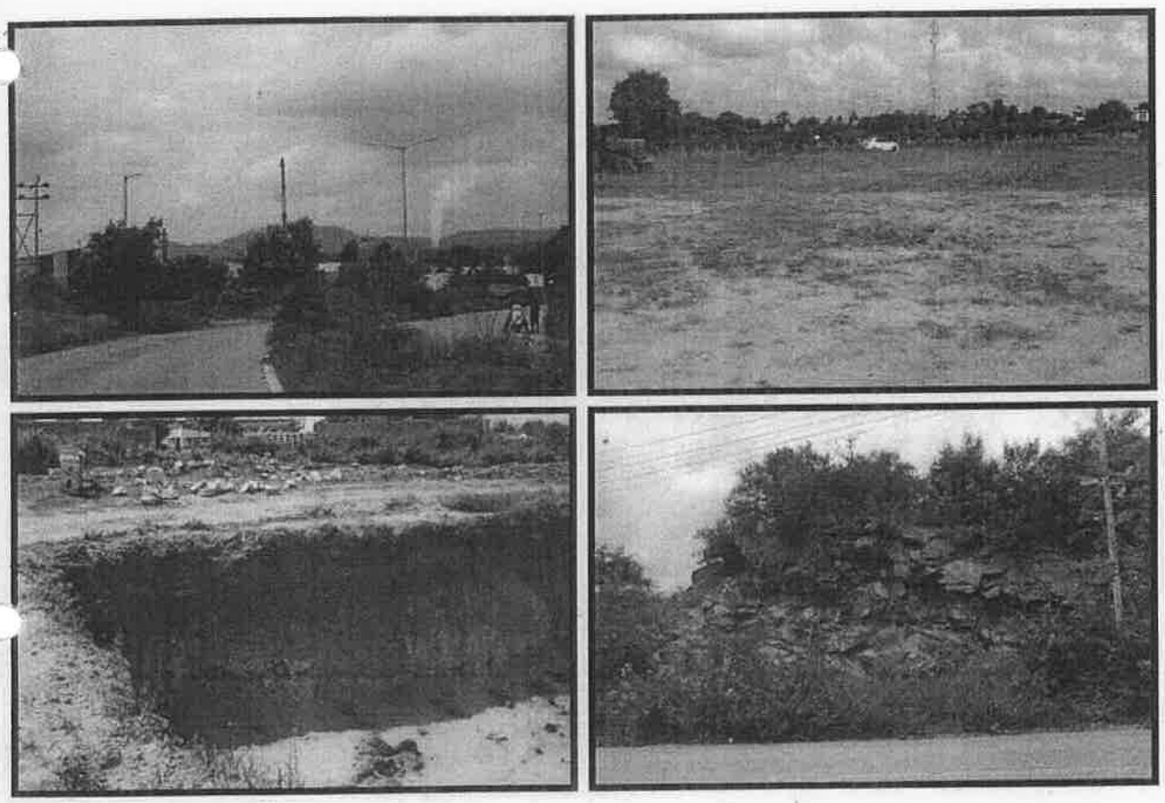
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October-2015

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MOTHER EARTH ENVIRON TECH PVT LTD.

Hydrogeological Investigations To Determine The Ground Water Flow And Ground Water Table At Industrial Site, Ganaludaddi Harohalli Micro Water Shed



Prepared By

Shri : S.S. CHANDRASHEKHAR MATH

M.Sc. LLB., PGDIIT(Mumbai).
F.G.S.MMEA.Hon.D.L. (IBC Cambridge).
Former Chief Geophysicist,
D.M.G. Government of Karnataka.

ACKNOWLEDGEMENT

We are thankful to **Mr. T.N. PARAMESH** – Director of **M/s. Mother Earth Environ Tech Private Limited** Company for having given the opportunity to take up Hydrogeological investigations in their site at KIADB Industrial area, Harohalli, Ramanagaram District.

We are also thankful to Mr. Rajender – Project Manager for their co-ordination and providing lot of inputs to complete the Hydrogeological investigations.

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EXECUTIVE SUMMARY

An integrated Hydro geological investigations were carried out at the land fill site in KIADB Industrial area located in the limits of Ganaludoddi Village of M/s. Mother Earth Environment Tech Pvt. Ltd during the month of September / October2015 and main focus of the investigations were to determine the Ground water flow and Ground water table for Ground water quality monitoring. In the absence of network of observation wells water table data and also that all the borewells surrounding the study area are in continuing use drawing Ground water, Topography, Geology, Drainage network, thermal gradient, hydraulic gradient and resistivity data are used to determine ground water flow and Ground water table.

The relevant investigations carried out are presented in the text of the report along with photos, graphs and maps.

The recharging zones to ground water body are the upper limits of the Harohalli microwater shed including several lakes which also act as recharge zones and ground water

discharge zone is at the Suvarnamukhi river where in the main stream of the microwater shed joins the river. Ground water flow is from South-Southeast to West –North west.Ground water table under Non pumping condition is between 70 to 80 feet and real Ground water Table (PWL) is beyond 200 below the ground level.

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INTRODUCTION

Mother Earth environ Tech company has taken up the land fill project for filling hazardous solid waste generated from the industries on the most scientific basis and is coming up on an approximate four acres plot of land at plot No. 217, KIADB, Phase 2, 2nd stage, Industrial Estate, Harohalli Village, Kanakapura Taluk, Ramanagaram district within the notified KIADB Industrial Estate.

The company has obtained all the statutory approvals from the authorities to start the land fill project for solid hazardous waste.

Now the company wants to construct piezometers (Monitoring borewells) around the land fill site for Ground water quality monitoring and wants to ascertain the Ground water flow and water table and also wants to establish a thorough Ground water quality monitoring system.

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In order to ascertain the Ground flow and Ground water table (Static water level), integrated Hydrogeological investigations were carried out in the catchment area covering the land fill site.

In order to determine these two Hydro geological parameters, Topography, Geology, drainage basin, Groundwater recharge area to Ground water discharge area and resistivity investigations were are worked and utilised and inferences are drawn. The findings are presented in the text of the report.

CHAPTER:1

GROUND WATER FLOW

The land fill site is covered by hard rocks viz Granitic gneisses and also introduced by Ultramafic (Black Rocks or Dykes)rocks at several places in the Harohalli Microwater shed of Suvarnmukhi river sub basin of Arkavati river basin (MAP Enclosed).

Ground water flow is controlled by fractures and joints present in these hard rocks. these rocks do not have a well defined fractures and joints. Therefore, the Ground Water flow is not uniform and Ground water flow in these hard rocks is multi directional. Instead of regional ground water flow,a local ground water flow is attempted. In order to determine the Ground water flow a net work of observation wells are required to know the Ground water table and to draw the Ground water table contours and to determine the Ground water flow direction. But such data is not available.

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The other important factors like topography, Geology, drainage system, Ground water flow system (Ground water recharge and discharge areas)and resistivity data are made use in ascertaining the Ground water flow direction.

Ground water flow pattern is a function of topography, Geology and Drainage system.

The land fill site is covered in the Harohalli micro water shed of Suvarnmukhi river basin. The microwater shed is located on underlating topography. The highest elevation is at 873 meters above MSL (Chulakanbetta), lowest of 660 m above MSL at Honnalagaudandoddi where in the main stream joins Suvarnmukhi river. The land fill site of Mother Earth Environ Tech has 683 m highest elevation and 677 is at the lowest level.

The hydraulic gradient is similar to the topographic gradient which is almost SE to NW direction. Ground water table is also a function of the topography (Except in certain conditions).

Geological set up has played significant role in the micro watershed in controlling the Ground water flow in the land fill site. The land fill site is surrounded by ultramafic rocks at Bannikuppe, Hulisiddegoundandoddi and on the way to Hulagaudanahalli (Phase I) and Gneissic rocks at Chulakan betta and at other places. The ultra mafic rocks surrounding the micro watershed have controlled the Ground Water flow movement both laterally and as well vertical and confining the water within the micro water shed.

Two ground water divides surrounding the Harohali microwater shed (Map enclosed) one is to the south of the Harohalli micro water shed and other is towards the north. Thus the Ground water flowing the Harohalli microwater shed is confined within the micro water and follows the topographical gradient (Hydraulic gradient).

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Several streamlets of the main stream have given rise to dendrite Drainage pattern. The recharge zones that contribute the ground water are at higher elevation and discharge zone where in the Ground water flows and at the main stream joining the Suvarnamukhi river is at the lowest. There are two big tanks (lakes) and five to six small tanks (lakes) that also act as recharge areas in recharge the ground water body in the micro water shed are at the higher side. Recharge is from south - Southeast and discharge zone in towards west to NW.

Therefore these factors influence the Ground water flow direction which is from South -Southeast to generally West - North West.

The land fill site of Mother Earth Environ Tech located in the limits of Ganaludoddi, the Ground water flow direction is generally from South East to North West.

The main source for irrigation, drinking water and other domestic needs is the ground water. Therefore, there is huge withdrawal of ground water by pumping within the Harohalli microwater shed and also in the entire basin and this is likely to affect the direction of the Ground water flow.

But since the investigation is aimed for shallow aquifers, it may not matter.

The Arkavathi river basin map, Geology of the Harohalli microwater shed and its surrounding areas, Ground water divide maps, Ground water flow map and other maps are presented.

CHAPTER 2

GROUND WATER TABLE (STATIC WATER LEVEL)

The upper layer of this saturated layer of an unconfined (the weathered layer above the hard granitic gneissic rock) condition is called the water table or Phreatic surface. Below the water table, where in generally all pores spaces are saturated with water is phreatic zone.

Ground water table is usually a function of topography.

Around the study area or within the Harohalli micro water shed, bore wells are in continuous use with drawing the ground water. This has altered the natural ground water level and as such there is a decline in the ground water table.

Since the borewells are fitted with motor and are in continuous use Ground water table cannot be measured and also that there are no observation wells in the area.

Geophysical date namely resistivity data (Graph and Data presented) is made use of in determining the Ground water table which is between 70feet to 80feet in a non pumping condition. **But however since the borewells are in continuous use creating a cone of depression around the borewell and real Ground water table (pumping, water level) is beyond 200feet from the Ground level. Therefore Ground water level will be beyond 200feet during pumping stage (withdrawal of Ground water from the Ground water storage).**

CONCLUSION AND SUGGESTIONS :

Ground water flow in the Harohalli Microwater shed and more particularly which is a local ground water flow is a function of topography, Geology and drainage pattern. The ground water flow as determined from these hydrogeological parameters is West to NW direction. Generally it is in the North West direction. But however Ground water flow is altered by pumping. Since all the borewells are in continuous use a true ground water table cannot be measured. Therefore, ground water level (pumping water level) during pumping conditions is beyond 200 feet at given time. **In the NON PUMPING conditions, the Ground water level is beyond 70 feet. The resistivity data is used in determining the Ground water level. Ground water level also varies depending upon the seasons and withdrawal of ground water.**

The recharge zones are from the upper reaches of the Harohalli microwater shed and as well the lakes in the micro water shed. The discharge area is at the lower level

where in the main stream joins Suvarnamukhi river near Hulagaundanaddi.

The temperature is higher in the upper boundary of the micro water shed at KalleBhimsandra & Devasandra Sanjvanaddi & Narasimha gowdara doddi & temperature is lower at Ganaludoddi Factory area and H. Doddi.

The topographical gradient, hydraulic gradient and thermal gradient are in West -North West Direction and generally Northwest direction is the ground water flow direction within the factory area.

Monitoring borewells (Piezometers) may be constructed at South East Direction and North West Direction around the landfill site (Map enclosed). It is suggested not to dig the land fill site area more than 60 feet from Ground level.

Periodical ground water quality monitoring may be taken up within the landfill site area, Ganaludoddi drinking water borewell and a few bore wells around the land fill site.

TABLE – 1

Temperature of Ground water from borewells in Harohalli microwater shed.

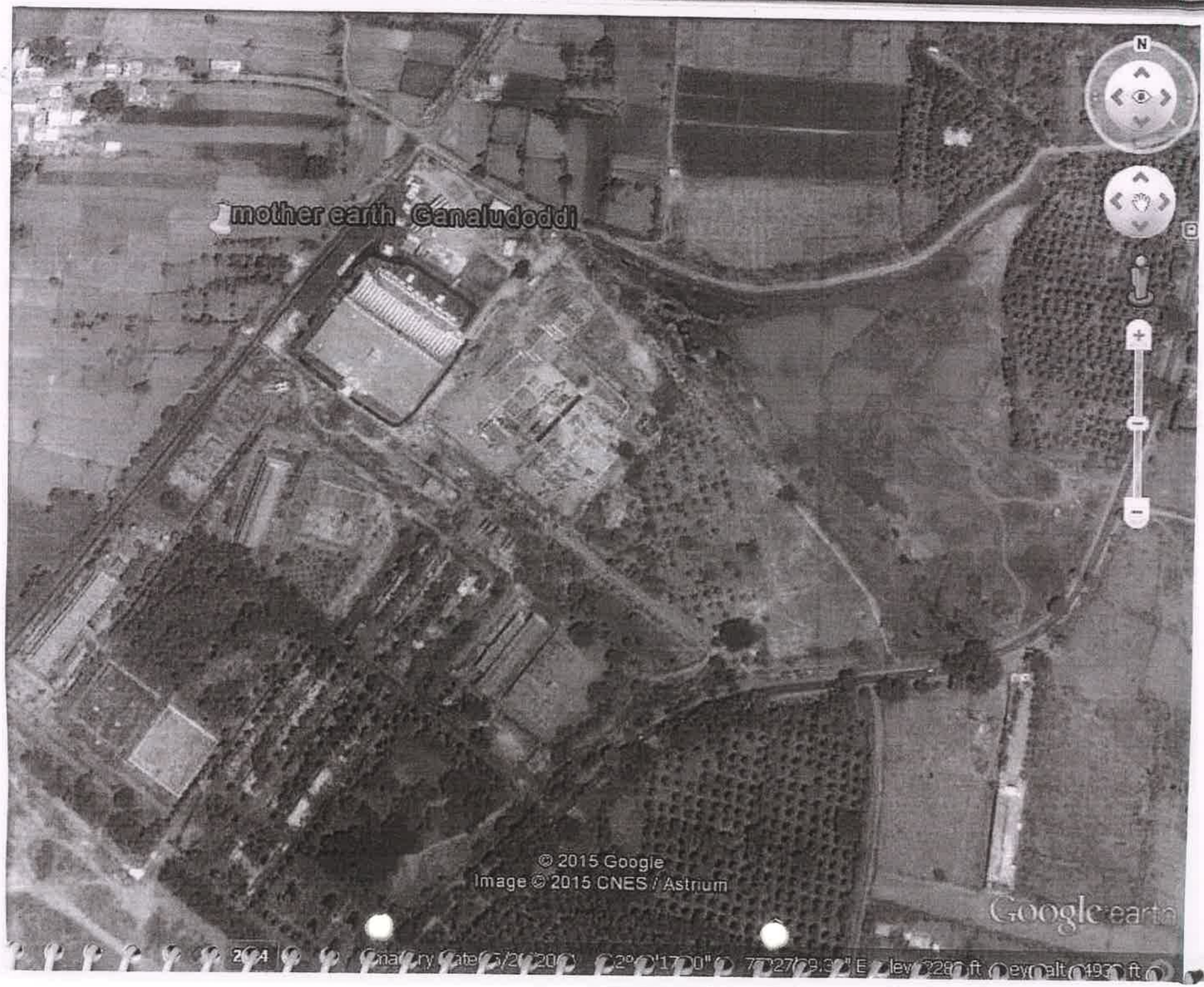
S.N	Location	Co-ordinates	Elevation (m)	Temperature 0c
1.	KalleBhimasandra (Hattinakere) Drinking water borewell	12° 40.453' N 77°29.472' E	740	29
2.	Thammasandra (Brick factory) borewell	12°40.658' N 77°27.003' E	702	28
3.	Sanjivanadoddi and Narashimayanadoddi	12°39-.831' N 77°27.640' E	712	
4.	MotherEarth Ganaludoddi	12°40.659' N 77°26.960' E	680	26
5.	Giranahalli	12°40.643' N 77°27.408' E	700	27
6.	Hulagondanahalli	12°41.096' N 77°26.782' E	665	27



M/s Mother Earth Environment Tech Pvt Ltd
The Site At A Glance



M/s Mother Earth Environment Tech Pvt Ltd
The Site At A Glance


mother earth Ganaludoddi
© 2015 Google
Image © 2015 CNES / Astrium
Google earth



Soil Zone And The Weathered Rock At The Landfill Site

#72



Harohalli Industrial Area At Glance

73



LAKE AT GIRANAHALLI

Kavati River

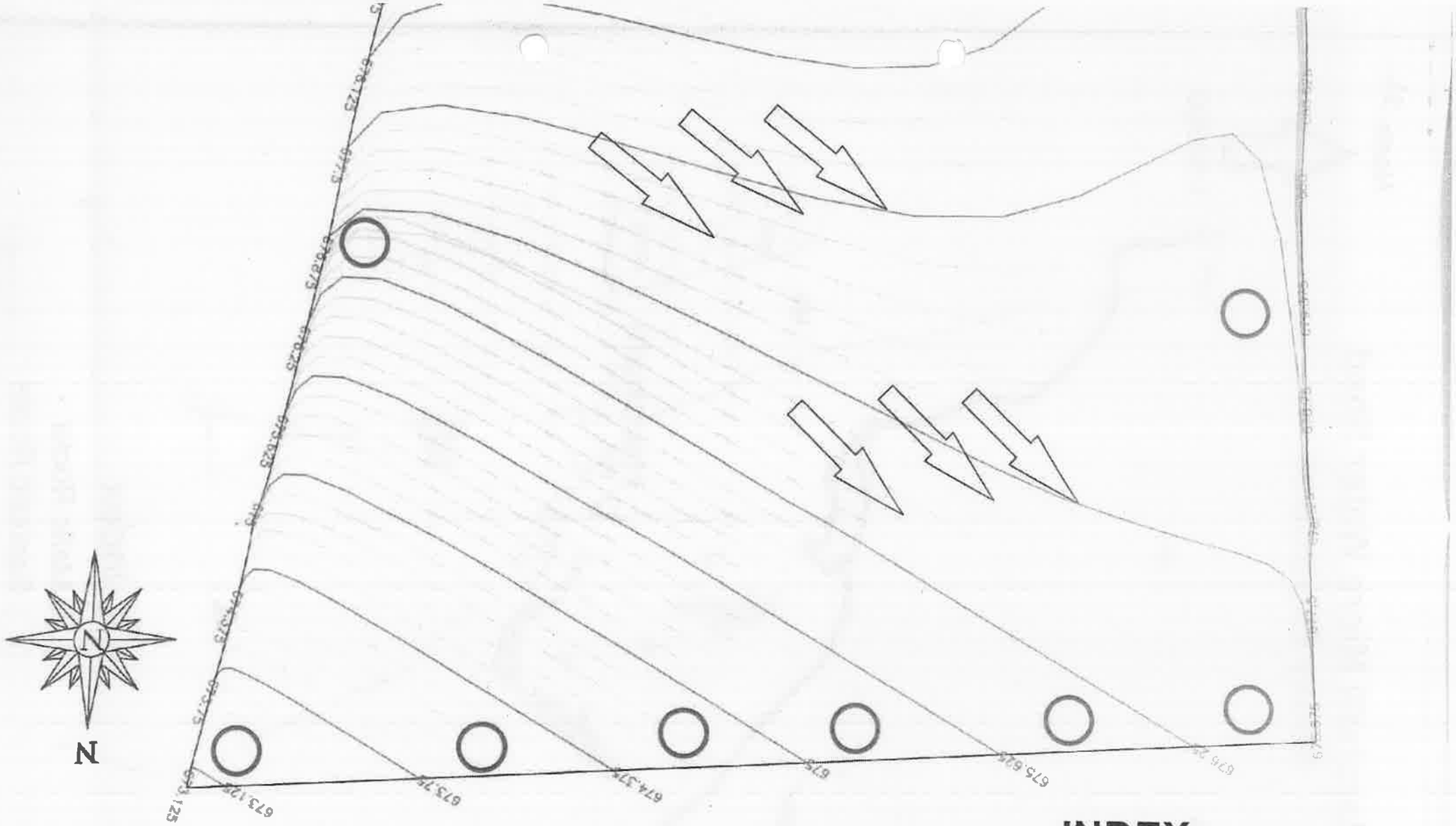
20

Harohalli Micro Water Shed

North

1:50000



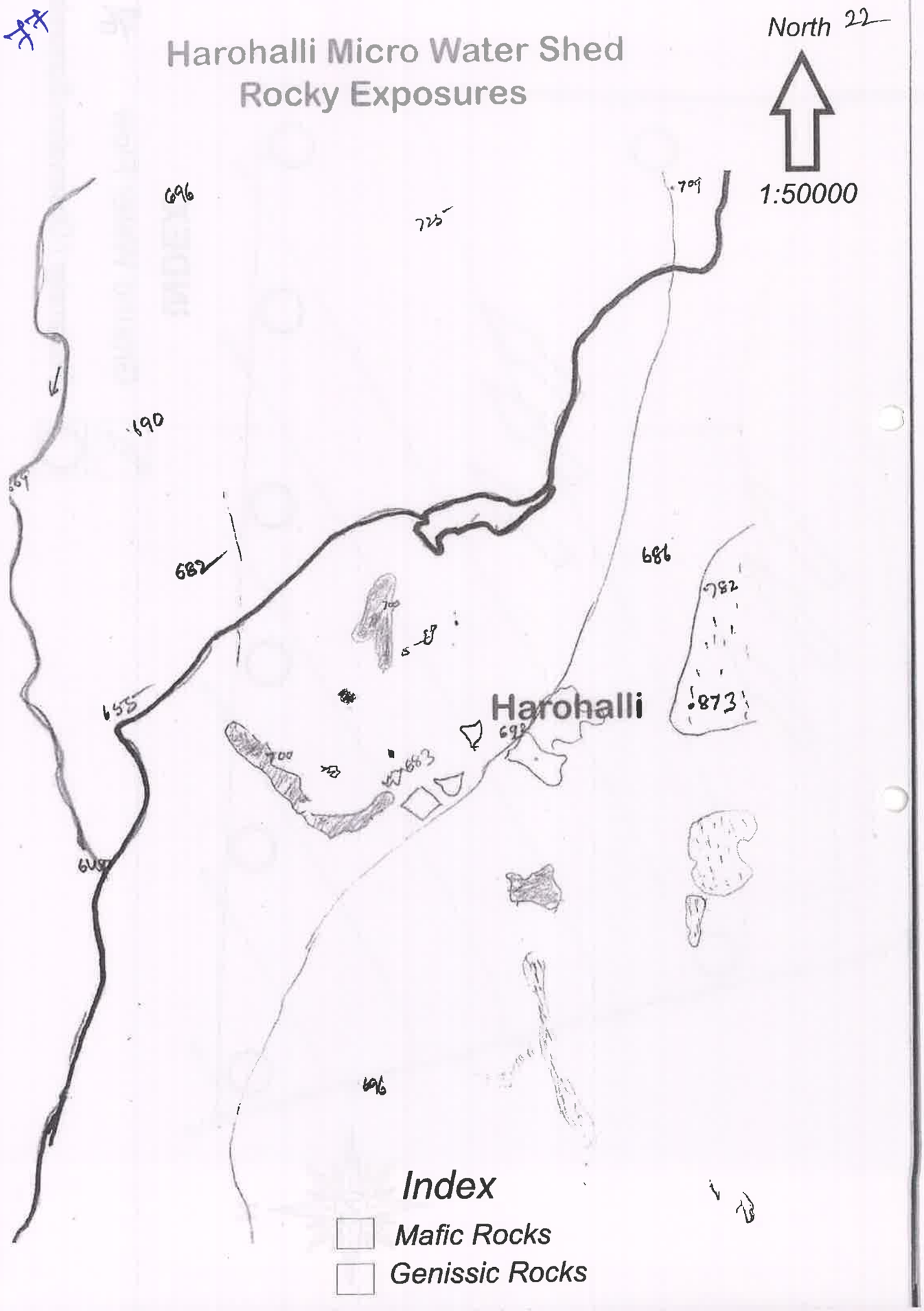


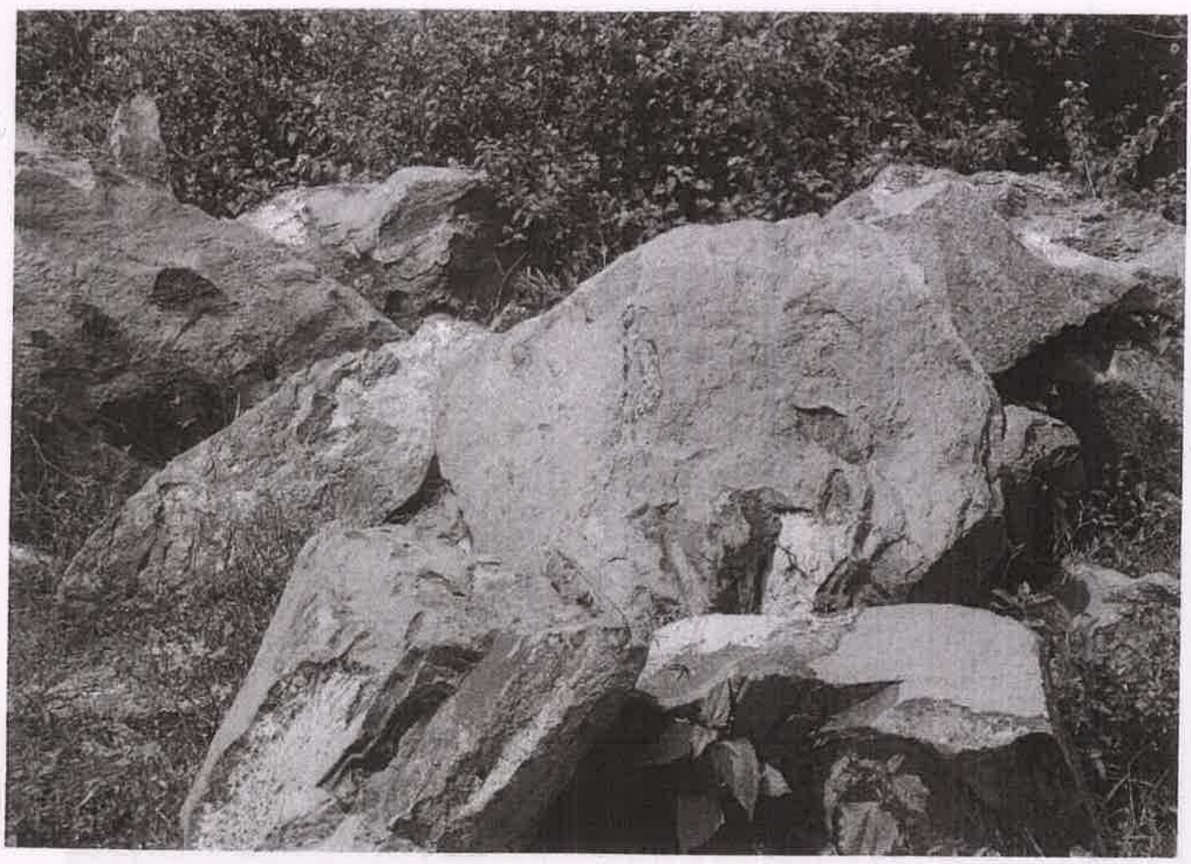
INDEX

Ground Water Flow

Piezometer / Observation Borewells

Harohalli Micro Water Shed
Rocky Exposures

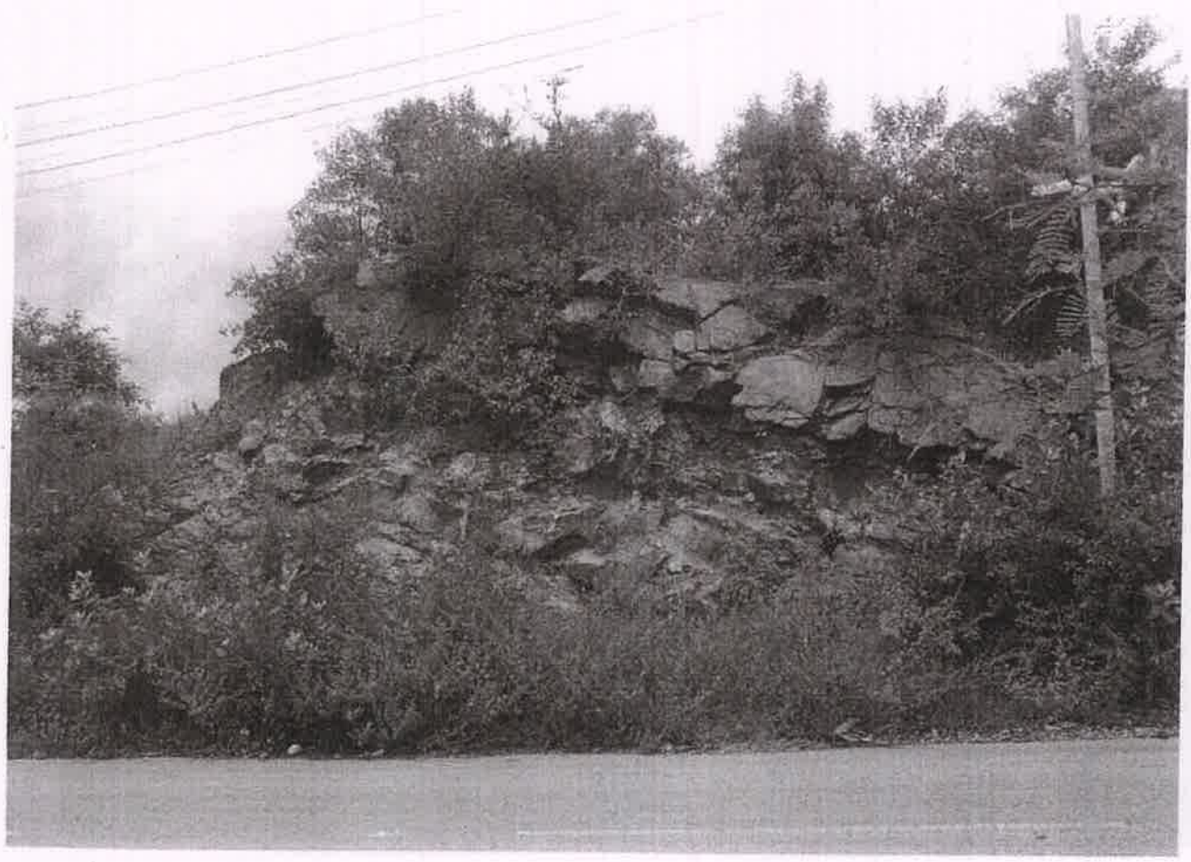




Mafic Rocks Exposed At Bannikuppe



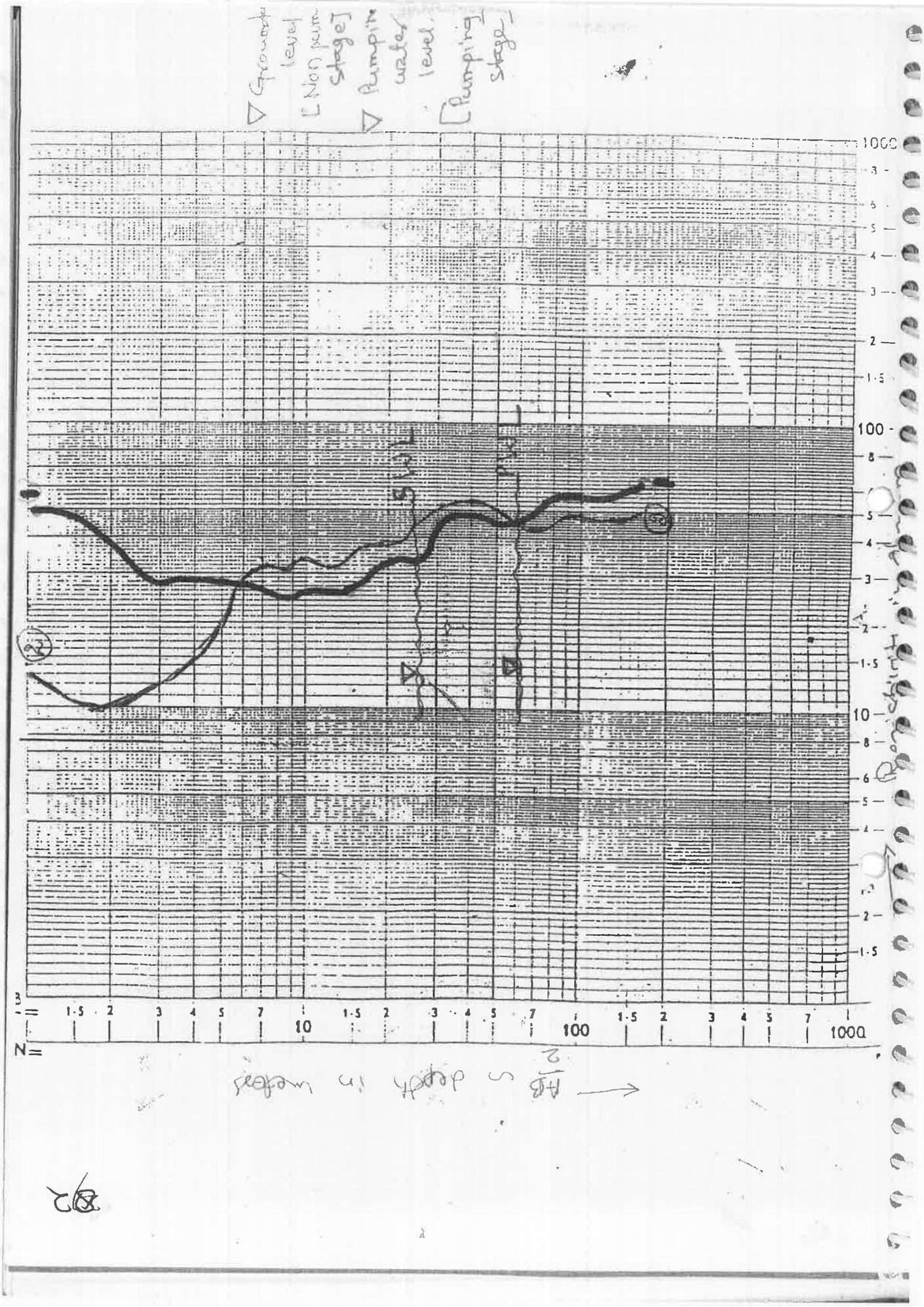
Ultra Mafic Rocks Way To Hulagaudanahalli Phase-1



Ultra Mafic Rocks At Siddapur Phase -1

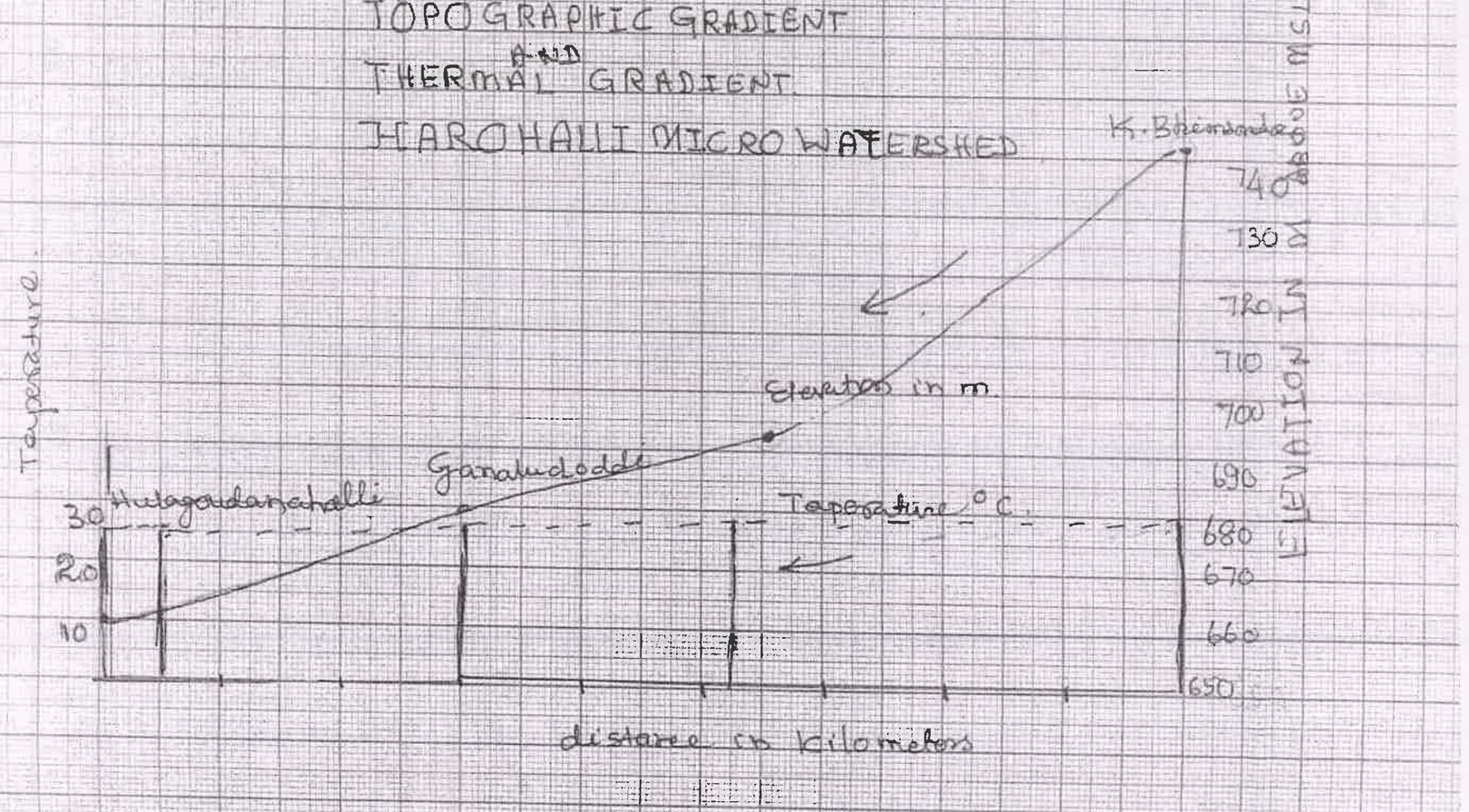


Mafic Rocks Exposed At Hulisiddegoudanadoddi

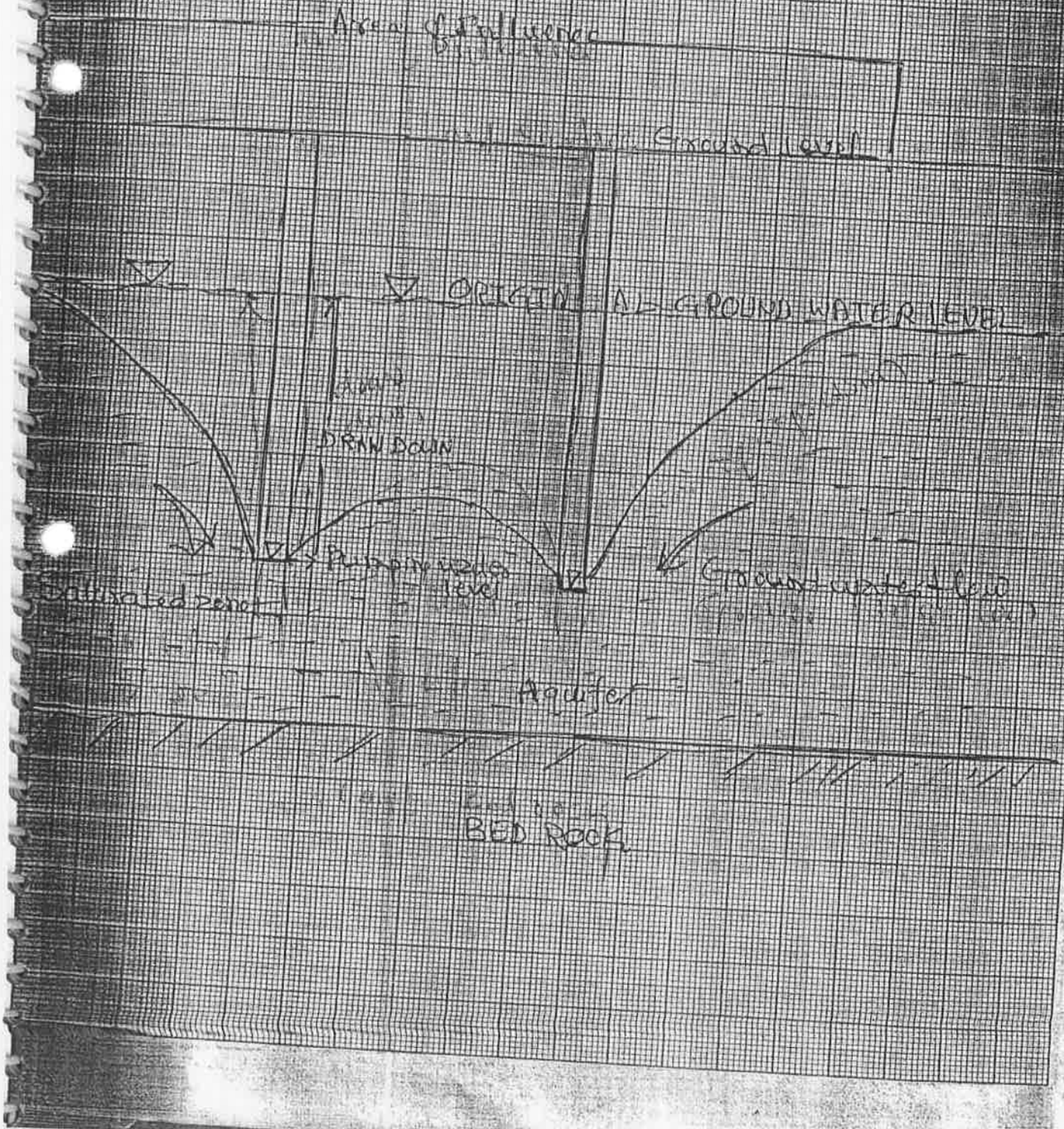

Ground level (Non pump stage)
Pumping water level
(Pumping stage)
1000
100
10
1·5
2
3
4
5
7
1·5
2
3
4
5
7
10
1·5
2
3
4
5
7
100
1·5
2
3
4
5
7
1000

TOPOGRAPHIC GRADIENT AND THERMAL GRADIENT

HAROHALLI MICRO WATERSHED



CONE OF DEPRESSION AROUND PUMPING WELLS



(1)

A-5

85

ಫ್ಯಾಕ್ಸ್ / Fax : 080-25586321
ಈ-ಮೇಲ್ / E-mail : ho@kspcb.gov.in
ವೆಬ್‌ಸೈಟ್ / Website : http://kspcb.gov.in

☎ 25581383, 25589112
25588151, 25588270
25588142, 25586520

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
Karnataka State Pollution Control Board

"ಪರಿಸರಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ.49, ಚರ್ಚ್‌ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ, ಭಾರತ

"Parisara Bhavana", 1st to 5th Floor, # 49, Church Street, Bengaluru - 560 001, Karnataka, INDIA

No. KSPCB/SEO (WMC)/CFE/2015-16/ 1471

Date: - 4 NOV. 2015

To,
The Managing Director,
M/s. Mother Earth Environ Tech Pvt. Ltd.,
No.2542,28th Cross, 17th Main Road,
Banashankari 2nd Stage,
Bengaluru - 560070

DESPATCHED

Sir,

Sub: Establishment of Hazardous Waste landfill facility at Plot No.217, KIADB Industrial Area, 2nd Phase, Kanakapura Taluk, Ramanagara District by M/s. Mother Earth Environ Tech Pvt. Ltd. of capacity 95000 Tons/ten years – reg.

Ref:
1. Your CFE application resubmitted vide **HD.Reg.No. 100322** dt: 06/10/2015 at Regional Office, KSPCB, Ramanagara.
2. Inspection of the industry by RO, KSPCB, Ramanagara on 25/02/2015 and report dated 31/03/2015.
3. **Proceedings of the CCM held on 13/05/2015.**
4. **Board Letter No: KSPCB/SEO-WMC/Mother Earth/2015-16/308 dt: 12/06/2015.**
5. **SEIAA-Karnataka Environmental Clearance letter No: SEIAA 1 IND 2015 dt: 28/08/2015**
6. **Regional Office, KSPCB, Ramanagar letter No:1114 dt: 06/10/2015.**

ಜಂಜಂಜಂಜಂ

With reference to the above, it is to be informed that, **the** Board hereby accords consent for establishment under the Water (Prevention & Control of Pollution) Act 1974, and the Air (Prevention & Control of Pollution) Act 1981, for Establishment of Hazardous Waste landfill facility at Plot No.217, KIADB Industrial Area, 2nd Phase, Kanakapura Taluk, Ramanagara District by M/s. Mother Earth Environ Tech Pvt. Ltd. of total capacity 95000 Tons/ten years (consisting of 2 cells with capacity 50,000 Tons and 45000 Tons), subject to the following conditions;

1. This consent for establishment is valid for a period of five years from the date of issue.
2. The applicant shall not undertake expansion/diversification without the prior consent of the Board.

SENIOR ENVIRONMENTAL OFFICER

3. The applicant shall obtain necessary license/clearance from other relevant statutory agencies before taking up construction.
4. There shall not be any complaints against the industry from the surrounding public in respect of water, air or Noise/solid waste generation.

I. WATER CONSUMPTION:

1. The source of water shall be from KIADB and total water consumption shall be 3 KLD out of which 0.5 KLD for domestic purpose and 2 KLD for green belt.

II. WATER POLLUTION CONTROL:

1. The domestic effluent of quantity not exceeding 0.4 KLD shall be treated in Septic tank and Soak pit. No overflow from the soak pit is allowed. The septic tank and soak pit shall be designed as per the IS 2470 Part-I & II. There shall not be any discharge of domestic effluent outside the factory premises.
2. The trade effluent as leachate of quantity not exceeding 2 KLD generated shall be collected in leachate pond and treated to the standards as indicated in **Annexure-I.**
3. The applicant shall discharge the effluent only to the place mentioned in the consent order.

B. SPECIFIC CONDITIONS:

1. The rain water coming in contact with the waste storage sheds, landfill area and all waste processing areas shall have to be segregated, collected and taken to effluent treatment plant (leachate pond) within the TSDF premises, treated and used inside the TSDF facility for any useful applications and shall not be discharged outside the premises.
2. There shall not be any storm water outlets anywhere in the surroundings of compound wall built around the TSDF premises. The total rain water coming from the catchment area of the TSDF facility shall be collected and stored inside the premises and used for TSDF construction/operation.
3. Effluent generated due to activities like tyre washing, truck washing and other similar activities shall be strictly segregated and treated and used only in TSDF application.
4. Any spillage happened in the TSDF premises and places during transportation shall be cleaned up immediately and precautions shall be taken to avoid public access to such places.
5. Only authorized persons shall operate the trucks meant for transportation of hazardous waste from generator to TSDF premises.
6. All types of emergency handling equipments inside the truck meant for transportation of hazardous waste and at TSDF facility shall be maintained properly and the people should be trained to use the safety apparatus.
7. The TSDF premises is meant for handling, processing, treatment and disposal of land disposable hazardous waste in to the landfill only. Hence no other facilities are permitted to be established within this TSDF premises without obtaining necessary clearance from the Government of Karnataka, KIADB and KSPCB as applicable. The unit shall establish strictly accords to CPCB TSDF guidelines.

A. Kamath
SENIOR ENVIRONMENTAL OFFICER

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8. The operator is permitted to collect from generators only landfill able hazardous waste. No other wastes like incinerable and recyclable wastes shall be collected by the operator from any generator/industry for any reason.
9. The landfill shall have to be designed and constructed as a secured facility to contain the waste material and any leachate generated during the process. To meet these requirements, the base, slope, liner system etc., of the landfill shall have to be designed and constructed as per the guidelines of MoEF/CPCB (**Guidelines for setting up of Operating Facility- Hazardous Waste Management, HAZWAMS/11/98-99 and Criteria for Hazardous Waste Landfills, HAZWAMS/17/2000-01**) and the conditions stipulated in the consent issued herewith.
10. The applicant shall earmark and provide separate area for storing the waste at TSDF. The hazardous waste should not be stored for more than two weeks at this temporary storage area.
11. Concentration limits/ criteria for acceptance of hazardous wastes for direct disposal to secured landfill is indicated in **Annexure-II.**
12. The applicant shall be responsible for;
    a. Accepting hazardous wastes at TSDF from the generators authorized by the Karnataka State Pollution Control Board only.
    b. Establishing a system for optimal movement of hazardous waste transportation.
    c. Fingerprint analysis to confirm the wastes (Free liquid content (paint filter liquid Test and Liquid Release Test), pH, Calorific value, Flash point, Reactive sulfide, Reactive cyanide, chemical compatibility, any other specific parameter considering the merit of the case).
    d. Undertake cleanup operation in case of contamination resulting from TSDF.
    e. Pollution and the odour arising out of TSDF operations and subsequent abatement.
    f. Compliance of regulations concerning occupational safety and health of TSDF employees.

C. AIR POLLUTION CONTROL:

1. The discharge of emissions from the premises of the applicant shall pass through the air pollution control equipment and discharged through stacks/chimneys mentioned in **Annexure-III** where from the Board shall be free to collect the samples at any time in accordance with the provisions of the Act and Rules made there under.
2. The industry shall upgrade/modify/replace the control equipments if they are found inadequate to meet the standards stipulated. Prior permission of the Board shall be obtained for the same.
3. If there is going to be any new air pollution sources in future, the project authorities shall apply and obtain consent for establishment for the same from the Board.

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4. There shall not be installation of any new air pollution sources within the factory premises.

D. NOISE POLLUTION CONTROL:

1. The industry shall ensure that the ambient noise levels within its premises shall not exceed the limits i.e. 75 dB(A) Leq during day time and 70 dB(A) Leq during night time as specified in the Environment (Protection) Rules.

E. SOLID WASTE (OTHER THAN HAZARDOUS WASTE) DISPOSAL:

1. The applicant shall segregate solid waste from Hazardous waste and store it properly till treatment/disposal without causing pollution to Environment.
2. The applicant shall strictly comply with the conditions stipulated in the authorization issued under Hazardous Wastes (Management, Handling & Transboundry Movement) Rules 2008.

F. HAZARDOUS WASTES (MANAGEMENT, HANDLING & TRANSBOUNDRY MOVEMENT) RULES 2008:

1. The industry shall apply and obtain authorization under Hazardous Wastes (Management, Handling & Transboundry Movement) Rules 2008, and comply with the conditions of the authorization. The applicant shall apply for authorization along with the consent for operation (CFO) application under the Rules in Form-I to obtain authorization and comply with conditions.
2. The applicant shall obtain Public Liability Insurance as per Public Liability Insurance Act, 1991.
3. The hazardous wastes need to be handled in an environmentally safe manner avoiding the possibilities of contaminating the nearby environment and eliminate the chances of accidents leading to environmental catastrophe. The requirements of handling, including labeling, packaging, transport and storage to be done as per the guidelines issued by the CPCB from time to time.
4. The applicant shall comply with the Guidelines prepared by CPCB in respect of "Guidelines for setting up of operating facility ; Hazardous Waste (Management, handling and Transboundary Movement) Rules, 2008 as amended upto 2010".
5. The applicant shall comply with the Guidelines prepared by CPCB in respect of "Guidelines for common Hazardous Waste Incineration".
6. The applicant shall comply with the Guidelines prepared by CPCB in respect of "Guidelines for proper functioning & up keep of disposal sites".
7. The applicant shall comply with the Guidelines prepared by CPCB in respect of "Guidelines for transportation of Hazardous Waste and other Guidelines issued from CPCB time to time".

G. MONITORING AND REPORTING:

1. The applicant shall maintain log books to reflect the working condition of pollution control systems and also self monitoring results and keep it open for inspection.

SENIOR ENVIRONMENTAL OFFICER

2. The applicant shall conduct ambient air quality monitoring at three points inside the TSDF premises in twice a week to cover.
3. The applicant shall conduct monitoring of all Borewell samples located inside the TSDF premises once a month and outside the TSDF premises once in three months and submit the report to the concerned Regional Office of the Board.
4. The applicant shall conduct soil samplings at two points inside the TSDF premises and one point outside the TSDF premises once in three months.
5. The parameters for the above said samplings are as per CPCB guidelines.

H. GENERAL:

1. The industry shall not commission the expanded activity for trial or regular production unless necessary water & air pollution control equipments are installed to the satisfaction of the Board. The industry shall ensure that the treatment plant and control equipments are completed and commissioned accordingly.
2. The industry shall not change or alter (a) the quality, quantity or rate of discharge/emissions and (b) install/replace/alter the water or air pollution control equipments without the prior approval of the Board.
3. The industry shall immediately report to the Board of any accident or unforeseen act or event resulting in release of discharge of effluents or emissions or solid wastes etc. in excess of the standards stipulated. And the industry shall immediately take appropriate corrective and preventive actions under intimation.
4. The industry is liable to reinstate or restore, damaged or destroyed elements of environment at his cost, failing which, the applicant/occupier as the case may be shall be liable to pay the entire cost of remediation or restoration in advance an amount equal to the cost estimated by Competent Agency or Committee.
5. The applicant shall comply with all the Rules and guidelines issued from time to time.
6. The applicant shall provide alternate power supply sufficient to operate all pollution control equipments utilized by the applicant to maintain compliance with the terms and conditions of this consent.
7. The applicant shall provide port holes for sampling the emissions. Access platforms for carrying out stack sampling electrical points and all other necessary arrangements including ladder.
8. The applicant shall furnish Environmental statement for every financial year ending with 31st of March in Form-V as per Environment (Protection) Rules, 1986. The statement shall be furnished before the end of September.
9. The applicant shall go for ISO 14000 and shall have Environmental Cell headed by qualified Environmental Engineer/scientist for the Management of Environmental aspects.
10. The applicant shall ensure that proper Environmental Management system is in place.
11. The applicant shall develop and maintain adequate green belt all around the periphery.

A. Ramesh

SENIOR ENVIRONMENTAL OFFICER

12. The applicant shall crate facility for rain water harvesting within the factory premises.
13. All the drums and machineries shall be placed within the shed and floor shall be impervious.
14. The Board reserves the right to review, impose additional condition or conditions, revoke, change or alter the terms and conditions.
15. This CFE does not give any right to the Party/Project Authority/Industry to forego any legal requirement that is necessary for setting/operation of the plant.
16. This consent is issued without prejudice to any Court Cases pending in any Hon'ble Court
17. The industry shall furnish pointwise compliance to the conditions given under this consent for establishment within 30 days.

Please note that this is only consent for establishment issued to you to proceed with the formalities for establishment of the industry and does not give any right to proceed with trial/regular production. For this purpose, separate consents of the Board for discharge of liquid effluent and the emissions to the air shall have to be obtained by remitting prescribed consent fee. The application for consent has to be made 45 days in advance of commissioning for trial production of the plant.

The receipt of this letter may please be acknowledged.

FOR AND ON BEHALF OF
KARNATAKA STATE POLLUTION CONTROL BOARD

Sd/-
SENIOR ENVIRONMENTAL OFFICER

Encl.: Annexure-I, II & III

Note:
1. *It is advised to regularly check the health of workers exposed to very high noise levels and suitable measures to avoid any ill effects shall be taken.*
2. *It is advised to take all safety measures to avoid any injury to its employees and local people as per the approved Onsite and Offsite Emergency Plan.*

COPY TO:
1. The Environmental Officer, KSPCB, Regional Office, Ramanagara, for information and necessary action.
2. Master copy (Dispatch).

SENIOR ENVIRONMENTAL OFFICER

Annexure-II

Concentration limits/ criteria for acceptance of hazardous wastes for direct disposal to secured landfill

Leachate Quality*	Concentration
pH	4-12
Total Phenols	< 100mg/L
Arsenic	< 1 mg/L
Lead	< 2mg/L
Cadmium	< 0.2 mg/L
Chromium-VI	< 0.5 mg/L
Copper	< 10 mg/L
Nickel	< 3 mg/L
Mercury	< 0.1 mg/L
Zinc	< 10 mg/L
Fluoride	< 50 mg/L
Ammonia	< 1,000 mg/L
Cyanide	< 2 mg/L
Nitrate	< 30 mg/L
Adsorbable organic bound Chlorine	< 3 mg/L
Water soluble compounds except salts	< 10%
Calorific value	< 2500 Kcal/Kg
Strength	
Transversal strength (Vane Testing)	> 25 KN/m²
Unconfined Compression Test	> 50 KN/m²
Axial Deformation	< 20%
Degree of Mineralization or Content of Organit Materials (Original Sample)	
Annealing loss of the dry residue at 550°C	< 20% by weight (for non-biodegradable waste) < 5% by weight (for bio-degradable waste)
Extractible Lipophilic contents (Oil & Grease)	< 4% by weight

*Leachate quality is based on Water Leach Test

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ANNEXURE-I

Leachate Disposal Standards

Sl.No.	Parameter	Standards for disposal on Inland surface (mg/L)
1	Adsorbable Organic Halogens (AOX)	0.50
2	Poly Aromatic Hydrocarbons (PAH)	0.059
3	Benzene	0.14
4	Toluene	0.08
5	Xylene (sum of o, m, p-xylene)	0.32
6	Suspended Solids	200
7	Dissolved solids (inorganic)	2100
8	pH	5.5-9.0
9	BOD (3 Days at 27 ° C)	100
10	Arsenic	0.2
11	Cyanide	0.2
12	Chloride	600

A. Kamala

SENIOR ENVIRONMENTAL OFFICER

Annexure-III

Discharge of Air Emissions

Ch. No.	Chimney Attached to	Minimum Chimney Height to be Provided Above ground level	Ratio to emission NM3/Hr.	Constituents to be controlled in the emission.	Tolerance limits Mg/NM3 & frequency of monitoring	Air Pollution Control equipment to be installed, in addition to Chimney height as per Col (3)	Date of which air pollution Control equipments shall be provided to achieve the stipulated tolerance limits and chimney heights conforming to stipulated heights.	Remarks
1.	100 KVA DG Set	4m ARL	--	SO_2	--	Acoustic Enclosure	Before Commissioning	1) The emission rate of all chimneys shall be reported within 30 days. 2) There shall be no smell or odour nuisance from the industry. 3) There shall be no other Sources of air pollution.

A. Jamell

SENIOR ENVIRONMENTAL OFFICER

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ಫ್ಯಾಕ್ಸ್ / Fax : 080-25586321
ಈಮೇಲ್ / E-mail : ho@kspcb.gov.in
ವೆಬ್‌ಸೈಟ್ / Website : http://kspcb.gov.in

☎ 25581383, 25589112
25588151, 25588270
25588142, 25586520

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
Karnataka State Pollution Control Board

"ಪರಿಸರಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ.49, ಚರ್ಚ್‌ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ, ಭಾರತ

"Parisara Bhavana", 1st to 5th Floor, # 49, Church Street, Bengaluru - 560 001, Karnataka, INDIA

// BY REGD. POST WITH ACK. DUE //

(This document contains 06 pages including annexure)

Combined Consent order No.PCB/ WMC/469/HWM/2016/ 08-39 Dated: 13 APR 2016

Consent for discharge of effluents under the Water (Prevention and Control of Pollution) Act 1974 and Emissions under the Air (Prevention and Control of Pollution) Act 1981.

Ref.:1) Your CFO applications under the Water & Air Acts vide Reg.No.106846, dt: 24-02-2016.
2) Inspection of your industry by RO, Ramanagara on 21-03-2016 & 23-03-2016.
3) Proceedings of CCM held on 01/04/2016.

<<<>>>

Consent is hereby granted under section 25/26 of Water (Prevention and Control of Pollution) Act 1974 and under Section 21 of Air (Prevention and Control of Pollution) Act 1981 (herein after referred as the Water Act and the Air Act respectively) and the Rules and Orders made there under and subject to the terms and conditions as detailed in the schedule annexed to this order.

Consent is granted **to M/s. Mother Earth Environ Tech Pvt Ltd, Plot No.217, KIADB Industrial Area, Harohalli, 2nd Phase, Kanakapura Taluk, Ramanagara** authorizing him to operate their industrial plant and to make discharge of effluents and emissions from the above premises.

Discharge of effluents under the Water Act:

Sl. no.	Description	Permitted Quantity of discharge	Limits specified refer Terms & Conditions	Place of discharge
1	Domestic purpose	0.4 KLD	---	Shall be treated in Septic tank and soak pit.
2	Industrial Purpose (Leachate from cells Wash water from tyre washing area)	2.0 KLD	----	Shall hand over to CETP of M/s. Govind Solvents Pvt Ltd., Kunigal for further treatment and disposal

Discharge of air emissions under the Air Act from the following stacks/process etc.

Sl. No.	Description of chimney/outlet	Limits specified
Annexure - I		

Draft Approved by Member Secretary

SENIOR ENVIRONMENTAL OFFICER (WMC)

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The consent is valid for operating the facility of :

Sl. No.	Products & By-products	Maximum Capacity
1.	Hazardous waste landfill facility	95000 Tons/ten years

CFL tube lights dismantling activity as per CPCB norms.

This consent is valid for the period from up to 30/06/2020.

For and on behalf of the KSPCB

Draft Approved By
Member Secretary

SENIOR ENVIRONMENTAL OFFICER

To,
The Director,
M/s. Mother Earth Environ Tech Pvt Ltd,
Plot No.217, KIADB Industrial Area,
Harohalli, 2nd Phase, Kanakapura Taluk,
Ramanagara.

For Office use only:

1. Size: L/M/S : Large
2. Category: R/O/G : Red
3. Capital Investment : Rs. 15.93 Crores
4. Consent Fee paid : Rs. 60,000/- both Water & Air Act.

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SCHEDULE

TERMS AND CONDITIONS

(To accompany consent No.PCB/ WMC/469/HWM/2016/ Dtd:-------)

I.WATER CONSUMPTION:

The source of water shall be from public water supply and water consumption and discharge shall be as follows:

Water consumed for	Water consumption in KLD	Waste water discharge in KLD
Domestic purpose	0.5	0.4
Industrial (Leachate from cells & Wash water from tyre washing area)	0.5 (Wash water from tyre washing)	2.0

II.WATER POLLUTION CONTROL:

A. The domestic wastewater shall be treated in septic tank with soak pit. No overflow from the soak pit is allowed. The septic tank and soak pit shall be designed as per IS 2470 Part – I and Part – II.

B. The trade effluent /Leachate generated from lab washing and process (stabilization) shall not exceed 2 KLD. It shall be collected in a leachate pond along with leachate of land fill site and the same shall be hand over to CETP of M/s. Govind Solvents Pvt Ltd., Kunigal for further treatment and disposal.

C. The applicant shall maintain the log book for trade effluent generation & disposal to CETP and submit manifest in Form-13 to the Board regularly.

D. The applicant shall install MEE (Multiple Effect Evaporators) for disposing the leachate generated from the waste within six months.

E. The applicant shall install integrated flow measuring/recording devices on the effluent line. A record of daily effluent discharge shall be maintained.

III. WATER CESS:

1. The industry shall comply with the provisions of Water (Prevention and Control of Pollution) Cess Act, 1977, by installing water meters, filing water cess returns in Form-I and other provisions as contained in the said Water (Prevention and Control of Pollution) Cess Act, 1977, and 2003.

1. AIR POLLUTION CONTROL:

1. The discharge of emissions from the premises of the applicant shall pass through the air pollution control equipment and discharged through stacks/chimneys mentioned in **Annexure-I** where from the Board shall be free to collect the samples at any time in accordance with the provisions of the Act and Rules made there under.

2. The industry shall upgrade/modify/replace the control equipments if they are found inadequate to meet the standards stipulated. Prior permission of the Board shall be obtained for the same.

3. If there is going to be any new air pollution sources in future, the project authorities shall apply and obtain consent for establishment for the same from the Board.

V. NOISE POLLUTION CONTROL:

The industry shall ensure that the ambient noise levels within its premises shall not exceed the limits i.e. 75 dB(A) Leq during day time and 70 dB(A) Leq during night time as specified in the Environment (Protection) Rules.

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VI. SOLID WASTE (OTHER THAN HAZARDOUS WASTE) DISPOSAL:

1. 1. The applicant shall segregate solid waste from Hazardous Waste and store it properly till treatment/disposal without causing pollution to Environment.

2. The applicant shall strictly comply with the conditions stipulated in the authorisation issued under Municipal Solid Waste (Management & Handling) Rules, 2000

VII. HAZARDOUS WASTES (MANAGEMENT, HANDLING & TRANSBOUNDRY MOVEMENT) RULES 2008:

1. The industry shall comply with the authorization issued under Hazardous Wastes (Management, Handling & Transboundry Movement) Rules 2008, and comply with the conditions of the authorization.

2. The applicant shall display the online data with regard to details of hazardous waste, solid waste, consent status in the Board measuring minimum size of 6' x 4' (refer website http://kspcb.gov.in)

VIII. SPECIFIC CONDITIONS:

1. The applicant shall monitor the ground water quality, bore well water, soil quality and ambient air quality as stipulated in the CFE and submit the report to Board every month.
2. The applicant shall provide tank in tank system for leachate collection tank to identify any leakage.
3. The applicant shall maintain records of waste received and disposed (quality and quantity) and submit the report to Board every month.
4. The applicant shall plant 3 rows of high plantations on the periphery and adequate greenery .
5. The applicant shall provide adequate facility for storage, testing & processing of hazardous waste received at the site and shall maintain log book of different type of waste and characteristics, the same shall be furnished during inspection by the Board.
6. The applicant shall comply with the directions of the Board Circular No.5206, dt: 17-12-2015 in respect of transporting hazardous waste and transport vehicle.
7. The applicant shall comply with the all the conditions stipulated in the SEIAA clearance issued by Government of Karnataka vide No. SEIAA 1 IND 2015, dt: 28-08-2015.
8. The applicant shall install web camera at the entrance of the gate, figure print sampling station and treatment area.
9. The applicant shall install hood ducting and air pollution control equipment with chimney to the waste stabilization/processing area to control the odor/ smell nuisance to the surrounding area.

IX. GENERAL:

1. The applicant shall provide water meters for every source of water and shall submit the cess returns regularly as required under Water Cess Act before 5th of every month in the prescribed form

2. The applicant shall not allow the discharge from other premises to mix with the discharge from his premises. Storm water shall not be allowed to mix with the effluents on the upstream of the terminal manhole where the flow measuring devices are installed.

3. The applicant shall not change or alter quality or quantity or the rate of discharge or temperature or the route of discharge with out the previous consent of the Board.

4. The applicant shall promptly comply with all orders and instructions issued from time to time by the Board or any other officers of the Board duly authorized in this behalf.

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SENIOR ENVIRONMENTAL OFFICER

5. The applicant shall display the consent granted in a prominent place for perusal of the inspecting officers of the Board.

6. The applicant shall provide alternate power supply sufficient to operate all Pollution control equipments utilized by the applicant to maintain compliance with the terms and conditions of this consent.

7. The applicant shall monitor the Ambient Air Quality at the locations stipulated by the Board and monitoring shall be done as per the EP Rules.

8. The applicant shall furnish Environmental statement for every financial year ending with 31st March in Form – V as per Environment (Protection) Rules 1986. The Statement shall be furnished before the End of September.

9. The applicant shall go for ISO 14001 certification immediately & progress made shall be communicated along with the proof to the Board.

10. The applicant shall ensure that proper Environmental Management system is in place.

11. The applicant shall develop and maintain adequate green belt all around the periphery.

12. The applicant shall create facility for rain water harvesting within the factory premises.

13. There shall not be public complaint against the industry regarding any kind of pollution.

14. All the raw material product and hazardous waste shall be stored inside the shed only.

15. All the drums and machinery shall be placed within the shed and floor shall be impervious.

16. The applicant, his heirs legal representatives or assigns shall have no claims what so ever to the continuation or renewal of this consent after expiry of the period of consent.

17. The applicant shall forth with keep the Board informed of any accident of unforeseen act or event of any poisonous, noxious or polluting matter or emissions are being discharged into the stream or well or air as a result of such discharge, water or air is being polluted.

18. The Board reserves the right to review, impose additional conditions, revoke, change or alter terms and conditions of this consent.

19. The applicant shall make an application for consent at least 120 days before expiry of this consent.

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SENIOR ENVIRONMENTAL OFFICER

Encl.: Annexure-I

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ANNEXURE – I

Sl. No.	Chimney Attached to	Minimum Chimney Height to be Provided Above ground level	Ratio to emission NM3 /Hr.	Constituents to be controlled in the emission.	Tolerance limits Mg/NM^3 & frequency of monitoring	Air Pollution Control equipment to be installed, in addition to Chimney height as per Col (3)	Date of which air pollution Control equipments shall be provided to achieve the stipulated tolerance limits and chimney heights conforming to stipulated heights.	Remarks
1	25 KVA DG Set	3 m ARL chimney	–	So2	--	Acoustic enclosures	At all times	1) The emission rate of all chimneys shall be reported every 30 days. 2) There shall be no smell or odour nuisance from the industry. 3) There shall be no other sources of air pollution.

SENIOR ENVIRONMENTAL OFFICER

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ಈಮೇಲ್ / E-mail : ho@kspcb.gov.in
ವೆಬ್‌ಸೈಟ್ / Website : http://kspcb.gov.in

☎ 25581383, 25589112
25588151, 25588270
25588142, 25586520

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
Karnataka State Pollution Control Board

"ಪರಿಸರಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ.49, ಚರ್ಚ್‌ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ, ಭಾರತ
"Parisara Bhavana", 1st to 5th Floor, # 49, Church Street, Bengaluru - 560 001, Karnataka, INDIA

FORM-2

[SEE RULE 5(4)]

GRANT OF AUTHORIZATION BY SPCB FOR OCCUPIERS OF FACILITIES FOR GENERATION, STORAGE AND DISPOSAL OF HAZARDOUS WASTE

Ref: 1. Authorization application filed by the industry under Rule 5(3) of Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 as amended up to 2010, at Regional Office, Ramanagara on 23/03/2016 (Reg No. 108247).
2. Inspection of the industry by the Regional Officer, Ramanagara on 23.03.2016.
3. Proceedings of CCM held on 01/04/2016.

1. **No.PCB/469/WMC/Authorization/2016/** 108-38 **Dated:** 13 APR 2016
2. The Manager of **M/s. Mother Earth Environ Tech Pvt Ltd., Plot No.217, KIADB Industrial Area, Harohalli, 2nd Phase, Kanakapura Taluk, Ramanagara** is hereby granted an authorization for generation, storage and disposal under Rule 5(4) of Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 as amended up to 2010 for **handling Hazardous Waste** in the manner indicated below while carrying on the activity of Hazardous waste landfill facility of capacity 95000 Tons/ten years.
3. The authorization granted to operate a facility for generation, storage and disposal of Hazardous Waste as indicated below.

Waste Category	Hazardous Waste generated	Quantity	Method of Handling
5.1	Used Oil	0.05 KL/A	Shall be collected in Leak proof containers and disposed only to CPCB registered reprocessors/common collection centre provided the oil meets the standards as per schedule-5 of the Rules
5.2	Oil soaked cotton waste	0.06 MT/A	Shall be stored in secure manner and handed over to KSPCB authorized incinerator.
5.2	Oil contaminated filters	10 No's/A	Shall be stored in secure manner and handed over to KSPCB authorized incinerator.
5.2	Used bags (contaminated with chemicals and oil)	18250 No's/A (2 MT/A)	Shall be stored in secure manner and handed over to KSPCB authorized incinerator.
5.2	Contaminated hand gloves, gum boots etc.,	600 Pairs/A	Shall be land filled in the same facility
	Land disposable hazardous waste	95000 MT/10 years	Shall be stabilized in stabilization pits provided within the industry and then land filled by scientific procedure

3(a) The applicant is permitted to dismantle CFL/tube light as per norms of CPCB.
4. This authorization is issued with reference to the application dated **23/03/2016** and will be in force for a period from **up to 30.06.2020** ("This Authorization is valid only when the Consents are valid").
5. The applicant shall install MEE (Multiple Effect Evaporators) for disposing the leachate generated from the waste within six months.
6. *The authorization is subjected to the conditions stated below and such conditions as may be specified in* the Rules for the time being in force under the Environment (Protection) Act, 1986.

7. The applicant shall install web camera at the entrance of the gate, figure print sampling station and treatment area.
8. The applicant shall install hood ducting and air pollution control equipment with chimney to the waste stabilization/processing area to control the odor/ smell nuisance to the surrounding area.

Member Secretary

TERMS & CONDITIONS OF AUTHORIZATION

1. The person authorized shall comply with the provisions of the Environment (Protection) Act, 1986 and the Rules made there under.
2. This authorization shall be produced for inspection at the request of an Officer authorized by the Karnataka State Pollution Control Board.
3. The person authorized shall not rent, lend, sell, transfer or otherwise transport the hazardous wastes without obtaining prior permission of the SPCB/PCC.
4. Any unauthorized change in personnel, 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 authorized person to take prior permission of the Karnataka State Pollution Control Board to close down the facility.
6. An application for the renewal of an authorization shall be made 60 days before the date of expiry.
7. All the fire Hazard waste shall be stored as per CPCB guidelines published on Nov 2008 to avoid any fire accident.
8. The Person authorized shall bring to the notice of the Board, if any increase in quantity, change in category and handling operation. In such cases, the authorized Person has to obtain fresh authorization.
9. Karnataka State Pollution Control Board reserves the right to review, impose additional condition or conditions, revoke, change or alter the terms and conditions of this authorization or to suspend or cancel this authorization.
10. The Person authorized shall take steps for reduction and prevention of the waste generated or for recycling or reuse.
11. The occupier shall ensure that, the nonferrous metal wastes specified in Schedule-4 of the Rules, used oil and waste oil are sold only to CPCB/KSPCB Registered units.
12. The authorized person shall maintain the records at site in Form-3 and shall submit the annual returns in Form-4 within 30th June every year for the Period April to March and manifest in Form-13.
13. The transportation of hazardous waste shall have to be carried out only through registered/authorized vehicles meant for transportation of hazardous waste.
14. **The Person Authorized shall not store the Hazardous Waste more than ninety days as per Rule 7 (1).**
15. **Display Boards**
    The person authorized shall display sign boards at the storage site as "Hazardous Waste Storage Site" and "Danger" and the site shall be provided with accident preventive measures.

Member Secretary

Member Secretary

To:
The Authorized Signatory,
M/s. Mother Earth Environ Tech Pvt Ltd.,
Plot No.217, KIADB Industrial Area,
Harohalli, 2nd Phase, Kanakapura Taluk,
Ramanagara.

Note: *Refer the following Guidelines prepared by CPCB in respect of*

1. *Guidelines for setting up of operating facility ; Hazardous Waste (Management, handling and Transboundary Movement) Rules, 2008 as amended upto 2010.*
2. *Guidelines for common Hazardous Waste Incineration.*
3. *Guidelines for proper functioning & up keep of disposal sites*
4. *Guidelines for transportation of Hazardous Waste and other Guidelines issued from CPCB time to time.*

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F.No.23-122/2016-HSMD
Government of India
Ministry of Environment, Forest and Climate Change
(HSM Division)
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August 29, 2016

OFFICE MEMORANDUM

Sub: Distance criteria for setting up of Treatment Storage and Disposal Facility (TSDF) – Clarification reg.

The subject matter of setting up of Treatment Storage and Disposal Facility (TSDF) for hazardous waste has been examined in the Ministry.

2. In this regard, it is to state that Central Pollution Control Board (CPCB) guidance document - "Criteria for Hazardous Waste Landfill" of 2001 prescribes the locational criteria in terms of distance of location of facilities from lake / pond, river, flood plain, highways, public park etc. Copy of the said guidance document is available on CPCB website.

3. In addition, the additional criteria in terms of distance between TSDFs as prescribed by Ministry's O.M. No.12-30/2013-HSMD dated 20/06/2013 shall also be adhered to for setting up of new projects of common TSDF for hazardous waste in the country. The O.M. mandates that the new project of common treatment facilities within a distance of 400 km radius of the existing TSDFs for hazardous wastes is not permissible.

4. The copy of the O.M. is enclosed herewith for reference.

Encl : as above

(Bishwanath Sinha)
Joint Secretary to the Government of India

Chairman
All SPCBs / PCC as per list enclosed

Copy to: The Chairman, Central Pollution Control Board, New Delhi

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MOST IMMEDIATE
BY SPEED POST/ FAX

F.No.12-30/2013 HSMD
Government of India
Ministry of Environment and Forests
(HSM Division)

Room No.738, Paryavaran Bhawan,
CGO Complex, Lodhi Road,
New Delhi-110003

Dated: 20th June, 2013

OFFICE MEMORANDUM

Sub: Waste Management in the country – regarding

The undersigned is directed to forward herewith a copy of the action points emerged during the meeting held on 17th May, 2013 with the representatives of various waste management companies, namely, industrial hazardous waste, bio medical waste and municipal solid waste in the country, under the chairmanship of Dr. V. Rajagopalan, Secretary (Environment and Forests), at the Ministry of Environment and Forests, New Delhi, for your information and necessary action.

(M. Subba Rao)
Director (HSMD)
Telefax: 011-24361410
Email- wowsubbarao@yahoo.co.in

Encl: As above.

To,

1) Shri Ram N. Agalhotri, National Head – IWM,
M/s. Ramky Infrastructure Limited
6-3-1089/G/10 & 11, 1st Floor,
Gulmohar Avenue,
Raj Bhavan Road, Somajiguda,
Hyderabad - 500 082, A.P.

2) Shri Sanjiv Kumar, GM
M/s. Ramky Infrastructure Limited,
6-3-1089/G/10 & 11, 1st Floor,
Gulmohar Avenue,
Raj Bhavan Road, Somajiguda,
Hyderabad - 500 082, A.P.

Action Points for Waste Management in the Country

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A meeting was held with the representatives of various companies, engaged in the business of waste management, namely, industrial hazardous waste, bio medical waste and municipal solid waste in the country under the chairmanship of Dr. V. Rajagopalan, Secretary (E&F) on 17th May, 2013 at MoEF, New Delhi. The meeting was also attended by the representatives of the concerned Government Departments. The list of participants at Annex.

2. The representatives of companies who attended the meeting made presentations covering their present activities in waste management and challenges/problems being faced by them. Subsequently, the issues were discussed in detail.

3. The following action points emerged during the discussions:

(i) The concept of integrated waste management facilities needs to be encouraged. Integrated facilities for treatment and disposal of hazardous waste, bio medical waste and electronic waste in the same premises may be considered so that the infrastructure cost and land resources could be optimized. Similarly, there should be integrated facilities for treating Municipal Waste, composting, waste-to-energy, etc.

(ii) Allowing the treatment and disposal of bio medical waste in the hazardous waste incineration facilities should be examined.

(iii) It was suggested that the co-processing of high calorific/burnable hazardous waste of various industries for which trial runs were carried out by CPCB, in cement, steel, thermal power plants, may be routed through the Treatment, Storage and Disposal Facilities (TSDFs), so that only appropriate hazardous waste is sent for co-incineration. Suggestion was also made for allowing Refused Derived Fuel (RDF) in cement kilns. It was also suggested to consider for allowing POP waste for coincineration after suitable blending/dilution for its destruction. These suggestions be examined in consultation with CPCB for taking a view.

(iv) Delays in granting state subsidies/financial commitments by the concerned State Governments for setting up of TSDFs may be addressed by writing to the concerned SPCBs/PCCs.

(v) Many States do not have TSDFs and delays are being caused for getting permissions for inter-state transportation of hazardous waste. In some States, NOCs are given for inter-state transportation of hazardous waste affecting the viability of TSDFs located within their States. This issue may be examined.

(vi) The common waste treatment facilities are not becoming viable since Industries and Health Care Estbalishments (HCEs) are not sending their waste to such facilities. Hence, third party audit of the Industries and HCEs may be made mandatory by incorporating such provisions in the existing regulatory framework and also by incorporating the same as a condition in the authorizations granted by SPCBs/PCCs to such industries and health care establishments. This would need to be attended to on priority.

(vii) New projects of common treatment facilities within an area of 400 km radius of the existing TSDFs for hazardous wastes and within 150 km radius of the existing bio-medical waste management facilities should not be allowed in order to ensure compliance with the CPCB guidelines. SPCBs/PCCs should give their permissions only after ensuring their compliance with the norms and guidelines of CPCB, particularly relating to distance criteria and considering the need of the area as well as availability of adequate waste in the area for installing common treatment facilities.

(viii) With respect to management of municipal solid wastes, it was informed that the tipping fee payments to waste management companies are very much delayed by the Municipalities. The existing PPP model for municipal waste management doesn't seem to be working well. MoUD may be requested to review the model in consultation with stakeholders.

(ix) With regard to economical viability and sustainability of waste to energy plants (WTE), it was suggested that the power tariffs for waste-to-energy plants may be fixed on line with those applicable for renewables. Also RPO mechanism should be applicable for purchase of power from WTEs. The WTEs should be seen as waste management operations and not electricity generation plants and need the required support of the Government. The matter may accordingly be taken up with the MoUD and MNRE.

(x) It was suggested that demands for compost produced at municipal solid waste treatment and disposal facilities needs to be created. For this purpose, Deptt. of Chemicals & Fertilizers may be requested to implement the recommendations of the Inter-Ministerial Task Force, which recommended that the chemical fertilizer companies should co-market the city compost along with the chemical fertilizers in a basket approach. The Supreme Court has also passed orders based on the recommendations of the above Task Force.

(xi) Since Phosphate Rich Organic Manure (PROM) generated in municipal solid waste compost plants is rich in organic phosphate, it should be brought under the nutrient based subsidy scheme. The Deptt. of Fertilizers may examine this

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(xii) Rajasthan State Pollution Control Board (RSPCB) has put the compost plants under red category of industries. The matter be taken up with the RSPCB with a view to promoting setting up of such waste processing facilities.

(xiii) The corpus fund available under the National Clean Energy Fund (NCEF) may be tapped for utilizing it for concessional financing of Waste-to-Energy projects and Integrated Waste Management Projects. A scheme may be formulated to demonstrate this concept by way of a few demo projects keeping in view the need for proper segregation of waste at source for success of these projects.

(xiv) The Master Plans for Towns/Cities should clearly indicate the lands earmarked for setting up of waste management facilities, including the radius of buffer zones required around such facilities.

(xv) The existing regulatory framework on waste management does not cover the solid wastes such as slag from steel industries, etc., which needs to be addressed.

(xvi) The existing regulatory framework also does not cover the management of solid wastes generated from industries other than hazardous industries, such as waste tyres, card boards, debris and construction materials, etc., which need to be addressed.

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Annexure

List of Participants

Sl. No.	Name & Designature	Contacts
1.	Dr. V. Rajagopalan, Secretary (E&F)	In chair
2.	Shri Shashi Sekhar, Addl. Secretary, MoEF	
3.	Shri Ajay Tyagi, Joint Secretary, MoEF	
4.	Shri S. K. Lal, Under Secretary, DIPP	23062906 Sklal@nic.in
5.	Dr. A. B. Akolkar, CPCB	
6.	Shri O. P. Sharma, Joint Industrial Adviser, D/o Chemicals & Petrochemicals	23061442, 9868160477, opsharma@nic.in
7.	Dr. A. K. Sinha, Plant Protection Adviser, Dte. Of PPQ&S, Faridabad Ministry of Agriculture	2410056 ppa@nic.in
8. 9.	Shri Vipin Bhatnagar, Joint Director (Chemistry), Dte. Of PPQ&S, Faridabad Ministry of Agriculture	9818283340 Vipinagro15@gmail.com
9.	Shri B. R. Mishra, Scientist 'E', MNRE	24368905 9968660066 Mishra.br@nic.in
10.	Shri Shailesh, Deputy Secretary, D/o Agri. & Coop. M/o Agriculture	23382480
11.	Dr. Krishna Bihari, Asstt. Commissioner (INM) D/o Agri. & Coop M/o Agriculture	23386268
12	Dr. Rachana Sharma, Manager, ILFS Environment	9818995655 Rachana.sharma@ilfsenv.com
13.	Mr. Mahesh Babu, Managing Director ILFS Environment	011 49691000
14	Mr. N. B. Majumdar, Chief Technical Officer, ILFS Environment	011 49691000
15.	Mr. Dipankar Bhattachary, Dy. Director (Chemistry), Dte. of Plant Protection, Quarantine & Storage, Faridabad Ministry of Agri. & Coop	0129-2413002 Dipankarb969@yahoo.co

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16.	Mr. Bharat Manglani, Bharat Oil & Waste Management Ltd., New Delhi	011-41000[illegible] 9811[illegible] bharat@bharatoil.com
17.	Mr. Daksha Gupta, Adviser, Shivalik Solid Waste Management Ltd., H.P.	9816022004
18.	Shri Ashok Sharma, CEO, Shivalik Solid Waste Management Ltd., H.P.	9316028131 Ashoksharma@rediffmail.com
19.	Dr. N. K. Pillai, CEO, Kerala Enviro Infrastructure Ltd., Ambulamedu, Kochi, Kerala	0484-3117937 9816618135 drnkpillai@gmail.com
20.	Dr. B.D. Dalwadi, CEO, Bharuch Enviro Infrastructure Ltd, Ankleshwar Enviro Technology Ltd. (ETL) Ankleshwar	02646-253135 9909994939 dalwadibd@rediffmail.com
21.	Mr. Tapas Saha, CEO, Synergy Waste Management Pvt. Ltd.	9212310057 tapas@synergywaste.com
22.	Mr. Sanjiv Kumar, GM, Ramky Enviro Engg. Ltd., Hyderabad	9949965282 sksanjiv@ramky.com
23.	Mr. Ram N. Agnihotri, National Head – BWM Ramky Enviro Engg. Ltd., Hyderabad	9963244470 ramnagnihotri@ramky.com
24.	Mr. Shamlal Goyal, Deptt. of Fertilizers	23388481 9999641533 slg2212@yahoo.com
25.	Dr. M. Subba Rao, Director, MoEF	
26.	Mr. Shard, Deputy Director, MoEF	
27.	Ms. Shubhangi Wankhede, NPC, UNIDO Project	
28.	Shri Rajeev Mishra Assistant Project Coordinator, UNIDO Project	

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ವೆಬ್‌ಸೈಟ್/Website : http://kspcb.gov.in

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25588151, 25588270
25588142, 25586520

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ

Karnataka State Pollution Control Board

"ಪರಿಸರ ಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ. 49, ಚರ್ಚ್ ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ, ಭಾರತ
"Parisara Bhavana", 1st to 5th Floor, # 49, Church Street, Bengaluru - 560 001, Karnataka, INDIA

No. PCB/WMC/469/HWM/2016/ 6502 **Date:** 15 FEB 2017

Addendum

Sub: Addendum to the CFO issued under the Water (Prevention & Control of Pollution) Act, 1974 and under Air (Prevention & Control of Pollution) Act, 1981 in respect of **M/s. Mother Earth Environ Tech Pvt Ltd., Plot No.217, KIADB Industrial Area, Harohalli, 2nd Phase, Kanakapura Taluk, Ramanagara** - reg.

Ref: 1) Board Office combined consent issued vide No. PCB/WMC/469/HWM/2016/OB-39, dated: 13.04.2016 & corrigendum order vide No. PCB/WMC/469/HWM/2016/1397, dated: 14.06.2016.
2) Industry request letter dated: 01.08.2016.
3) Board Office combined consent issued on online vide No. AWH-301376, PCB ID: 27521, dated: 14.11.2016.

<<<<>>>>

The Board has issued combined consent under the Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 vide ref (1) in respect of **M/s. Mother Earth Environ Tech Pvt Ltd., Plot No.217, KIADB Industrial Area, Harohalli, 2nd Phase, Kanakapura Taluk, Ramanagara for the period up to 30.06.2016** for hazardous waste landfill facility of capacity 95000 Tons/ten years & CFL tube lights dismantling activity as per CPCB norms.

Subsequently vide ref (3) the Board had issued combined consent through online up to 30-06-2021 under the Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 for hazardous waste landfill facility of capacity 95000 Tons/ten years without including the CFL tube lights dismantling activity as per CPCB norms.

The authorities have submitted a letter vide ref (2) and has sought to modify the consent issued vide ref (3) as per the previous consent order issued vide ref (1) for hazardous waste landfill facility of capacity 95000 Tons/ten years by incorporating the activity of collection, transportation, dismantle, storage, treatment, and disposal of CFL/Tube lights.

Hence, the following order:

ORDER

In the Consent for Operation order issued vide ref (3) to **M/s. Mother Earth Environ Tech Pvt Ltd., Plot No.217, KIADB Industrial Area, Harohalli, 2nd Phase, Kanakapura Taluk, Ramanagara,** the consented activity shall be read as " hazardous waste landfill facility of capacity 95000 Tons/ten years and for collection, transportation, dismantle, storage, treatment, and disposal of CFL/Tube lights" instead of only for hazardous waste landfill facility of capacity 95000 Tons/ten years.

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All other terms and conditions stipulated in the Consent for Operation Order vide ref (1) remain unaltered.

SENIOR E NVIRONMENTAL OFFICER

To,
The Authorized Signatory,
M/s. Mother Earth Environ Tech Pvt Ltd.,
Plot No.217, KIADB Industrial Area,
Harohalli, 2nd Phase, Kanakapura Taluk,
Ramanagara.

(11)

Speed Post

F. No B-29016 (SC)/1/2017-18/WM-II/ 12674

To

November 14, 2018

The Chairman
Karnataka Pollution Control Board "Parisara Bhavana", 1st to 5th Floor 49, Church Street, Bengaluru — 560001

CM 20606

Modified Directions under Section 5 of the Environment (Protection) Act, 1986 in case of M/s Mother Earth Environ Tech Private Limited, Harohalli, Kanakapura Taluk, Ramanagara District, Bangalore

WHEREAS, the Central Government has notified the Hazardous and Other Wastes Management and Transboundary Movement) Rules, 2016 (herein referred to as HOWM Rules, 2016) in exercise of the powers conferred by sections 6, 8 and 25 of the Environment (Protection) Act, 1986 and in supersession of the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 (herein referred to as HWM Rules, 2008), for safe and environmentally sound management of hazardous and other wastes;

WHEREAS, M/s Mother Earth Environ Tech private Limited (herein referred to as MEETPL), is operating a common TSDF, having common secured landfill disposal facility, at Plot No. 217, KIADB Industrial area, Harohalli, Kanakapura Taluk, Ramanagara District, Bangalore. Environmental Clearance (herein referred to as EC) has been issued to M/s Mother Earth Environ Tech Private Limited, Bangalore by the State Environment Impact Assessment Authority (herein referred to as SEIAA), Karnataka, vide its order no. SEIAA 1 IND 2015 dated 28/8/2015 and Consent to Establish has been granted by the SPCB vide its order no. KSPCB/SEO(WMC)/CFE/2015-16/1471 on 04/11/2015.

WHEREAS, as per Rule 16(1) of the HOWM Rules, the State Government, the occupier, the operator of common Disposal Facility or any association of occupiers shall individually or jointly or severally be responsible for identification of sites for establishing a common facility for treatment, storage and disposal of the hazardous waste in, the State. Similar provisions prevailed under Rule 18(1) of HWM Rules, 2008;

WHEREAS, as per Schedule VII read with Rule 21 of the HOWM Rules, 2016, identification and notification of site(s) for common hazardous and other waste treatment, storage and disposal pf are Hong duties of the State Government/Union, Territory Government/ Administration as laid down at S No 3 (i) and (iii) of the said Schedule VII; Similar provisions prevailed under Rule 23 (schedule VII) of i1NM Rules, 2008:

WHEREAS, as per Rule 6(1) of the HOWM Rules, the occupier engaged in handling, generation, collection, storage, packaging, transportation, use, treatment, processing, recycling, recovery, pre-processing, co-processing, utilization, offering for sale, transfer or disposal of the hazardous and other wastes shall obtain authorization from the' State Pollution Control Board/Pollution Control Committee (SPCB/PCC). Similar provisions prevailed under Rule 5(1) of HWM Rules, 2008;

WHEREAS, as per Rule 6 (2) of the HOWM Rules, on receipt of an application complete in all respect for the authorization, the SPCB/PCC may, after such inquiry as it considers necessary, and on , being satisfied that the applicant possesses appropriate

'परिवेश भवन' पूर्वी अर्जुन नगर दिल्ली-110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

facilities for collection, storage, packaging, transportation, treatment, processing, use, destruction, recycling, recovery, pre-processing, co-processing, utilization, offering for sale, transfer or disposal of the hazardous and other waste, as the case may be, and after ensuring technical capabilities and equipment complying with the standard operating procedure or other guidelines specified by the Central Pollution Control Board from time to time and through site inspection, grant authorization to the applicant. Similar provisions prevailed under Rule 5(4) of HWM Rules, 2008;

WHEREAS, as per Rule 16(2) of the HOWM Rules, the operator of common facility, shall design and set up the treatment, storage and disposal facility as per technical guidelines issued by the Central Pollution Control Board in this regard from time to time and shall obtain approval from SPCB/PCC for design and layout in this regard; Similar provisions prevailed under Rule 18(2) of HWM Rules, 2008;

WHEREAS, as per Rule 16(3) of the HOWM Rules, SPCB/PCC shall monitor the setting up and operation of the Common or captive TSDF, regularly; Similar provisions prevailed under Rule 18(3) of HWM Rules, 2008;

WHEREAS, CPCB has published 'Criteria for Hazardous Waste Landfills', which outlines locational criteria (w.r.t. lakes, ponds, rivers wetlands, flood plains, highways, habitation, critical habitat area, water supply wells, Airports, coastal zone, etc.) for hazardous waste landfills and it has also been stipulated that if it is absolutely essential to site a landfill within the restricted zone, then appropriate design measures are to be taken and prior permission from the SPCB/PCC should be obtained;

WHEREAS, the aforesaid CPCB guidelines also outlines that additional area as high as 30% of the total area in case of small to medium landfills (< 5 hectare area to 20 hectares) has been prescribed to accommodate all infrastructures and support facilities as well as to allow formation of a green belt around the landfill;

WHEREAS, the aforesaid CPCB guidelines also outlines requirement of various facilities such as surface drainage system which collects and removes all surface runoff from the landfill site, settling pond, on-site laboratory for finger printing analysis, monitoring of unsaturated zone and groundwater zone beneath and around landfill, etc.;

WHEREAS, condition number 14 and 34 stipulated under the Environmental Clearance granted by SEIAA are that green belt of 15 meters shall be provided all along the periphery of the site and green belt shall be developed in at least 33 % of the total project area;

WHEREAS, Schedule VII of read with Rule 21 of the HOWM Rules, 2016, monitoring of compliance of various provisions and taking action against violations of the said HOWM Rules are among duties of the State Pollution Control Boards or Pollution Control Committees as laid down at S.No. 4(iii) and (vi) of the said Schedule VII; similar previsions prevailed under Rule 23 (schedule VII) of HWM Rules, 2008;

WHEREAS, a petition dated 09th March, 2017 against the aforesaid common hazardous waste disposal facility operated by M/s Mother Earth Environ Tech Private Limited at Plot No. 217, KIADB Industrial area, Harohalli, Kanakapura Taluk, Ramanagara District, Bangalore, was received from M/s Society for Sustainable Development, Madihaguda, Miyapur, Hyderabad, with regard to violations of site selection criteria, no notification of the site by the State Government, inadequate size for operation of HW common TSDF, no green belt development as per the conditions of EC, etc.:

WHEREAS, CPCB vide letter no. B-29016(SC)/1/07/VVM-I1/2714 dated 12th May 2017 forwarded the aforesaid petition to Karnataka SPCB for examination and providing their comments

WHEREAS, a similar petition dated 27th October 2017 against the said common hazardous waste disposal facility was also received from M/s Karnataka Waste Management Project, Dabaspet, Bengaluru, with regard to violations of site selection criteria, no notification of the site by the State Government, inadequate size for operation of HW common TSDF, no green belt development as per the conditions of EC, etc.

WHEREAS, Karnataka SPCB examined the aforesaid petition dated 09th March, 2017 and provided their comments vide letter no. PCB\WMC\469\HWM\2017-18\493 dated 04th January, 2018, based on the inspection conducted on 04th October, 2017. Upon examination the following observations were made;

(i) It has been informed that as per records of Karnataka SPCB, there is no notification of the site for common TSDF by the State Government which is required as per Rule 21 of the said HOWM Rules, 2016 (similar provisions prevailed under Rule 23 of the HWM Rules, 2008). However, monitoring the setting up and operation of the Common or captive TSDF, regularly, monitoring of compliance of various provisions and taking action against violations of the said HOWM Rules are among duties of the State Pollution Control Boards as laid down under Rule 16(3) of the HOWM Rules, 2016, and S. No. 4(iii) and (vi) of Schedule VII of the HOWM Rules, 2016 (similar provisions prevailed under Rule 18(3) and 23 of Schedule VII of the HWM Rules, 2008)

(ii) The SLF site doesn't meet the location criteria specified in the said guidelines "Criteria for Hazardous Waste Landfills" in terms of drinking water wells existing within 500 meters distance, water body at about 200meters, and habitation (Ganaldoddi village) within 500 meters from a notified habitat area. In accordance with provisions of the said guidelines, absolute essentiality of siting the SLF within the restricted zone and appropriate design measures taken thereof by Karnataka SPCB have not been reported in the said letter of Karnataka SPCB.

(iii) The SLF being small sized landfill requires to have additional area as high as 30% of the total area in case of small to medium landfills (< 5 hectare area to 20 hectares) to accommodate all infrastructures and support facilities as well as to allow formation of a green belt around the landfill, as stipulated in the said CPCB guidelines. Further, various facilities such as surface drainage system which collects and removes all surface runoff from the landfill site, settling pond, on-site laboratory for finger printing analysis, monitoring of unsaturated zone and groundwater zone beneath and around landfill, etc. have also been prescribed in the said guidelines.

The status of availability of the above and, granting approval for design and layout of the common TSDF by Karnataka SPCB, in accordance with the CPCB guidelines and Rule 16(2) of the HOWM Rules, 2016 (similar provisions prevailed under Rule 18(2) of the HWM Rules, 2008), have not been reported in the said letter of Karnataka SPCB;

(iv) Green belt of 15 meters on the west and north side of the secured landfill (SLF) of the said common TSDF has not been developed which is violation of condition of the Environmental Clearance granted by SEIAA. Further, compliance of the other condition of the said Environmental Clearance about development of at least 33% of the total project area as green belt has not been reported in the said letter of Karnataka SPCB.

WHEREAS, Karnataka SPCB was directed under section 5 of Environmental (Protection) Act, 1986, vide direction no. B-29016 (SC)/1/2017-18/WM-II/18396 dated 20/03/2018 to (i) to examine compliance of the aforesaid observations vis-a-vis provisions of the Rules and CPCB guidelines; (ii) in case of non-compliances of provisions of the Rules/CPCB guidelines Karnataka SPCB shall stop collection and disposal of hazardous wastes at the common TSDF operated by the said M/s MEETPL and initiate necessary actions;

WHEREAS, in response to above directions, Karnataka SPCB vide letter no. PCB/WMC/469/HWM(2017)/2018-19/756 dated 08/05/2018 forwarded the proceedings of the personal hearing given to M/s MEETPL which revealed that the non-compliance of the provisions of HOWM Rules and CPCB guidelines have not been resolved. M/s MEETPL was, therefore, inspected by officials of Karnataka SPCB and RD, Bengaluru on 15/06/2018;

WHEREAS, CPCB convened a meeting with officials of Ministry of Environment, Forest & Climate Change, Karnataka SPCB, Karnataka Industrial Areas Development Board (KIADB) and representatives from M/s Karnataka Waste Management Private Limited and M/s MEETPL on 20th September, 2018, at CPCB, Delhi, under the chairmanship of Member Secretary, Central Pollution Control Board. Decisions taken in the said meeting were communicated to Karnataka SPCB vide CPCB letter no. B-29016/TSDF-63/18/WM-II Div./11996 dated 12/10/2018 for taking actions;

WHEREAS, the Central Government vide Notification No. S.0 730(E) dated 16th July, 2002, has delegated the powers under Section 5 of the Environment (protection) Act, 1986 (29 of 1986) to the Chairman, CPCB, to issue directions to any industry or any local or any other authority for the violation of the standards and rules relating to hazardous waste, bio-medical waste, hazardous chemicals, industrial solid waste, municipal solid waste including plastic waste notified under the Environment (Protection) Act, 1986 and amendments thereof; and

NOW, THEREFORE, in exercise of the powers vested under Section 5 of the Environment (Protection) Act, 1986, Karnataka SPCB is directed herewith to ensure compliance of the following decisions taken in the aforesaid meeting held on 20th September, 2018;

1. Collection and disposal of hazardous waste by M/s MEETPL into their common SLF shall not be allowed unless Karnataka SPCB arrives that such siting is absolutely essential in the State and that upon compliance with the following:

   (a) Appropriate design measures have been adopted for siting the common TSDF within the restricted distances and approval of design of the common TSDF has been granted by Karnataka SPCB in compliance with Rule 16 (2) of the HOWM Rules, 2016;

   (b) Layout of the common TSDF is approved by Karnataka SPCB in compliance with Rule 16 (2) of the HOWM Rules, 2016. Such layout shall incorporate green belt requirement and all requisite infrastructures prescribed in the said CPCB guidelines i.e management of surface run-off water, separate area for equipment shelter, temporary waste storage, stockpiling of cover material and liner material, emergency exit, leachate management, etc.

   (c) Verification by Karnataka SPCB that M/s MEETPL has set up the common TSDF in accordance with approved design and layout, as above;

2. M/s MEETPL shall maintain the manifest system for movement of leachate from the TSDF to authorised CETP in accordance with Rule 19 of the HOWM Rules, 2016.

3. Karnataka SPCB shall levy and collect financial penalty from M/s MEETPL in accordance with Rule 23 (2) of the HOWM Rules, 2016, and CPCB guidelines *"Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty"* for each violation stipulated under the HOWM Rules, 2016, (such as, non-compliance w.r.t manifest system (i.e. Rule 19), not obtaining design & layout approval from SPCB (i.e. Rule 16 (2)), violation of condition of authorisation ((i.e. Rule 6(2)), not operating the facility in environmentally sound manner (i.e. Rule 16 (4), etc.).

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4. Further, Karnataka SPCB shall also coordinate with Karnataka State Forest, Ecology and Environment/SEIAA, Karnataka for the following:

   a) Notification of all the Common TSDFs in Karnataka including M/s MEETPL as required under the Rule 16 (1) of the Rules.

   b) Expansion granted to M/s MEETPL by SEIAA despite non-compliances with regard to non-development of requisite green belt, location criteria and non-availability of requisite infrastructure.

Receipt of these directions be acknowledged and action taken report in compliance with the above directions be submitted to this office within 15 days from issuance of this direction.

(S.P. Singh Parmar)
Chairman

19-9-18

ಫ್ಯಾಕ್ಸ್/Fax : 080-25586321
ಈಮೇಲ್/E-mail : ho@kspcb.gov.in
ವೆಬ್‌ಸೈಟ್/Website : http://kspcb.gov.in

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ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ

Karnataka State Pollution Control Board

"ಪರಿಸರ ಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ. 49, ಚರ್ಚ್ ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ, ಭಾರತ
"Parisara Bhavana", 1st to 5th Floor, # 49, Church Street, Bengaluru - 560 001, Karnataka, INDIA

No. PCB/WMC/469/HWM/2016/ 685 **Date:** 08 MAR 2017

CORRIGENDUM

Sub: Authorization to **M/s. Mother Earth Environ Tech Pvt Ltd., Plot No.217, KIADB Industrial Area, Harohalli, 2nd Phase, Kanakapura Taluk, Ramanagara** under the Hazardous Waste (Management, Handling &Transboundary Movement) Rules, 2008. & subsequent amendments - reg.

Ref: 1) Consent of the Board under the Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 valid up to 30.06.2020, vide No. PCB/WMC/469/HWM/2016/OB-39, dt:13.04.2016.

2) Authorization under the Hazardous Waste (Management, Handling &Transboundary Movement) Rules, 2008 the valid up to 30.06.2020 vide ref No. PCB/WMC/469/HWM/2016/OB-38, dt: 13.04.2016.

3) Letter of M/s. Mother Earth Environ Tech Pvt Ltd., Plot No.217, KIADB Industrial Area, Harohalli, 2nd Phase, Kanakapura Taluk, Ramanagara, dt: 04.05.2016.

4) Letter of M/s. Mother Earth Environ Tech Pvt Ltd., Plot No.217, KIADB Industrial Area, Harohalli, 2nd Phase, Kanakapura Taluk, Ramanagara, dt: 27.02.2017.

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The Board vide ref(1) has issued Consent under the Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 in respect of **M/s. Mother Earth Environ Tech Pvt Ltd., Plot No.217, KIADB Industrial Area, Harohalli, 2nd Phase, Kanakapura Taluk, Ramanagara for the period up to 30.06.2020** for hazardous waste landfill facility by stipulating condition to dispose leachate to the Common Effluent Treatment Plant for further treatment and disposal. However, in the authorization issued vide ref (2) condition No.5 was stipulated as under.

"The applicant shall install MEE (Multiple Effect Evaporators) for disposing leachate generating from waste within six months time".

The above condition was inserted due to typographical error. The industry vide ref (3) & ref (4) has informed to withdraw the above authorization condition. Since the leachate generated is only 2KLD & is being sent to Common Effluent Treatment Plant.

The request of the industry is considered, Since the leachate is required to be managed as per the provision of the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 & where in condition already stipulated to dispose the leachate to Common Effluent Treatment Plant.

Hence, the following order:

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ORDER

In the Authorization issued vide ref (2) Condition No.5 "The applicant shall install MEE (Multiple Effect Evaporators) for disposing leachate generating from waste within six months" time is deleted. However, the facility required to dispose off leachate to the Common Effluent **Treatment Plant as per consent condition.**

Draft Approved By
Member Secretary

Member Secretary

To,
The Authorized Signatory,
M/s. Mother Earth Environ **Tech Pvt Ltd.,**
Plot No.217, KIADB Industrial Area,
Harohalli, 2nd Phase, Kanakapura Taluk,
Ramanagara.

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PROJECT APPRAISAL REPORT

Prepared for

Common Hazardous Waste Treatment Storage and Disposal Facility (TSDF) for Karnataka

Located at

Plot No.217, 2nd phase KIADB Industrial Area, Harohalli, Kanakapura Taluk, Ramanagara District, Bangalore-562112

A project by

MEEPL

M/s. Mother Earth Environ Tech Pvt

वाप्कोस लिमिटेड
WAPCOS LIMITED

WAPCOS LIMITED
(A Government of India Undertaking)
76 C, Sector 18, Gurgaon - 122015, Haryana, INDIA
Tel. +91-124-2397396,
email: environment@wapcos.co.in

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वाप्कोस लिमिटेड
WAPCOS LIMITED

ISO 9001 : 2008
- Consultancy Services
- Engineering, Procurement & Construction (EPC)

(भारत सरकार का उपक्रम)
जल संसाधन, नदी विकास व गंगा संरक्षण मंत्रालय
(A Government of India Undertaking)
Ministry of Water Resources, River Development & Ganga Rejuvenation

WAP/ENVT/TSDF/2017/2554

Dr. Shruti Rai Bhardwaj
Joint Director/Scientist 'D'
Ministry of Environment, Forest and Climate Change
Paryavaran Bhawan
Jorbagh Road,
New Delhi-110003

28.04.2017

Sub: Appraisal of Detailed Project Report related to establishment of Treatment Storage and Disposal Facility for Hazardous Waste at KIADB Industrial Area Harohalli, 2nd Phase, Tauluka: Kanakpura, District, Ramanagara, Karnataka by M/s Mother Earth Environ Tech. Pvt. Ltd.

Ref: MoU Between MoEF & WAPCOS dated 13th April, 2012

Madam,

This is in reference to your letter dated 7th September, 2016; in this connection we would like to inform you that we had appraised the Detailed Project Report related to establishment of Treatment Storage and Disposal Facility for Hazardous Waste at KIADB Industrial Area Harohalli, 2nd Phase, Tauluka: Kanakpura, District, Ramanagara, Karnataka by M/s Mother Earth Environ Tech. Pvt. Ltd. WAPCOS has reviewed the report, based on which necessary corrections and modifications have been made in the DPR by M/s Mother Earth Environ Tech. Pvt. Ltd. The modified Detailed Project Report has been appraised and recommended for further action at your end.

Regards.

Yours faithfully,

(Dr. Aman Sharma)
Executive Director (Envt, GR& CM)
E Mail: environment@wapcos.co.in

76-C, Institutional Area, Sector - 18, Gurgaon - 122 015 (Haryana), INDIA
Tel. : +91-124-2399421 • Fax : +91-124-2397392

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F.No.23-23/2016-HSMD
Government of India
Ministry of Environment, Forest & Climate Change
(HSM-Division)

.....

Indira Paryavaran Bhawan
Ali Ganj, Jor Bagh Road
New Delhi-110003

Dated the 7th September, 2016

To,

The Pay & Accounts Officer,
Ministry of Environment, Forest & Climate Change
New Delhi.

Subject: Payment of an advance money/charges (30%) to M/S WAPCOS Ltd ., Gurgaon for appraisal of detailed project report related to establishment of Treatment Storage and Disposal Facility for Hazardous Waste at KIADB Industrial Area, Harohalli, 2nd Phase, Taluka: Kanakpura, District: Ramanagara, Karnataka by M/s Mother Earth Environ Tech Pvt. Ltd.

Sir,

I am directed to convey the sanction of President for award of a contract to M/S WAPCOS Limited, Gurgaon by Ministry of Environment, Forest and Climate Change payment for appraisal of detailed project report related to establishment of Treatment Storage and Disposal Facility for Hazardous Waste at KIADB Industrial Area, Harohalli, 2nd Phase, Taluka: Kanakpura, District: Ramanagara, Karnataka by M/s Mother Earth Environ Tech Pvt. Ltd and evaluation of the Project during implementation , for a total cost of ₹ 4,50,000/-(Rupees four lakh fifty thousand only).

2. The award of contract would be subjected to the conditions of MoU executed on 13th April, 2012 between Ministry of Environment, Forest and Climate Change, New Delhi and M/S WAPCOS Limited, Gurgaon (copy enclosed). The validity of the said MoU has extended up to **12.04.2017.**

3. I am also directed to convey the sanction of the President for release of 1st Installment of amount ₹ 1, 35,000/- (Rupees one lakh thirty five thousand only) as an advance to M/s WAPCOS Limited, Gurgaon which is 30% of the total cost of ₹ 4,50,000/- for appraisal of Detailed Project Report of TSDF for Hazardous Wastes at KIADB Industrial Area, Harohalli, 2nd Phase, Taluka: Kanakpura, District: Ramanagara, Karnataka and evaluation of the project during implementation.

4. The Drawing & Disbursing Officer, Ministry of Environment ,Forest and Climate Change is requested to prepare and submit the bill for **₹ 1,35,000** (Rupees one lakh thirty five thousand only) to Pay & Account Officer, Ministry of Environment ,Forest and Climate

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Change, New Delhi-to make payment electronically to M/S WAPCOS Limited, Gurgaon as per the following details:

1.	Savings /Current Account Number	193502000000028
2.	Name of the Bank & Branch	Indian Overseas Bank, NHB Sector 18, Gurgaon.
3.	Beneficiary 's Name	WAPCOS Limited, New Delhi
4.	CBS No.	
5.	9 digit MICR Code	110020069
6.	IFSC Code	IOBA0001935

5. The grantee organisation falls under the category of "Registered Societies (Govt. Autonomous Bodies)".

7. The expenditure involve ,will be met from within the Sanctioned Budget Grant-in-aid of Department of Environment under Demand No.27 Ministry of Environment & Forests, Major Head **3435**-Ecology &Environment, **3435.03.102**-Environment Planning and coordination, **05**-Environment Protection and Monitoring,**07**- Hazardous Substance Management, 28-Professional services (Plan) for the financial year 2016-17.

6. The sanction has been issued under the powers delegated to the Ministries/Departments and with the concurrence of Integrated Finance Division of this Ministry vide their No.238/DS (IFD) dated 5/9/2016.

Yours faithfully,

(Dr. Shruti Rai Bhardwaj)
Joint Director/Scientist 'D'

Copy to:-

1. Cash Section – 2 copies enclosed arranging payment.
2. **M/s WAPCOS Limited, Plot No 76-C, sec-18, Institutional area, Gurgoan-122015**
3. The Director of Audit, Commerce, Works and Misc. II, AGCR Building, I.P Estate, New Delhi – 110 002
4. IFD/Budget Section/Sanction folder /Guard file

(Dr. Shruti Rai Bhardwaj)
Joint Director/Scientist 'D'

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This Memorandum of Understanding is being entered into, on this 13th of April, 2012;

BETWEEN

The Ministry of Environment and Forests Government of India (hereinafter called MoEF), having its office at Prayavaran Bhawan, CGO Complex Lodi Road New Delhi- 110 003, represented through its Director Dr. Saroj and their assignee/ successor of the MoEF on the first part;

AND

M/s WAPCOS Limited (hereinafter called WAPCOS), a company certified under the Companies Act, 1956 having its office at 5th Floor "Kailash", 26, Kasturba Gandhi Marg, New Delhi-110001, represented through its Sanjay Sharma, Deputy Chief Engineer and their assignee/ successors on the second part;

WHEREAS;

1) MoEF has invited expression of interest from the intending parties for appraisal of Detailed Project Reports (DPRs) of projects related to establishment of Treatment, Storage and Disposal Facility for Hazardous Wastes and Integrated

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Recycling Facility for e-Waste and evaluation of projects during implementation;

2) In response to MoEF's request, WAPCOS submitted Expression of Interest (EoIs) and financial bids for appraisal of Detailed Project Reports (DPRs) of projects related to establishment of Treatment, Storage and Disposal Facility for Hazardous Wastes and Integrated Recycling Facility for e-Waste and evaluation of projects during implementation.

3) That, the EOIs and the financial bids were duly evaluated by MoEF. Based on the evaluation it has been decided to empanel WAPCOS for appraisal of DPRs of projects related to establishment of Treatment, Storage and Disposal Facility for Hazardous Wastes and Integrated Recycling Facility for e-Waste and evaluation of projects during the course of implementation of the aforesaid project;

4) That, WAPCOS hereby confirms that it is a separate legal entity incorporated under the Companies Act, 1956 as amended and WAPCOS can sue and be sued WAPCOS is competent to

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receive funds from the Government of India for undertaking activities in terms of this MoU for the projects independently.

5) That, WAPCOS hereby agrees that it shall immediately inform MoEF, in case there is any conflict of interest or likely hood of any conflict of interest and shall not undertake any work for such projects, which are under this MoU. Any expenditure incurred on the undertaking of any such project shall not be liable to be paid to or reimbursed to WAPCOS by MoEF.

6) The validity of this MoU is Three Years from the date of signing of the MoU.

NOW THEREFORE, the parties here to hereby agree as follow:

Obligation of

1) WAPCOS shall appraise the DPRs submitted by project proponents through interactive process including visits to the project sites or any other innovative mechanism as may be deemed appropriate;

2) WAPCOS shall undertake at least three site visits with a team of two persons preferably those whose qualification and experience were furnished in response to the Expression of Interests by MoEF. The first visit shall be during evaluation of the DPR before approval and sanctioning of the project, the second and third visits shall be undertaken after approval of the project and before release of second and third installments and the visit shall include evaluation of progress of project implementation;

3) the detailed appraisal shall include:- (a) Technical Feasibility and Design Criteria, (b) Reasonability of cost estimates and

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financial viability, (c) suitability of land/site selected as per the Central Pollution Control Board (CPCB) guidelines for Hazardous and E-waste besides other aspects having bearing on the management and handling of wastes and conformity of various other aspects of the project to the CPCB guidelines and (d) impact of waste disposal and management on environment, including the surrounding habitats and mitigative measures.;

4) For each of the project awarded by MoEF, WAPCOS shall examine in respect of the following, whether;

(i) the project meets the present and future requirements of the town/area in terms of services to be provided to the hazardous waste generator which are located in the concerned State/ neighbor States;

(ii) the quantity of Hazardous Wastes, which is likely to be received by TSDFs and e-waste recycling facilities and their sustainability in the long run;

(iii) the specifications of technical parameters and the technical designs of various aspects of the project are sound, realistic and technically feasible;

(iv) the cost estimates prepared are techno-economically viable and reasonable, as compared to such similar projects established elsewhere in the country;

(v) the Project as a whole is financially & technically viable and the project proponent has made necessary financial arrangements to meet the project expenditure;

(vi) the project proponent has sound organizational capacity to execute the project as per implementation schedule given in the DPR and whether the materials and other inputs required for the Project have been tied up;

(vii) the NOC (consent to establish) from the State Pollution Control Board have been obtained under the Water (Prevention and Control of Pollution) Act, 1974 and Air

(Prevention and Control of Pollution) Act, 1981 and various other statutory clearances, as applicable, have been obtained or applications have been filed with the competent authorities; and the status of such NOC/ clearances;

(viii) the project conforms to the CPCB's Guidelines on setting up of TSDFs for Hazardous waste and Integrated e-waste recycling facilities;

(ix) any other inputs/remarks/suggestions for sound and successful implementation of the Project;

(x) the land for the project has been acquired by the project proponent on his own or it has been provided by the State Government and, if so, it's cost as per the land revenue records;

(xi) Any such other measures that may be necessary and appropriate in the execution of the projects falling under the purview of this MoU.

5) WAPCOS shall list out the impact on environment, including surrounding habitats, if any, and the mitigation measures proposed to be taken;

6) WAPCOS shall list out deficiencies, if any, in the project proposal and shall suggest MoEF and the project proponent regarding the improvements required for successful implementation of the project and the time frame for such improvements;

7) MoEF shall provide a copy of the DPR and other requisite documents relating to the project to WAPCOS;

8) WAPCOS shall, as far as possible, adhere to following time schedule:-

(a) Appraisal of DPRs:-

2.	On submission and approval of the Final Appraisal Report	30
3	On submission and approval of first interim progress report of the project	20
4	On submission and approval of final progress report of the project.	20

16) **Liquidated Damages (Penalty Clauses):** WAPCOS shall complete the work within the time schedule and no extension of time shall be granted. However, if the WAPCOS requires an extension of time in submission of its report(s), it shall apply in writing to the MoEF before the stipulated date of submission of appraisal/progress report. MoEF will have the right to grant such extension of time with or without liquidated damages depending on the contingency for such extension of time. In case of extension of time with liquidated damages, the recovery shall be made on the basis of the following percentages of claim amount for the delays caused by the WAPCOS;

No.	Condition	LD Percentage
A	Delay up-to one fourth period of the prescribed period of deliverable	2.5%
B	Delay exceeding one fourth but not exceeding half of the prescribed period of deliverable	5%
C	Delay exceeding half but not exceeding three fourth of the prescribed period of deliverable	7.5%
D	Delay exceeding three fourth but not exceeding the period equal to the total period allowed for that activity from the prescribed period of deliverable	10%

- Fraction of a day in reckoning period in settlement of claim shall be eliminated, if it is less than half a day;
- The maximum amount of liquidated damages shall be 10%;
- Also Liquidated Damages would be deducted from the payment due for that milestone as mentioned in the schedule of Terms of Payment;

17) **Assignment of the MoU:** WAPCOS shall not assign or transfer or part with any of the rights, duties or obligations, wholly or in part, under the MOU to be signed to any other individuals or organizations without the previous consent in writing of the MoEF;

18) **Force Majeure:** Any delay in or failure of performance by the MoEF or WAPCOS shall not constitute default hereunder or give rise to any claims for damages against the MoEF or WAPCOS, if and to the extent caused by reasons which are beyond the control of the Ministry or WAPCOS, including but not limited to acts of God, strikes or other concerted acts of workman, power cuts, fires, floods, explosions, riots, war (declared or undeclared), rebellion, sabotage, extra ordinary severe weather, civil commotion and criminal acts of third parties. Both the parties shall keep a record of the circumstances referred to above which are responsible for causing delays in the execution of the Project. If the execution of the project is likely to be delayed by or as the result of one or more of the circumstances referred to as above, the parties shall discuss the situation with a view to find the means to minimize the impact and effect of such circumstances and to reduce the costs and expenses which the first and second party or either of them may incur. However, release of payments shall not be part of Force Majeure unless physically prevented;

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19) **ARBITRATION:** in the matter of any dispute arising out of the terms and conditions of MoU, the matter shall be referred to an Arbitrator to be appointed by the Secretary (Environment and Forests), MoEF. The decision of the Arbirator shall be final and binding on the parties. The Court of Delhi shall have the jurisdiction in the event of any litigation arising out of this MoU

IN WITNESS WHEREOF, the parties hereto have caused this MoU to be signed in their respective names as of the day and year first written above:

For and behalf of MoEF

(Dr. Saroj)
Director, MoEF

(Dr. (Mrs.) SAROJ)
Director
Min. of Env. & For.
Govt. of India, New Delhi

For and Behalf of WAPCOS.

(Sanjay Sharma)
Deputy Chief Engineer,

WAPCOS

MOU signed in the presence of ;

Witnessed by;

1) ..... (S.K. Mishra, WAPCOS Ltd)

2) ..... (Shard, MoEF .....)

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ABBREVIATIONS

AAS	Atomic Absorption Spectrometry
APHA	American Public Health Association
CETP	Common Effluent Treatment Plant
CFE	Consent for Establishment
CPCB	Central Pollution Control Board
DG	Diesel Generator
DPR.	Detailed project report
E	East
EPA	Environment (Protection) Act
GCL	gas-liquid chromatography
GCLS	Geosynthetic clay liners
HC.	compounds of hydrogen and carbon
HDPE	High-density polyethylene
HP	High Pressure
HWM	Hazardous Waste Management, Handling and Transboundary Movement)
HW	Hazardous Waste
KIADB	Karnataka Industrial Area Development Board
KLD	Kilo liters per day
KSPCB	Karnataka State Pollution Control Board
KVA	Kilo Volt Ampere
LDPE	Low-density polyethylene
LPD	Liters per day
MEETPL	Mother Earth Environ Tech Pvt Ltd
MoEF.	Ministry of Environment & Forests
MM	Millimeter
MSW	Municipal Solid Waste
MT	Metric Tons
N	North
PCC	Pollution Control Board
PPM	Parts Per Million
SEIAA	Karnataka State Environment Impact Assessment Authority
SLFs	Secured Landfill Sites
SPCB	State Pollution Control Board
SSHW	Scientific Storage Hazardous Waste
STP	Sewage Treatment Plant
TOC	Total Organic Carbon
TSDF	Common Hazardous Waste Treatment Storage and Disposal Facility
USEPA	United States Environmental Protection Agency.
VOC	Volatile organic compound

CHAPTER – 1

INTRODUCTION

CHAPTER-1
INTRODUCTION

1.1 Introduction

Karnataka State Pollution Control Board (KSPCB) with the assistance of German Technical Cooperation is in the process of evolving an effective Hazardous Waste Management (HWM) strategy for Karnataka. Establishment of a technically sound, operationally sustainable Treatment, Storage and Disposal Facility (TSDF) is one such activity of the cooperation.

Mother Earth Environ Tech Pvt. Ltd. (MEEPL) promoted by Chaitra Groups Bengaluru, is engaged in developing waste management facilities in Karnataka. MEEPL has developed Hazardous Waste Landfill at Harohalli Industrial area, Kanakapura Taluq, Ramnagar district. The Company is managed by group of professionals who have experience in the field of waste management.

At present, MEEPL have purchased from KIADB allotted land for TSDF purpose with a facility of about 95000 MT capacity of Secured Engineering Landfill (SLF) for disposal of industrial hazardous wastes including treatment. The treatment shall be as per Central Pollution Control Board guidelines for hazardous waste (Management & Handling) Rules, 1989 and its subsequent amendment. In addition to this additional 10 acres land of KIADB allotted has been purchased to increase the capacity. This project will operate in an eco-friendly manner to protect environment from hazardous wastes. We are willing to provide best services to all industries in Karnataka.

1.2 Norms for Site Selection

HW Landfills shall not be located within a certain distance of the following lakes, ponds, rivers, wetlands, flood plains, highways, habitation, critical habitat area, water supply wells, Airports, coastal zone. If it is absolutely essential to site a landfill within the restricted zone, then appropriate design measures are to be taken and prior permission from the SPCB should be obtained.

- **Lake or Pond:** No landfill shall normally be constructed within 200 m of any lake or pond. Because of concerns regarding runoff of waste contaminated water, a surface water monitoring network with approval of SPCB/PCC shall be established.

Remarks & Status: There is no Lake or Pond Existing within 200 m from TSDF Located area.

- **River:** No landfill shall be constructed within a 100 m of a navigable river or stream.

Remarks & Status: There is no River Existing within 100 m from TSDF Located area.

- **Flood Plain:** No landfill shall be constructed within a 100-year flood plain. A landfill may be built within the flood plains of secondary streams if an embankment is built along the streamside to avoid flooding of the area. However, landfills must not be built within the flood plains of majorrivers unless properly designed protection embankments are constructed around the landfills.

Remarks & Status: There are no major rivers nearby located site for floods.

- **Highway:** No landfill shall be constructed within 500 m of the right of way of any state or national highway.

Remarks & Status: There is no Highway Existing within 500 m from TSDF Located area. The location details of landfill site are given in Table-1.1.

Table-1.1: Location Details of Landfill Site

S. No.	Road	Distance from the project site (km)	Direction w.r.t. project site
1	NH-209	1.53	East
2	Bangalore city	30	North
3	Ramanagara City	17.39	West
4	Ramanagara city railway station	19.00	West

- **Habitation:** A landfill site shall be at least 500 m from a notified habitated area. A zone of 500 m around a landfill boundary should be declared a no-development buffer zone after the landfill location is finalized.

- **Remarks & Status: -** There is no Habitation area existing within 500 meters. Also the land is allotted for Industrial purpose only by KIADB (Karnataka Industrial Area Development Board).

- **Public Parks:** No Land fill be constructed within 500 m of public park.

- **Remarks & Status: -** There is no Public Parks Existing within 500 m from TSDF Located area.

- **Critical Habitat Area:** No landfill shall be constructed within critical habitat areas including reserved forest areas. A critical habitat area is defined as the area in which one or more endangered species live. It is sometimes difficult to identify a critical habitat area. If there is any doubt then the SPCB/PCC shall be consulted be consulted for clarification.

- **Remarks & Status: -** M/s Mother Earth Environ Tech Pvt Ltd., situated in Phase II, KIADB industrial Area, Harohalli, Ramnagara – 562112, which is developed by KIADB (Karnataka Industrial Area Development Board - Govt of Karnataka Undertaking).

- **Airport** : No Landfill shall be constructed within a zone around Airports as notified by the regulatory authority or the aviation authority

- **Remarks & Status: -** There is no Airport near TSDF Located area.

- **Water Supply:** No landfill shall be constructed within 500 m of any water supply well.

- **Remarks & Status: -** There is no Ground water well/water supply well Existing within 500 m from TSDF Located area

- **Coastal Regulation Zone:** No landfill shall be sited in a Coastal Regulation Zone (CRZ).

- **Remarks & Status: -** Located site does not come under CRZ area.

- **Ground Water table level:** No landfill shall be located in areas where the ground water table will be less than 2 m below the base of the landfill.
- **Remarks & Status: -** Ground water table at located area – there is no pumping condition between 70-80 feet (i.e., 21 to 24 m) and extractable ground water table is beyond the 200 feet (i.e., 60 m) below ground level as per hydro geological survey.

- Other criteria may be decided by the planners in consultation with SPCB/PCC commensurate with specific local requirements such as presence of monuments, religious structures etc.

- **Remarks & Status: -** There are no religious structures, forests, agricultural and other local requirements at in proximity to the proposed area. However the land is allotted for Industrial purpose only by KIADB (Karnataka Industrial Area Development Board).

1.3 Site Description

M/s. Mother Earth Environ Tech Private Limited, Bangalore is establishing "Hazardous Waste Landfill" Project at survey no.217, Harohalli Industrial Area, 2nd phase, Kanakapura Talk, Ramanagara with Longitude:- 77°28' 23" Latitude:- 12°40' 55"N and MSL: - 693 m. The project is for exclusively construction, operation and closure of hazardous landfill.

1.4 Land Details

Karnataka Industrial Area Development Board-(A Government of Karnataka Undertaking) has allotted 4 acres of land at plot No. 217 in Harohalli Industrial area, 2nd phase to M/s Mother Earth Environtech Pvt Ltd. for Hazardous waste landfill project. But due to complexities in land acquiring by Karnataka Industrial Area Development Board-(A Government of Karnataka Undertaking) for Industrial area, Karnataka Industrial Area Development Board-(A Government of Karnataka Undertaking) has issued PC copies in parts with respect to complexities solved in acquiring land and rest of PC copies will be issued after complexities solved in land acquiring, PC copies along with the letter of allotment from Karnataka Industrial Area Development Board. The plot no. 217, KIADB industrial Area, 2nd phase, Harohalli, Ramanagara, has been allotted to M/s Mother Earth Environ Tech Pvt Ltd., after being scrutinized and approvals from following designated Government authorities to establish Common Hazardous waste Treatment Storage Disposal (TSDF) facility.

- Karnataka State Industrial Area Development Board(KIADB),
- SLSWCC (Karnataka State Level Single Window Clearance Committee),
- SEAC (State Level Expert Appraisal Committee),
- SEIAA (Karnataka State Level Environment Impact Assessment Authority)
- KSPCB (Karnataka State Pollution Control Board)

The above mentioned plot is located within the notified industrial Area and the area around 500 m from the landfill site falls under industrial but the area to be acquired for industry by KIADB is in sub judice.

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1.5 Inventorisation of HW

The quantity of landfillable Hazardous Waste (HW) generated in industries of Karnataka is essential in designing the Treatment, Storage and Disposal Facility (TSDF) and for establishing the transportation logistics. The total number of industries in the master data base used for the inventorisation total industries of Karnataka. The manufacturing process adopted by the industries and submitted in the Consent For Establishment (CFE) and HW authorisation files (available with KSPCB) was studied and compared to the process stream in Schedule-1 and Schedule-2 of the HW Rules, Amended 2008. The Hazardous Waste categories for each industry were determined using this method. This was then cross checked with the details of laboratory analysis submitted by the industry. In case of discrepancies, industries were contacted wherever possible and streams verified.

As per Table 1.2 , total quantity of hazardous waste received by MEEPL is 7247.856 MT within the period of April'2016 to September'2016. The total quantity of hazardous waste generation in Karnataka is 65,362.49MT/Annum (as per KSPCB authorized hazardous waste generators, 2016.) has been attached in Annnexure-2. The inventorization of hazardous waste which includes Member companies list, its hazardous waste generation quantity per annum including Disposal path is enclosed as Industry details with KCPCB Authorized quantity.

M/s Mother Earth Environ Tech Pvt Ltd is receiving only landfillable hazardous waste which is approved/authorized by Karnataka State Pollution Control Board (KSPCB) it includes direct landfillable hazardous waste and Landfill after treatment Hazardous waste. No in-compatible waste is received. The cell no. 2 mentioned in plant layout is for future expansion for disposing of hazardous waste once life span of the current landfill is about to complete.

Table-1.2: List of processes generating hazardous wastes Hazardous Waste Category as per SCHEDULE- I

S.No.	Waste Name	Waste Category Number	Total Quantity
1	ATFD Salt	37.3	670.44
2	Bailer ASH	37.2	6.45
3	CETP Sludge	34.3	427.23
4	Chemcal Sludge	34.3	10.6
5	Chemicals Sludge Cakes	34.3	0.27
6	Chrome Sludge	30.1	1.7
7	ETP Sludge	34.3	2304.75
8	ETP Sludge MEE Salt	34.3	929.755
9	ETP Sludge, Process Residue.	34.3	17
10	Evaporator Salt	37.3	85.61
11	Evaporator Concentration (MEE Salt)	37.3	235.83
12	Flue gas cleaning residue	37.3	163.83
13	INCINERATED ASH	37.2	48.905
14	Incineration ASH	37.2	111.3
15	Inorganic Salt	37.3	4.5
16	Inorganic sludge	37.3	8.91

S.No.	Waste Name	Waste Category Number	Total Quantity
17	Lead Bearing Residue	9.1	823.245
18	Lead Slag	9.1	4.14
19	Lead Slags	9.1	29.04
20	MEE Salt	37.3	968.94
21	Organic Residue	29.1	15.275
22	Process residue	29.1	16.295
23	Procoss Waste	29.1	104.14
24	Production Residue	29.1	1.56
25	Spent Catlyist	28.2	1.9
26	Spent Iron Powder	12.3	220.54
27	Spray Dried Salt	37.3	23.57
28	Sulphur Containing Residue	12.3	11
29	Used Tube lights CFL Bulbs		1.14
	Total Quantity of Waste		7247.865

1.6 Characterization of HW

The list of hazardous waste is applicable only for landfill is detailed in Tables 1.3 and 1.4.

Table-1.3: List of Schedule-1 Hazardous Waste Landfill

S. No.	Processes	Waste streams	Preference of landfill activity
1	Petrochemical processes and Pyrolytic operations	Furnace/reactor residue and debris	1
		Residue from alkali wash of fuels	1
		ETP sludge containing hazardous constituents	2
2	Drilling operation for oil and gas productions	Drill cutting containing oil	2
		Sludge containing oil	2
		Drilling mud and other drilling waste	2
3	Cleaning, emptying and maintenance of petroleum oil storage tanks including ships	Oil containing cargo residue and sludge	2
4	Petroleum refining/refining of used oil/ recycling of waste oil	Chemical sludge from waste water treatment	2
		Spent clay containing oil	2
5	Secondary production and/or use of zinc	Flue gas dust and other particulars	2
6	Primary production of zinc / lead copper and other nonferrous metals except aluminum	Sludge from ETP and scrubbers	2
7	Secondary production of copper	Spent electrolytic solutions	2
8	Secondary production of lead	Lead slag/lead bearing residue	2
9	Production and/or use of	Residues containing cadmium and	2

S. No.	Processes	Waste streams	Preference of landfill activity
	cadmium and arsenic and their compounds	arsenic	
10	Production of primary and secondary aluminum	Sludge's from gas treatment	2
		Cathode residue including pot lining wastes	2
		Tar containing wastes	2
		Wastes from treatments of salt slag's and black drosse's*	2
11	Metal surface treatment such as etching, staining, polishing, galvanizing, cleaning, degreasing, plating etc.,	Acid residue	2
		Alkali residue	2
		Spent bath / sludge containing sulphide, cyanide and toxic metals	2
		Sludge from bath containing organic solvents	2
		Phosphate sludge	2
		Sludge from staining bath	2
		Copper etching residue	2
		Plating metal sludge	2
		Chemical sludge from waste water treatment	2
12	Production of iron and steel including other ferrous alloys (electric rolling and finishing mills, coke oven and product plant)	Process dust*	2
		Sludge from acid recovery unit	2
		Cyanide-nitrate-or nitrate containing sludge	2
13	Hardening of steel	Cyanide-nitrate-or nitrate containing sludge	2
		Spent hardening salt	2
14	Production of asbestos containing materials	Asbestos containing residue	1
		Discarded asbestos	1
		Dust/particulates from exhaust gas treatment	2
15	Production of caustic soda and chlorine	Mercury bearing sludge	2
		Residue / sludge's and filter cakes's*	1
		Brine sludge containing mercury	2
16	Production of acids	Residues, dusts or filter cakes*	2
17	Production of nitrogenous and complex fertilizers	Spent catalyst*	2
		Spent carbon*	2
		Sludge / residue containing arsenic	2
		Chromium sludge from water cooling tower	2
		Chemical sludge from waste water treatment	2
18	Production of plastic raw	Residues of additives used in plastic	2

S. No.	Processes	Waste streams	Preference of landfill activity
	material	manufacture like dyestuffs, stabilizers, flame retardants etc.	
19	Production of canvas and textiles	Textile chemical residue*	1
		Chemical sludge from waste water treatment	2
20	Industrial production and formulation of wood preservatives	Chemical sludge from waste water treatment	1
		Residues from wood alkali bath	1
21	Production or industrial use of synthetic dyes, dye-intermediates and pigments	Process waste sludge / residue containing acid or other toxic metals or organic complexes	2
		Chemical sludge from waste water treatment	2
		Dust from air filtration system	1
22	Production or industrial use of materials made with organosilicone compounds	Silicone containing residues	1
23	Production / formulation of drugs / pharmaceuticals	Residue and wastes*	2
		Off specification products	2
		Date expired, discarded and off-specification drugs / medicines	2
24	Production, use and formulation of pesticides including stockpiles	Chemicals sludge from waste water treatment	2
25	Leather tanneries	Chromium bearing residue and sludge	2
		Chemicals sludge from waste water treatment	2
26	Electronic industry	Residue and wastes*	2
		Spent etching chemicals and solvents	2
27	Pulp and paper industry	Spent chemicals	2
		Corrosive wastes arising from use of strong acid and bases	2
28	Disposal of barrels / containers used for handling of hazardous wastes / chemicals	Sludge from treatment of waste water arising out of cleaning/disposal of barrels / containers	2
		Discarded containers / barrels / liners used for hazardous wastes / chemicals	2
29	Purification process for air and water	Flue gas cleaning residue*	2
		Toxic metal containing residue from used ion exchange materials in water purification	2
		Chemical sludge from waste water treatment	2
		Chemical sludge, oil and grease	2

S. No.	Processes	Waste streams	Preference of landfill activity
		skimming residues from common industrial effluent treatment plants (CETP's) and industry specific effluent treatment plant (ETP's)	
		Chromium sludge from cooling water treatment	2
30	Purification process for organic compounds / solvents	Spent Carbon*	2
31	Waste treatment processes e.g. incineration, distillation, separation and concentration techniques	Sludge from wet scrubbers	1
		Ash from incineration of hazardous waste, flue gas cleaning residue	1
		Spent acid from batteries	2

Note: - 1,2 indicates Order of preference for the Treatment/Disposal option

Table-1.4: List of Schedule-II Hazardous Waste Landfill

S. No.	Class	Preference of landfill activity
	Class – A	
1	Antimony and antimony compounds	2
2	Arsenic and arsenic compounds	2
3	Beryllium and beryllium compounds	2
4	Cadmium and cadmium compounds	2
5	Chromium (VI) compounds	2
6	Mercury and mercury compounds	2
7	Selenium and selenium compounds	2
8	Tellurium and tellurium compounds	2
9	Thallium and thallium compounds	2
10	Inorganic cyanide compounds	2
11	Organo-tin Compounds	2
	Class – B	
1	Chromium (III) compounds	2
2	Tungsten compounds	2
3	Halogen - silanes	2
4	Flourine	2
5	Chlorine	2
6	Bromine	2
7	Halogen – containing compounds which produce acidic vapours on contact with humid air or water, e.g. silicon tetrachloride, aluminium chloride, titanium tetrachloride	2
	Class – C	
1	Inorganic peroxides	2
2	Barium compounds except barium sulphate	2
3	Fluorine compounds	2
4	Phosphate compounds except phosphates of aluminium, calcium and iron	1

S. No.	Class	Preference of landfill activity
5	Bromates, (hypo – bromites)	2
6	Chlorates, (hypo – chlorites)	2
7	Aromatic compounds other than those listed under A12 to A18	2
8	Iodates	2
9	Sulphides	2
10	Zinc compounds	2
	Class – D	
1	Inorganic acids	2
2	Metal Hydrogen sulphates	2
3	Oxide and hydroxides except those of hydrogen, carbon, silicon, iron, aluminum, titanium, magnesium, calcium	2
4	Nitrides	2
5	Hydrides	2

1.7 Clearances

As per Environmental Clearance, 2 nos of landfill cells are proposed for the capacity of 95000MT. At present, MEEPL has constructed cell no.1 and is under operation on Landfill Cell no.2 is for future expansion work of cell no. 2 will start when capacity of cell no.1 is about to get extracting after taking all relevant regulatory approvals from respective government authorities.

1.8 Site Inspection Report

1.8.1 Background

Total 4 acre of land was allotted to M/s. Mother Earth Environ Tech Private Limited vide allotment letter no.: IADB/HO/AS-2/6772/2011-12 on dated 06.08.2011; however due to complexities in land acquisition by Karnataka Industrial Area Development Board for Industrial area, KIADB has issued Possession Certificate (PC) in parts with respect to complexities solved in acquisition of land and rest of PC copies will be issued after complexities solved in land acquisition. The Possession Certificate no. IADB/DO-I/16211/948/2014-15 on dated 14.11.2014 for 11,803 Sq mts and Possession Certificate no.: IADB/DO-I/16211/1158/2015-16 on dated 19.03.2014 for 334.97 Sq mts has been issued.

Site is located within the notified industrial Area and the area around 500 m falls under industrial area but the some area to be acquired for industry by KIADB which is sub judice.

The Environmental Clearance (EC) for the project was received vide letter no. SEIAA 1 IND 2015 dated 28.08.2015 for the total hazardous waste disposal capacity of 95,000 MT with 2 no. of cells with capacity (Cell no. 1 & 2 of capacity 50,000 MT and 45,000 MT respectively).

Subsequently, M/s Mother Earth Environ Tech Private Limited was request to Karnataka State Pollution Control Board (KSPCB) for developing one cell of capacity of 95,000 MT instead of two cells vide their letter no. MEEPL/2016-17/004 dated 30.03.2016 and subsequent letter of Regional Officer to Member Secretary, KSPCB vide his letter no.

KSPCB/RO/RMN/DEO/2015-16/1909 dated 31.03.2017 based on the his site inspection verified the capacity of disposal site cell no. 1 is 93844 at 6 m embankment and 103105 at 7 m embankment height.

Consent to Establishment (CTE) was obtained from Karnataka State Pollution Control Board (KSPCB) vide letter No: KSPCB/SEO(WMC)/CFE/2015-16/1471 on dated 04.11.2015.

Consent for discharge of effluent was obtained from KSPCB vide letter no. KSPCB/WMC/469/HWM/2016/003-39 on dated 13.04.2016.

Condition for installation of Multiple Effect Evaporators for disposing leachates was deleted vide corrigendum no. PCB/WMC/469/HWM/2016/6857 dated 08.03.2017 by Member secretary, KSPCB.

WAPCOS has reviewed and submitted the modified DPR after incorporation of our observations vide our letter dated 06.12.2016 to MoEF&CC.

Subsequently, WAPCOS received comments on modified DPR from HSM-Division, MoEF&CC dated 21.02.2017 and in this connection site visit was planned.

Site visit for physical verification was conducted on 01.03.2017 by WAPCOS Experts and based on the observation and comments the modified DPR was again submitted vide letter dated 28.04.2017.

Subsequently, WAPCOS received comments from HSM-Division, MoEF&CC dated 02.06.2017 regarding the Project Appraisal Report based on Site Inspection to be submitted.

The Project Appraisal Report has been prepared after incorporating the comments and observation during site inspection.

1.8.2 Site Inspection

The date and place of site visit alongwith details of members present during the site visit is given in Table-1.5 and Table-1.6 respectively.

Table-1.5 : Details of date and place of site visit

Date of Visit	**Mar 1, 2017**
Place of Visit	**Treatment, Storage, Disposal Facility (TSDF) of Hazardous Waste M/s Mother Earth Environ Tech Pvt Ltd (MEEPL)** Plot No 217, KIADB Industrial Area Phase II Harohalli 562112 Kanakapura Taluk, Ramanagara District, Karnataka

Table-1.6 Members Present During the Site Visit

S. No.	Organization	Name	Designation
1	WAPCOS	S M Thakurdesai	Project Director
2		K S V Nair	Top Level Expert
3		M R Udayashankar	Top Level Expert
4		Prathap B N	Environmental Engineer
5	MEEPL	T N Paramesh	Chairman
6		Sanjay S L	Director

S. No.	Organization	Name	Designation
7		Pramod A V	General Manager
8		Rajendra Datrika	Project Manager
9		Vinod Kumar Yeleti	Lab Head
10		Ajay	Civil Engineer

The comment wise details during site visit is given in Table-1.7

Table-1.7 : Comment wise details during Site Visit

S.No	MoEF&CC Remarks	Observations during Site Visit by WAPCOS on Mar 1, 2017	Compliance required from MEEPL
1	DPR should include drawings of landfill, storage room, weigh bridge, Security room, laboratory, admin/office building, workshop, leachate collection chamber, leachate storage tank, toilets, boundary wall, waste treatment shed, waste water treatment pit, surface water collection drainage system, surface water collection tank etc.	The facilities, except workshop, waste water treatment pit and surface water collection tank, are existing and operational at site.	Drawings included in DPR submitted on 28.04.17
		(i) There is no Workshop : Since all vehicles are on contract and machinery is under AMC.	
		(ii) Wastewater Treatment Pit : 2 soak pits (1 existing & 1 under construction) for sewage from the toilets. The tyre wash water drains to the leachate storage tank, from where it is carried by tankers to the Common ETP (Bangalore Eco Park, KIADB Dobaspet Industrial Area) under Annual Contract between MEEPL & BEP.	
		(iii) The present surface water is well-drained and does not include the landfill area. MEEPL have proposed a surface water collection tank at the NE Corner, before the landfill reaches the surrounding ground level	
2	Layout plan should show all the facilities available on the site clearly mentioning the name, dimensions and drawing number etc. the locations of air and water quality monitoring stations and bore wells should be clearly marked on the layout plan	Layout plan & details as per S. No 1 above	Details included in DPR submitted on 28.04.17
		4 air quality monitoring locations have been fixed by MEEPL, to ensure capture of data for all wind directions, based upon the meteorological data. The air quality monitoring is outsourced to M/s NOIDA Testing Laboratory, and the testing is carried out every 3 months. The test report for Dec, 2016 was available.	
		Water quality monitoring is done by sampling from 5 borewells located within the plant area, and based upon the groundwater flow directions, as ascertained from the hydrogeological study commissioned by MEEPL. The testing is done	

S.No	MoEF&CC Remarks	Observations during Site Visit by WAPCOS on Mar 1, 2017	Compliance required from MEEPL
		internally every month, and outsourced to M/s NOIDA Testing Laboratory for quarterly testing. The test reports for Feb, 2017 (internal) & Dec, 2016 (outsourced) were available at site.	
3	The liner system to be adopted by MEEPL should be clearly mentioned in the DPR. Plan and sectional drawings for top, bottom and side liners should be provided in DPR. The sectional drawing of landfill after the final capping may be included in the DPR	Liner system maintained by MEEPL is as per CPCB guide lines (CRITERIA OF HAZARDOUS WASTE LANDFILL HAZWAMS/17/2000-01. Section 7.0 - Landfill cover certeria). After completion future landfill caping drawings needs to be incorporated in DPR.	Details included in DPR submitted on 28.04.17
4	As per land record plot No. 217 measuring 11803 Sq mts is allotted to MEEPL but in the DPR area of the plot area is shown as 14424.6 Sq mts land records needs to be verified as the size and dimensions of the plot as mentioned in the modified DPR is not matching with the area and dimensions as per record.	Four acres (16,187.4 sqm) of land has been alloted as per letter no IADB/HO/AS-2/6772/2011-12 dated 6-8-2011. The land is being actually handed over by KIADB in phases. In 2014 KIADB handed over Plot No. 217, measuring 11803 sqm Later in 2016 KIADB issued another 334.97 sqm . Remaining 4049.43 sqm Possession Certificate yet to be received from KIADB.	Details included in DPR submitted on 28.04.17
5	Inventorization of the Hazardous Waste:		Details included in DPR submitted on 28.04.17
	a) It has mentioned in the modified DPR at P ES- 1 that the total quantity of Hazardous waste generation in Karnataka is 61,176.75MT/A. But as per table 1.2 the total quantity of the hazardous waste is 7247.856MT Units of measurement and frequency of generation is not provided for the same.	(i) 7247.856 MT waste is the received quantity by MEEPL from May 16, 2016 to Dec 31, 2016. (ii) 65,362.49 MT/A is the total quantity of landfill hazardous waste generated in Karnataka as on 31/03/2015 (Source : http://kspcb.kar.nic.in/hwm.html)	

S.No	MoEF&CC Remarks	Observations during Site Visit by WAPCOS on Mar 1, 2017	Compliance required from MEEPL
	Remarks: Inventorization of hazardous waste needs to be done as per the recent hazardous waste (management and transboundary) rules, 2016. The year – wise quantity of the hazardous waste likely to be received by the facility needs to ascertain. The quantity of hazardous waste that could be disposed off directly into the secured landfill and the quantity of waste that require treatment before disposal needs be ascertained and the details of the same should be included in the DPR. Further , in table 1.3 of the modified DPR , the preference of the landfill is shown as 1&2. This facility has only one cell , it is not clear that how MEEPL would manage the incompatible hazardous waste which planned to be filled In cell- No.2 as per previous DPR.	As per records available at site waste received between May 16, 2016 to Dec 31, 2016 is 7247.865 MT (Direct landfill waste received is 1121.38 MT & Landfill after treatment waste recevied is 6126.485MT). Based on this, the average expected receipt of hazardous waste per year at MEEPL site is about 12,000 to 13,000 MT.	
		MEEPL has clarified during the site visit that in Table 1.3 of the DPR the numbers 1 & 2 do not refer to the land fill cells, but, rather to the type of landfill activity viz. 1 - Direct landfill, 2- After treatment; both in the same cell.	
		As per the procedure explained by the MEEPL, waste sample is collected from the generators and a comprehensive analysis waste is not accepted in case the results indicate incompatibility or high calorific value (>2500 kcal/kg). Further, testing is conducted for every consignment reaching the site, and incompatible waste, if any, is rejected. However, no such occurrence has been reported till date.	
5A	What would be the active life of the landfill at the current rate of waste received by the facility?	As per the data available at MEEPL site, the landfill has a capacity of 95,000 MT. At the present rate of 1,100 MT/month, the active life of cell works out to 7.2 years. However, the actual duration would depend upon the actual waste collection.	
6	Treatment & Storage Facility:		Included in DPR submitted on 28.04.17
	a) As per the modified DPR the Treatment of waste includes 1) Reduction of the moisture content by adopting belt filter press and Solar Drying process and 2) Stabilization of the		

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S.No	MoEF&CC Remarks	Observations during Site Visit by WAPCOS on Mar 1, 2017	Compliance required from MEEPL
	hazardous waste by adding suitable stabilizing agent.		
	i. Location of belt filter press and solar drying area is not available in the layout plan also details of the same is not mentioned in Table 9.3 Cost of machinery and equipment.	MEEPL have adopted stabilization by adding stabilizing agents (flyash & lime). Belt filter press & solar drying process are not adopted and hence not provided.	
	ii. Information pertaining to recycling of waste is any is not available in the DPR.	MEEPL is mandated by KSPCB to accept only landfillible hazardous waste & no recyclable waste.	
	b) As per section 4.6 of the DPR MEEPL would construct 5 sheds for storage and treatment of the hazardous waste. Shed 5 would be used for stabilization of hazardous waste. The size of shed 5 is 7mx60m. But as per section 2.3 of the DPR , there would be a stabilization area of 14mx10m consisting of 3 bins of 30MT each. WAPCOS Ltd should verify the same.	In MEEPL single shed of 10X60m is constructed which includes three bins of stabilization area each bin capacity 30MT. MEEPL have adopted this modified layout for convenient vehicle movement.	
	c) In cost estimation section industrial shed of 90mx10m is mentioned, but as per the satellite imagery (Figure-1 of the DPR), only one big shed of 60mx10m size is visible. WAPCOS Ltd should verify the same.	Currently MEEPL have constructed 60m x 10m shed at site. Remaining 30m X10m shed is proposed future expansion	
	d) Storage area for hazardous waste which could not be treated by the MEEPL and for non compatible waste needs to be mentioned in the DPR.	Untreatable waste not is not received by MEEPL, and hence Not Applicable	
7	Liner System:		Incorporate in DPR submitted on 28.04.17.
	a) The drawing given at p 4-18 and p4-19 of the modified DPR provides details about landfill and liner system to be adopted.		
	Remarks: The dimensions of the drawing	MEEPL explained that the drawings prepared by	

S.No	MoEF&CC Remarks	Observations during Site Visit by WAPCOS on Mar 1, 2017	Compliance required from MEEPL
	prepared by IISc Bangalore at p4-18 and p4-19 of the DPR are not matching with that attested by Sr. Environmental Officer at p4-11 also the section of side liner is not available in the DPR.	IISC Bangalore was initial proposal, where as the Senior Environmental Officer, KSPCB, attested the drawing as per the actuals at site. Same has been verified.	
	Secondly, the calculation for requirement of clay and geomembrane as mentioned in section 3.5 is 9200 Cubic Mts and 8400 Cubic Mts, respectively, but the same quantity was calculated for cell -1 of smaller size as per previous DPR. WAPCOS Ltd should check the calculation and clearly specify the details of side and bottom liner system to be adopted. Landfill drawing after final capping needs to be provided in DPR which clearly show the bottom, side and top liner system, leachate and gas collection system.	The calculations for clay liner has been checked at site	
8	Leachate collection systems:		Details included in DPR submitted on 28.04.17.
	There is only one cell in this landfill, but the requirement of HDPE pipe as given at p 4-15 of the modified DPR is cell-1 and cell-2, this need to be verified. It has mentioned in the authorization letter issued by Karnataka Pollution Control Board that " the applicant shall install MEE (Multiple Effect Evaporators) for disposing the leachate generated from the waste within six months". On sit leachate treatment facility is not proposed in the DPR	Cell -1 is the existing Landfill at MEEPL site (& is equivalent to the Cells 1 & 2 in the old DPR together). Same verified at site during visit. As per KSPCB latter no PCB/WMC/469/SWM/2016/6857 on dated 8th March 2017 KSPCB has withdrawn the requirement of MEE installation at site.	
9	Calculation for quantity of clay , geomembrane and HDPE pipe needs to be verified.	The quantity calculation as per actual execution confirmed by MEEPL verified at site.	Details included in DPR submitted on 28.04.17
10	Laboratory: Drawing of the laboratory is not provided in the DPR, the size of the laboratory is not shown In the layout plan, details and	Lab & equipments have been verified during visit.	The Lab drawing and cost details of lab equipments included in DPR submitted on 28.04.17 by the

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S.No	MoEF&CC Remarks	Observations during Site Visit by WAPCOS on Mar 1, 2017	Compliance required from MEEPL
	cost of laboratory equipment are not provided in the DPR.		MEEPL.
11	Cost Estimation:		
	a) Detailed cost analysis and economic viability of the project is not provided in the modified DPR.	IRR Calculations to be carried out by MEEPL	Included in DPR submitted on 28.04.17
	b) It has mentioned in DPR that cost for landfill site construction would be Rs. 1273.60 lakh but the breakup of the same is not provided in the DPR.	Breakup of cost was available at site	Included in DPR submitted on 28.04.17
12	Environmental Clearance Conditions: The environmental clearance was obtained for constructing 2 cell in the proposed hazardous waste landfill site, but now only one cell is being developed. It has mentioned in the general conditions EC at SL No. 4 that "No further expansion or modifications in the plant shall be carried out without prior approval of SEIAA/Ministry of Environment and Forests as the case may be. In case of deviations or alterations in the projects proposal from those submitted to this authority for clearance, a fresh reference shall be made to the authority to access the adequacy of the conditions imposed and to add additional environmental protection measures required, if any". Further, in the application submitted by MEEPL for obtaining 'Consent to Establish' two cells were proposed. It is not clear from the DPR whether MEEPL had obtained prior approval SEIAA for these modifications.	2 nos of landfill cells are proposed for total capacity of 95000MT. Now, MEEPL have constructed cell no.1, but of higher dimensions, which has equivalent capacity to the original 2 cells together. All relevant regulatory approvals from respective authorities. Pollution Control Board has given the modified dimensions details & respective letters which includes authorization, Consent for Operation along with corrigendum of the same has been attached	Included in DPR submitted on 28.04.17
13	How MEEPL would handle the Incompatible	The acceptance system has been devised by	

S.No	MoEF&CC Remarks	Observations during Site Visit by WAPCOS on Mar 1, 2017	Compliance required from MEEPL
	waste and the waste for which treatment facility is not currently available with MEEPL?	MEEPL to ensure that no Incompatible & untreatable waste is recevied (details in Sl No 5)	
14	Do all the site selections norms as per CPCB guidelines have been followed. It has observed that place called "Ganldoddi" seems to be within 500mts of the TSDF site and may have some water supply wells.	The details vis-à-vis CPCB criteria (as per DPR) are as follows : No lake or pond within 200 m No navigable river or stream within 100 m No major river in the vicinity & landfill does not fall within 100 year flood plain area of any secondary stream. NH-209 is at a distance of 1.53 km from the site (i.e. > 500 m) KIADB notified area includes Ganldoddi village & beyond, and is hence > 500 m. There is no Public Park within 500 m The TSDF site is not located in a critical habitat area. The nearest airports viz. Bengaluru & Mysuru are very far (95 km and 130 km respectively) from the TSDF site The site is not in CRZ area The Ground Water Table in the area is reported to be 70 m bgl, and the lowest landfill bottom is 16.5 m bgl (DPR + site information) i.e. > 2m below base of landfill	Details included in DPR submitted on 28.04.17
		The minimum straight line distance from the TSDF site (SE end of Landfill cell) to Ganldoddi village (NW corner), as asceratined from Google Earth, is 306 m i.e. less than 500 m.There are 2 borewells in the vicinity of Ganldoddi village. Borewell no. 1 (on the Eastern side, along the road to Harohalli village) is located at a distance of 586 m, and Bore well no. 2(on the Southern side, along the	

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S.No	MoEF&CC Remarks	Observations during Site Visit by WAPCOS on Mar 1, 2017	Compliance required from MEEPL
		Bengaluru-Kanakapura road) is located at a distance of 607 m from the TSDF landfill.	
15	Whether the area around 500mts from the landfill site falls under industrial area, if not, the same has been notified as no development zone by State Government or not.	Clarified in response to comment S. No.14	-
16	A section plan may be included in the DPR clearly showing the landfill, ground water table, direction of flow of ground water, location of ground water monitoring bore wells	Hydrogeological Study has been conducted by Mr S S Chandrashekar Math, Chief Geophysicist (retired), Mines & Geology Department, GoK	Included in DPR submitted on 28.04.17
17	In addition to the above WAPCOS Ltd should appraise the DPR as per ToR of the MoU executed between MoEF&CC and WAPCOS Ltd.		-

1.9 Outline of the Report

The contents of Appraisal of Report for Common Hazardous Waste Treatment Storage and Disposal Facility (TSDF) are organized as follows:

Chapter-1 gives an overview of the project background and norms for site selection.

Chapter-2 gives a background of implementing Agency i.e. Mother Earth Environ Tech Pvt. Ltd. (MEEPL).

Chapter-3 outlines the details of facilities proposed at Common Hazardous Waste Treatment Storage and Disposal Facility (TSDF).

Chapter-4 covers the conclusion & recommendation for Common Hazardous Waste Treatment Storage and Disposal Facility (TSDF).

CHAPTER – 2

BACKGROUND OF IMPLEMENTING AGENCY

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CHAPTER-2
BACKGROUND OF IMPLEMENTING AGENCY

2.1 Introduction

Karnataka State Pollution Control Board (KSPCB) with the assistance of German Technical Cooperation is in the process of evolving an effective Hazardous Waste Management (HWM) strategy for Karnataka. Establishment of a technically sound, operationally sustainable Treatment, Storage and Disposal Facility (TSDF) is one such activity of the cooperation.

Mother Earth Environ Tech Pvt. Ltd. (MEEPL) promoted by Chaitra Groups Bengaluru, is engaged in developing waste management facilities in Karnataka. MEEPL has developed Hazardous Waste Landfill at Harohalli Industrial area, Kanakapura Taluq, Ramnagar district. The Company is managed by group of professionals who have experience in the field of waste management.

At present, MEEPL have purchased of KIADB allotted land for TSDF purpose, with a facility of about 95000 MT capacity of Secured Engineering Landfill (SLF) for disposal of industrial hazardous wastes including treatment. In addition increase the additional 10 acres land of KIADB allotted land has been purchase for future expansion. This project will operate in an eco-friendly manner to protect environment from hazardous wastes. We are willing to provide best services to all industries in Karnataka.

2.2 Vision of MEEPL

Striving to provide Excellent and Sustainable Environment Infrastructure for hazardous waste management.

2.3 Mission of MEEPL

- To develop environmental waste management systems for hazardous waste after treatment before landfilling such as to reduce its impact on all components of environment.
- To assist hazardous waste generator in the analysis, treatment and disposal of their waste at reasonable cost and with highest safety.
- To bring awareness among industrial groups about environmental management.
- To train environmental management personnel in the field of hazardous waste management.

2.4 Managing Director of MEEPL

Prior to MEEPL , T.N. Paramesh was the Member of Karnataka State Pollution Control Board (K.S.P.C.B), Karnataka from 2007 to 2010 â€" Member of consent committee for EIA and Non EIA category and Library and Laboratory Committee (K.S.P.C.B), Karnataka. He has organized various Environmental Awareness Programs and has been involved in greenery at Adichunchanagiri (Plantation of five lakhs trees). He has been awarded with National Award for Small Scale Entrepreneurs 2006 from EX-PM DR. Manmohan Singh (Work in Pilot Project based on ISRAEL Technology).

2.5 Achievements

1. Effectively discharged the duties as a Board member of Karnataka State Pollution Control Board.
2. Co-ordinated with the Chairman to realise organizational vision for Karnataka State Pollution Control Board.
3. Formulated and implemented policies and procedures effectively in Karnataka State Pollution Control Board.
4. Provided critical advice, useful schemes, comments and feedbacks to the chairman and other Board members in Karnataka State Pollution Control Board and Established ideal Board- Management relationship in Karnataka State Pollution Control Board.

2.6 Knowledge in the Field of Pollution Control

1. Act and Rules of India relating to Pollution control and Environment.
2. Thorough knowledge of functions of the Board, Duties and responsibilities of the chairman and the staff.
3. As a member of EIA and non EIA consent committee, aware of the issues of all pollution issues in the state and also on the industries.
4. Exhaustively studied the Functioning of other State Pollution Control Boards such as Gujarat State Pollution Control Board, West Bengal State Pollution Control Board, Tamil Nadu State Pollution Control Board, and realized the steps to be taken for improvements of Karnataka State Pollution Control Board.
5. Visited several industries which are significant from pollution angle and there by gaining lot of field experience in pollution related issues.
6. Understanding of Hazardous waste disposal facilities and practical knowledge of Hazardous waste handling and management.

2.7 Entrepreneurship

1. Implemented wastewater treatment plants (WWTP's) of various capacitives.
2. Provided technical & operational assistance to WWTP's.
3. Installed air pollution control equipment.

2.8 Layout of MEEPL

1. Equipment shelters
2. Weighing scales
3. Office space
4. Location of waste inspection facility (if used)
5. Location of surface water drainage facilities
6. Location of landfill leachate management facilities
7. Location of gas management facilities
8. Location of monitoring wells/environmental monitoring facilities
9. Fencing and green belt along the peripheral boundary and emergency exit

Composite Liner Option can be considered with reduced thickness of clay. For construction of the clay liner the compaction properties of the liner and the method of compaction method needs to be established after excavation of the landfill basin.

2.9 Collection and Transportation

1. Transportation of hazardous waste will be done as per guidelines of CPCB and Transboundary guidelines.
2. The TSDF will be having authorized transporters with dedicated dumpers / trucks / vehicles (Hydraulic) on contract basis for transportation of waste. All the vehicles are having the nameplate with details of company's name, address, phone no., etc.
3. During transportation, containers are closed from all sides and covered from top. The frequency of trucks / dumpers / vehicles movement within premises of TSDF Site will be maximum 5 nos./day.

2.10 Weigh

1. As the dumper / truck / vehicle enter MEEPL, weighing will be done and samples will be drawn from different locations and a random sample will be made.
2. Once the FPA are over, vehicle will be allowed to enter the premises and will be sent to dumping site or temporary hazardous waste storage area for treatment purpose.
3. If any waste consignment is not meeting the acceptance criteria, it will be either returned to the waste generator or taken for appropriate treatment (like neutralization / stabilization etc.)

2.11 Disposal

1. Once the waste consignment meets the acceptance criteria, then the dumper will be allowed to go to the operational area of the landfill.
2. The waste will be unloaded from the dumper / hook loader at the operational area. Manual handling will be avoided.
3. The waste will be spread and compacted with the help of excavators. Soil layer will be given in between layers of waste.
4. To avoid rain water contamination entire landfill area is covered during rainy season and the waste will be stored in temporary storage area

2.12 Environmental Policy

Mother Earth Environ Tech Pvt. Ltd. (MEEPL) is committed to

1. Conduct business in fair, safe, transparent, comprehensive and technically sound manner.
2. Meet or exceed all the environmental and Pollution control legislation that are applicable to the management.
3. Training staff to raise awareness on environmental issues and ensure their support in improving the Company's performance.
4. The environmental management system shall be continuously improved and developed keeping in view of the latest techniques.

2.13 MEEPL Serves

1. To Handle the hazardous waste in safe manner to serve the better environment.
2. To minimize the environmental, health, social and economic impacts of hazardous waste generation and management.
3. To maximize the collection of hazardous waste with a view to reducing the environmental and health impacts of any unregulated waste.
4. To strive for increased self-sufficiency in the management of hazardous waste and to minimize hazardous waste export.

5. To adopt the updated technologies in management of hazardous waste.
6. To educate the member industries about the hazardous waste impact on the environment.
7. To provide the transportation of hazardous waste as per CPCB transboundary guidlines.

2.14 Hazardous Waste

MEEPL will accept hazardous waste categorized under schedule 1 & 2, CPCB guidelines of Hazardous waste Management, Handling and Transboundary Movement Rules - 2010, and dispose them in eco-friendly safe manner.

2.15 Waste Acceptance Criteria

1. The generator should have Authorization for disposal as per Hazardous Waste (Management, Handling and Trans-boundary Movement) Third Amendment Rules, 2010 and CPCB guidelines.
2. Hazardous waste generators must take the membership from MEEPL
3. After taking membership, the company shall carry out comprehensive analysis of waste and the same sample will be preserved for further physical verification.
4. As the dumper/truck/vehicle arrive to MEEPL, it will be weighed and samples will be taken from 3 different locations and composite sample will be made and analyzed for main parameters of Finger print analysis (FPA).

CHAPTER – 3

PROJECT DETAILS

CHAPTER-3

PROJECT DETAILS

3.1 Structure

The salient features of the project are given in Table-3.1.

Table-3.1: Salient features of the project

S. No	Project details	
1	Project	"Hazardous Waste Landfill" Project
2	Project developers	M/s. Mother Earth Environ Tech Private Limited, Bangalore
3	Location of the site	Survey no.217, Harohalli Industrial Area, 2nd phase, Kanakapura Taluk, Ramanagara.
4	Capacity of cell	95000MT
5	Constitution of the Organization	Private Limited Company
6	Total Plot Area	4 Acre
7	Longitude Latitude MSL	77°28' 23" E 12°40' 55"N 693 m from sea level
	Project cost	Rs.15,92,92,000/- (Rupees Fifteen Crores Ninety Two Lakhs Ninety Two Thousand Only).

3.2 Purpose & Scope

Industrial activities do generate considerable amount of waste. Some of the waste generated by certain industries is hazardous in nature. Because of their characteristic quality of being corrosive or flammable, or reactive, toxic or persistent in nature, such wastes are termed as Hazardous Wastes. In spite of new technologies, improved production, waste treatment and management strategies like reduce, reuse and recycle; there is still a certain quantity of waste that needs to be disposed in a scientific way.

The prime objective of the proposed project is to dispose various kinds of waste generated hazardous wastes scientifically and in an environmental friendly manner.

The proposed project envisages developing a landfill for such hazardous waste generated by major industrial group- Viz. Kirloskar Toyota and many more such industries, KSPCB (Karnataka State Pollution Control Board) authorized total quantity of hazardous waste generation in Karnataka is 61,176.75 MT/A.

3.3 Site Description

M/s. Mother Earth Environ Tech Private Limited, Bangalore is establishing "Hazardous Waste Landfill" Project at survey no.217, Harohalli Industrial Area, 2nd phase, Kanakapura Talk, Ramanagara with Longitude:- 77°28' 23" Latitude:- 12°40' 55"N and MSL: - 693 m. The

project is for exclusively construction, operation and closure of hazardous landfill. The maps showing location of landfill site in the township and industrial area is given in Figures-1.1 and 1.2 respectively. The Layout plan of industrial area w.r.t city of Bangalore showing important features like airport, railway station, bus stand and etc. is depicted in Figure-1.3.



Figure-3.1: General map of the township showing location of KIADB Industrial area



Figure-3.2: Internal map of KIADB Industrial area showing location of MEEPL site

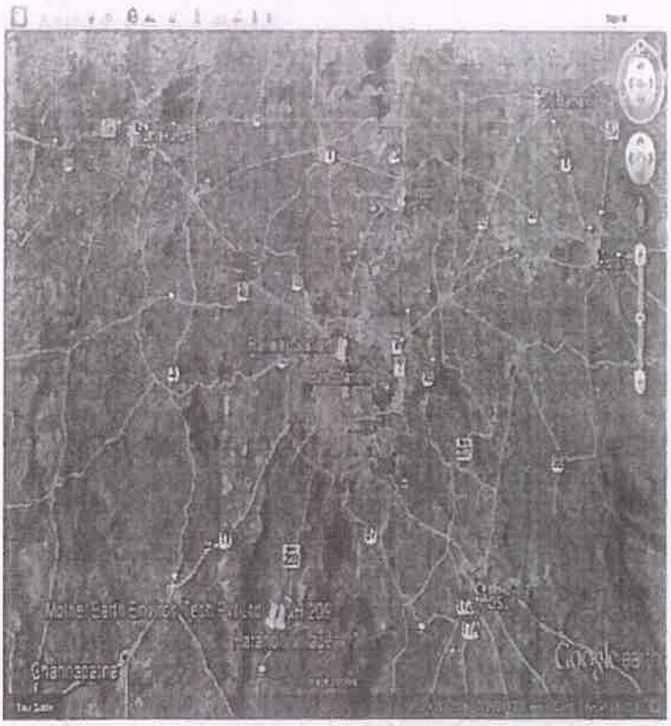


Figure-3.3: Layout plan of industrial area w.r.t city of Bangalore showing important features like airport, railway station, bus stand, etc.

3.3.1 Infrastructure for Landfill Development

The following site infrastructure shall be provided at each HW landfill:

- Site Entrance and Fencing.
- Administrative and Site Control Offices
- Access Roads
- Waste Inspection and Sampling Facility.
- Equipment Workshops and Garages.
- Signs and Directions
- Water Supply
- Lighting
- Vehicle Cleaning Facility
- Fire Fighting Equipment

Site entrance infrastructure shall include:

- A permanent, wide, entrance road with separate entry and exit lanes and gates.
- Sufficient length/parking space inside the entrance gate till the weighbridge to prevent queuing of vehicles outside the entrance gate and onto the highway.

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- A properly landscaped entrance area with a green belt of 20m containing tree plantation for good visual impact.
- Proper direction signs and lighting at the entrance gate.
- A perimeter fencing of at least 2m height all around the landfill site with lockable gates to prevent unauthorized access.
- Full time security guard at the site.
- The waste received in the TSDF needs to be treated. This is undertaken in the block of buildings with the following facilities. A Receiving or Delivery area where each type of waste is received in different compartments is also present. The waste thus received is treated in different cubical in the treatment building. Prior to the treatment, the waste is stored in Storage rooms. Separate monsoon storage is also provided in the facility.
- Treatment facility will be provided for wastes that require treatment like neutralization / stabilization before disposal in landfill.
- Green belt details: In the periphery / surrounding area of TSDF, green belt will be developed.

3.4 Civil Works Proposed

The civil works to be commissioned in the proposed TSDF are as follows:

- Waiting Area for the trucks with Hazardous Waste
- Security Cabin
- Weigh Bridge and Control Building
- Sampling Area to take waste samples which have to be analyzed in the laboratory are proposed.
- Administration/Operation Building which consists of
  - ✓ Analytical Laboratory
  - ✓ Sample Storage area
  - ✓ Public Relations Office / Information Centre
  - ✓ Room for KSPCB/CA representative
  - ✓ Meeting room
  - ✓ Administrative staff office
  - ✓ Toilets.

3.4.1 Main Phase of the Project: - Pre-Construction Activities

Land use in proposed project activities is for industrial purpose. Since, there is a clear provision for land for the proposed project activity; there will not be any cutting of the plantation at the site. Minor site clearance activities shall be carried out to clear shrubs and weed to conduct soil survey and initial preparation. The project site is located on level ground, which does not require any major land filling for area grading work. Soil testing and analysis will be done for detailed engineering before construction. Approach road is readily available to access the site hence no major preconstruction activities are anticipated.

3.4.2 Construction Activities

All Construction and commissioning activities of proposed project activities will be carried out after getting Environmental Clearance from SEAC, Bangalore and Consent for Establishment (CFE) from the Karnataka State Pollution Control Board (KSPCB). Erection of

various machineries shall start simultaneously. Since this is developed area, there is no site development activity.

- Minor site clearance activities will be carried out to clear shrubs and weed.
- Construction of TSDF plant.
- Construction of internal roads for reaching various sections.
- Construction of sheds and other essential utilities will be carried out.

Construction materials like steel and cement will be sourced from the local manufacturers. Quantities of construction materials like stone, sand, aggregates and soil will be worked out during detailed engineering phase. Materials for construction will be brought from the nearest local suppliers. During the plant construction phase, all construction materials will be transported via road only.

People will come for permanent and temporary employment during construction and operation of the TSDF and also to avail the business opportunity. Local people will be given preference in employment during the construction activities.

3.4.3 Bottom and Side Lining

On a basis of review of liner systems adopted in different countries and in consideration with Indian conditions, it is recommended that for all HW landfills the liner system criteria listed in Section B.8 be adopted in consultation with SPCB/PCC and commensurate with local area specified needs.

A liner system at the base and sides of the landfill, which prevents migration of leachate or gas to the surrounding soil, Sketch of lining system is given in Figure-3.4

The depth of bottom stabilization and liners etc., -1 mt

Effective depth is 24 mts (additional 1 -2 mts can be considered for land filling above the ground level also).

Clay Liner with suitable soil and Membrane Liner

Clay Required:

Bottom Liner

Compaction density and water content to be finalised after compaction testing of selected liner material.

Cell 1: 2334 x 0.9 x 1.25 = 2700 Cum

SIDE LINER

Cell 1 : 231 x 25 x0.9 x1.25 = 6500 Cum

Total

Cell 1 : 9200 Cum

Total Clay Required = 17,000 Cum

Membrane

Cell 1:

Bottom : 2400 Sq.m

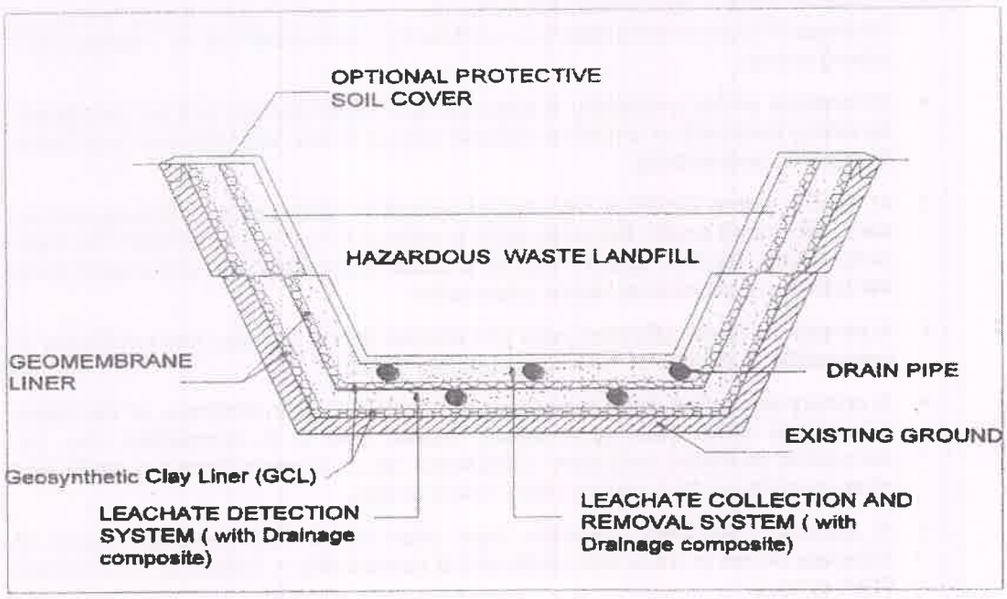
Side : 6000 sq. m

Total Geomembrane required 8400 = 8,400 sq.m

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Composite Liner Option can be considered with reduced thickness of clay.

For construction of the clay liner the compaction properties of the liner and the method of compaction method needs to be established after excavation of the landfill basin.



Figrure-3.4: Schematic Diagram of Composite Liner System

3.4.4 Landfill Liner and Cover Criteria

3.4.4.1 Liner Criteria:

The liner system shall be designed, constructed and installed to satisfy the following:

- Prevent migration of waste, leachate or gas to the adjacent subsurface soil or ground water or surface water.
- Constructed of materials that have adequate chemical properties, physical properties and engineering properties to prevent failure on account of loads, climatic conditions and contact with waste or leachate.
- Placed in a stable manner on the base and side slopes.
- Installed to cover all surrounding soils likely to come in contact with the waste or leachate.

The base of the liner system (at the lowest point in a landfill) shall be at least 2.0 m above the highest anticipated ground water table level.

3.4.4.2 Minimum Specifications

The liner system shall be designed specifically for each site to meet the criteria stated in Section 3.4.4.1

The liner system must include the following components. However, depending on the design requirements, the number of components as well as the specifications of the components can exceed the minimum specifications listed below. The components listed below are waste downwards.

- A leachate collection layer of thickness 30 cm or more and coefficient of
- permeability in excess of 10^{-2} cm/sec (10^{-4} m/sec.).
- A single composite liner comprising of i. A HDPE geomembrane of thickness
- 1.5 mm or more – and a compacted clay (or compacted amended soil) layer of thickness 150 cm or more having a coefficient of permeability of 10^{-7} cm/sec (10^{-9} m/sec) or less.
- At locations where availability of clay is limited, amended soil will be constituted by mixing bentonite or any other suitable clay to locally available soil to achieve the desired permeability.
- In regions where rainfall is high and/or subsoil is highly permeable (e.g. gravel, sand, silty sand) and/or the water table is within 2.0 m to 6.0 m beneath the base of the landfill, the liner system shall be a double composite liner and shall include the following components, waste downwards:
- A primary leachate collection layer of thickness 30 cm or more and coefficient of permeability in excess of 10-2 cm/sec (10-4 m/sec).
- A primary composite liner comprising of i. A HDPE geomembrane of thickness 1.5 mm or more (see specification* below) and ii. A compacted clay (or compacted amended soil) layer of thickness 45 cm or more having a coefficient of permeability of 10-7 cm/sec (10-9 m/sec) or less.
- A secondary leachate collection layer (also called leak detection layer) of thickness 30 cm or more and coefficient of permeability in excess of 10-3 cm/sec (10-5 m/sec).
- A secondary composite liner comprising of i. A HDPE geomembrane of thickness 1.5 mm or more (see specification* below) and ii. A compacted clay (or compacted amended soil) layer of thickness 45 cm or more having a coefficient of permeability of 10-7 cm/sec (10-9 m/sec) or less.
- Specification: [The geomembrane must have (a) Tensile Strength at yield > 18 kN/m, (b) Tensile Strength at break > 30 kN/m, (c) Tear Resistance > 150 N and (d) Puncture Resistance > 250 N].

For extremely hazardous waste, the number of composite liner layers shall, if necessary, exceed two and these will be finalized by the design engineer in consultation with SPCB/PCC as per site specific conditions.

3.4.4.3 Types of Geo-synthetic Clay Liners

Geo-synthetic clay liners (GCLS) are thin hydraulic barriers containing approximately 5 kg/m^2 of bentonite, sandwiched between two geotextiles or attached with an adhesive to a geomembrane. Geosynthetic clay liners are increasingly used in bottom liners for landfills and impoundments in final covers for landfills and remediation projects, and as liners for secondary containment around liquid storage tanks. A geosynthetic clay liner, which is initially placed dry, does not yield consolidation water upon loading, unlike compacted clay liners (CCLS). Under consolidation loads, significant amounts of pore water from a saturated compacted clay can flow into the underlying drainage layer and be misinterpreted as liner leakage. Also in a composite liner system, geosynthetic clay liners reduce the thickness of compacted clay liners and caps, which increases landfill air space in the same foot print and allows less excavation work for a given landfill volume.

Four types of geosynthetic clay liners are widely used. They are (i) geotextile encased, adhesive-bonded GCL (ii) geotextile encased, stitch-bonded, GCL; (iii) geotextile – encased, needle – punched GCL; and (iv) geomembrane – supported, adhesive – bonded GCL (Refer Figure-3.5). Each type of GCL has its own unique properties.

- Geotextile – Enclosed, Adhesive-Bonded GCLA geotextile-encased, adhesive-bonded GCL is a non-reinforced GCL with two light woven or non-woven geotextiles encapsulating a layer of bentonite (Figure-3.5 (a)) Example – Claymax ®200R.
- Geotextile – Encased, Stitch – Bonded GCL is a reinforced GCL consisting of a layer of bentonite encapsulated between two geotextiles (Figure-3.5 (b)). The two woven or nonwoven geotextiles on this material are stitched together with parallel rows of stitches. The increase in internal strength achieved by stitch-bonding the encapsulating geotextiles together is very substantial. Example – Claymax ® 500SD.

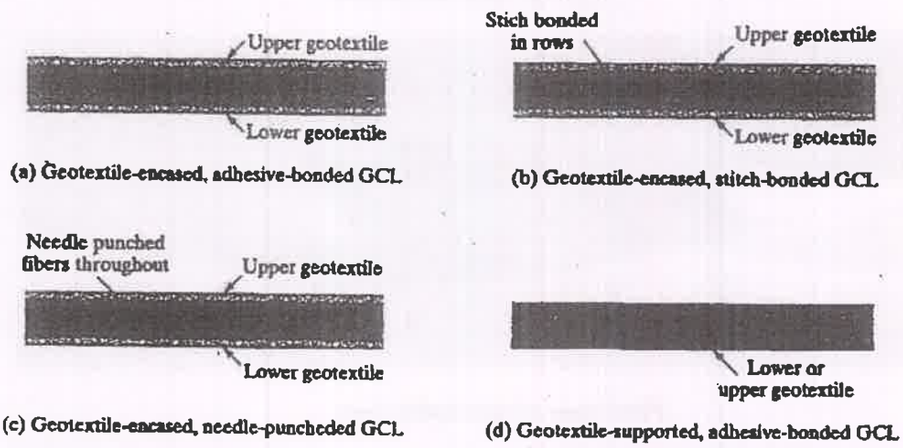
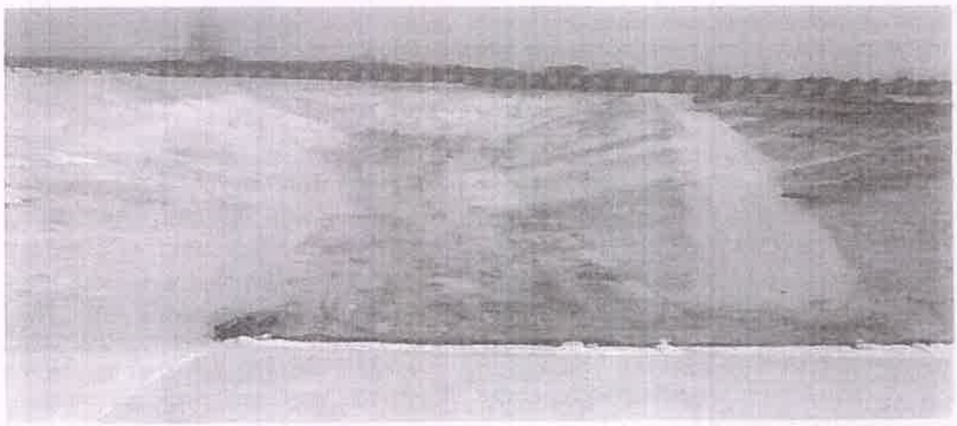
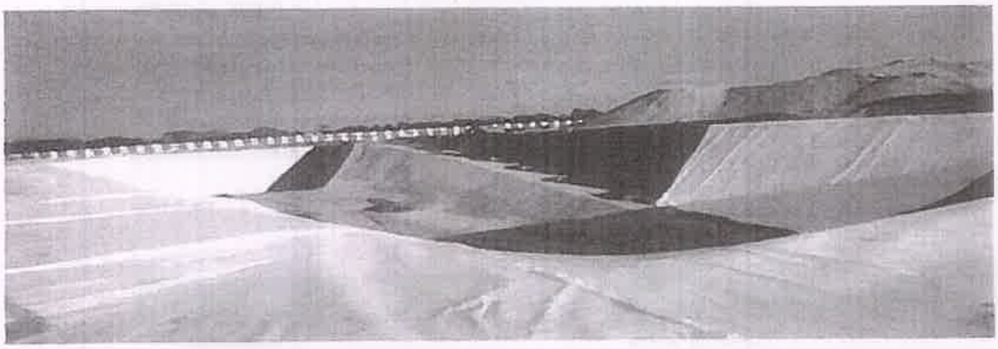


Figure-3.5 Four Types of Geosynthetic Clay Liners

- Geotextile – Encased, Needle-punched GCL is also a reinforced GCL consisting of a layer of bentonite encapsulated between two woven or nonwoven geotextiles, needle punched together (Fig. 3.5 (c)). This integrated matrix of bentonite and needle punching is provided by penetrating the nonwoven, needle-punched geotextile on one side of the GCL and "dragging" fibers through the bentonite and the lower geotextile. Example – Bentofix ®NS and Bentomat ® DN.
- Geomembrane-Supported, Adhesive – Bonded GCL – A geomembrane – supported adhesive – bonded GCL is a bentonite-geomembrane composite GCL. The geomembrane can be of any type (it is usually HDPE or LLDPE), of any thickness, and either smooth or textured. This type of GCL can be installed in two ways. The first configuration is with the geomembrane side facing downward against the subgrade and with the bentonite side facing upward against an overlying field – deployed geomembrane, forming a three layer system. The second configuration is with the bentonite side facing downward against the subgrade. Example- Gundseal



Landfill after excavation



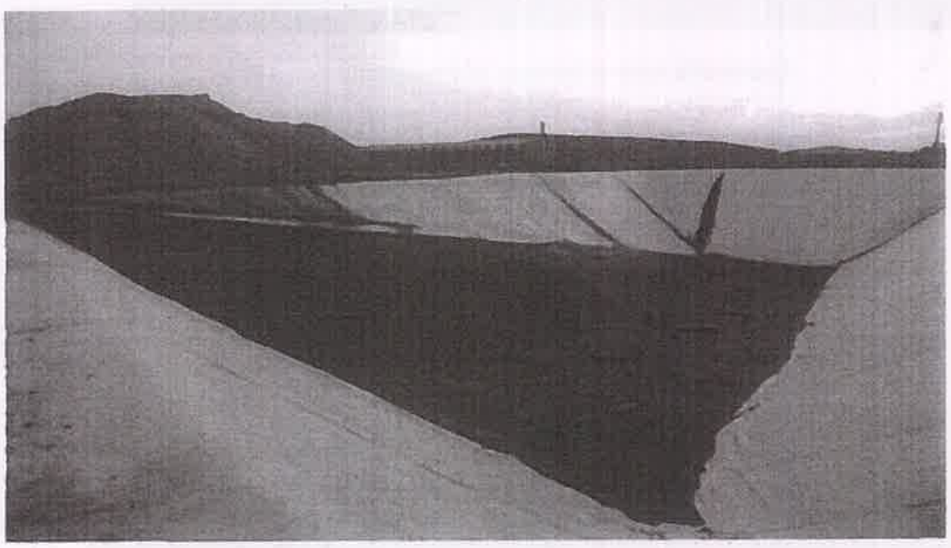
First layer of geotextile liner



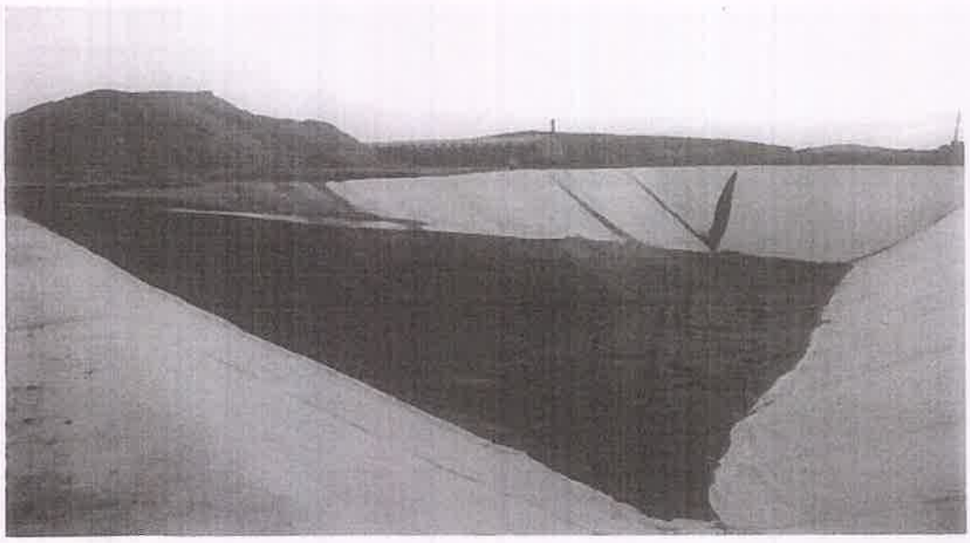
Second layer of geotextile liner



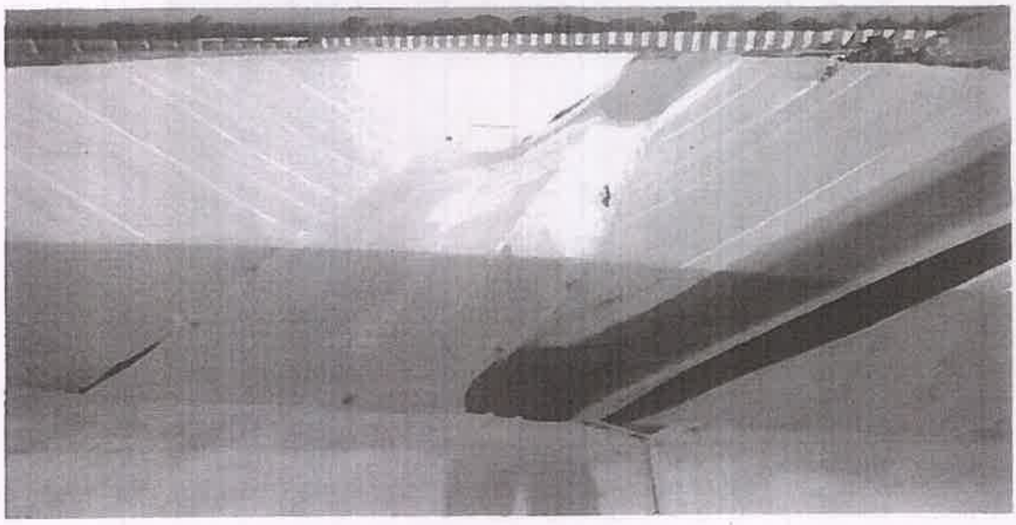
First layer of geotextile liner on ramp



Geotextile liner at bottom of the landfill



Geotextile liner at bottom of the landfill



Optional cover to landfill

3.4.4.4 Design Requirements

The liner system shall meet the following design requirements:

- Requirement of adequate stability at the base of the landfill (in soft soil)
- Requirement of adequate stability along the sides of the landfill
- Requirement of adequate strength to withstand construction loads/vehicle loads

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- Requirement of permeability and material properties as specified.
- Requirement of compatibility with leachate and waste
- Requirement of transition filters between waste and leachate collection layer to prevent clogging of the leachate collection layer.
- Requirement of protection layer/transition layer between each component of the liner system (A protection layer between a leachate collection layer and the HDPE geomembrane may sometimes be required if coarse/angular sand or gravel is used in the leachate collection layer. The protection layer may comprise of silt/local earth (15cm thick or a geotextile).
- Requirement of adequacy of clay additive in amended soils.

3.4.4.5 Construction Requirements

The liner system shall be constructed to ensure that

- The compacted clay (or compacted amended soil) layer has a coefficient of permeability of 10^{-7} cm/sec (10^{-9} m/sec) or less; is devoid of clods and shrinkage cracks; and achieves the desired strength.
- The geomembranes is laid in intimate contact with the compacted clay/compacted amended soil layer; is properly joined/welded at the seams; and is not puncture by construction vehicles/tools
- The leachate collection layer has a coefficient of permeability of 10-2 cm/sec (10-4 m/sec) or more and does not become clogged by intermixing or migration of fine particles.

On side slopes, the horizontal width of the 150 cm thick clay liner will normally exceed 300 cm and the clay can be compacted in horizontal layers using standard compaction equipment or in inclined layers using slope compactors.

3.4.4.6 Quality Control

A quality assurance programme shall be drawn up by the owner/operator during construction of the liner system. Such a programme will include:

- Regular performance of quality assurance test in the field for each component of the liner system – one set of field and laboratory tests for each oil component per 500 to 1000 cubic meters of earthwork and one set of field and laboratory tests for the geomembrane per 200 sq.m. of installed area.
- Approval by the regulatory authority of the lists of tests, their frequency and the acceptance criteria.
- Periodical visits by representatives of the regulatory authority (or their nominee) during construction of the liner.
- Complete documentation of all quality control records and their submission to the SPCB/PCC along with statistical analysis showing satisfactory achievement of acceptance criteria. The quality control tests for compacted clay layer (or amended soils) as well as the leachate collection/drainage layer shall include
- In-situ density tests,
- In-situ moisture content tests,
- Compaction tests,
- Permeability tests,
- Grain size distribution tests and

- Atterberg's tests
- Others.

The quality control tests for geomembrane liners shall include

- Thickness tests
- Density tests
- Strength tests
- Toughness tests
- Durability tests
- Chemicals resistance tests
- Field seam strength tests
- Overlap check tests
- Others.

3.4.4.7 Cover Criteria

The cover system shall be designed, constructed and installed to satisfy the following

- Prevent infiltration of precipitation into the closed landfill.
- Promote drainage of surface water accumulated on the cover.
- Minimize erosion of the cover.
- Withstand or accommodate settlement of the cover to maintain its integrity.
- Have permeability less than or equal to the liner system.
- Function with minimum maintenance of the post-culture period of 30 years.

3.4.4.8 Minimum Specifications

The cover system must include the following components. However, depending on design requirements, the number of components as well as the specification of the components shall exceed the minimum specifications listed below. The components listed below are from top surface downwards to the waste.

- A surface soil layer of local top soil which supports self-sustaining vegetation and which has a thickness not less than 60 cm.
- A drainage layer of thickness 30 cm or more having a coefficient of permeability in excess of 10^{-2} cm/sec (10^{-4} m/sec).
- S single composite barrier comprising of
- A HDPE geomembrane of thickness 1.5 mm or more and
- A compacted clay (or compacted amended soil) layer of thickness 60 cm or more having a coefficient of permeability of 10^{-7} cm/sec (10^{-9} m/sec) or less. At locations where availability of clay is limited, amended soil will be constituted by mixing of clay to locally available soil to achieve the desired permeability.
- A regulatory layer (optional) of thickness 30 cm having coefficient of permeability greater than 10^{-2} cm/sec (10^{-4} m/sec). Such a layer shall be provided whenever there is requirement of (i) gas collection or (ii) transition filter between waste and soil.

The drainage layer shall be replaced by the local top soil, if the coefficient of permeability of the local top soil is greater than 10^{-4} cm/sec. In such a case the total thickness of the surface soil layer (of top soil) will be 90 cm.

In dry arid regions, where self-sustaining vegetation is not possible, special erosion control measures shall be adopted for the stability for the cover soil layer.

The cover materials listed above can be substituted by equivalent materials if the following is satisfied:

- The use of such components has been demonstrated over a 10 year period in different HW landfills and approved by a regulatory agency or SPCB/PCC.
- The design, construction and quality control specifications of such materials have been approved by a regulatory agency or SPCB/PCC and are available for implementation.

3.4.4.9 Design Requirements

The cover system shall meet the following design requirements

- Requirement of stability/integrity of cover under settlement through design/maintenance/repair.
- Requirement of stability of steep side slopes of cover
- Requirement of establishment of self-sustaining vegetative cover for long-term stabilization/or special measures in dry arid regions.
- Requirement of adequate strength to withstand construction loads/vehicle loads.
- Requirement of permeability and material properties as specified in Section 3.4.4.1
- Requirement of surface water drainage as specified in Section 3.4.4.12.
- Requirement of transition filters between waste and the layer immediately above it.
- Requirement of protection layer/transition layer between each component of the liner system.

3.4.4.10 Construction Requirements

- The cover system shall be constructed to ensure that
- The surface soil layer is adequately compacted and prepared to allow vegetative growth.
- The compacted clay/compacted amended soil layer has a coefficient of permeability of 10^{-7} cm/sec (10^{-9} m/sec) or less; is devoid of clods and shrinkage cracks; and achieves the desired strength.
- The geomembranes is laid in intimate contact with the compacted clay/compacted amended soil layer; is properly joined / welded at the seams; and is not punctured by construction vehicles/tolls.
- The drainage layer has a coefficient of permeability of 10^{-2} cm/sec (10^{-4} m/sec) or more and does not become clogged by intermixing or migration of fine particles.
- The final cover slopes are as specified in Section 3.4.4.13

3.4.4.11 Quality Control

A quality assurance programmed shall be drawn up by the owner/operator during construction of the cover system. Such a programme shall include:

- Regular performance of quality assurance tests in the field for each component of the cover system – one set of field and laboratory tests for each soil component per 500 to 1000 cubic meters of earthwork and one set of field and laboratory tests for the geomembrane per 200 sq.m. of installed area.

- Approval by the regulatory authority of the lists of tests, their frequency and the acceptance criteria.
- Periodically visits by representative of SPCB/PCC (or their nominee) during construction of the cover.
- Complete documentation of all quality control records and their submission to the SPCB/PCC along with statistical analysis showing satisfactory achievement of acceptance criteria.
- The type of quality control tests for the drainage layers, compacted clay layer and geomembrane shall be the same as those indicated in Section 10.6.4 for the liner system

3.4.4.12 Surface Water Drainage System

Surface water management is required to ensure that rainwater run-off does not drain into the waste from surrounding areas and that there is no waterlogged / ponding on covers of landfills. A surface water drainage system comprising of channels, drains, culverts and basins shall be designed to ensure the following:

- Rainwater running off slopes above and outside the landfill area shall be intercepted and channeled to water courses without entering the operational area of the site. This diversion channel may require a low permeability lining to prevent leakage into the landfill.
- Rain falling on active tipping areas shall be collected separately and managed as leachate, via the leachate collection drain and leachate collection sumps to the leachate treatment and disposal system.
- Rainfall on areas within the landfill site, but on final covers of phases which have been completed and are not actively being used for waste disposal shall be diverted in drainage channels away from active tipping areas, and directed through a settling pond to remove suspended silt, prior to discharge.
- Any drainage channels or drains constructed on the restored landfill surface shall be able to accommodate settlement, resist erosion and cope with localized storm conditions.
- The horizontal surface of the final cover shall be provided a slope of 3 to 5% for proper surface water drainage. The slope of the cover on the sides will be higher and governed by slope stability considerations.
- All interceptor channels, drainage channels and settling ponds (storm water basins) shall be designed by a hydrologist using hydro meteorological data.
- It shall be ensured that water collected by surface water drainage system and leachate collected by the leachate collection system do not get intermixed at any stage of collection or storage. This shall apply to the 'active' and 'post closure' periods of the landfill.

The design of following components shall be undertaken:

- Storm water drains, diversion channels
- Storm water basin
- Culverts

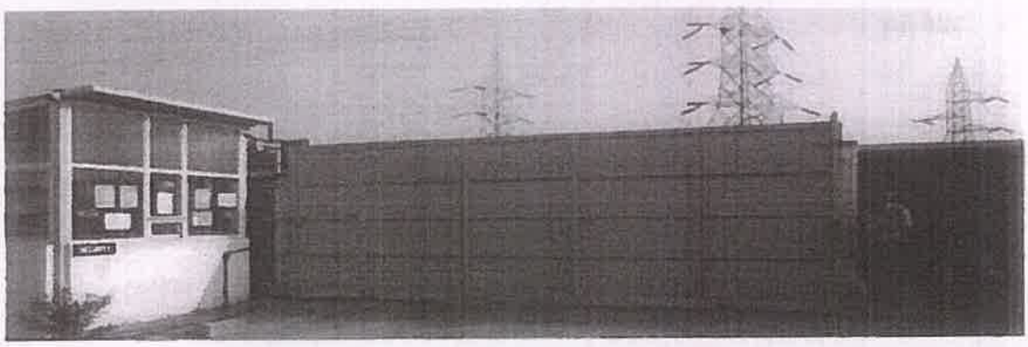
3.4.4.13 Final Cover System

A final landfill cover, comprising of several layers, each with a specific function shall be installed after each landfill phase reaches the full height. The final cover system shall enhance surface drainage, minimize infiltration, support vegetation to prevent erosion and control the release of landfill gases. On the basis of a review of HW landfill covers adopted in different countries and in consideration with Indian.

3.4.4.14 Drying of waste

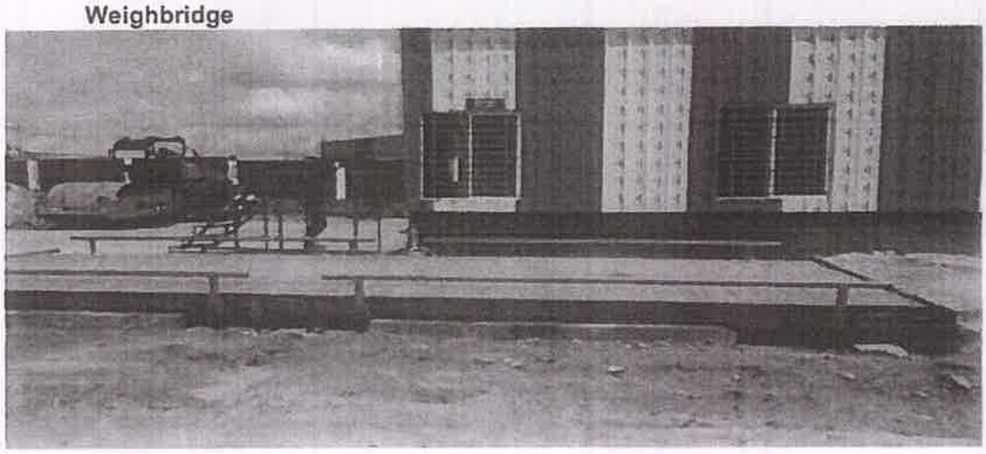
Two methods can be used to treat Hazardous waste with moisture i.e. Reduction of the moisture content by adopting belt filter press and Solar Drying process and Stabilization of the hazardous waste by adding suitable stabilizing agent. Currently. Hazardous waste received has moisture content less than or equal to 40%. Thus, Stabilization of the hazardous waste by is one by adding suitable stabilizing agent which is more suitable for Hazardous waste with moisture content less than or equal to 40%

Security (Time office)



- **Dimension of security cabin area 3 m X 3 m = 9 m^2**

Weighbridge





- **Dimension and capacity Weigh Bridge – 9.7 m X 3.9 m = 37.83 m^2 with 60 MT capacity**

Plantation



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The plantation is done on all sides of the site and well maintained as per the requirement from the government bodies.

Tyre wash bay

The tyre wash bay is a sloped concrete bed to store water in it and the slopes are stepped with sharp edges. The vehicles after coming out of landfill shall pass through the tyre wash bay to get the vehicle tyres washed.



3.5 Technology/Brief Technical Specification

3.5.1 Technology concept

A TSDF is a highly useful option for hazardous waste generators as individual treatment and disposal of certain special waste may not be environmentally sound and cost effective. It is a concept where the hazardous wastes are collected from the generators or the generators deliver it to the site, pre-treated as per their characteristics and finally disposed of. More than one type of pre-treatment and disposal of the waste may be used. The concept of a TSDF is comparable with that of a Common Effluent Treatment Plant (CETP) operated for treatment of liquid effluent working on the principle of 'Polluter Pays'. TSDF functionally covers three aspects namely,

- **Treatment/Pre-treatment** refers to any process that changes the composition and character of a waste so as to make it harmless or less hazardous, recovering certain useful material and/or recycling certain wastes.
- **Storage** refers to the temporary holding of hazardous waste prior to treatment or disposal.
- **Disposal** refers to the depositing of the treated waste in a secured and engineered landfill.

Engineered Landfill is the final disposal option for the non-incinerable hazardous wastes after they are subject to various treatment options. The landfill will typically have an operational period, a closure period and a post-closure monitoring period. All these three periods are important and the management system should give adequate attention to them.

3.5.2 Pre-treatment technologies

3.5.2.1 Drying

The wet waste accounts for nearly 40% of the total SSHW (Scientific Storage Hazardous Waste) received in the TSDF. This waste needs to be dried before it can undergo the other pre-treatment options or subsequent landfilling. The moisture content permitted for landfilling is about 40%. Hence, this implies that moisture to the extent of 14% of the HW is to be removed. Balance 86% requires some sort of pre treatment. The incoming moisture content varies with the different categories of SSHW depending on their origin and ranges between 60% to 80%. Various technologies may be employed to achieve the required moisture reduction which are the following :

- Belt Filter Press
- Solar Drying Yard

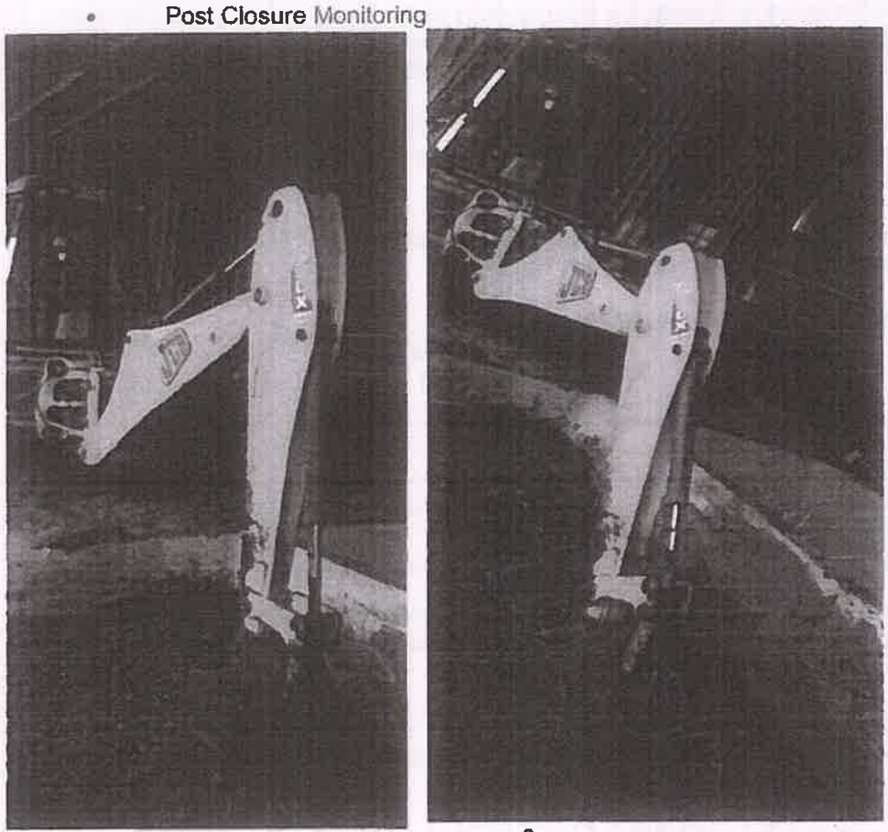
3.5.2.2 Stabilisation

About 83% of waste requires stabilisation and solidification to minimize the leachability of the HW. Stabilization is the process of chemically converting contaminants in waste into less soluble, mobile or toxic forms. Stabilization is usually applied to wastes contaminated by leachable heavy metals (e.g, arsenic, chromium) and having a high filterable solids content, low total organic carbon content, and low oil and grease content. Examples include arsenic wastes from mining operations. Leachable heavy metals can be treated /managed. Organic chemical compounds are generally not treatable. The process usually involves adding stabilizing agents and other chemicals that incorporate the contaminants in a solid matrix to minimize or prevent leaching when water comes into contact with the material. The main stabilization agents used are Lime, Flyash, Cement, Mixture of Portland cement and flyash. Due to the amount of additives used, the volume of waste requiring disposal is usually increased significantly, which is the disadvantage.

3.5.3 Hazardous Landfill Facility

Any new landfill developmental project will have the following phases:

- Selection of a landfill site
- Construction of the facility
- Operating a landfill
- Closure of the facility
- Post Closure Monitoring



Stabilization area – 14 m X 10 m = 140 m^2 consisting of 3 bins with capacity of 30MT each

3.6 Compliance with Guidelines/Standard and Site Suitability

Norms for Site Selection

HW Landfills shall not be located within a certain distance of the following lakes, ponds, rivers, wetlands, flood plains, highways, habitation, critical habitat area, water supply wells, Airports, coastal zone. If it is absolutely essential to site a landfill within the restricted zone, then appropriate design measures are to be taken and prior permission from the SPCB should be obtained.

- **Lake or Pond:** No landfill shall normally be constructed within 200 m of any lake or pond. Because of concerns regarding runoff of waste contaminated water, a surface water monitoring network with approval of SPCB/PCC shall be established.

Remarks & Status: There is no Lake or Pond Existing within 200 m from TSDF Located area.

- **River:** No landfill shall be constructed within a 100 m of a navigable river or stream.

Remarks & Status: There is no River Existing within 100 m from TSDF Located area.

- **Flood Plain:** No landfill shall be constructed within a 100-year flood plain. A landfill may be built within the flood plains of secondary streams if an embankment is built along the streamside to avoid flooding of the area. However, landfills must not be built within the flood plains of majorrivers unless properly designed protection embankments are constructed around the landfills.

Remarks & Status: There are no major rivers nearby located site for floods.

- **Highway:** No landfill shall be constructed within 500 m of the right of way of any state or national highway.

Remarks & Status: There is no Highway Existing within 500 m from TSDF Located area.
The location details of landfill site are given in Table-3.2.

Table-3.2: Location Details of Landfill Site

S. No.	Road	Distance from the project site (km)	Direction w.r.t. project site
1	NH-209	1.53	East
2	Bangalore city	30	North
3	Ramanagara City	17.39	West
4	Ramanagara city railway station	19.00	West

- **Habitation:** A landfill site shall be at least 500 m from a notified habitated area. A zone of 500 m around a landfill boundary should be declared a no-development buffer zone after the landfill location is finalized.

- **Remarks & Status:** - There is no Habitation area existing within 500 meters. Also the land is allotted for Industrial purpose only by KIADB (Karnataka Industrial Area Development Board).

- **Public Parks:** No Land fill be constructed within 500 m of public park.

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- **Remarks & Status: -** There is no Public Parks Existing within 500 m from TSDF Located area.

- **Critical Habitat Area:** No landfill shall be constructed within critical habitat areas including reserved forest areas. A critical habitat area is defined as the area in which one or more endangered species live. It is sometimes difficult to identify a critical habitat area. If there is any doubt then the SPCB/PCC shall be consulted be consulted for clarification.

- **Remarks & Status: -** M/s Mother Earth Environ Tech Pvt Ltd., situated in Phase II, KIADB industrial Area, Harohalli, Ramnagara – 562112, which is developed by KIADB (Karnataka Industrial Area Development Board - Govt of Karnataka Undertaking).

- **Airport :** No Landfill shall be constructed within a zone around Airports as notified by the regulatory authority or the aviation authority

- **Remarks & Status: -** There is no Airport near TSDF Located area.

- **Water Supply:** No landfill shall be constructed within 500 m of any water supply well.

- **Remarks & Status: -** There is no Ground water well/water supply well Existing within 500 m from TSDF Located area

- **Coastal Regulation Zone:** No landfill shall be sited in a coastal regulation zone.

- **Remarks & Status: -** Located site not comes under coastal region.

- **Ground Water table level:** No landfill shall be located in areas where the ground water table will be less than 2 m below the base of the landfill.

- **Remarks & Status: -** Ground water table at located area – there is no pumping condition between 70-80 feet (i.e., 21 to 24meters) and real ground water table is beyond the 200feet (i.e., 60meters) below as per hydro geological survey.

- Other criteria may be decided by the planners in consultation with SPCB/PCC commensurate with specific local requirements such as presence of monuments, religious structures etc.

- **Remarks & Status: -** There are no such types of religious structures, forests, agricultural and other local requirements at located area. However the land is allotted for Industrial purpose only by KIADB (Karnataka Industrial Area Development Board).

3.7 Implementation Schedule

At present, M/s Mother Earth Environ Tech Pvt ltd., having landfill cell -1 which has the capacity about 95000MT (of hazardous waste can be disposed). Our future plan will be developing one more landfill cell -2 (very adjacent to cell -1) which have capacity about 45000MT in available area at present location.

Mother Earth Environ Tech Pvt Ltd. will serve according to requirement of the developing industries in Karnataka and with respect to increasing industrial waste generation, we have plans in future to develop one point solution to all kinds of industrial wastes i.e., Land fill including SEP, Incineration including storage, e-waste collection and etc, for this purpose respective government bodies have allotted the land in various industrial areas.

Having an integrated common hazardous waste treatment, storage and disposal facility would minimize the risk involved in waste transportation and monitoring of such facility would be better and feasible. The plant will cater the needs of industries situated in Karnataka by providing environment friendly solution in handling the industrial waste. for this purpose we already got the 10acres land in 3rd phase of KIADB industrial area, Harohalli and 40acres of land in KIADB industrial area, Yadgir dist for establishing the TSDF for future expansion.

3.8 Status of Approvals and Preparedness

The plot no. 217, KIADB industrial Area, 2nd phase, Harohalli, Ramanagara, has been allotted to M/s Mother Earth Environ Tech Pvt Ltd. A Hazardous waste Treatment, Storage, Disposal, Facility. After being scrutinized we have received approvals from designated Government under taking authorities namely,

- Karnataka State Industrial Area Development Board(KIADB),
- SLSWCC (Karnataka State Level Single Window Clearance Committee),
- SEAC (State Level Expert Appraisal Committee),
- SEIAA (Karnataka State Level Environment Impact Assessment Authority)
- KSPCB (Karnataka State Pollution Control Board)

  To establish Common Hazardous waste Treatment Storage Disposal (TSDF) facility

The project has already acquired the environment clearance from Karnataka State Environment Impact Assessment Authority (SEIAA) as per the applicable national regulations. Key clearances obtained the No Objection Certificate from the Karnataka State Pollution Control Board (KSPCB) under The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981. In addition to that Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 and amendments thereafter, Hazardous Waste (Management, Handling and Trans boundary Movement) Rules, 2008, The Common hazardous Waste (Management & Handling) Rules, 1989 Under E.P.A .Act, 1986 (Amended 2000; 2003 & 2008).

3.9 Financial arrangement by Project Proponent

M/s Mother Earth Environ Tech Pvt Ltd has taken a term loan of Rupees 6 crore and rest amount is invested by the M/s Mother Earth Environ Tech Pvt Ltd.

3.10 Operation & Maintenance Aspects

The activitity Flow Chart in TSDF is shown in Figure-3.6

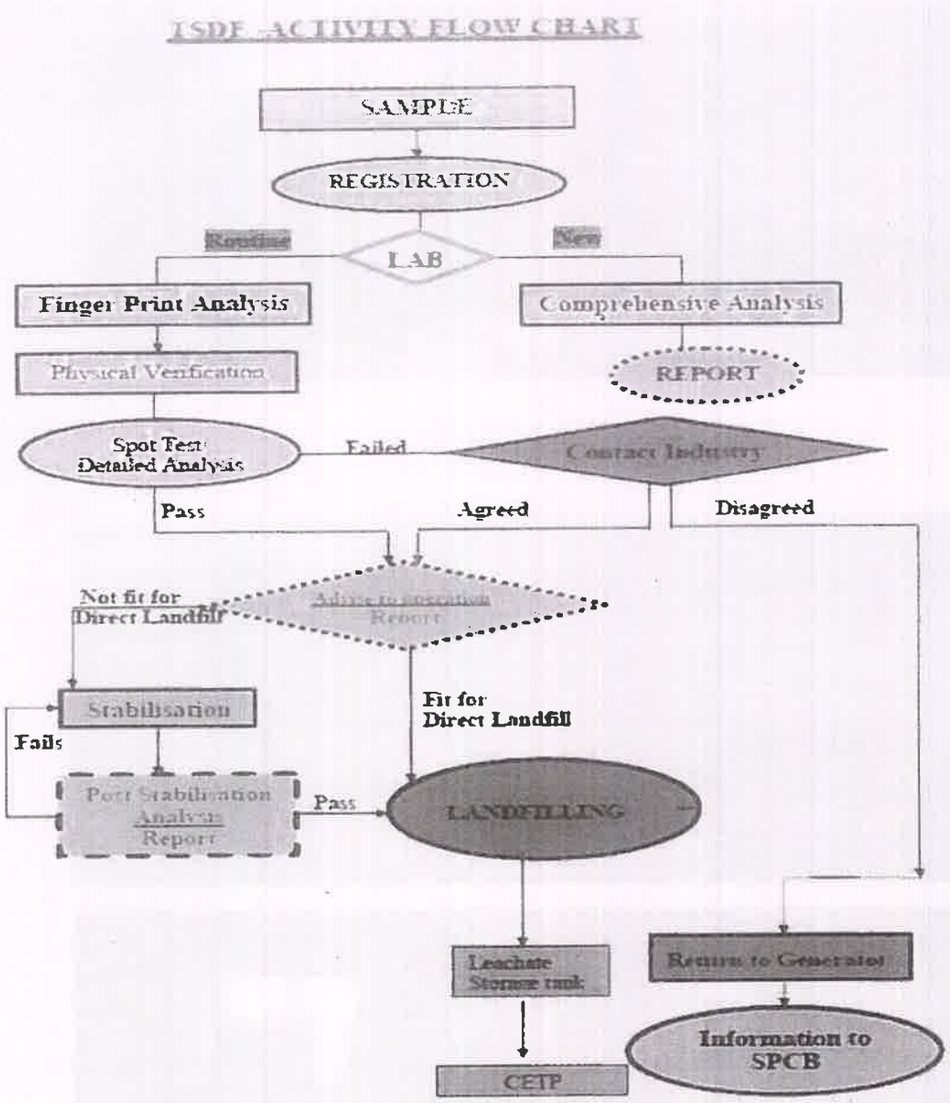


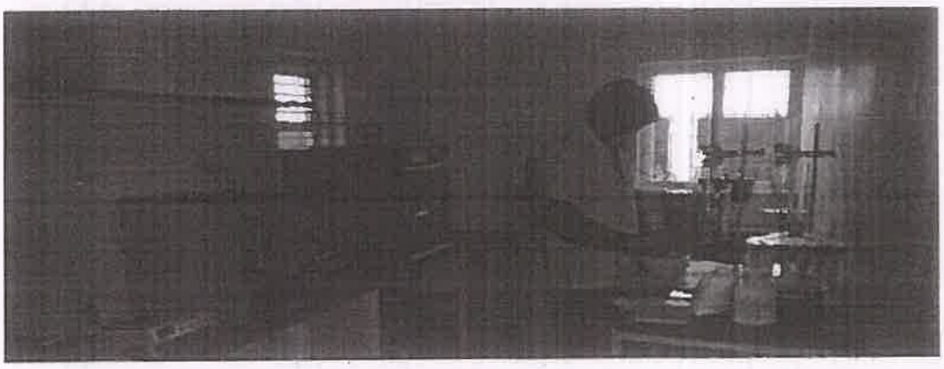
Figure-3.6: Activitity Flow Chart in TSDF

Sample Collection

The trucks carrying waste are parked at the sampling bay after completing necessary formalities at the security and weighing at the weighbridge. Representative Samples from a minimum six places are collected from the individual containers using appropriate samplers and finally a composite sample is prepared by mixing the individual samples.







Finger Print Analysis

A routine finger print analysis is done for all the wastes received for treatment and / or disposal at the facility from every truck, to compare it with comprehensive analysis report

furnished by the generator. The parameters for fingerprint analysis are given below. This analysis is done in three phase's viz., physical, spot tests and detailed analysis.

Mother Earth Environ Tech Private Limited
(A Division of Chaitra Groups)
LABORATORY

FINGERPRINT ANALYSIS REPORT

Report No. : MEEPL/LAB/FPA/638
Date of Report : 30.09.2016
Name and address of the Member : Shubi Experts Pvt Ltd, Hosur Road.
Date of Sampling : 30.09.2016
Manifest No. : 661
Sample Description : ETP Sludge

Sl.No.	Parameter	Method	Unit	Result
1	Physical State	USEPA SW - 846	-	Solid
2	Color		-	Blackish
3	Texture		-	Powder
4	Bulk density	ASTM D3057 - 90	g/cc	1.21
5	Calorific Value	IS:1359-1959	cal/g	<250
6	Flash Point	1020A	°C	>60°C
7	Loss on Drying at 105 °C	APHA 2540	%	31.2
8	Loss on Ignition at 550 °C		%	29.36
9	Paint Filter Liquid Test	9095A	-	Pass
10	pH at 26.0°C	9045C	-	7.12
11	Reactive Cyanide	9014	mg/kg	Nil
12	Reactive Sulphide	9034	mg/kg	Nil
13	Chlorides as Cl^-	SW-846	%	<0.1
14	Fluorides as F	SW-846	%	<0.1
15	Water Soluble Substances	3510C	-	Soluble
16	Is there any violent chemical change (in air)			NO
17	Reacts violently with water			NO
18	Unstable and readily undergoes violent change without detonating			NO
19	Generating of toxic fumes with water/acid/basic			NO
20	Explosion when subjected to a strong initiating force			NO
21	Explosion at normal temperature & pressure			NO

NA: Not Applicable

Lab-Head

Comprehensive Analysis

As per the Hazardous Waste (Management and Handling) Rules 1989 and Amendments2000 and 2003, 2008 & 2016 it is the responsibility of the generator to carry out the comprehensive analysis of the waste, for each type of waste generated. Any NABL authorized laboratory to conduct the comprehensive analysis of Hazardous waste. The list of parameters to be analyzed for the comprehensive analysis is given below. We collaborate to ECO Green Solution Systems Pvt Ltd.

ECO GREEN SOLUTION SYSTEMS PVT LTD

An ISO 9001:2008 Certified Company

No 40, A & B, KIADB Industrial Area, Doddaballapur, Bengaluru Rural (D) 561203

Tel: 080-27670563, E-mail: [illegible]@egsspl.com, Fax: [illegible]@egsspl.com

CIN NO: U74110KA2015PTC[illegible]

Date: 04.08.2016

Report No: EGSSPL/HW/2016-17/027

To,

M/S Shakti Exports Pvt Ltd
#5 & 10/6, Hosur Main Road,
Beretana Agraharam
Bangalore-560100

Dear Sir,
We are herewith enclosing the undersign **Report of Hazardous Waste ETP Sludge** Report No: EGSSPL/HW/2016-17/027, **received on 25.07.2016**

Thanking You

Regards

For Eco Green Solution Systems Pvt Ltd

Authorized Signatory

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ECO GREEN SOLUTION SYSTEMS PVT LTD

An ISO 9001:2008 Certified Company

No.48, A-4, KIADB Industrial Area, Doddaballapur, Bengaluru Rural (D) 561203
Tel: 080-27630563 E-mail: factory@egsspl.com, lab@egsspl.com

CIN NO: U74140KA2005PTC036991

TEST REPORT

1	Customer Name and Address	M/S. Shahi Exports Pvt.Ltd #9 & 10th, Hosur Main Road, Beretana Agrahara, Bangalore-560100	6	Sample Collected On	25.07.2016
2	Sample Description	ETP- Sludge	7	Sample Receipt On	25.07.2016
3	Date of Analysis Start	25.07.2016	8	Sample RC No.	NA
4	Date of Analysis End	03.08.2016	9	Quantity of Sample Received	1Kg
5	Report No	EGSSPL/HW/2016-17/027	10	Sample Condition	Sample received in Polythene Cover

S.No	Parameters	Result
1	Physical State	Solid
2	Color	Slightly Blackish
3	Texture	Powder
4	Is there any violent Chemical Change(in air) (Normally) Unstable) (Yes/No)	No
5	Reacts Violently with Water(Yes/No)	No
6	Generation of toxic fumes with Water/acid/base (Yes/No)	No
7	Forms Potentially explosive mixture with water (Yes/No)	No
8	Explosive when subjected to a strong initiating force (Yes/No)	No
9	Explosive at normal Temperature & Pressure (Yes/No)	No

Kusuma K S
Analysed By

Verified By

Authorized Signatory

Reg. Office: 1st Floor, Swastik Complex, Seshadripuram, Bengaluru-560020
Tel: 080-23461533, 23469716. E-mail: ecogreen@egsspl.com

ECO GREEN SOLUTION SYSTEMS PVT LTD

An ISO 9001:2008 Certified Company

No 48 A 4, KIADB Industrial Area, Doddaballapur, Bengaluru Rural (D) 561203
Tel: 080-27630563, E-mail: factory@egsspl.com, labo@egsspl.com

Report No: EGSSPL/HW/2016-17/027 **Pg 2 Of 4**

S.No	Parameters	Unit	Method	Observation / Result	CPCB Std For Direct Landfill Disposal
10	Bulk Density	gm/cc	ASTM D 5057-1990 (Reapproved 2001)	1.18	-
11	Paint Filter Liquid Test		SW-846: 9095A	Pass	Pass
12	pH at 27.9°C	-	SW-846: 9040B, 9045C	8.33	4.0-12.0
13	Calorific Value	K Cal/Kg	IS 1350;PART-2-1970 (Reaffirmed 2000)	1250	<2500
14	Flash Point	°C	SW-846 1020A	>60	>60
15	Loss on Drying at 105°C	%(w/w)	Std.Methods: 2540B	23.8	-
16	Loss on Ignition at 550°C (Dry Basis)	%(w/w)	Std.Method: 2540 E	30.6	<20.0 (Non bio-degradables) <5.0(Biodegradables)
17	Reactive Cyanide	mg/Kg	SW-846: Ch.7(7.3.3),9014	Not Detected	250
18	Reactive Sulfide	mg/Kg	SW-846: Ch.7(7.3.3),9014	Not Detected	500
19	Water Soluble Compounds	%(w/w)	Std.Methods: 2540B,E	12	<10.0
20	Oil and Grease (As n-Hexane Extractable)	%	SW-846: 3540C,9071A	<1	<4.0
21	Cyanide-WLT	mg/L	Std Methods: 4500-CN- C SW-846:9014	<0.2	<2.0
22	Total Phenols	mg/L	Std Method: 5530D	<0.5	100
23	Fluoride as F-(WLT)	mg/L	APHA-4500 F D	<0.2	<50.0
24	Nitrate-(WLT)	mg/L	APHA-4500NO_3 E	<1.0	<30.0
25	Ammonia-WLT	mg/L	APHA-4500NH_3 B,C	<1.0	<1000
26	Arsenic-WLT	mg/L	Std Methods: 3500-As B	<0.1	<1.0
27	Arsenic-TCLP	mg/L	Std Methods: 3500-As B	<0.1	<5.0
28	Cadmium -Total	mg/Kg	SW-846: 3050B, 7130	1.985	-
29	Cadmium- WLT	mg/L	SW-846: 3010A, 7130	<0.1	<0.2
30	Cadmium-TCLP	mg/L	SW-846: 1311, 7130	<0.2	1.0
31	Chromium-Total	mg/Kg	SW-846: 3050B, 7190	14.9	-
32	Chromium(VI)-WLT	mg/L	SW-846: 7196A Std Methods: 3500-Cr B	<0.2	<0.50

Analysed By **Verified By** **Authorized Signatory**

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ECO GREEN SOLUTION SYSTEMS PVT LTD

An ISO 9001:2008 Certified Company

No 48 A 4, KIADB Industrial Area, Doddaballapur, Bengaluru Rural (D) 561203
Tel: 080-27630563 E-mail: factory@egsspl.com, info@egsspl.com

Report No: EGSSPL/HW/2016-17/027 Pg 3 Of 4

S.No	Parameters	Unit	Method	Observation /Result	CPCB Std For Direct Landfill Disposal
33	Total Chromium-TCLP	mg/L	SW-846: 1311, 7190	<0.5	<5.0
34	Copper-Total	mg/Kg	SW-846: 3050B, 7210	29.8	-
35	Copper-WLT	mg/L	SW-846: 3010A, 7210	<0.1	<10
36	Lead -Total	mg/Kg	SW-846: 3050 B, 7420	37.5	-
37	Lead-WLT	mg/L	DIN 38414 Part(S4) SW 846, 3010A,7420	<0.5	<2.0
38	Lead-TCLP	mg/L	SW-846: 1311, 7420	<0.1	5.0
39	Nickel-Total	mg/Kg	SW-846: 3050 B, 7520	40.5	-
40	Mercury as Hg-WLT	mg/L	Std.Methods, 3112B	<0.02	<0.1
41	Mercury as Hg-TCLP	mg/L	Std.Methods, 3112B	<0.02	<0.2
42	Nickel-WLT	mg/L	DIN 38414 Part(S4) SW 846, 3010A,7910	<0.1	<3.0
43	Zinc-Total	mg/kg	SW-846: 3050 B, 7950	76.5	-
44	Zinc-WLT	mg/L	DIN 38414 Part(S4) SW 846, 3010A,7910	<1.0	<10.0
45	Iron-Total	mg/Kg	SW-846, 7380	43290	-
46	Iron-WLT	mg/L	DIN 38414 Part(S4) SW 846, 3010A,7190	8.75	3.0
47	Manganese as Mn-Total	mg/kg	SW-846: 3050 B, 7460	<0.1	-
48	Manganese as Mn-WLT	mg/L	SW-846: 3050 A, 7950	<0.5	2.0

Analysed By Verified By Authorised Signatory

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Tel: 080-27630563, E-mail: factory@egsspl.com, lab@egsspl.com

Report No: EGSSPL-HW/2016/17/027

Abbreviations

CPCB - Central Pollution Control Board

ASTM - American Society for Testing and Materials

IS - Indian Standard

SW 846 – Test Methods for Evaluating Solid Waste, Physical/Chemical Methods USEPA May-1997

Std. Methods – Standard Methods for the Examination of Water & Waste Water, 22nd Edition, APHA/AWWA/WEF, 2012

WLT - Water Leach Test

DIN: 38414 Part4 (S4)-German Standard Procedure For Water, Waste Water, And Sediment Testing- Group S (Sludge and Sediment); Determination of Leachability (S4), 1984

HW - Hazardous Waste

Terms and Condition

1. The results listed pertain only to the tested samples and applicable parameters
2. The analysis of samples done by following National/International Standards
3. Samples will be disposed after 15 Days of from the date of issue of the report Unless otherwise mentioned by the customer.
4. This test report shall not be reproduce fully without the written permission of EGSSPL Laboratory.
5. Sample not drawn by EGSSPL Laboratory. Unless Specified.

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Waste Acceptance Criteria

A waste acceptance criterion shall be formulated for each landfill site. The following guidelines for waste acceptance are suggested:

- All waste shall be routinely accepted if the truck/tipper carries authorized documents indicating he source and type of waste. Such waste shall be routinely inspected visually at the tipping area in the landfill site.
- Bulk or non-containerized liquid hazardous waste or slurry-type hazardous waste containing free liquid or waste sludge, which has not been d dewatered, shall not be placed in landfills. Such waste, (usually transported in pipelines) shall be placed in Hazardous Waste Impoundments designed specifically for liquid hazardous waste.
- Incinerable/compostable waste or any other type of waste from which energy/material recovery is feasible, shall not be placed in HW landfills.
- Incompatible wastes shall not be placed in the same landfill unit. Compatible wastes will be grouped together and placed in the same landfill unit (each such unit shall have its own phase, cells etc.). Incompatible waste group shall be accommodated in separate landfill units (each such unit shall have its own phases, cells etc.,).
- Wastes which are incompatible with the liner material shall either be containerized and placed in the landfill (enduring adequate container safety, or placed in a separate landfill unit made of alternate compatible liner material).
- Extremely hazardous waste (e.g. radioactive waste) shall not be disposed off in HW landfills but in specially designed waste disposal units.
- Non-hazardous waste (e.g. municipal solid waste) shall not be deposited in HW landfills. However such waste can be deposited in a MSW landfill units in the vicinity of HW landfills.
- Residue of treated biomedical waste (e.g. incinerator ash etc.) can be deposited in HW landfills.

Transportation of Hazardous Solid Waste from Generation Site to TSDF

Transportation of hazardous waste will be done as per guidelines of CPCB. The

TSDF will be having authorized transporters with dedicated dumpers / trucks / vehicles (Hydraulic) on contract basis for transportation of waste. All the vehicles are having the nameplate with details of company's name, address, phone no., etc. During transportation, containers are closed from all sides and covered from top. The frequency of trucks / dumpers / vehicles movement within premises of TSDF Site will be maximum 5 nos/day.

Weighing and Sampling of Waste

- As the dumper / truck / vehicle enter MEETPL, weighing will be done and samples will be drawn from three different locations and a composite sample will be made.
- Once the quick tests are over, vehicle will be allowed to enter the premises and will be sent to dumping site or temporary hazardous waste storage area.
- If any waste consignment is not meeting the acceptance criteria, it will be either returned to the waste generator or taken for appropriate treatment (like neutralization / stabilization etc.,).

The frequency of weighing machine calibration shall be as per rules and regulation i.e. 1) Every 15 days by company, 2) Every 3 Months by third party.

- As the dumper/truck/vehicle arrive to MEETPL, it will be weighed and samples will be taken from 3 different locations and composite sample will be made and

analysed for main parameters of quick test. These parameters and analysis method are given in Table below.

Quick Test Parameters and Its Analysis Method

S. No.	Parameters	Method
1	Color	APHA (2120 B &2120 C)
2	Odour	APHA (2150 B)
3	pH	APHA (4500-H^+ B)
4	PFLT (Paint Filter Liquid Test) for moisture content	USEPA Method 9095 B

If the sample passes finger print analysis, then only, the truck is allowed to go to the landfill area and dispose the wastes. In case the sample fails in finger print analysis, then investigation is done and the waste is given required treatment before disposal to the landfill. Fingerprint Analysis Requirement for Hazardous Waste Treatment, Storage and Disposal Facilities is detailed in Table below.

Fingerprint Analysis Requirement for Hazardous Waste Treatment, Storage and Disposal Facilities

Parameters for fingerprint Analysis by the Operators of TSD Facilities	Method of Analysis
Physical Analysis	Judicial identification & through interpretation
Physical State of the waste (liquid/slurry/ semi-solid/ solid: inorganic/organic /metallic)	
Identification of different phases of the wastes in cases of solid wastes contained in aqueous/non-aqueous liquids/solutions for slurries and sludge)	
Colour & Textures	
Specific Gravity	
Viscosity in case of liquid waste	
Flash Point	USEPA, SW-846; Method 1010 and 1020
Loss on drying at 105° C in case of solids	
Loss on ignition at 550° C	
Calorific values in case loss on ignition>_ 20%	
Paint filter Liquid Test (PFLT) for liquids	USEPA, SW-846; Method 9095
Liquid Release Test (LRT) for liquids	USEPA, SW-846; Method 9096
Chemical Analysis	
pH	USEPA, SW-846; Method 9040, 9041 and 9045
Reactive Cyanide (ppm)	USEPA, SW-846; Vol. IC Part II; Test Method to determine HCN released from Wastes
Reactive Sulfide (ppm)	USEPA, SW-846; Vol. IC Part II; Test Method to determine H_2S released from wastes

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3.11 Availability of Project inputs such as land, power and water supply

Karnataka Industrial Area Development Board-(A Government of Karnataka Undertaking) has allotted 4 acres of land at plot No. 217 in Harohalli Industrial area, 2nd phase to M/s Mother Earth Environtech Pvt Ltd. for Hazardous waste landfill project.

Power is provided by BESCOM.(Office lighting and domestic use) and DG is also available to use in case of power cut.

No water is used for operation phase, water available is used for landscape maintenance and domestic use.

3.12 Environmental Aspects

3.12.1 Pollution Prevention and Safety during Operation

The following measures are needed to ensure that the landfill operation shall not adversely affect local environment within and outside the landfill.

- Traffic: Heavy lorry traffic shall give rise to nuisance, damage to road surface and verges and routing problems. The following measures are helpful:
- Routing to avoid residential area
- Using one-way routes to avoid traffic conflict in narrow roads
- Carrying out road improvements, for example strengthening or widening roads, improved provision of footpaths, improvement of sight lines, provision of passing places, provision of new roads,
- Limiting the number of vehicle movements
- Restrictions on traffic movement hours which are staggered with respect to peak traffic hours.
- Noise: Adverse impacts on the local community from noise may arise from a number of sources including: throughput of vehicles and fixed and mobile plant, for example compactors, generators at the site. Peripheral noise abatement site measures shall be adopted.
- Odor: Offensive odors at landfill sites may emanate from a number of sources, including waste material, which have decomposed significantly prior to land filling, leachates and leachate treatment systems, and landfill gas. Good landfill practices shall greatly reduce general site smell and reduce impact from odors which could lead to complaints from the local community, site users and site staff. Good practice includes: (a) adequate compaction; (b) speedy disposal and burial of malodorous wastes; (c) effective use of appropriate types of daily cover; (d) progressive capping and restoration; (e) effective landfill gas management; (f) effective leachate management and (g) consideration of prevailing wind direction when planning leachate treatment plants, gas flares, and direction of tipping.
- Litter: Poor litter control both on and off site is particularly offensive to neighbors. Good operational practice shall be adhered to in terms of temporary fencing, waste discharge, placement, compaction and covering to minimize the occurrence of windblown litter.

- Bird Control: Birds are attracted to landfill sites in large numbers where sites receive appreciable amounts of bio waste. Measures which can be sued to mitigate birds' nuisance include the employment of good landfill practice, working in small active areas and progressive prompt covering of waste, together with the use of bird scaring techniques.
- Vermin and Other Pests: Landfills have potential to harbor flies, rodents and vermin, particularly where the waste contains bio materials. Modern land filling techniques including prompt emplacement, compaction and covering wastes in well defined cells are effective in the prevention of infestation by rodents and insects.
- Dust: Dust from landfill operations is mainly a problem during periods of dry weather but can also arise from dusty waste as it is tipped. Dust is generally associated with (a) site preparation and restoration activities; (b) the disposal of waste comprising of fine particles, for example powders; and (c) traffic dust.

Dust suppression can be effected by (a) limiting vehicle speed; (b) spraying roads with water; and (c) spraying site and powder type waste with water; (d) covering powder type waste with daily soil cover.

- Mud on the Road: Mud on the public highway is one of the most common causes of public complaint. It is therefore, in the interest of the landfill operator to provide adequate wheel cleaning facilities to ensure that mud is not carried off site by vehicles.
- Landfill Fire Management: Fires in waste on landfill sites are not uncommon and it is important for site operators to be aware of the dangers, how to treat fires and to address the problems associated with them. All fires on-site shall be treated as a potential emergency and dealt with accordingly.
- Landfill Safety Aspects: Training of employees shall include site safety, first aid and the handling of dangerous materials where appropriate. Since landfill sites can pose dangers to both site operator and users, emergency plans shall be laid down. Landfill sites shall be regarded as potentially hazardous locations and the operator shall have a written safety plan for the site. Safety hazards presents at landfill sites may include: (a) moving plant and vehicle; (b) steep slopes; (c) bodies of standing water; (d) contaminated, putrescible, toxic, flammable or infective material and (e) noxious, flammable, toxic or hazardous gas. All employees and visitors to the site shall be made aware of the potential hazards and the safety procedures to be implemented including fire safety.

3.12.2 Ground Water Sampling and Analysis

The TSDF will be providing monitoring wells at the site for ground water monitoring. (In upstream and at the downstream of TSDF site).

3.12.3 Leachate Management System

The TSDF will have leachate collection wells. Leachate generation rate will be about 15% to 17% of total waste to be disposed off at TSDF site per year. Leachate will be pumped from leachate wells by pipeline and will be sent to CETP for treatment and disposal. Leachate collection network within the landfill site shall be given in Fiugure 10.6

3.12.4 Gaseous Emission Management

The company will provide air vents at the closed portion of the land fill. The Company will carry regular monitoring of vents for VOC & HC.

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3.12.5 Closure and Post Closure Maintenance Details for Closed Cells Including Vegetative Stabilization

The TSDF will provide coverage system as per CPCB criteria for entire landfill. The closed portion will be given proper landscape. MEETPL will provide storage shed during monsoon period. The main operational site will be kept covered by tarpaulin with separate rain water collection system during monsoon.

3.12.6 Surface Water Drainage System

The storm water drainage system will be provided at the site. The surface water generated during monsoon season is collected through storm water system and after filtration, recharged to ground water through water harvesting (for final closed area only).

3.12.7 Water

The water demand is met from KIADB water supply. The requirement of water for the unit is for domestic, industrial purposes and landscape development.

3.12.8 Power

The power requirement for the project will be augmented from KIADB. Further one diesel generator of 100 kVA capacity is proposed to be installed to serve as an alternative source of power supply to this unit.

3.12.9 Manpower

The total employment potential of the industry is about 25 people.

3.12.10 Sources of Pollution & Pollution Control Measures Adopted In the Industry

3.12.10.1 Water Demand and Wastewater/Effluent Discharge

The water requirement for the project during operation will be augmented from KIADB water supply sources.

The total quantity of water requirement for the plant is about 3 KLD. The break-up of the consumption of water and waste water generation details is as presented in Table-3.3 and 3.4.

Table-3.3: Water Consumption and Discharge

Water consumed for	Consumption (LPD)
(a) Domestic	500
(b)Gardening/Landscape development	2,000
Total	2,500 LPD or 3,000 LPD

Table-3.4: Waste Water Generation Details

Water consumed for	Discharge (LPD)
(a) Domestic	400
(b) Leachate generated from landfill waste	2,000
Total	2,400 LPD or 2,500 LPD

Note: LPD = L/day; KLD = kilo liter/day

3.12.10.2 Wastewater Treatment and Disposal Details:

The treatment methods and the final disposal of each type of wastewater generated are appended in the Table 3.5.

Table 3.5 Sewage/Wastewater Treatment and Discharge

Sewage/effluent generated from	Treatment units provided	Final disposal point
(a) Domestic	Septic tank	Soak pit
(b) Industrial	The leachate waste water will be stored securely and handed over to CETP for treatment and disposal	

3.12.10.3 Water Balance Chart

The Water Balance is given in Figure-3.7.

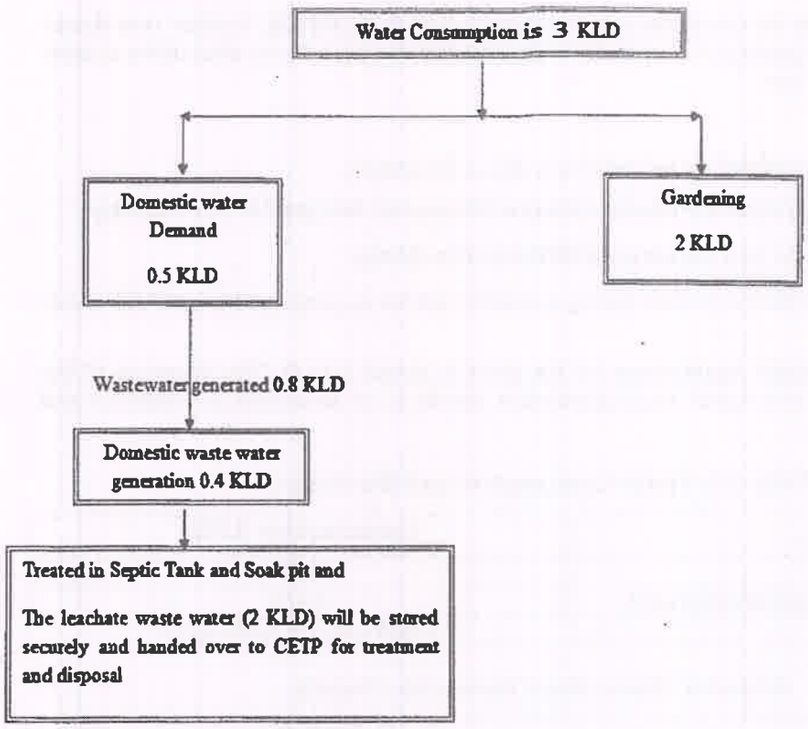


Figure-3.7: Water Balance Chart

3.12.10.4 Air Pollution Sources

The major air pollution source from the project is DG set. These sources are provided with stacks of adequate height so as to disperse the emanating flue gases. The details are given in Table-3.6.

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Table 3.6 Sources of Air Pollution

S. No.	Stack Details	Stack Attached to
Physical Details		DG Set
1.	Capacity	1 X 100 kVA
2.	Fuel quantity	20 L/hr
3.	Fuel used	Ultra Pure Low Sulfur Content Diesel
4.	Stack height	Chimney of 3 m (Above roof level)
5.	Stack diameter	80 mm
Emission Details		
1.	Sulphur dioxide	0.0054683 g/s
2.	Suspended Particulate Matter (SPM)	0.0003 g/s
3.	Oxides of Nitrogen	0.00894 g/s
4.	Carbon monoxide	0.11026 g/s

3.12.10.5 Noise Generation and Its Management

The main sources of noise from the proposed project is movement of vehicles on the roads during transportation of waste from hotels and the DG set for which acoustic enclosure is proposed. Also ambient noise levels will be ensured within the ambient standards by inbuilt design of mechanical equipment and building apart from vegetation (tree plantations) along the periphery and at various locations within the plant premises.

3.12.10.6 Solid Waste Generation and Management

The quantity of solid waste generated from the proposed project is detailed in the following Table 3.7.

Table 3.7 Solid Waste Generation during the Operation Phase

Assuming per capita solid waste generation rate as 0.20 kg/capita/day	
Quantity of solid waste generated	2 kg/day
Organic solid waste : 60 % of the total waste	1.2 kg/day
Inorganic solid waste : 40 % of the total waste	0.8 kg/day
Disposal of domestic solid waste	The solid Wastes generated will be collected, composted in compost pits and the product will be used as manure for landscape development.

3.12.10.7 Hazardous Waste Generation Quantity and Mode of Disposal

Two categories of hazardous wastes shall be generated at M/s. MEETPL Mode of disposal followed is as per HW (Management, Handling and Transboundary Movement) Third Amendment Rules, 2010 of Environment Protection Act, 1986.

Hazardous waste generation will be Used Oil/Lubrication Oil @ 50 Liter/Annum, Used Bags @ 50 nos. /day,

Used Oil/Lubrication Oil will be sold to approve recycler. Hazardous waste generation quantity is given in Table 3.8.

Table 3.8 Hazardous Waste Generation Quantity

Sl. No.	Type of Hazardous waste	Generation Qty.	Method of storage	Method of treatment	Handling & mode of disposal
1.	Used Oil/Lubricant oil (Lits.)	50 Ltr/Annum	Drums	No treatment at site	Sent to authorized reprocesser.
2.	Used Bags	50 bags/day	Stored in secured at impervious storage area	-	Reused for waste collection and transportation.

3.12.10.8 Details and cost of laboratory equipment

The details of equipment of existing laboratory are given in Table-3.9.

Table-3.9: Details of equipment of existing laboratory

S. No	Laboratory Equipment	Number	Cost
1	Ph meter EI make	1	19080.00
2	Digital Conductivity meter	1	7935.00
3	Hot Air Oven	1	24000.00
4	Muffle Furnace	1	40455.00
5	Hot plate BSW make	1	9900.00
6	Distillation unit with Assembly	1	29894.00
7	Bomb Calorimeter	1	80000.00
8	Rotary Shaker	1	20400.00
9	Weighing balance	1	86000.00
	Total Cost		**317664.00**

It is proposed to spend an amount of Rs. 161.18 lakh for upgradation of existing laboratory. The details are given in Table-3.10. The layout of the Laboratory room is enclosed as Figure-3.3.

Table-3.10: Details of equipment for upgradation of existing laboratory

S. No.	Laboratory Equipment	Number	Cost
1	pH meter	1	19,000.00
2	Conductivity meter	1	17,000.00
3	Turbiditimeter	1	9,500.00
4	Flash point apparatus (Seta flash)	1	32,000.00
5	Karl fisher titrator for moisture	1	66,988.00
6	Balance 200 + 0.0001 gms (Good one)	1	70,000.00
7	6 Kg Balance with 1g accuracy - Rough balance	1	10,500.00
8	Hot air ovens	1	35,232.00
9	BOD Incubators	1	88,500.00

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S. No.	Laboratory Equipment	Number	Cost
10	Muffle furnace	1	45,040.00
11	Hot plates	1	11,040.00
12	Water Bath	1	6,500.00
13	TCLP	1	47,500.00
14	Water distillation unit- (DD)	1	31,500.00
15	Heating Mantle - Soxhlet Extraction	1	55,000.00
16	UV Visible Spectrophotometer	1	4,00,000.00
17	Bomb Calorimeter	1	12,00,000.00
18	ICP-OES	1	60,00,000.00
19	CHNS	1	8,00,000.00
20	Gas chromatograph with mass detector	1	35,00,000.00
21	RDS sampler	3	2,40,000.00
22	FPS sampler	3	2,85,000.00
23	Stack Monitoring Kit	1	1,50,000.00
24	Noise Meter	1	2,00,000.00
25	Plat form shaker	1	74,250.00
26	Deep Freeze	1	90,680.00
27	Mercury Analyser	1	2,00,000.00
28	Flame Photometer	1	38,000.00
29	COD Digester	1	1,50,000.00
30	Wind monitoring	1	2,00,000.00
31	Cyanide distillation glassware	3	20,000.00
32	Kjeldahl nitrogen assembly	6	30,000.00
33	Vaccum Pump	1	95,000.00
34	fume hood	2	2,00,000.00
35	gases & chemical & glasswasre		12,00,000.00
36	tables, granite &stationery		5,00,000.00
			1,61,18,230.00

3.13 Project Cost & Means of Financing

The total cost of the project is Rs. 1589.92 lakh. The details are given in Tables-3.11 to 3.22. The sources of funds for the project is given in Table-3.23.

Table -3.11: Summary of Costs

S. No.	Cost particulars	Amount (Rs. lakh)
1	On site civil works (refer Table-9.2)	1389.80
2	Machinery and equipment (refer Table-9.3)	203.12
	Total	**1589.92**

Table-3.12: Cost for On site civil works

S. No.	Cost Particulars	Amount (Rs. lakh)
1	Security cabin	2.08
2	Weigh bridge cabin	5.49
3	Industrial shed	54.00
4	Compound wall	35.95
5	Back yard construction	10.08
6	Leachate storage tank	1.71

S. No.	Cost Particulars	Amount (Rs. lakh)
7	Tyre wash construction	2.12
8	Area cleaning and levelling	4.68
9	Landfill site construction	1273.60
	Total	**1389.80**

Table-3.13: Cost for Machinery and equipment

S. No.	Cost Particulars	Amount (Rs. lakh)
1	Weigh Bridge Machine (Plat form 9x3mtrs, Capacity 60mtrs)	5.98
2	Monsoon Dewatering Pumps (Lubi 15HP 150mm Sub type x 3 nos)	5.83
3	Monitoring Borewells (Given in Table – 9.5)	7.50
4	Air Monitoring control measures	10.00
5	Leachate pumps	4.33
6	Computers (Hp Lap Top x 15 nos)	7.35
7	Electrical fittings	15.00
8	Electrical cables	15.00
9	DG set machiners (100 KVA Kirlosker)	8.22
10	Excavator –Hitachi	42.50
11	Soil Compactor-Lebrero	26.00
12	Transportation Vehicles (VE-Terra x 1 No)	55.41
	Total	**203.12**

Table-3.14: Monitoring Borewells Installation

S. No	Description	Units	No	Length	Depth	Quantity	Rate ((Rs./unit)	Amount (Rs.)
1	Borewell digging 15cm dia (6.5")	Ft	6		450.00	2700.00	92.00	248400.00
2	M.S casting pipe & Erection charges (6.5")	Ft	6	100.00		600.00	600.00	360000.00
3	M.S & PVC collar	Each	6	11.0.		66.00	150.00	9900.00
4	Cap	Each	6	1.00		6.00	100.00	600.00
5	M.S Casingpipe welding charges	Per joint	6	5.00		30.00	350.00	10500.00
6	Transport charges	Per joint	6			6.00	350.00	2100.00
7	Labour charges	Per joint	6			6.00	500.00	3000.00

S. No	Description	Units	No	Length	Depth	Quantity	Rate ((Rs./unit)	Amount (Rs.)
8	Vehicle setting & flushing charges	Per joint	6			6.00	2000.00	12000.00
9	Water injection charges	Ft	6		450.00	2700.00	25.00	67500.00
	Total							714000.00
	Value added tax 5 %							35700.00
	Grand Total							749700.00

Table-3.15: Proposed security cabin of size 3Mx 3M (Builtup area-09 Sqmt or 100 Sq.ft)

Description	Units	No	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)
EWE in hard soil	Cum	4	1.00	1.00	1.20	4.80	267.00	1282.00
Filling available excavated earth	Cum	4	0.60	0.80	0.45	0.86	120.00	104.00
PCC 1:3:6	Cum	4	1.00	1.00	0.10	0.40	4849.00	1940.00
M-25(Footing)	Cum	4	0.80	0.80	0.45	1.15	5936.00	6839.00
M-20(Plinth beam)	Cum	2	3.00	0.20	0.20	0.24	5548.00	1332.00
	Cum	2	3.00	0.20	0.20	0.24	5548.00	1332.00
Columns shall be of 200 x 100mm rectangular tube of 5mm thick	Rmtr	4	4.50			18.00		
	kg		8.00x 39.00=702.00			702.00	110.00	77220.00
Perlins shall be of 60mmx40mm rectangular tube of 16 guage	Rmtr	4	3.00			12.00		
			12* 2.67=32.04			32.04	110.00	3525.00
Roof & side cladding shall be of 0.5mm thick PPGL corrugated sheet	Sq.m	2	3.00		4.05	24.30		
	Kg		24.30x7.40=179.82			179.82	110.00	19781.00
Bottom & Top base plates shall be 300mm x 100mmx 10mm thick with 20mm dia holes	Kg	10	10*9.50=95.00			95.00	110.00	10450.00
Foundation bolts of M16x600mm long shall be supplied at the time of foundation with dummy base plates	Kg					40.00	110.00	4400.00
Doors	Sq.m	1	0.90		2.10	1.89	2659.20	5026.00
Windows	Sq.m	2	1.20		1.50	3.60	2880.80	10371.00
All the structure shall be full welded and finished with grinding and sandering	Sq.m	1	3.00	3.00		9.00	332.40	2992.00
All the structure shall be painted with yellow oxide Primer and smoke grey enamel paint	Rmtr					54.30	26.64	1447.00
Solid block of size 600x200x100mm	Sq.m	4	3.00		4.50	54.001.89		
Deduction for door	Sq.m	1	0.90		2.10	1.893.60		
Deduction for windows	Sq.m	2	1.20		1.50	3.60		
Total qty	Sq.m					52.11	1037.00	54039.00
Providing &laying M 15 CC Flooring 60mm thick with metallic concrete hardner topping	Sq.m	1	3.00	3.00		9.00	646.00	5814.00
Grand Total								**207894.00**

Table-3.16: Proposed weigh bridge cabin of of size 10Mx 3M, weigh bridge platform of size 12Mx3M

Builtup area-27 Sqmt or 300 Sq.ft

Description	Units	No	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)
EWE in hard soil	Cum	6	1.00	1.00	1.20	7.20	267.00	1923.00
Filling available excavated earth	Cum	6	0.60	0.80	0.45	1.30	120.00	156.00
PCC 1:3:6	Cum	6	1.00	1.00	0.10	0.60	4849.00	2910.00
M-25(Footing)	Cum	6	0.80	0.80	0.45	1.73	5936.00	10258.00
M-20(Plinth beam)	Cum	2	10.00	0.20	0.20	0.80	5548.00	4439.00
	Cum	2	3.00	0.20	0.20	0.24	5548.00	1332.00
Columns shall be of 200 x 100mm rectangular tube of 5mm thick	Rmtr	6	4.50			27.00		
	kg		27.00x 39.00=1053.00			1053.00	110.00	115830.00
Perlins shall be of 60mmx40mm rectangular tube of 16 guage	Rmtr	8	12.00			96.00		
			96*2.67=256.32			256.32	110.00	28196.00
Roof & side cladding shall be of 0.5mm thick PPGL corrugated sheet	Sq.m	2	10.00		5.05	101.00		
	Kg		101x7.40=747.40			747.40	110.00	82214.00
Bottom & Top base plates shall be 300mm x 100mmx 10mm thick with 20mm dia holes	Kg	14	14*9.50=133.00			133.00	110.00	14630.00
Foundation bolts of M16x600mm long shall be supplied at the time of foundation with dummy base plates	Kg					40.00	110.00	4400.00
Doors	Sq.m	1	1.20		3.00	3.60	2659.20	
Windows	Sq.m	4	1.20		1.50	7.20	2880.80	20742.00
All the structure shall be full welded and finished with grinding and sandering	Sq.m	1	10.00	3.00		30.00	332.40	9972.00
All the structure shall be painted with yellow oxide Primer and smoke grey enamel paint	Rmtr					224.00	26.64	5968.00
Solid block of size 600x200x100mm	Sq.m	2	10.00		4.50	90.00		
		2	3.00		4.50	27.00		
Deduction for door	Sq.m	1	1.20		3.00	3.60		
Deduction for windows	Sq.m	4	1.20		1.50	7.20		

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Description	Units	No	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)
Total qty	Sq.m					113.40	1037.00	117596.00
Providing &laying M 15 CC Flooring 60mm thick with metallic concrete hardner topping	Sq.m	1	10.00	3.00		30.00	646.00	19380.00
M-25 (platform)	Cum	2	5.00	5.00	0.30	15.00	5936.00	89040.00
Steel Fe-500	Kg					150.00	64.63	9695.00
Grand Total								**548255.00**

Table-3.17: Proposed industrial Shed of size 90Mx 10M
Builtup area-900 Sqmt or 10200 Sq.ft

Description	Units	No	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)
EWE in hard soil	Cum	52	1.00	1.00	1.20	62.4	267.00	16661.00
Filling available excavated earth	Cum	52	0.60	0.80	0.45	11.23	120.00	1348.00
PCC 1:3:6	Cum	52	1.00	1.00	0.10	5.2	4849.00	25215.00
M-25(Footing)	Cum	52	0.80	0.80	0.45	14.98	5936.00	88898.00
M-20(Plinth beam)	Cum	2	90.00	0.20	0.20	7.20	5548.00	39946.00
	Cum	2	10.00	0.20	0.20	0.80	5548.00	4439.00
Columns shall be of 200 x 100mm rectangular tube of 5mm thick	Rmtr	42	4.50			189.00		
	Rmtr	9	5.4			48.60		
The Trusses shall be of 200mm x 100mm rectangular tube of 5mm thick	Rmtr	21	11.25			236.25		
Tie pipe	Rmtr	21	3.00			63.00		
Total Quantity	Rmtr					536.85		
	Kg	536.85 x 39.00 = 20937.15				20937.15	110.00	2303087.00
Perlins shall be of 80mmx40mm rectangular tube of 16 guage	Rmtr	15	90.00	10		1350.00		
		1350 x 2.67 = 3604.50				3604.50	110.00	396495.00
Side Purlins50mm X 25mm rectangular tube of 16 guage	Rmtr	2 x 8	9.00			144.00		
	Rmtr	2 x 8	10.00			160.00		
Total Quantity	Rmtr					304.00		
	Kg	304 x 2.18 = 665.76				665.76	110.00	73234.00

Description	Units	No	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)
Roof & side cladding shall be of 0.5mm thick PPGL corrugated sheet	Sq.m	1	90.00		12.00	1080.00		
	Sq.m	2	10.00		6.00	120.00		
	Sq.m	2	9.00		4.5	81.00		
Deductions for doors	Sq.m	2	2.40		2.4	11.25		
Deductions for windows	Sq.m	4	1.20		1.5	7.2		
Total Quantity	Sq.m					1262.28		
	Kg	1262.28 x 7.4 = 9340.87				9340.87	110.00	1027496.00
Bottom & Top base plates shall be 300mm x 400mmx 10mm thick with 20mm dia holes	Kg	102	102 x 9.5 = 969.00			969.00	110.00	106590.00
Foundation bolts of M16x600mm long shall be supplied at the time of foundation with dummy base plates	Kg					600.00	110.00	66000.00
Rolling Shutters	Sq.m	2	2.4		2.40	11.52	2659.20	30634.00
Windows	Sq.m	4	1.20		1.50	7.2	2880.80	20742.00
All the structure shall be full welded and finished with grinding and sandering	Sq.m	1	90.00	10.00		900	332.40	299160.00
All the structure shall be painted with yellow oxide Primer and smoke grey enamel paint	Rmtr					3453.13	26.64	91992.00
Solid block of size 600x200x100mm	Sq.m	2	90.00		1.20	216.00		
		2	10.00		1.20	24.00		
Deduction for open spaces	Sq.m	4	4.5		1.20	21.60		
Shutters		2	2.4		1.20	5.76		
Total Quantity	Sq.m					218.40	1037.00	226481.00
Providing &laying M 15 CC Flooring 60mm thick with metallic concrete hardner topping	Sq.m	1	90.00	10.00		900	646.00	581400.00
Grand Total								**5399818.00**

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Table-3.18: Compound Wall

S.No	Description	Units	No	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)
1	Compounding wall	Cum	1	485.00	0.80	1.00	388.00	267.00	1033596.00
2	Compound wall PCC	Cum	1	485.00	0.80	0.10	38.80	4695.00	182166.00
3	Construction of size stone	Cum	1	485.00	0.60	0.60	147.60	1672.00	291932.00
4		Cum	1	485.00	0.30	0.30	43.65	1673.00	73027.00
5	M20 using 20mm metal	Cum	1	485.00	0.30	0.15	21.83	5739.00	125254.00
	Solid blocks compound wall(size-600x200x200mm	Sqm	1	485.00		3.00	1455.00	1709.00	2486595.00
	Template wall	Sqm	162	0.40		3.00	194.40	1709.00	332230.00
	Grand Total								**3594800.00**

Table-3.19: Backyard Construction

S.No	Description	Units	No	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)
1	EWE	Cum	70	0.75	0.75	1.05	41.34	267.00	11039.00
2	Vertical columns shall be of ISMC 100(standard MS channel)	Rmtr	70	4.50			315.00	900.00	283500.00
3	Horizontal brazing pipes 60x40x16 guages MS rectangular tubes	Rmtr	4	165.00			660.00	760.00	504600.00
4	0.5mm thick PPLG sheet	Sq.m	1	165.00		3.60	594.00	355.00	210870.00
Grand Total									**1007009.00**

Table-3.20: Leachate Storage Tank

S.No	Description	Units	No	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)
1	EWE	Cum	4	3.00	2.00	2.10	50.40	267.00	13457.00
2	Tank wall PCC	Cum	4	3.00	2.00	0.10	2.40	4695.00	11268.00

S.No	Description	Units	No	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)
3	M20 using 20mm metal	Cum	8	3.40	0.20	2.00	10.88	5739.00	62441.00
			8	2.00	0.20	2.00	6.40	5739.00	36730.00
4	Covering plate	Cum	4	3.20	2.20	0.15	4.22	5739.00	24242.00
5	Water proof	Cum					10.88	255.00	2775.00
	Steel	Kg					302.08	64.63	19524.00
Grand Total									**170437.00**

Table 3.21: Tyre Washing Unit

Sl.No	Description	Units	No	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)
1	EWE	Cum	1	13.00	4.00	1.00	52.00	267.00	13884.00
2	Washing unit PCC	Cum	1	13.00	4.00	0.10	5.20	5695.00	29614.00
3	M20 using 20mm metal	Cum	1	13.00	4.00	0.45	23.40	6739.00	157693.00
4	Water proof	Cum					23.40	455.00	10647.00
Grand Total									**211838.00**

Table-3.22: Site Clearance

S.No	Description	Units	No	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)
1	In area of thorny jungle	Ha	2				2.00	61496.00	122992.00
2	Cutting of trees	Each	30				30.00	4150.00	124500.00
3	Levelling	LS	4				4.00	55000.00	220000.00
Grand Total									**467492.00**

Table-3.23 Fund sources on project cost

Sources of fund	%	Amount (Rs. Lakh)
Promoters contribution	12.33	196.46
Subsidiary from state Govt	25.00	398.23
Subsidiary from Central Govt	25.00	398.23
Financial assistance from banks	37.67	600
Total	**100**	**1592.92**

Note: Out of the above total cost we have availed an amount of rupees 6 Cr. term loan from bank and balance amount was arranged by M/s Mother Earth Environ Tech Pvt Ltd., Awaiting subsidy from both Central and State Government.

CHAPTER – 4

CONCLUSIONS

CHAPTER-4

CONCLUSIONS

4.1 Introduction

The present study was aimed detail project report and identifying the potential environmental impacts due to the various project activities, assessment of impact, mitigation measures, and at developing an environmental management and monitoring plans for proper mitigation of any adverse environmental impact. In this study, the various activities likely to take place during the construction and operation phases of the project have been analyzed in relation to the baseline condition of different valuable environmental Components. The mitigation measures proposed for the project proponent have been reviewed and the potential residual impacts discussed. The key points considered in this study are described in the following sections

4.2 Regulatory Compliances

This project has already been accorded the Environment Clearance from State Environmental Impact Assessment Authority (SEIAA) of Karnataka as per the applicable regulations. Key clearances obtained include No Objection Certificate from the Karnataka State Pollution Control Board (KSPCB) under The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981. In addition, Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 and amendments thereafter, Hazardous Waste (Management, Handling and Trans boundary Movement) Rules, 2008, The Common hazardous Waste (Management & Handling) Rules, 1989 Under E.P.A .Act, 1986 (Amended 2000; 2003 & 2008).

4.3 Baseline Conditions

The monitoring of the existing environmental conditions of the proposed project site and of its close vicinity has been established with respect to physical, biological and socio economic environment. The key findings are:

- Baseline condition in the study area is suitable to establish integrated waste management facility.
- About air quality of the area meets the prescribed National Ambient Air Quality Standards applicable for the Residential & Rural Areas.
- Ambient noise levels were also found well within the standards as at present most of the area is not developed.
- Ground water from dug wells, tube wells and hand pumps cater to the drinking water needs of the villages in the region.
- Quality of ground water was assessed by taking samples and analysed as per CPCB guidelines.
- No surface water body is existing in the study area.
- No forest land is falling in the study area.
- No Ecologically sensitive sites are located in vicinity of the Study Area.
- No rehabilitation and resettlement issue is emerging with the selected project site.

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Environmental Impacts and Mitigation Measures

The project entails various impacts on the study area, some negative and some positive. The impacts will be caused by the construction activities as well as by the other industrial activities during the construction and operation phases, respectively. Various impacts identified during the study have been provided mitigation measures for a better environmental management.

In addition, roles and responsibilities of the developers have also been outlined in Environmental Impact Assessment Study of the Proposed Integrated Waste Management facility comprising of TSDF (Second phase KIADB Industrial Area, Harohalli, Ramanagar District, Karanataka.)

4.4 Recommendations

a) The firm has already in operation for disposal of hazardous waste at landfill site (cell no.1 of capacity 95,000 MT) since, April-May, 2016 and six monthly compliance report was also submitted to KSPCB and they have not received adverse report from KSPCB

b) The average life of the present cell no.1 is about 7.2 years. The cell no. 2 having the capacity of disposal around 51,000 MT shall be used in future only after the getting the statutory clearances and approval from the Competent Authority.

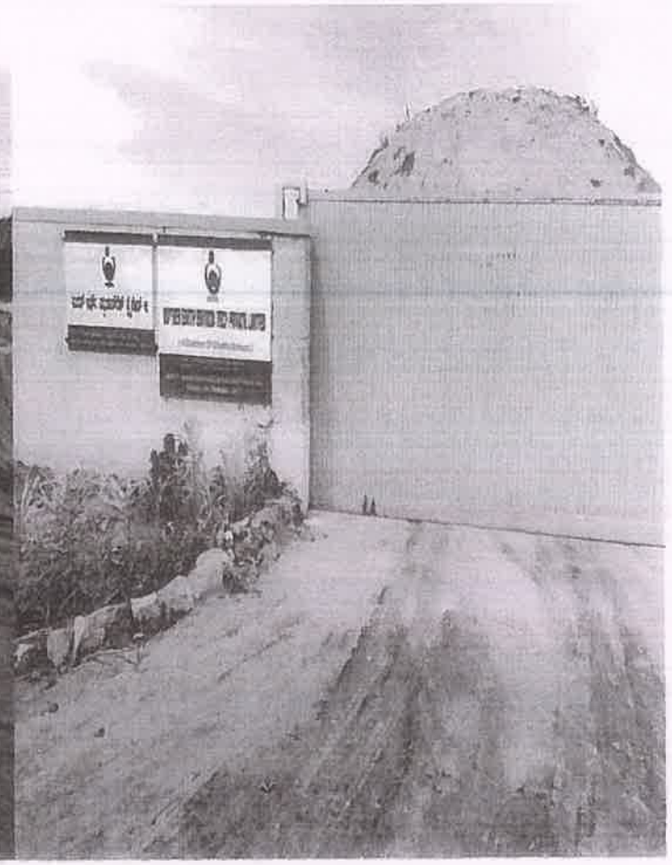
It is therefore recommended that grant be released to MEEPL as per rules of MoEF&CC with the following conditions:

a) The disposal on cell no. 2 shall be commences only after the getting necessary statutory clearances and approvals from competent authority.
b) The Operation and Maintenance of the plant shall have to be done as per terms and conditions given in the report and with compliance of suggestions given in this Report.

M/s Mother Earth Environ Tech Pvt Ltd
Site Visit - Photos



Landfill Site



Gate - Entry Point



Laboratory - Inside View



Laboratory - Inside View



West- Outside View

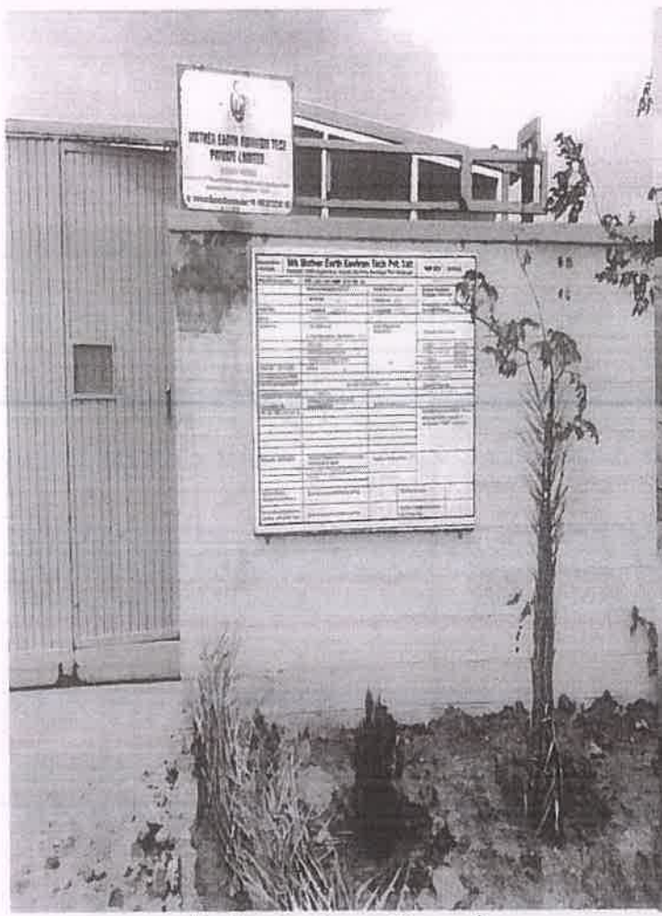
South - Outside View



East- Outside View



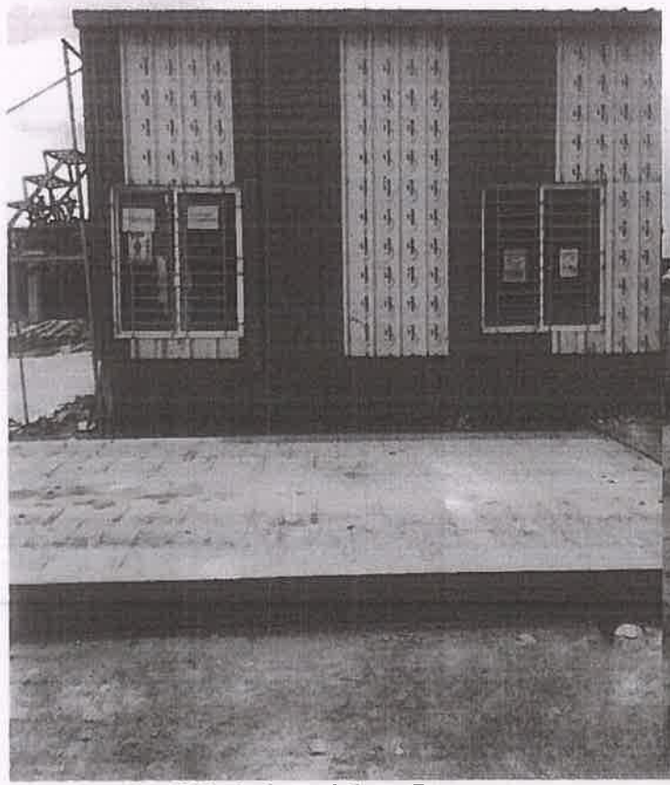
South - Outside View



Informatory Board



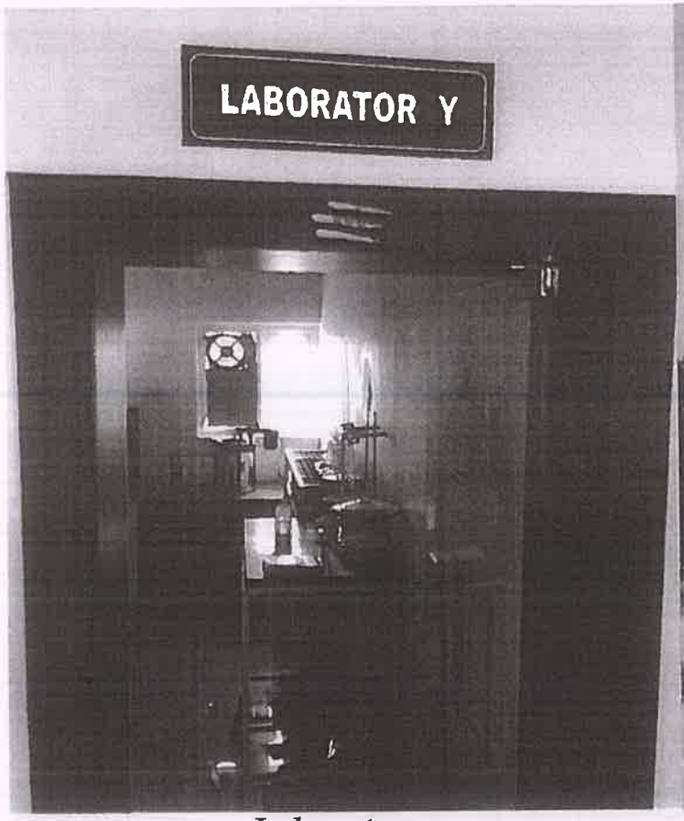
Landfill site



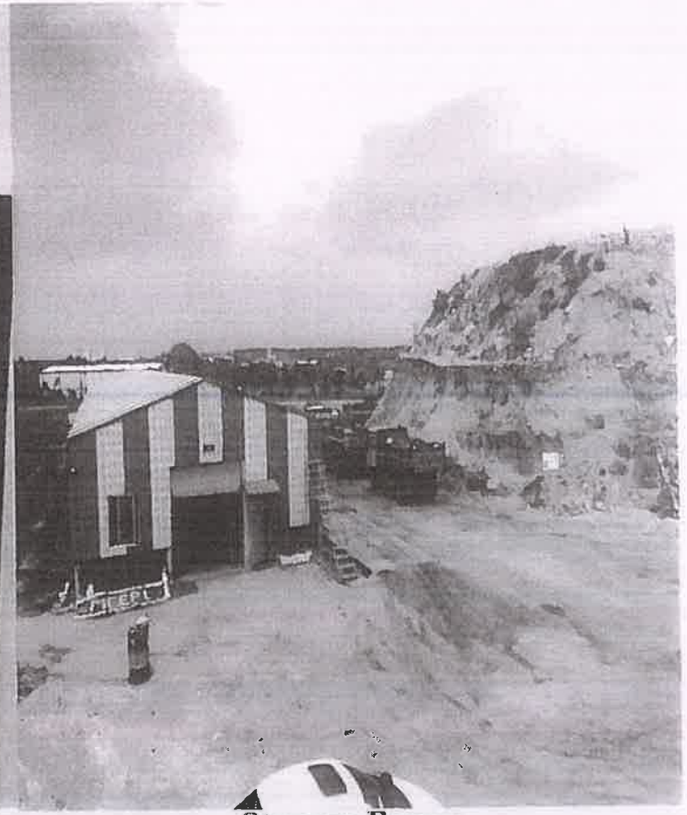
Weigh Bridge Room



Weigh Bridge - Location



Laboratary



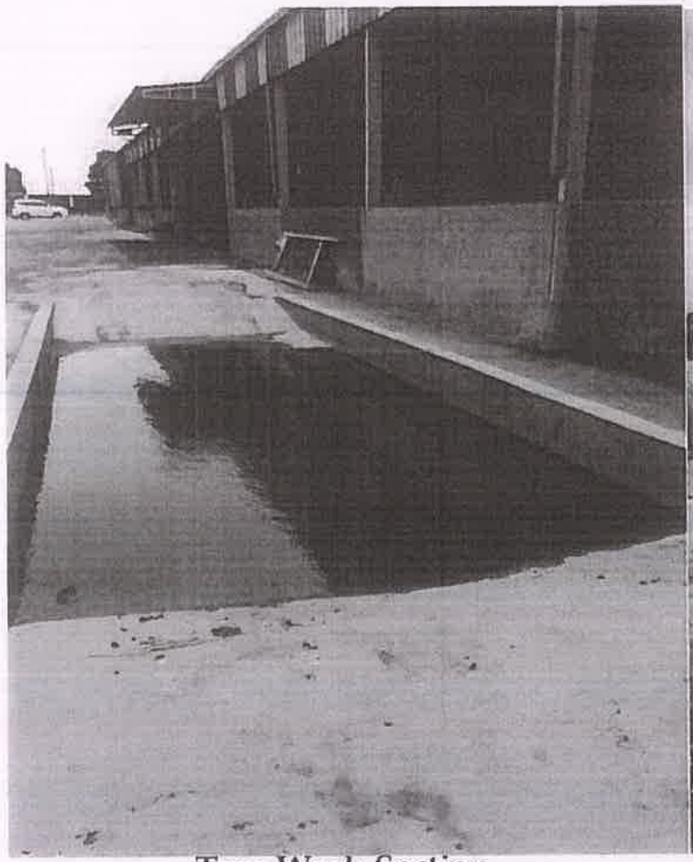
Storage Room



Stabilization Bins



Stabilization Bins



Tyre Wash Section



Liner Provision in Landfill site



Future Landfill



Green Belt

15 A-6A A-12 223

MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

MEEPL

CIN : U93000KA2011PTC059184 ✆:+91 80 26712303, Fax : 080-26712305
CHAITRA GROUPS # 2542, 28th Cross, 17th Main, Banashankari 2nd Stage, Bengaluru - 560 070

Date: 28.03.2018

To,
The Member Secretary
State Level Environmental Impact Assessment Authority,
Karnataka, Room no 706,7th floor,
4th gate, M.S. Building,
Bangalore – 560 001.

Sir,

Sub: Environmental Clearance for the Proposed Expansion of "Hazardous Waste Landfill" facility by M/s. Mother Earth Environ Tech Private Limited, Bangalore.

Reference: 1. 187th SEAC meeting held on 21th November 2017.
2. Terms of reference issued letter vide letter SEIAA 18 IND 2017 dated 12-01-2018.

We refer to the above subject, we are herewith submitting the Form 1 and EIA report prepared in accordance with the terms of reference issued by SEIAA vide reference (2) above.

We also enclose soft copy of the above documents in CD and request you to kindly acknowledge receipt of the documents, and process our project for issue of Environment Clearance at the earliest and oblige.

Thanking you,

Yours faithfully,

For M/s. Mother Earth Environ Tech Private Limited.,

Paramesh T.N,
Managing Director.

Mother Earth Environ Tech Pvt Ltd Harohalli

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ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT FOR THE PROPOSED "EXPANSION OF "HAZARDOUS WASTE LANDFILL" FACILITY"

At

Plot no.217, Harohalli Industrial Area,
2nd phase, Kanakapura Taluk,
Ramanagara.

Project Proponents

M/s. Mother Earth Environ Tech Private Limited,
2542, 28th Cross,
17th Main Road,
Banashankari 2nd Stage,
Bangalore - 560 070.

Environmental Consultants

SAMRAKSHAN
F- 4, I Floor, Swastik Manandi Arcade,
S C Road, Sheshadripuram,
Bangalore - 560 020.
Ph. : 080-41466009
E mail id –samrakshanblr@gmail.com

(January to March 2018)

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CHAPTER 1

INTRODUCTION

1.0 PURPOSE OF THE REPORT

Hazardous waste means any waste which by reason of charecteristics such as physical, chemical, biological, reactive, toxic, flammable, explosive or corrosive is likely to cause danger on human health or the environment whether alone or when in contact with other waste or substances.

The hazardous waste is required to be managed without affecting the environment against adverse effect which may result from such ways. Hence the facility with environmentally sound management of hazardous waste is required to be established. One such facility is M/s. MOTHER EARTH ENVIRON TECH PRIVATE LIMITED (MEEPL), Hazardous Waste Management Facility a Treatment Storage and Disposal facility, at KIADB industrial area, 2nd Phase, Kanakapura Taluk, Ramanagara.

M/s. Mother Earth Environ Tech Private Limited., has obtained Environmental Clearance from SEIAA, Karnataka vide letter no. SEIAA 1 IND 2015 Dated 28th August 2015 for the landfilling of hazardous waste in the proposed two cells, each of capacity Cell-1 50,000 MT and Cell-2 45,000 MT in the total plot area of 14,424.6 sq. m. Cell-1 is under operation with valid consents to Establish and to Operate under the Water and Air Act; and authorizations under Hazardous Waste (Management, Handling & Transboundary Moment) Rules 2008 and Amendment 2010 issued by Karnataka State Pollution Control Board.

The project was implemented and the facility has started receiving hazardous waste with effect from 16th April 2016. So far, about 19,700 MT of hazardous waste is disposed in the secured landfill cell no. -1.

MEEPL has now propose to increase the containment of landfillable Hazardous waste by optimizing the Cell capacities by way of increasing the storage volume by increasing the height of embankment and there is a marginal modification in the dimension of cells.

The proposed common hazardous waste Treatment, Storage and Disposal facility is covered under activity 7 (d) under caption "Common Hazardous waste treatment, storage and disposal facilities (TSDFs)" of EIA Notification 2006. As the existing activity is within the

notified Industrial area and the facility is having Hazardous Waste Landfill only and the proposed expansion is to increase the capacity of landfill, the project is to be considered under the B category. As per MoEF, Office Memorandum No. J-13012/12/2013-IA-II (I) dated 24th December, 2013 this project is to be categorized as B1 meaning, it necessitates the requirement of preparation of Environmental Impact Assessment (EIA) report. The proposal is to be appraised by State Level Environment Impact Assessment Authority (SEIAA), Karnataka.

The pre-feasibility report was submitted to SEIAA and presentation was made before SEAC on 21st November 2017 for hazardous waste landfill facility. The State Level Environment Impact Assessment Authority (SEIAA), Karnataka, vide letter no. SEIAA 18 IND 2017 dated 12-01-2018 communicated the Terms of Reference (TOR) for the preparation of EIA report for the proposed expansion of the hazardous waste landfill facility.

1.1 IDENTIFICATION OF THE PROJECT & PROJECT PROPONENT

1.1.1 INTRODUCTION OF THE PROJECT PROPONENT

M/s. MOTHER EARTH ENVIRON TECH PRIVATE LIMITED, is an industrial group in southern India, has varied interests ranging from drip irrigation to manufacturing units. In its efforts to diversify the activities, they have ventured into the hazardous waste management by establishing the Hazardous waste treatment, storage and disposal facility at KIADB industrial area, 2nd Phase, Kanakapura Taluk, Ramanagara.

The Founders of M/s. MOTHER EARTH ENVIRON TECH PRIVATE LIMITED, have various other companies mainly in civil infrastructure development. These companies are promoted and managed by Mr. T. N. Paramesh supported by his wife Mrs. C. Savitri and also supported by his younger brother Mr. T. N. Ramesh. Mr. T. N. Paramesh has in depth knowledge of building construction and irrigation processes as he has served as a dealer for drip building and irrigation systems for more than 10 years. A strong desire and determination to establish cutting edge technology in the drip irrigation all over the country for the benefit of the people and mother land propelled him to commence this business of building and drip irrigation. His passion for drip irrigation has resulted in optimal utilization of natural resources. He also has tremendous drive to improve the quality and thereby reduce the wastage and provide the best assistance to farmers in obtaining quick and maximum production from the land.

1.1.2 INTRODUCTION TO THE PROJECT

"M/s. Mother Earth Environ Tech Private Limited" is located at latitude of 12°40'38.18"N Longitude: 77°26'58.41"E at an elevation of 693 m above MSL.

M/s. Mother Earth Environ Tech Private Limited., has established the treatment and disposal facility at Harohalli Industrial Area, 2nd Phase, Kanakapura Taluk and Ramanagara District. The company proposed to expand the storage capacity to cater to the future demands to optimize the utilization capacity.

KIADB has allotted the land at plot no. 217 of KIADB industrial area, Harohalli Industrial Area, 2nd phase, Kanakapura Taluk, Ramanagara with a total area of 16,187 sq. m (4 Acres). The land is handed over to the company in stages. As such there is a marginal modification in the layout. During execution of the 1st cell, the layout & size of the cell is modified according to the layout to receive maximum quantity of hazardous waste. The cell -1 is constructed as per the best engineering practices. The cell – 1 can receive about 1,00,000 MT with effective landfilling of hazardous waste to a tune of 95,000 MT. This is possible, because of the revised dimensions of the cell which include 6 m HT embankment above the ground level

The company has followed all the regulatory norms to comply with the EC, CFE, CFO & authorization stipulations. The periodical returns have been submitted to the regulatory agencies. The copy of the environmental compliance report for the year ending 2016 submitted to Reginal Office, MoEF is enclosed for perusal. The monitoring reports are also appended. The fingerprint analysis is being carried out at site using in-house laboratory. However, the comprehensive analysis of waste is done using NABL accredited and ISO 18001, OHSAS certified laboratory and protocols for transportation is followed as per the Hazardous and Other Wastes (Management and Transboundary Movement) Amendment Rules, 2016.

The cell is provided with necessary liners to ensure that no leaching of hazardous waste takes place in to the underground strata. The leachate collection tank of adequate capacity is provided and the collected leachate is sent to CETP of Eco Park, Bangalore.

The ambient air quality, Noise levels monitoring and ground water monitoring is also carried out through NABL accredited and ISO 18001, OHSAS certified laboratory. The analysis reports indicate that the parameters are within the prescribed norms and there is no impact on the environment due to the project.

1.2 BRIEF DESCRIPTION OF NATURE, SIZE, LOCATION OF THE PROJECT & ITS IMPORTANCE TO THE COUNTRY, REGION

1.2.1 NATURE, SIZE & LOCATION OF THE PROJECT

The nature of the proposed project is treatment and disposal of landfillable hazardous waste. M/s. Mother Earth Environ Tech Private Limited., has established the treatment and disposal facility at Harohalli Industrial Area, 2nd Phase, Kanakapura Taluk and Ramanagara District. MEETPL now propose to create additional storage and disposal capacity in the already approved cells in the facility.

The Hazardous Waste landfill projects is a large-scale unit. The Initial capital investment is Rupees –16.55 Crores. The estimated cost for the expansion is Rupees 3.21 Crores. After expansion total cost is Rupees 19.76 Crores.

The project is well connected by NH – 20. The NH-209 connects Bangalore and Kanakapura Taluk of Ramanagara District. The site location is around 17.39 km and about 30 km from Ramanagara and Bangalore city respectively. Ramanagara Railway Station is about 19.0 km form the project towards western direction.

The location of the Project site is in fig 1.0.

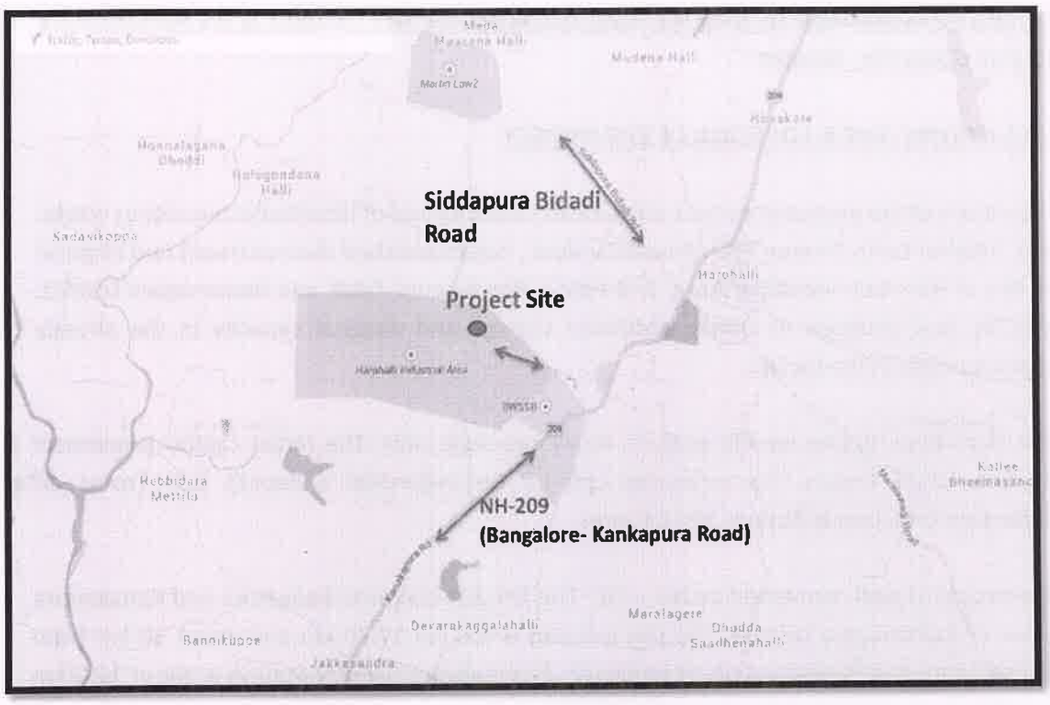


Fig 1.0 LOCATION MAP

Source: - https://www.google.co.in/maps/

1.2.2 NEED FOR THE PROJECT AND ITS IMPORTANCE TO THE COUNTRY AND/REGION & DEMAND SUPPLY GAP, IMPORTS VS INDIGENOUS PRODUCTION

The Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016 envisages safe storage, transport, treatment and disposal of various category of industrial hazardous waste mentioned in the rules. One of the main features of this rule is that the occupier of the activities generating hazardous wastes or handling the hazardous wastes becomes legally responsible for taking all practical steps to ensure that such wastes are properly handled, labeled, stored and disposed of without any adverse impact on the environment. These wastes require to be properly treated and disposed either providing captive facility or through common treatment, storage and disposal facility. By and large industries prefer to go for common facility.

The objectives of hazardous waste management are:

- To prevent and reduce the generation of hazardous waste by project and society generally;
- To maximize the collection of hazardous waste with a view to reducing the environmental and health impacts of any unregulated waste;
- To strive for increased self-sufficiency in the management of hazardous waste and to minimize hazardous waste export;

To minimize the environmental, health, social and economic impacts of hazardous waste generation and management.

In Karnataka the quantity of different kinds of hazardous waste generated as per the inventory by Karnataka State Pollution Control Board as on 31-03-2017 is as under;

Type of Hazardous Waste	Quantity in MT /Annum
Landfillable waste	46596.67
Incinerable waste	79542.72
Recyclable/re-processable waste	65851.23
Total	191990.62

1.1 Inventory of Estimated Hazardous Waste Generation in Karnataka as On 31st March 2017

Sl. No.	Regional Office	Total No. of industries	Land fillable HW (MT)	Recyclable HW (MT & No's)		Incinerable HW		Total Qty HW Generation (MT & No's)	
				MT*	No's **	MT*	No's**	MT*	No's **
1	Anekal	225	5304.43	2012.62	59365.00	2882.16	320.00	10199.21	59685.00
2	Bengaluru City East	172	25.11	174.92	0.00	42.82	0.00	242.85	0.00
3	Bengaluru City South	63	132.07	399.85	0.00	663.57	0.00	1195.49	0.00
4	Bengaluru city west	149	5.59	183.60	0.00	1.26	0.00	190.45	0.00
5	Peenya	243	991.01	3376.57	2808.00	233.49	23432.00	4601.07	26240.00
6	Bommanahalli	208	86.30	272.13	23000.00	59.31	0.00	417.74	23000.00
7	Dasarahalli	95	99.77	1494.48	0.00	433.37	0.00	2027.63	0.00
8	Mahadevapura	169	912.20	2256.87	9516.00	946.58	5189.00	4115.65	14705.00

9	Rajarajeshwarinagar	89	998.70	2274.50	939.00	1044.29	5745.00	4317.49	6684.00
10	Sarjapura	197	91.50	1288.07	41625.00	1213.22	272.00	2592.79	41897.00
11	Yelahanka	23	800.15	63.64	0.00	56.35	0.00	920.14	0.00
12	Doddaballapura	68	2362.92	817.88	0.00	870.18	0.00	4050.98	0.00
13	Hoskote	56	9.31	184.50	22921.00	164.70	7298.00	358.51	30219.00
14	Nelamangala	95	608.18	169.89	0.00	3594.33	0.00	4372.40	0.00
15	Bagalkote	41	0.00	73.23	0.00	0.00	0.00	73.23	0.00
16	Belgam-1	87	3.45	2018.83	34655.00	9.58	106.00	2031.85	34761.00
17	Belgaum-2	43	19.91	135.92	0.00	272.69	0.00	428.52	0.00
18	Bellari	66	560.00	3707.00	0.00	1689.00	0.00	5956.00	0.00
19	Bidar	19	668.00	0.20	0.00	650.03	0.00	1318.23	0.00
20	Bijapur	30	0.00	139.22	2590.00	8.31	0.00	147.53	2590.00
21	Chamarajanagara	7	0.00	12.66	5620.00	0.00	0.00	12.66	5620.00
22	Chikkaballapura	23	124.00	22.47	757.00	6.24	45.00	152.71	802.00
23	Chikkamagalur	3	0.00	1.50	480.00	0.00	0.00	1.50	480.00
24	Chitradurga	26	0.00	93.80	0.00	61.34	0.00	155.14	0.00
25	Davangere	41	291.08	103.66	0.00	12.96	0.00	407.70	0.00
26	Dharwad	84	614.76	405.77	40374.00	918.26	916.00	1938.78	41290.00
27	Gadag	14	0.00	91.52	24.00	11.55	2384.00	103.07	2408.00
28	Gulbarga	12	0.00	127.50	0.00	52004.17	0.00	52131.67	0.00
29	Hassan	48	1681.00	20011.00	23450.00	428.00	0.00	22120.00	23450.00
30	Haveri	18	0.00	3626.97	4090.00	442.00	0.00	4068.97	4090.00
31	Karwar	41	0.00	2050.00	0.00	0.00	5538.00	2050.00	5538.00
32	Kodagu	12	0.00	26.96	7542.00	0.00	0.00	26.96	7542.00
33	Koppal	40	1295.04	179.02	0.00	255.97	0.00	1730.03	0.00
34	Mandya	55	144.42	136.68	218.00	1306.49	1830.00	1587.59	2048.00
35	Mangalore	134	4000.00	6978.00	72590.00	1100.00	0.00	12078.00	72590.00
36	Mysuru-1	25	422.69	1609.00	258416.00	280.59	0.00	2312.28	258416.00
37	Mysuru-2	27	4609.73	7452.56	77825.00	2205.91	5051.00	14268.20	82876.00
38	Kolar	73	6390.00	895.00	8450.00	916.00	3270.00	8201.00	11720.00
39	Raichur	19	2020.29	34.00	1424.00	85.27	0.00	2139.56	1424.00
40	Ramanagara	86	6026.35	489.33	168152.00	4390.30	0.00	10905.98	168152.00
41	Shivamoga	80	3753.00	145.67	6500.00	53.73	12092.00	3952.40	18592.00
42	Thumkur	70	59.12	278.75	0.00	210.18	0.00	548.04	0.00
43	Udupi	49	1486.60	33.00	4800.00	18.54	580.00	1538.14	5380.00
44	Yadgiri	9	0.00	2.50	0.00	0.00	0.00	2.50	0.00
	Total	**3134**	**46596.67**	**65851.23**	**878131.00**	**79542.72**	**74068.00**	**191990.63**	**952199.00**

Source: - KSPCB of the Year 2016-17.

For disposal of land fillable waste, two common Treatment, Storage, and Disposal Facilities (TSDF) have been established in Karnataka. One facility is in operation at Dabaspet, Nelamangala Taluk, Bengaluru Rural District operated by Ramky Enviro Engineers on BOOT model basis and same is in operation since 2008.

This new facility of Treatment, Storage, Disposal Facility (TSDF) is established at Harohalli Industrial area, Kanakapura Taluk, Ramanagar District by Mother Earth Environ Tech Pvt Ltd. And is in operation since 16th April 2016.
The details of the facility is as under.

Extent of land	:	4 Acres
Total Design capacity	:	95,000 MT.
Active life span	:	10 Years

To cater to the need and also to ensure competitive business, the second facility is filling the gap of competence and has broken the monopoly by one facility. The industries are benefitted by competitive rates for transportation, treatment, storage and disposal.

1.3 SCOPE OF STUDY – DETAILS OF REGULATORY SCOPING CARRIED OUT {AS PER TERMS OF REFERENCE (ToR)}.

The purpose of EIA/EMP is to critically analyses the environmental impacts due to the expansion of the hazardous waste landfill facility and to suggest mitigation measures to reduce the pollution and to delineate an Environmental Management Plan along with recommendations and suggestions. ToRs have been considered for preparation of Environment Impact Assessment studies for the project. Scope of present study is in line with the Terms of Reference as indicated by SEIAA in letter vide letter SEIAA 18 IND 2017 dated 12-01-2018.

1.3.1 SCOPE OF STUDY

Environmental baseline monitoring has been carried out during January to March 2018. Air quality modeling exercises have been carried out to predict and evaluate the impacts due to the project. The scope of the present study is in line with the ToR granted by SEIAA.

1.3.1.1 DETAILS OF THE STUDY

The study broadly includes:

- To conduct literature review and collect data relevant to the study area.
- To undertake environmental monitoring so as to establish the baseline environmental status of the study area.
- To predict incremental levels of pollutants in the terrestrial study area due to the project activities.
- To evaluate the predicted impacts on the various environmental attributes in the study area by using scientifically developed and widely accepted environmental impact assessment methodologies.
- To prepare an EMP outlining the measures for improving the environmental quality and scope for future expansions for environmentally sustainable development and
- To identify critical environmental attributes required to be monitored suggesting a post – project monitoring programme.

1.3.1.2 METHODOLOGY OF THE STUDY

Reconnaissance was conducted by the monitoring team and concerned officials from the project proponent. Sampling locations were identified by considering the below factors.

- Existing topography, drainage pattern and location of surface water bodies like ponds, canals, rivers, and sea.
- Location of villages/towns/sensitive areas.
- Areas which represent baseline conditions and
- Collection, collation and analysis of baseline data for various environmental attributes.

The field observations are used to,

- Identify extent of negative impacts on community / natural resources and
- Identify mitigation measures and monitoring requirements.

1.3.1.3 STUDY AREA DETAILS

The study area for the present EIA study is the area covered within the 10 km radius from the plant boundary.

1.3.2 TERMS OF REFERENCE (TOR)

Terms of Reference (TOR) prescribed by the State Level Expert Appraisal Committee, Karnataka, vide letter no. SEIAA 18 IND 2017 dated 12-01-2018 for the preparation of EIA report for the expansion of hazardous waste facility project, is tabulated below table 1.2.

Table 1.2: Terms of Reference (TOR)

Sl. No.	*Description*	*Details provided in Chapter/Section*
1	Reasons for selecting the site with details of alternate sites exanimated/rejected /selected on merit with comparative statement and reason/basis for selection on merit with comparative statement and reason/ basis for selection. The examination should justify site suitability in terms of environmental damages, resources sustainability associated with selected site as compared to rejected sites. The analysis should include parameters considered along with weightage criteria for short-listing selected site.	The site was selected as it is within the KIADB industrial area, the topography is advantageous for the TSDF facility and away from the human habitation. The present project site is handed over to the company by KIADB in stages. As such there is a marginal modification in the layout. During execution of the 1st cell, the layout & size of the cell is modified according to the layout to receive maximum quantity of hazardous waste. The present proposal for expansion is optimizing the existing landfill facility due to marginal change in the dimension of landfill cells and by increasing the embankment height of the landfill facility.
2	Submit the details of the road/rail connectivity along with the likely impacts and mitigative measures.	Section 1.2.1, Chapter-1 & Section 4.3.4.1, Chapter-4.

Sl. No.	*Description*	*Details provided in Chapter/Section*
3	Submit the present land use and permission required for any conversion such as forest, agriculture etc.	The project is located in designated KIADB area. The land use pattern of the project is detailed in section 2.6, Chapter-2.
4	Examine the details of transportation of Hazardous wastes, and its safety in handling.	Detailed in section 2.7.3.3.2, Chapter-2 and section 4.3.4, Chapter-4.
5	Examine and submit the details of on line pollutant monitoring.	As there is no point source of emission except a small DG set of 150 KVA. Therefore no on line monitoring system is provided. On line camera is installed.
6	Examine the details of monitoring of Dioxin and Furon.	The project is hazardous waste landfill facility. Since there is no incinerator installed for disposal of hazardous waste monitoring of Dioxin and Furon is not envisaged.
7	MoU for disposal of ash through the TSDF.	No ash is generated from the project.
8	MoU for disposal of scrubbing waste water through CETP.	As the project does not intent to install incinerator, there is no scrubbing waste generation.
9	Examine and submit details of monitoring of water quality around the landfill site.	The details of monitoring of water quality around the landfill site is in 3.3.4.3, Chapter-3.
10	Examine and submit details of the odour control measures.	Section 4.6.1, Chapter-4
11	Examine and submit details of impact on water body and mitigative measures during rainy season.	Section 2.7.4.3, chapter-2, & Section 4.3.9, Chapter-4
12	Environmental Management Plan should be accompanied with Environmental Monitoring Plan and environmental cost and benefit assessment. Regular monitoring shall be carried out for odour control.	Chapter-4 & Chapter-6.

Sl. No.	*Description*	*Details provided in Chapter/Section*
13	Water quality around the landfill site shall be monitored regularly to examine the impact on the ground water.	Water quality around the landfill site is monitored regularly and the reports of the same is appended as annexure-A
14	The storage and handling of hazardous wastes shall be as per the Hazardous Waste Management Rules.	We are Following The Hazardous and other Waste Management Rules for storage and handling of hazardous waste and also following the guidelines issued by CPCB.
15	Submit details of a comprehensive Disaster Management Plan including emergency evacuation during natural and man-made disaster.	Detailed in chapter-7.
16	A detailed draft EIA/EMP report should be prepared in accordance with the above additional TOR and should be submitted to the Ministry in accordance with the Notification.	The detailed EIA/EMP report is prepared as per the TOR issued.
17	Details of litigation pending against the project, if any, with direction / order passed by any Court of Law against the Project should be given.	No litigation is pending.
18	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Initial cost of the project: - Rs.16,55,00,000/- Expansion cost :- Rs.3,21,00,000 (Rupees Three Crores Twenty One Lakhs) Cost towards implementation of EMP Rs. 4.00 lakshs per annum.

1.4 GENERIC STRUCTURE OF EIA DOCUMENT:

This EIA report presents the existing baseline scenario and the assessment and evaluation of the environmental impacts that may rise during the construction and operational phases of the project. This report also highlights the Environmental Monitoring Program during the construction and operation phases of the project and the post project monitoring program. In terms of the EIA Notification of the MoEF dated 14th September 2006 as amended Dec. 2009, the generic structure of the EIA document is as under:

Chapters No.	Chapters name	Description
1	**Introduction**	Introductory information is presented in this Chapter. The introduction provides a Background to the project and describes the objective of this document. This Chapter also includes the outline of the project and its proponent. The purpose and organization of the report is also presented in this chapter.
2	**Project Description**	This Chapter includes Project Description and Infrastructure Facilities delineating all industrial and environmental aspect of the industry of M/s. Mother Earth Environ Tech Private Limited, Bangalore Construction and operation phase activities as well as process details of proposed scenario. This Chapter gives information about storage and handling, water and wastewater quantitative details, air pollution and control system, sludge storage facility, utilities, greenbelt and safety measures for proposed plant.
3	**Description of the Environment**	This Chapter provides Baseline Environmental Status of Environmental components (Primary data) delineating meteorological details of the project site and surrounding area.
4	**Anticipated Environmental Impacts & Mitigation Measures**	This Chapter presents the analysis of impacts on the environmental and social aspects of the project as a result of establishment of plan and thereby suggesting the mitigation measures.
5	**Analysis of Alternatives**	This chapter includes the justification for the selection of the project site from Environmental point of view as well as from economic point of view so that the technology will be affordable to the member units of the industrial area.

6	**Environmental Monitoring Plan**	This chapter will include the technical aspects of monitoring, the effectiveness of mitigation measures which will include the measurement methodologies, frequency, location, data analysis, reporting schedules etc.,
7	**Additional Studies**	This chapter will detail about the Public Consultation sought regarding the project. It will also identify the risks of the Project in relation to the general public and the surrounding environment during construction and operation of the plant and thereby presents Disaster Management Plan.
8 &9	**Project Benefits & Environmental Cost Benefit Analysis.**	The realization of the project activity is envisaged to impart benefits to the areas in concern. This Chapter will identify the benefits from the project and summarize them.
10	**Environmental Management Plan**	This Chapter of the report presents the mitigation plan, covers the monitoring requirements to implement environmental mitigation measures and to assess performance of implementation.
11	**Summary and Conclusion**	This chapter summarizes contents in the report.
12	**Disclosure of the Consultant**	Names of consultants engaged in the preparation of the EIA/EMP report along with their brief resume and nature of Consultancy rendered are included in this Chapter.

CHAPTER 2

PROJECT DESCRIPTION

2.1 TYPE OF PROJECT

The proposed project is expansion of the "**Common Hazardous waste treatment, storage and disposal facilities (TSDFs)"** facility for land fillable Hazardous Waste. The landfill capacity of Cell 1 will be increased from 50,000 MT – 1.00,000 MT and Capacity of Cell 2 will be increased from 45,000 MT– 51,000 MT.

2.2 NEED FOR THE PROJECT

The need for the project is detailed in Section 1.2.2, Chapter 1 of this report.

2.3 LOCATION OF THE PROPOSED INDUSTRY

M/s. Mother Earth Environ Tech Private Limited's, "Hazardous Waste Landfill" facility is located at Plot no.217, Harohalli Industrial Area, 2nd phase, Kanakapura Taluk, Ramanagara. The Google map is appended as figure 3.1 and revised layout plan of the project is shown in figure 2.0

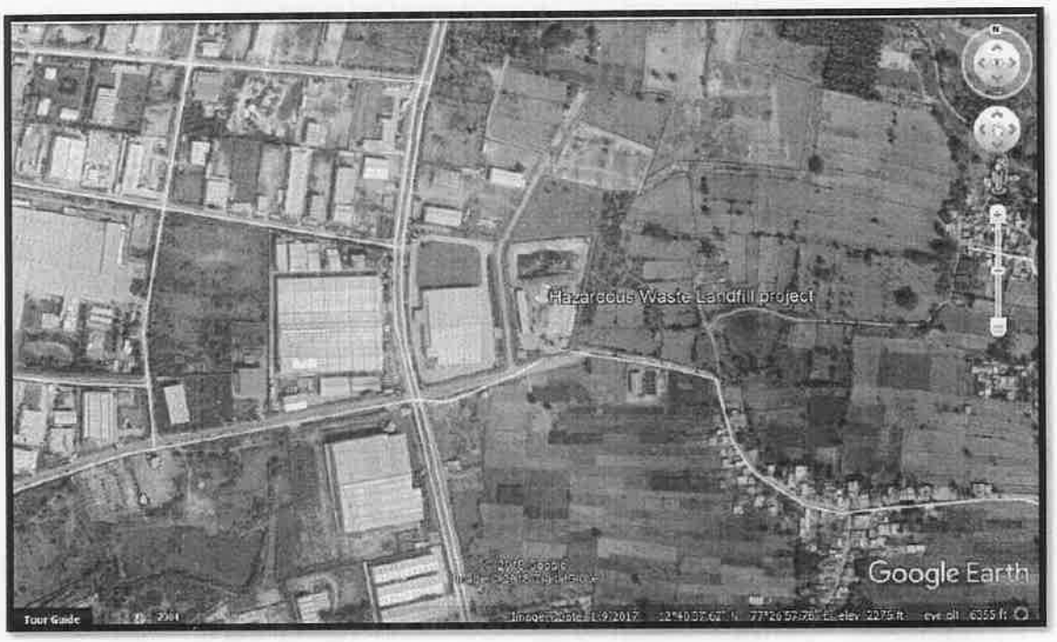


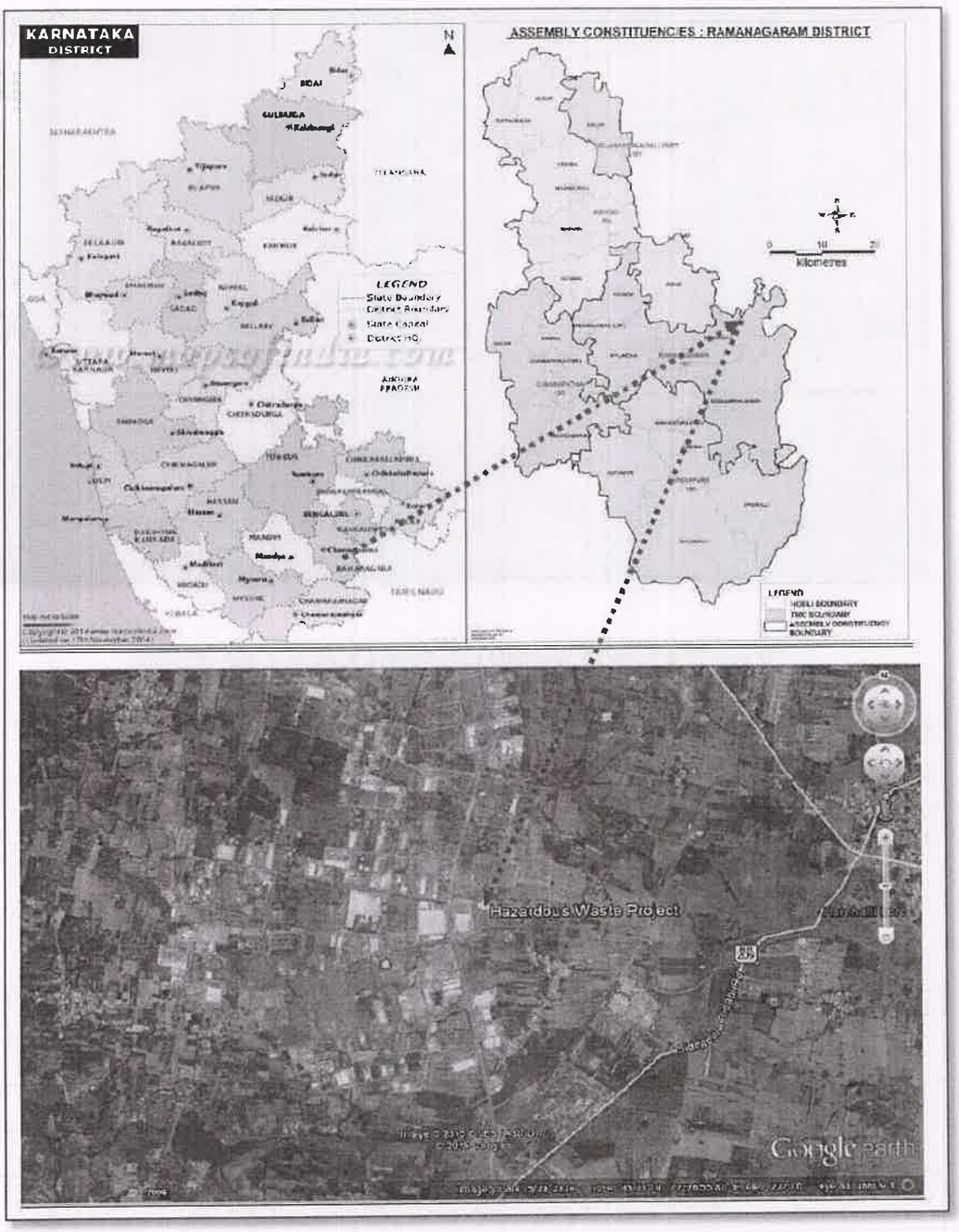
Fig 2.0: Maps showing project boundary & project site location

Note:

Longitude:- 77°26'58.41"E
Latitude:- 12°40'38.18"N
MSL:- 693 m

Table: - 2.0 Co-ordinates (lat-long) of all four corners of the site

Sl. No.	Directions	Co- ordinates
1	North East	Latitude: 12°40'41.67"N; Longitude: 77°27'01.20"E
2	North West	Latitude: 12°40'41.40"N; Longitude: 77°26'57.05"E
3	South East	Latitude: 12°40'36.33"N; Longitude: 77°26'59.93"E
4	South West	Latitude: 12°40'35.81"N; Longitude: 77°26'57.25"E



2.0. A Map showing the Project Site Location on District Map of Bangalore

The salient feature of the project is shown in below table 2.1

Table 2.1:- Project At glance

Sl. No.	*Details*				
1	Project	Expansion of "Hazardous Waste Landfill" Project			
2	Project developers	M/s. Mother Earth Environ Tech Private Limited, Bangalore			
3	Location of the site	Plot no.217, Harohalli Industrial Area, 2nd phase, Kanakapura Taluk, Ramanagara.			
4	Capacity of cells	Sl.no.	Description	Existing (EC obtained)	After Expansion
		1.	Cell no -1	50,000 MT	1,00,000 MT
		2.	Cell no -2	45,000 MT	51, 000 MT
			Total	95,000 MT	1,51,000 MT
5	Constitution of the Organization	Private Limited Company			
6	Total Plot Area	16,187 sq m (4.0 Acres)			
7	Longitude Latitude MSL	12°40'38.18"N; 77°26'58.41"E 693 m from sea level			
8	Project cost	Initial cost of the project: - Rs.16,55,00,000/- (Rupees Sixteen Crores Fifty Five Lakhs Only). Expansion cost :- Rs.3,21,00,000 (Rupees Three Crores Twenty One Lakhs)			
9	Employees	Existing :- 10 Additional :- 15 Total After Expansion -25			

2.1. A Brief Summary of Project Expansion

Sl.NO	Description	EC obtained	After Expansion	Summary
1	Survey Nos.	Plot no.217, Harohalli Industrial Area, 2nd phase, Kanakapura Taluk, Ramanagara.		No change
2	Total capacity of Secured Landfill cells			
	Cell – 1	50,000 MT	1,00,000 MT	Additional capacity 50,000 MT
	Cell- 2	45,000 MT	51,000 MT	Additional capacity 6,000 MT Total capacity increase 56,000MT
3	Man Power	10	25	+ 15
4	Water Requirement for Domestic & greenbelt use.	3 KLD	3 KLD	No change
5	Domestic Waste water disposal options	Septic tank & Up flow anaerobic filter	Septic tank & Up flow anaerobic filter	-
6	Leachate waste water generated	2 KLD	4 KLD	Addition of 2 KLD
7	Leachate waste water disposal options	Leachate waste water sent to CETP for Final treatment and disposal	Leachate waste water sent to CETP for Final treatment and disposal	-
8	Solid Waste	2 Kg/day	5 Kg/day	Addition of 3 Kg/day
9	Air pollution sources	DG set 100 KVA	No change	Existing DG set is adequate.

2.4 SIZE OR MAGNITUDE OF OPERATION

The Hazardous Waste landfill projects of MEETPL is a large scale unit. The Initial capital investment is Rupees –16.55 Crores.

The estimated cost for the expansion is Rupees 3.21 Crores

After expansion total cost is Rupees 19.76 Crores.

Table: 2.1.1 - PROJECTED COST OF THE PROJECT

Sl. No.	*Details*	*Cost in Lakhs*
1	Land & land Development	
	Land cost	150
	Area cleaning, levelling	25
2	Landfill site construction	
	Cell-1	675
	Cell-2	675
3	Civil buildings	
	Buildings a) Security cabin b) Weigh bridge cabin c) Weigh bridge platform d) Office building	 5 5 10 10
	Storage sheds A. Temporary storage shed B. Stabilization shed	 10 10
	Compound wall	25
4	Plant and machinery	
	Weigh bridge machine	15
	Monsoon dewatering pump	5
	Monitoring Borewell	5
	Leachate pump	5
5	Tree plantation	5
6	Furniture and fixtures	
	Office furniture	2
7	Office equipments	5
	Computers	3

8	Electrical	10
Intial Investment Total cost		**1655**
Expansion cost		**321**
Total Cost After expansion		**1976**

2.5 PROPOSED SCHEDULE FOR APPROVAL & IMPLEMENTATION

The time schedule for completion of the proposed project is given in the following table 2.2.

Table 2.2:- Time schedule for completion of the proposed

Particulars	*Time schedule*
Approval of EC and CFE	June 2018
Civil works	Existing plant
Erection & installation of machinery	Existing plant
Completion	Existing plant

2.6 PROPOSED LAYOUT PLAN

The proposed layout plan clearly demarcating various units within the plant and the boundaries with land use pattern is provided in fig 2.1 and table 2.3 respectively.

Table 2.3:- Land-use pattern

Sl. No.	*Particulars*	*Area (SQM)*	*Area in percentage*
1	Total plot area	16,187	100
2	Land fillable area	3,827	23.64
3	Cover Construction area	9,14	5.64
4	Hard paved area including roads	5,900	36.44
5	Landscape/Green-belt area	5,546	34.26

SITE BEARINGS: The proposed project site is surrounded by vacant plots/industries in all directions. Details are shown in the below table 2.4.

Table 2.4: List of surrounding major industries

Sl.No.	*Description*	*Direction*
1	Vacant plot industrial shed under construction.	North
2	12 M wide Road	South
3	Vacant land reserved for green belt by KIADB	East
4	KIADB road	West

The proposed layout plan of the project with various components is appended as fig 2.1.

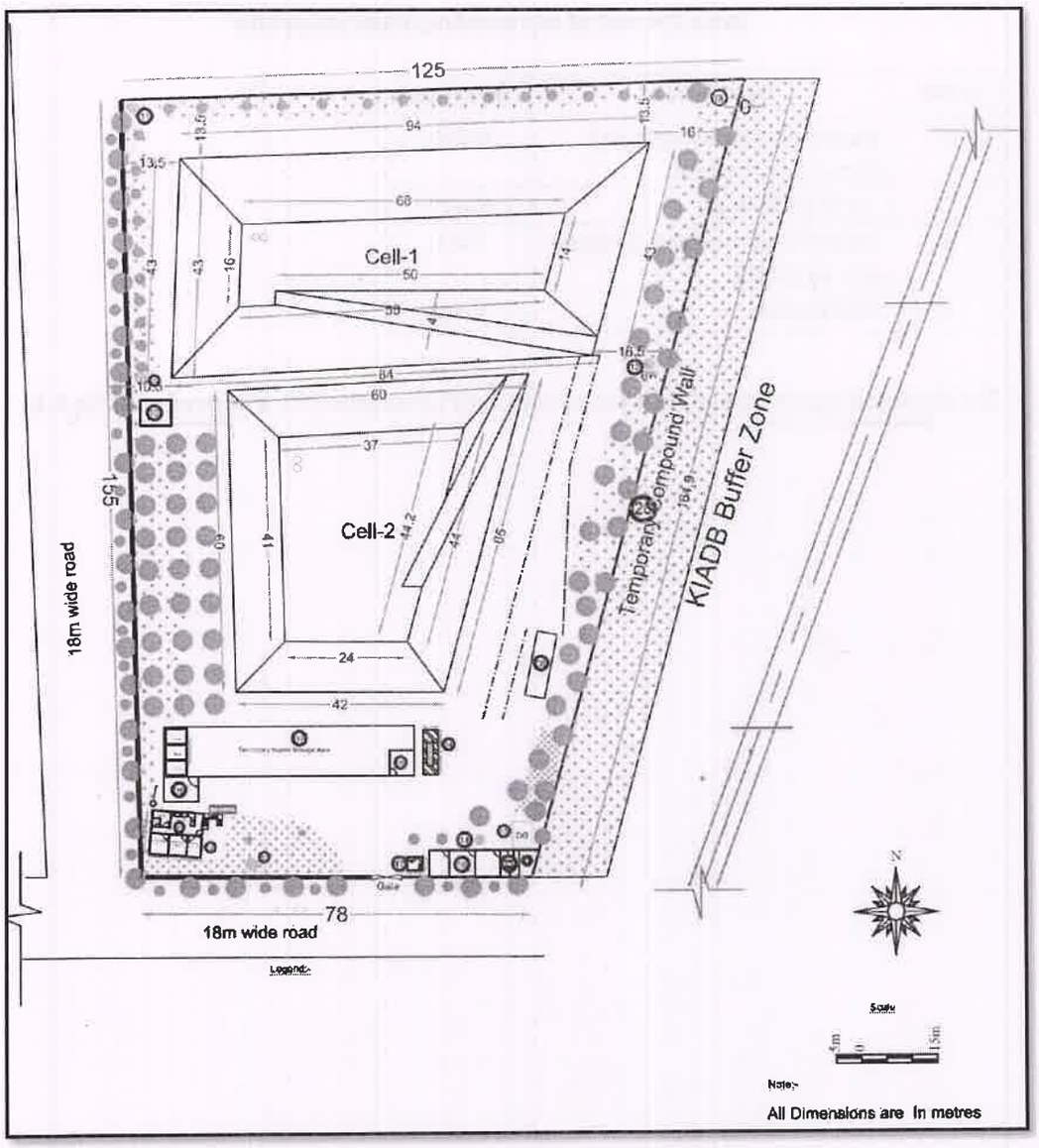


Fig. 2.1: Modified Layout plan



Landfill under operation



Monsoon covering of landfill



Stabilization bins



Weigh Bridge Area

Fig. 2.2 Site Photos.

2.7 TECHNOLOGY & PROCESS DESCRIPTION

2.7.1 PRODUCTS MANUFACTURED

No product is manufactured in the facility. The present facility is dedicated for disposal landfillable hazardous waste as defined in the Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016.

2.7.2 LANDFILL DEVELOPMENT

The following site infrastructure is provided at landfill site.

- Administrative and Site Control Offices
- Access Roads
- Waste Inspection and Sampling Facility.
- Equipments and material storage sheds
- Water Supply
- Vehicle tyre washing Facility
- Fire Fighting Facility
- Monitoring well for ground water monitoring.
- Garland drain around the cell for storm water collection and directing it to storm water collection tank.
- Leachate collection and primary treatment.
- Surface water drainage facility.
- HW Stabilisation facility and Secured Engineering land fill

Site entrance infrastructure include:

(a) A permanent, wide, entrance road with separate entry and exit lanes and gates.
(b) Sufficient length/parking space inside the entrance gate till the weighbridge to prevent queuing of vehicles outside the entrance gate and onto the highway.
(c) A properly landscaped entrance area with a green belt containing tree plantation for good visual impact.
(d) Proper direction signs and lighting at the entrance gate.
(e) A perimeter fencing of at least 2m height all around the landfill site with lockable gates to prevent unauthorized access.
(f) Full time security guard at the site.
(g) Weigh bridge to record the total quantity of waste received at site.

The hazardous waste is received at site, treated if required depending on the characteristics of the waste and disposed in the secured landfill facility.

The facility has a captive laboratory for fingerprint analysis. Each consignment hazardous waste sample is stored for a period of 15 days in the laboratory for future reference.

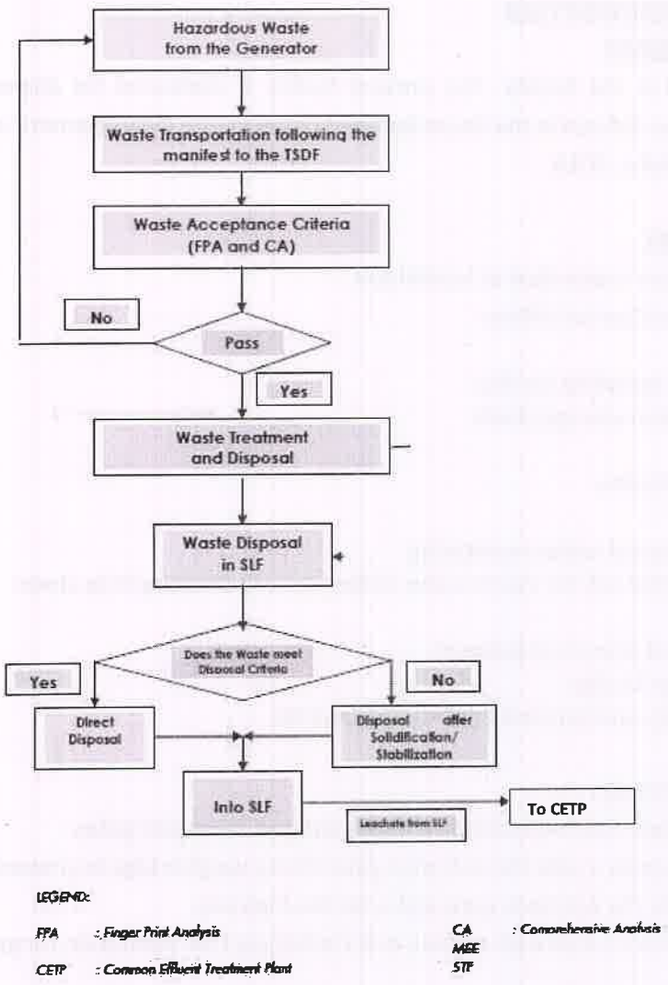


FIG: - 2.3 the Schematic Diagram Showing the Procedures Followed for Waste Acceptance and Disposal by the Common Hazardous Waste Treatment, Storage and Disposal Facility Operator

Source: - Protocol for Performance Evaluation and Monitoring of the Common Hazardous Waste Treatment Storage and Disposal Facilities Including Common Hazardous Waste Incinerators published by CPCB

2.7.3 HAZARDOUS LANDFILL FACILITY

The following procedure is followed for establishing the Secured Landfill Facility:

(A) Selection of a landfill site

(B) Construction of the facility

(C) Operation

(D) Closure of the facility

(E) Post Closure Monitoring

2.7.3.1 SELECTION OF A LANDFILL SITE:

The facility is in designated industrial area of KIADB.

2.7.3.2 CONSTRUCTION OF THE FACILITY

MAIN PHASE OF THE PROJECT: -

(a) PRE-CONSTRUCTION ACTIVITIES

The facility is located in the designated industrial area developed by KIADB. Minor site clearance activities was carried out to clear shrubs and weed to conduct soil survey and initial preparation. The project site is located on level ground, which does not require any major land filling for area grading work. Soil testing and analysis was done for detailed engineering before construction. The facility is established under the supervision of IISC, Bangalore. Approach road was readily available to access the site hence no major preconstruction activities were carried out.

(b) CONSTRUCTION ACTIVITIES

All Construction and commissioning activities of project was carried out after getting Environmental Clearance from SEIAA, Karnataka and Consent for Establishment (CFE) from the Karnataka State Pollution Control Board (KSPCB). Following are main construction activities.

- Construction of TSDF plant cell 1 including a captive laboratory.
- Construction of internal roads for reaching various sections.
- Construction of sheds and other essential utilities were carried out.

The present expansion is only optimizing the available landfill facility operated by Mother Earth Environ Tech Private Limited. In this expansion project the secured landfill cells 1 & 2 sizes will be optimized as well as advantage of over ground storage to a height of 6 m will be utilized.

(c) TSDF DETAIL

During execution of the 1st cell, the layout & size of the cell is modified according to the layout to optimize the storage/ disposal facility to maximum quantity. The cell – 1 can receive about 1,00,000 MT with effective landfilling of hazardous waste to a tune of 95,000 MT. This is possible, because of the revised dimensions of the cell which includes 6 m HT embankment above the ground level. The calculation is as under.

Existing Cell

Area at bottom = (68+58/2) x (16+14/2) = 945 m^2

Area at top = (94+84/2) x (43+43/2) = 3827 m^2

Depth of the cell = 15 m

Therefore volume = (3827+945/2) x 15 = 35,790 m^3------- (a)

Proposed Embankment

Area at bottom = (94 + 84 /2) x (43 + 43/2) = 3827 m^2

Area at top = (106 + 96/2) x (55+55/2) = 5555 m^2

Over ground Height of the cell = 6 m

Therefore volume = (3827+5555 /2) x 6 = 28,146.00 m^3 -------- (b)

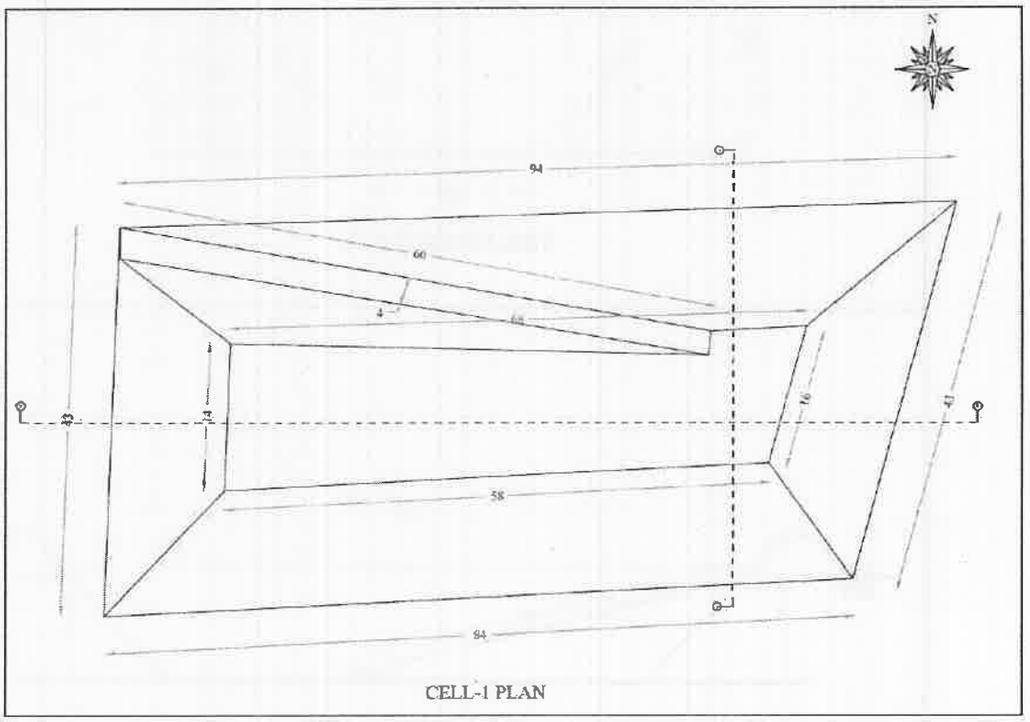
Deduction for ramp

Volume = 4 m x 15 m x 58 m /2 = 1740 m^3 -------- (c)

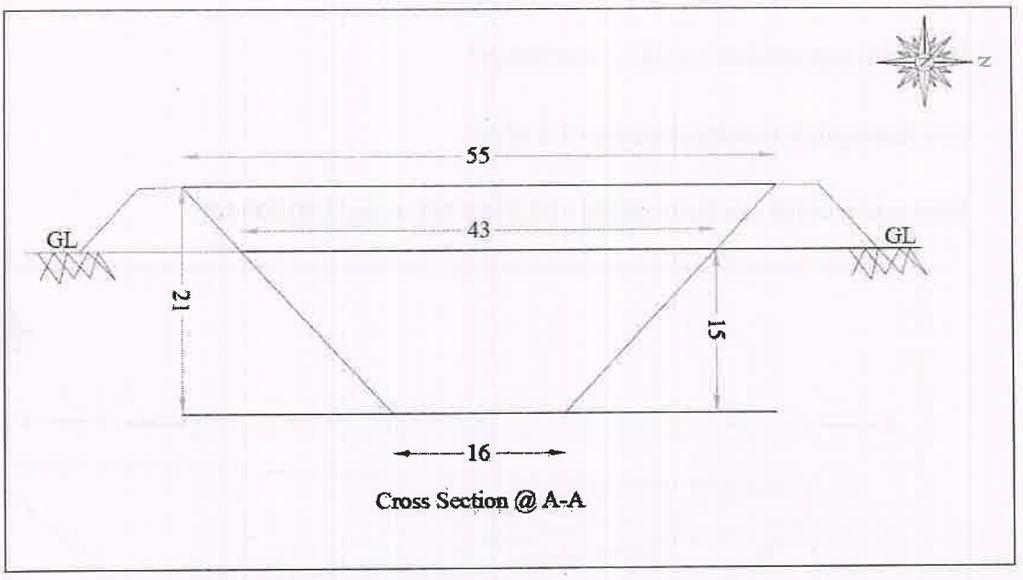
Therefore, net Volume = a + b - c = 62,196 m^3

Considering bulk density of waste = 1.6 T/ m^3

Total waste which can be landfilled = 99,513.6 MT or say 1,00,000 MT.



CELL-1 PLAN



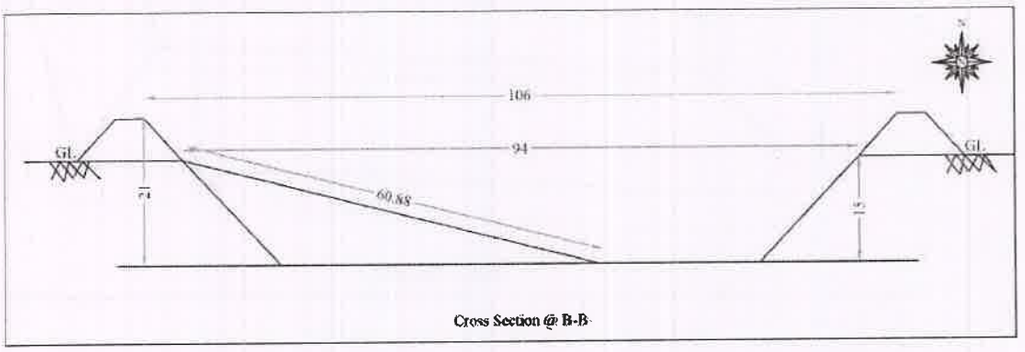


Fig 2.4 cell- 1 cross sectional details

Cell – 2 establishment / construction work is under progress. Because of the revised layout and change in dimension in cell -2 the total capacity of landfill will be 51,000 MT. the detailed dimensions and calculations is as under

Depth=15Mts including below & above Ground.

Top Length	= L1 – 60 m, L2 – 66 m
Bottom Length	= L1 – 41 m, L2 – 44 m
Top Width	= W1-42 m, W2-60 m
Bottom Width	= W1- 24 m, W2-37m

Capacity of Cell 2 – 51,000 MT

Volume calculations

Existing Cell

Area at bottom = (37+24/2) x (44+41/2) = 1296.25 m^2

Area at top = (66+60/2) x (60+42/2) = 3213 m^2

Height of the cell (Including bund height) = 15 m

Therefore volume = (1296.5 +3213/2) x 15 = 33819.375 m^3 ------- (a)

Deduction for ramp

Volume = 5 m x 15 m x 45 m /2 = 1687.5 m^3 -------- (b)

Therefore Net Volume = a - b = 32,131.875 m^3

Considering bulk density of waste = 1.6 T/ m^3

Total waste which can be landfilled = 51,411 MT or say 51,000 MT.

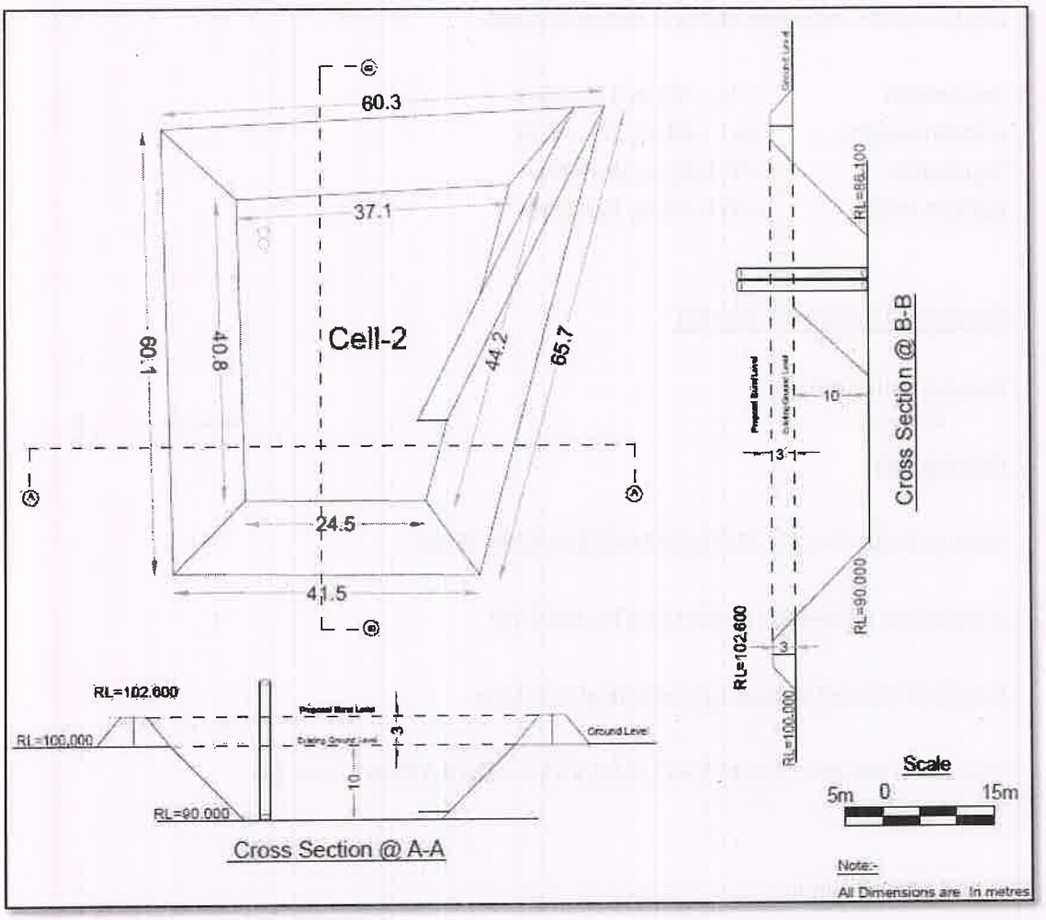


Fig 2.5 cell- 2 cross sectional details

The cell no – 1 is executed as per the technical guidelines issued by CPCB. The secured landfill cell has impervious clay lining and provided with necessary geosynthetic liners to ensure that no leaching of hazardous waste takes place in to the underground strata. The details of the liners are explained in a separate section.

The leachate collection tank of adequate capacity is provided and the collected leachate is sent to CETP of Bangalore Eco Park.

Due to increase in size of the land as KIADB has allotted land in phases and the total extent of the land now stands at 4.0 Acres considering the changes that have been taken place

during the execution of the project as explained above, hazardous waste secured landfilling at the above location will have the following capacity;

- Cell no -1 of 1,00,000 MT capacity
- Cell no -2 of 51, 000 MT capacity.

The cell- 1 is now under operation. Cell- 2 is under construction.

2.7.3.3 OPERATIONAL METHODOLOGY OF TSDF: LAND FILL SITE

2.7.3.3.1 WASTE ACCEPTANCE CRITERIA

- The generator should have Authorization for disposal as per the Hazardous Waste (Management, Handling and Trans-Boundary Movement) Third Amendment Rules, 2010 or the Hazardous & other Waste (Management and Trans-Boundary Movement) Rules, 2016.
- At the time of taking membership, the company shall carry out comprehensive analysis of waste and the same sample will be preserved for 15 days verification.
- As the dumper/truck/vehicle arrive to MEEPL, it will be weighed and samples will be taken from 5 different locations and composite sample will be made and analyzed for main parameters of quick test. These parameters and analysis method are given in Table-3.2.

TABLE: - 2.5 QUICK TEST PARAMETERS AND ITS ANALYSIS METHOD

SL.No.	Parameters	Method
1	Color	APHA (2120 B &2120 C)
2	Odour	APHA (2150 B)
3	pH	APHA (4500-H^+ B)
4	PFLT (Paint Filter Liquid Test) for moisture content	USEPA Method 9095 B

If the sample passes finger print analysis, the waste will be disposed in the landfill area. In case the waste requires pre - treatment the same is done before disposal to the landfill. Fingerprint Analysis Requirement for Hazardous Waste Treatment, Storage and Disposal Facilities is detailed in below table 3.3.

TABLE: - 2.6 Fingerprint Analysis Requirement for Hazardous Waste Treatment, Storage And Disposal Facilities

Parameters for Fingerprint Analysis by the Operators of TSD Facilities	**Method of Analysis**
Physical Analysis	
Physical State of the waste (liquid/slurry/sludge/semi-solid/solid: inorganic/organic/metallic)	
Identification of different phases of the wastes (in cases of solid wastes contained in aqueous/non-aqueous liquids/solutions for slurries and sludge)	
Colour & Textures	
Specific Gravity	
Viscosity in case of liquid waste	
Flash Point	USEPA, SW-846; Method 1010 and 1020
Loss on drying at 105° C in case of solids	
Loss on ignition at 550° C	
Calorific Value in case loss on ignition ≥ 20 %	
Paint Filter Liquid Test (PFLT) for liquids	USEPA, SW-846; Method 9095
Liquid Release Test (LRT) for liquids	USEPA, SW-846; Method 9096
Chemical Analysis	
pH	USEPA, SW-846; Method 9040, 9041 and 9045
Reactive Cyanide (ppm)	USEPA, SW-846; Vol. 1C Part II; Test Method to determine HCN released from Wastes
Reactive Sulfide (ppm)	USEPA, SW-846; Vol. 1C Part II; Test Method to determine H_2S released from Wastes

The MEEPL laboratory has got the following equipments for carrying out the analysis.

1. P^H meter
2. E C meter
3. Weigh balance
4. Hot air oven
5. Muffle furnace
6. Heating plate
7. Bomb calorimeter
8. Rotary shaker
9. Distillation Setup

Table 2.7 COMPREHENSIVE ANALYSIS REQUIREMENT FOR HAZARDOUS WASTE – BY GENERATOR & DISPOSAL FACILITY.

Comprehensive Analysis to be submitted by the Generators of Hazardous Wastes	Method of Analysis
Physical Analysis	
Physical State of the waste (liquid / slurry / sludge / Semi-solid / solid: inorganic, organic, metallic)	
Description of different phases of the wastes (in cases of solid wastes slurries and sludge) contained in aqueous / non-aqueous liquids / solutions	
Colour and Texture	
Specific Gravity	
Viscosity in case of liquids	
Calorific Value in case of organic wastes	
Flash Point	USEPA, SW-846; Method 1010 and 1020
% Moisture content (loss on drying at 105°C)	
% Organic content (loss on ignition at 550 °C)	
Paint Filter Liquid Test (PFLT)	USEPA, SW-846; Method 9095
Chemical Analysis	
pH	USEPA, SW-846; Methods 9040, 9041 and 9045
Inorganic Parameters Analysis	
Cyanide (ppm)	USEPA; SW-846; Vol. 1C Part II; Test Method to determine HCN released from Wastes

Comprehensive Analysis to be submitted by the Generators of Hazardous Wastes	**Method of Analysis**
Sulfide (ppm)	USEPA; SW-846; Vol. 1C Part II; Test Method to determine H_2S released from wastes
Sulphur (elemental)	USEPA; SW-846; 9010, 9011, 9012
Concentration of relevant inorganic [as per Schedule 2 of HW (M, H & TM) Rules, 2008 and amendments made thereof].	USEPA; SW-846; Vol. 1A, 1B, 1C and Vol. 2
Organic Parameters Analysis	
Oil & Grease Extractable Organic (in special cases only)	
% Carbon	
% Nitrogen	
% Sulphur	
% Hydrogen	
Compatibility tests	
Concentration of relevant individual organics [as per Schedule 2 of HW (M, H & TM) Rules, 2008 and amendments made thereof]	USEPA; SW-846; Vol. 1A, 1B, 1C and Vol. 2
Toxicity Characteristics Leaching Procedure (For the listed parameters relevant to the process as presented in Method 1311 of SW 846; USEPA) for landfillable wastes	USEPA; SW-846; Method 1311, 1330

TABLE 2.8: CRITERIA FOR DIRECT DISPOSAL OF HAZARDOUS WASTE INTO SECURED LANDFILL

Leachate Quality	Concentration
pH	4-12
Total Phenols	<100 mg./l.
Arsenic	<1 mg./l.
Lead	<2 mg./l.
Cadmium	<0.2 mg /l.
Chromium-VI	<0.5 mg./l.
Copper	<10 mg./l.
Nickel	<3 mg./l.
Mercury	<0.1 mg./l.
Zinc	<10 mg./l.
Fluoride	<50 mg./l.
Ammonia	<1,000 mg./l.
Cyanide	<2 mg./l
Nitrate	<30 mg./l
Adsorbable organic bound Chlorine	<3 mg./l
Water soluble compounds except salts	<10 %
Strength	
Transversal Strength (Vane Testing)	>25 KN/m^2
Unconfined Compression Test	>50 KN/m^2
Axial Deformation	<20 %
Degree of Mineralization or Content of Organic Materials (original sample)	
Annealing loss of the dry residue at 550° C	<20 Wt. % (for non- biodegradable waste) <5 Wt. % (for biodegradable waste)
Extractable Lipophylic contents (Oil & Grease)	<4 Wt. %

Note:

1). ***leachate quality is based on water leachate test i.e Leachability tests are conducted by preparing a suspension of waste and water i.e taking 100 gm of waste and filling up to 1 liter with distilled water, stirring or shaking for 24 hrs, filtering the solids and analyzing the filtrate.***

2) ***Calorific value of the land disposable hazardous waste should be less than 2500 K. Cal/Kg***

2.7.3.3.2 TRANSPORTATION OF HAZARDOUS SOLID WASTE FROM GENERATION SITE TO TSDF

Transportation of hazardous waste will be done as per guidelines of CPCB. The TSDF is having authorized transporters with dedicated dumpers / trucks / vehicles (Hydraulic) on contract basis for transportation of waste. All the vehicles are having the nameplate with details of company's name, address, phone no., etc. During transportation, containers are closed from all sides and covered from top. The frequency of trucks / dumpers / vehicles movement within premises of TSDF Site will be maximum 12-15 nos. /day. The transport vehicle meets the regulatory requirement under the Motor Vehicle Act, 1988 and the guidelines issued by Central Pollution Control Board. The manifestation as required under the Rules are followed.

2.7.3.3.3 WEIGHING AND SAMPLING OF WASTE

- As the dumper / truck / vehicle enter MEEPL, weighing is being done and samples is being drawn from five different locations and a composite sample is being made.
- Once the quick tests are over, vehicle is allowed to enter the premises and sent to dumping site or temporary hazardous waste storage area.
- If any waste consignment is not meeting the acceptance criteria, it is either returned to the waste generator or taken for appropriate treatment (like neutralization / stabilization etc.,).

The frequency of weighing machine calibration is done once in a year by weights and measures Department.

2.7.3.3.4 DESIGNING DIFFERNENT UNITS OF THE LANDFILL

A. ESSENTIAL COMPONENTS:

A HW landfill has the following seven essential components.

- A liner system at the base and sides of the landfill, which prevents migration of leachate or gas to the surrounding soil.
- A leachate collection and treatment facility, which collects and extracts leachate from within and from the base of the landfill and taken to impervious leachate collection tank, after pretreatment in neutralization tank, it is sent to CETP for further treatment.
- After capping the landfill facility, provision will be made for gas collection.
- A final cover system at the top of the landfill, which enhances surface drainage, prevents infiltration of water and supports surface vegetation.

- A surface water drainage system, which collects and removes all surface runoff from the landfill site.
- An environmental monitoring system, which periodically collects and analyses air, surface water and ground water samples around the landfill site.
- A closure and post-closure plan which lists the steps that must be taken to close and secure a landfill site once the filling operation has been completed and the activities for long-term monitoring, operation and maintenance of the completed landfill.

B. LAND FILL AREA

Considering various technical, Operational and financial aspects, instead of single cell two separate cells are considered for landfill development. The Secured Landfill construction is done as per the guidelines published by CPCB and duly keeping in mind the site conditions and as per the design by IISc, Bangalore.

Based on in-situ soil geotechnical properties for stability of slopes and operational convenience, a depth of 15 m with benching has been carried out below ground level and the embankment above the ground level is 6mts height.

C. LANDFILL LAYOUT:

The landfill site comprises of the area in which the waste will be filled as well as additional area for support facilities. A typical site layout is shown in fig. 2.0.

D. Monitoring

The ambient air quality, Noise levels monitoring and ground water monitoring is carried out through NABL accredited/MOEF certified laboratory. The analysis reports indicate that the parameters are within the prescribed norms and there is no adverse impact on the environment due to the present operation of the project. The monitoring data is submitted to SPCB as per the consent condition.

E. NET VOLUME OF THE WASTE IN THE LANDFILL AREA

Net volume of waste for land fill is considered at about 85 to 90 %.

Since compaction of waste will be done in the landfill site, it is estimated that an average 1.6 T waste will occupy 1 m^3 of the land fill site after compaction. Hence on an average 1 ton of waste including stabilization material and cover occupies 1m^3 of land fill area.

F. STABILIZATION/ COVER MATERIAL

The waste in the landfill is spread and compacted for every 6 feet. A soil layer is added daily to prevent waste from blowing and to limit pests.

Stabilization material -10% of waste (5 % of total waste volume).

Cover material (soil) -10% (considering 10 cm cover for each 1 mt height of material filled in land fill site).

G. BOTTOM AND SIDE LINING

A liner system at the base and sides of the landfill, which prevents migration of leachate or gas to the surrounding soil. Sketch of lining system is given in Fig. 2.6.

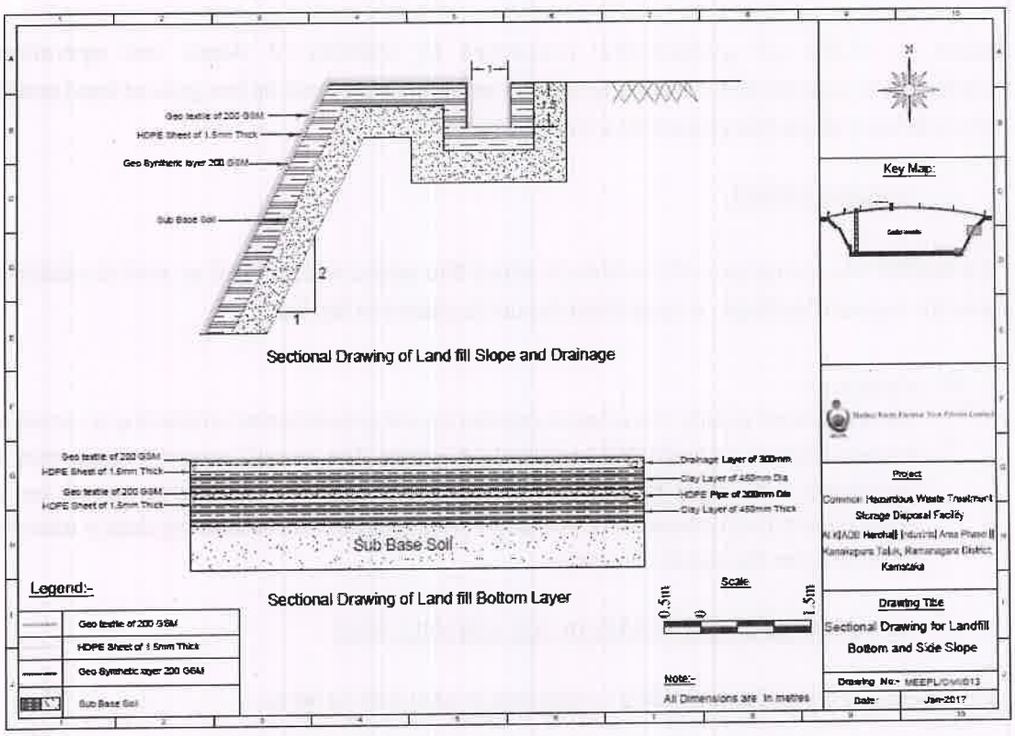


Fig 2.6 SCHEMATIC DIAGRAM OF COMPOSITE LINER SYSTEM

2.7.4 LANDFILL LINER AND COVER CRITERIA

2.7.4.1 LINER CRITERIA:

The liner system is designed, constructed and installed to satisfy the following:

- ✓ Prevent migration of waste, leachate or gas to the adjacent subsurface soil or ground water or surface water.
- ✓ Construction materials that have adequate chemical properties, physical properties and engineering properties to prevent failure on account of loads, climatic conditions and contact with waste or leachate.
- ✓ Placed in a stable manner on the base and side slopes.
- ✓ Installed to cover all surrounding soils likely to come in contact with the waste or leachate.

The base of the liner system (at the lowest point in a landfill) is well above the ground water table. The ground water table at site and in the adjoining lands in the KIADB industrial area is over 60 m.

2.7.4.2 COVER CRITERIA:

The cover system will be designed, constructed and installed to satisfy the following:

(a) Prevent infiltration of precipitation into the closed landfill.
(b) Promote drainage of surface water accumulated on the cover.
(c) Minimize erosion of the cover.
(d) Withstand or accommodate settlement of the cover to maintain its integrity.
(e) Have permeability less than or equal to the liner system.
(f) Function with minimum maintenance of the post-culture period of 30 years.
The specified guidelines published by CPCB for closure of the cell, its specification and best engineering design will be followed.

2.7.4.3 SURFACE WATER DRAINAGE SYSTEM

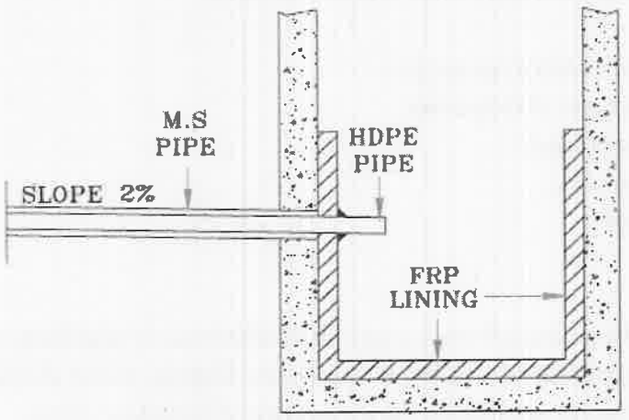
Surface water management is required to ensure that rainwater run-off does not drain into the waste from surrounding areas and that there is no waterlogged / ponding on covers of landfills. A surface water drainage system comprising of channels/garland drains, culverts and basins are designed to ensure the following:

(a) Rainwater running off slopes above and outside the landfill area is intercepted and channeled to water courses without entering the operational area of the site.
(b) Rain water falling on active tipping areas is collected separately and managed as leachate, via the leachate collection drain and leachate collection sumps, pretreated leachate is sent to CETP for treatment and disposal.
(c) The horizontal surface of the final cover will be provided a slope of 3 to 5% for proper surface water drainage. The slope of the cover on the sides will be higher and governed by slope stability considerations.
(d) All interceptor channels, drainage channels and settling ponds (storm water basins) is designed by a hydrologist.
(e) It is ensured that water collected by surface water drainage system and leachate collected by the leachate collection system do not get intermixed at any stage of collection or storage.

2.7.4.4 LEACHATE COLLECTION AND TREATMENT SYSTEM

A. LEACHATE COLLECTION

A leachate collection system is designed at the base of all landfills. It comprises of a drainage layer, perforated pipe collection system, sump collection area, and a removal system. The leachate collection layer (drainage layer) is 30 cm thick, sand – gravel layer with a slope of 2% or higher and permeability of greater than 10-2 cm/sec (10-4 m/sec). A system of perforated pipes and sumps is provided within the drainage layer. The pipe spacing is governed by the requirement that the leachate head.



LECHATE WELL
CONNECTION OF HDPE PIPE TO LECHATE WELL

Fig: - 2.7 LEACHATE WELL CONNECTION OF HDPE PIPE TO LEACHATE WELL

2.7.5 ENVIRONMENTAL MONITORING SYSTEM

2.7.5.1 POLLUTION PREVENTION AND SAFETY DURING OPERATION

The following measures are taken to ensure that the landfill operation shall not adversely affect local environment within and outside the landfill.

i. Traffic:

(a) Routing to avoid residential area

(b) Using one-way routes to avoid traffic conflict in narrow roads

(c) Limiting the number of vehicle movements

(d) Peak traffic hours and areas are avoided.

ii. Noise: Adverse impacts from noise arise from a number of sources including: throughput of vehicles and fixed and mobile plant, for example compactors, generators at the site. Peripheral noise abatement site measures shall be adopted.

iii. Odor: Offensive odors at landfill sites may emanate from a number of sources, viz., hazardous waste material received and stored in the premises before disposal in landfill,

leachates and leachate collection tank, and landfill gas. Good landfill practices shall greatly reduce general site smell and reduce impact from odors which could lead to complaints from the local community, site users and site staff. Good practice includes:
(a) adequate compaction;
(b) speedy disposal and burial of malodorous wastes;
(c) effective use of appropriate types of daily cover;
(d) progressive capping and restoration;
(e) effective landfill gas management;
(f) effective leachate management.
(g) Greenbelt around the site.

iv. Litter: Poor litter control both on and off site is particularly offensive to neighbors. Good operational practice shall be adhered to in terms of temporary fencing, waste discharge, placement, compaction and covering to minimize the occurrence of windblown litter.

v. Dust : Dust from landfill operations is mainly a problem during periods of dry weather but can also arise from dusty waste during tipping. Dust is generally associated with
(a) site preparation and restoration activities;
(b) the disposal of waste comprising of fine particles, for example powders; and
(c) traffic dust.

Dust suppression is effected by
(a) limiting vehicle speed;
(b) spraying roads with water;

vi. Mud on the Road: Mud on the public highway is one of the most common causes of public complaint. It is therefore, in the interest of the landfill operator to provide adequate wheel cleaning facilities to ensure that mud is not carried off site by vehicles.

Vii Landfill Fire Management: Fires in waste on landfill sites are not uncommon and it is important for site operators to be aware of the dangers, how to control fires and to address the problems associated with them. All fires on-site shall be treated as a potential emergency and dealt with accordingly.

viii. Landfill Safety Aspects: Training of employees shall include site safety, first aid and the handling of dangerous materials where appropriate. Since landfill sites can pose dangers to both site operator and users, emergency plans are laid down. Landfill sites shall be regarded

as potentially hazardous locations and the operator shall have a written safety plan for the site. Safety hazards presents at landfill sites may include : (a) moving plant and vehicle; (b) steep slopes; (c) contaminated, putrescible, toxic, flammable or infective material and (d) noxious, flammable, toxic or hazardous gas. All employees and visitors to the site shall be made aware of the potential hazards and the safety procedures to be implemented including fire safety.

2.7.5.2 POLLUTION PREVENTION AND SAFETY DURING OPERATION

(a)The owner/operator shall monitor and keep a record of the following in the operation period.

- Functioning of the leachate management system (including levels in leachate holding tank) (weekly)
- Waste disposal records shall be kept on daily basis
- After a major storm, the occurrence of the storm and functioning of various systems shall be recorded.

2.8 PROJECT DESCRIPTION INCLUDING DRAWINGS SHOWING PROJECT LAYOUT, COMPONENTS OF PROJECT, SCHEMATIC REPRESENTATIONS OF THE FEASIBILITY DRAWING GIVING INFORMATION IMPORTANT FOR EIA PURPOSE

2.8.1 PROJECT DESCRIPTION INCLUDING DRAWINGS SHOWING PROJECT LAYOUT, COMPONENTS OF PROJECT

Site plan drawing showing project site layout & various components is appended as *Fig 2.1B in this chapter.*

2.8.2 SCHEMATIC REPRESENTATIONS OF THE FEASIBILITY DRAWING

A schematic representation of the overall feasibility and environmental assessment process is shown in Figure 2.8

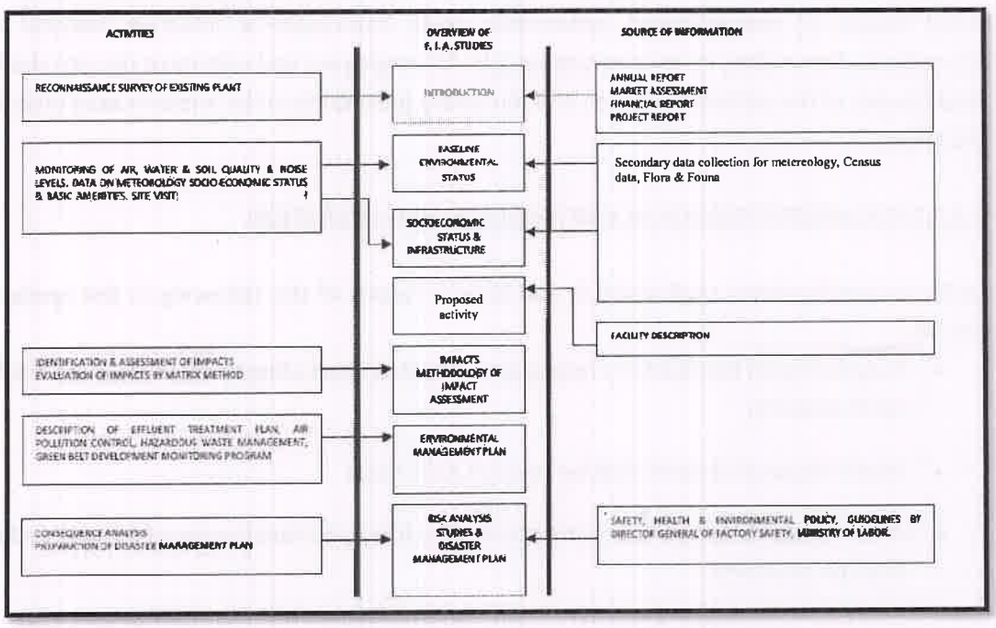


Fig 2.8: Feasibility & environmental assessment process

2.9 MITIGATION MEASURES INCORPORATED INTO THE PROJECT TO MEET ENVIRONMENTAL STANDARDS, ENVIRONMENTAL OPERATING CONDITIONS OR OTHER EIA REQUIREMENTS (AS REQUIRED BY THE SCOPE)

2.9.1. WATER DEMAND AND WASTEWATER/EFFLUENT DISCHARGE

2.9.1.1. SOURCE OF WATER SUPPLY

The water requirement for the project during operation is augmented from KIADB/Borewell water supply sources. Details are appended in in table2.9.

2.9.1.2 WATER DEMAND AND WASTEWATER DISCHARGE DURING OPERATION PHASE

The total quantity of water requirement for the plant is about 3 KLD.The break-up of the consumption of water is as presented in table below in Table 2.9

Table 2.9: WATER CONSUMPTION AND DISCHARGE

Water consumed for	**Consumption (LPD)**
(a) Domestic	1,000
(b)Gardening/Landscape development	2,000
Total	3,000 LPD

TABLE 2.10: WASTE WATER GENERATION DETAILS

Water consumed for	**Discharge (LPD)**
(a) Domestic	900
(b) Leachate generated from landfill waste	4,000
Total	4,900 LPD or 5,000 LPD

Note:-

- LPD = L/day; KLD = kilo liter/day

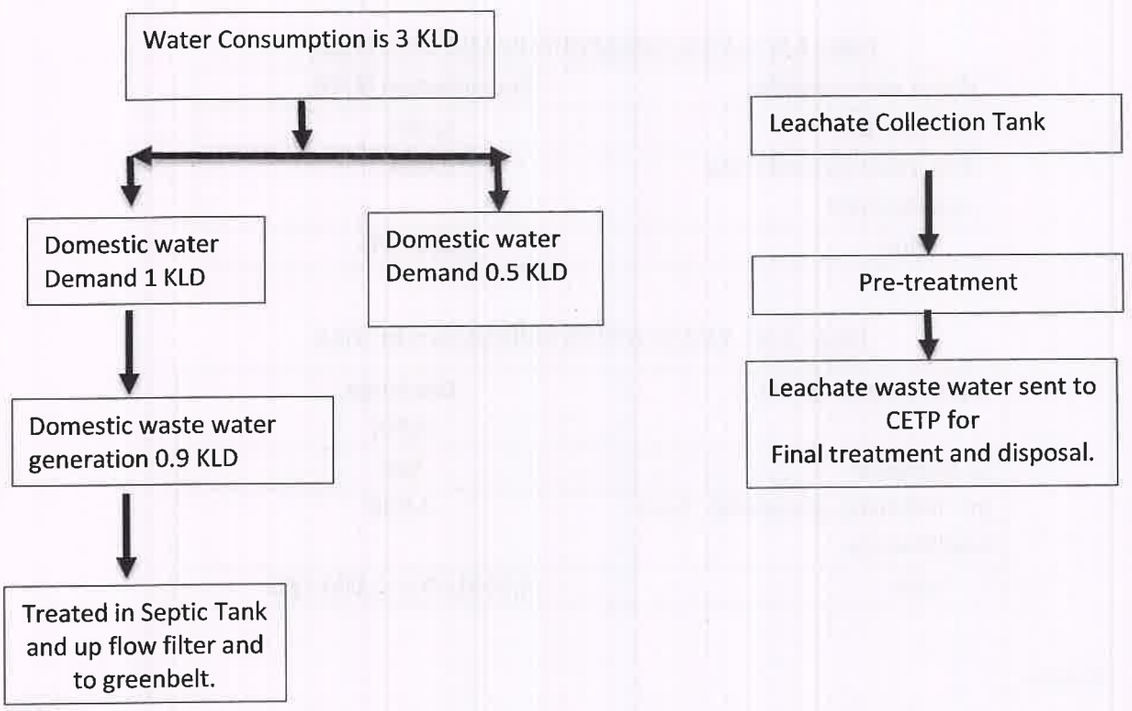
WASTEWATER TREATMENT AND DISPOSAL DETAILS

The treatment methods and the final disposal of each type of wastewater generated is appended in the table 2.11 below.

Table 2.11: Sewage/effluent treatment and discharge

Sewage/effluent generated from	*Treatment units provided*	*Final disposal point*
(a) Domestic	Septic tank & Up flow anaerobic filter	used for greenbelt
(b) Industrial	The leachate waste water will be stored securely, Pretreated and handed over to CETP for treatment and disposal	

Water balance chart



2.9.3 AIR POLLUTION SOURCES

2.9.3.1 POWER

The power requirement for the project is augmented from KIADB. Further one diesel generator of 100 kVA capacity is proposed to be installed to serve as an alternative source of power supply to this unit.

2.9.3.2 AIR POLLUTION SOURCES

The major air pollution sources from the project is DG set. These sources are provided with stacks of adequate height so as to disperse the emanating flue gases.

The sources of air pollution, type of fuel used, fuel consumption and chimney heights for each of the air pollution sources of the proposed project are indicated in the table 2.12 below.

Table 2.12: Air pollution sources, fuel consumption and chimney height details

Sl. No.	*Stack Details*	*Stack Attached to*
Physical Details		DG Set
1.	Capacity	1 X 100 kVA
2.	Fuel quantity	20 L/hr
3.	Fuel used	Ultra Pure Low Sulfur Content Diesel
4.	Stack height	Chimney of 3 m (Above roof level)
5.	Stack diameter	80 mm
Emission Details		
1.	Sulphur dioxide	0.0054683 g/s
2.	Suspended Particulate Matter (SPM)	0.0003 g/s
3.	Oxides of Nitrogen	0.00894 g/s
4.	Carbon monoxide	0.11026 g/s

2.9.3.3 NOISE GENERATION AND ITS MANAGEMENT

The main sources of noise from the proposed project is movement of vehicles on the roads during transportation of waste from Industries, Compacters at site and the DG set for which acoustic enclosure is proposed. The ambient noise levels will be ensured within the ambient standards by inbuilt design of mechanical equipment apart from vegetation (tree plantations) along the periphery and at various locations within the plant premises.

2.9.3.4 SOLID WASTE GENERATION AND MANAGEMENT

The quantity of solid waste generated from the industry is calculated as below in the table 2.13

TABLE 2.13 SOLID WASTE GENERATION

Total no. of employees	25
Assuming per capita solid waste generation rate as 0.20 kg/capita/day	
Quantity of solid waste generated	5 kg/day
Organic solid waste : 60 % of the total waste	3 kg/day
Inorganic solid waste : 40 % of the total waste	2 kg/day
Disposal of domestic solid waste	The solid Wastes generated will be collected, composted in compost pits and the product will be used as manure for landscape development. Inert solids will be disposed to landfill.

2.9.3.5 HAZARDOUS WASTE GENERATION AND MANAGEMENT

Two categories of hazardous wastes shall be generated at M/s. MEEPL Mode of disposal followed is as per the Hazardous and other Waste (Management, Handling and Transboundary Movement) Rules, 2016 of Environment Protection Act, 1986.

Hazardous waste generation quantity is given in table.2.14.

TABLE.2.14. HAZARDOUS WASTE GENERATION QUANTITY

Sl. No.	Waste Category	Type of Hazardous waste generated	Generation Qty.	Handling & mode of disposal
1.	5.1	Used Oil/Lubricant oil (Lits.)	0.05 KL/A	Shall be collected in leak proof containers and disposed only to CPCB registered reprocessors/common collection Centre provided the oil meets the standards as per schedule-5 of the rules.
2.	5.2	Used bags (Contaminated with chemicals and oil)	18,250 No.s /A (2 MT/A)	Stored in secured impervious area and reused for waste collection and transportation.
3.	5.2	Oil soaked cotton waste	0.06 MT/A	Shall be stored in secure manner and handed over to KSPCB authorized incinerator.
4.	5.2	Oil contaminated filters	10 No.s /A	Shall be stored in secure manner and handed over to KSPCB authorized incinerator.
5.	5.2	Contaminated hand gloves, gum boots etc.,	600 Pairs/A	Shall be landfilled in the same facility.

2.9.4 RAINWATER HARVESTING & GROUNDWATER RECHARGING

The rain water collection system is provided. the rain water is taken to the collection pond for in-filtration and ground water is recharged.

2.10 ASSESSMENT OF NEW & UNTESTED TECHNOLOGY FOR THE RISK OF TECHNOLOGICAL FAILURE

The proposed project involves hazardous waste landfill facility. Therefore, there is no risk of technological failure.

CHAPTER 3

DESCRIPTION OF THE ENVIRONMENT

3.1 Introduction

This chapter illustrates the description of the existing environmental status of the study area with reference to the prominent environmental attributes. The environmental influence due to the project is restricted to project site and its surroundings consisting of about 5 km region around the factory premises. However, the study area for monitoring of environmental parameters covers 10 km distance around the project site.

The existing environmental setting is considered to establish the baseline conditions which are described with respect to climate, hydro geological aspects, atmospheric conditions, water quality, soil quality, vegetation pattern, ecology, socio economic profile, land use, and places of archaeological importance. The baseline studies are carried out for one season covering variations in various domains of environment.

Primary source data were collected through environmental monitoring/ survey of the study area. For reconnaissance survey the sampling locations were identified based on:

- Existing topography and meteorological conditions
- Locations of water intake and waste disposal points.
- Location of human habilitation and other sensitive areas present in the vicinity of the proposed project site.
- Representative areas for baseline conditions.
- Accessibility for sampling

The general environmental setting in and around the project site is categorized as industrial area surrounded by villages. The terrain is generally flat with secondary and tertiary valley. At the site there is no natural drain or valley.

3.1.1 STUDY AREA, PERIOD, COMPONENTS & METHODOLOGY

STUDY AREA: An area, covering 10 km radial distance around the project site is considered as the study area for conducting baseline studies.

PERIOD: Baseline study in this Rapid Environmental Impact Assessment report was conducted for a period of three months during January to March 2018

COMPONENTS: Air, noise, water & soil analysis studies were carried out. Survey of the flora & fauna in the surroundings & demographic pattern of the survey area were also studied.

METHODOLOGY: Baseline environmental studies were conducted to know the status of various environmental attributes, viz. climatic and atmospheric conditions, air, water, noise, soil, land use pattern, ecological, socio economic environment. The studies involved conducting field studies and analyzing various parameters that might be affected due to the establishment and conducting socio-economic survey among the people. Secondary data was collected from State/Central Government organizations and semi-Government.

The location & topo map of the plant is appended in fig 3.1 &3.2

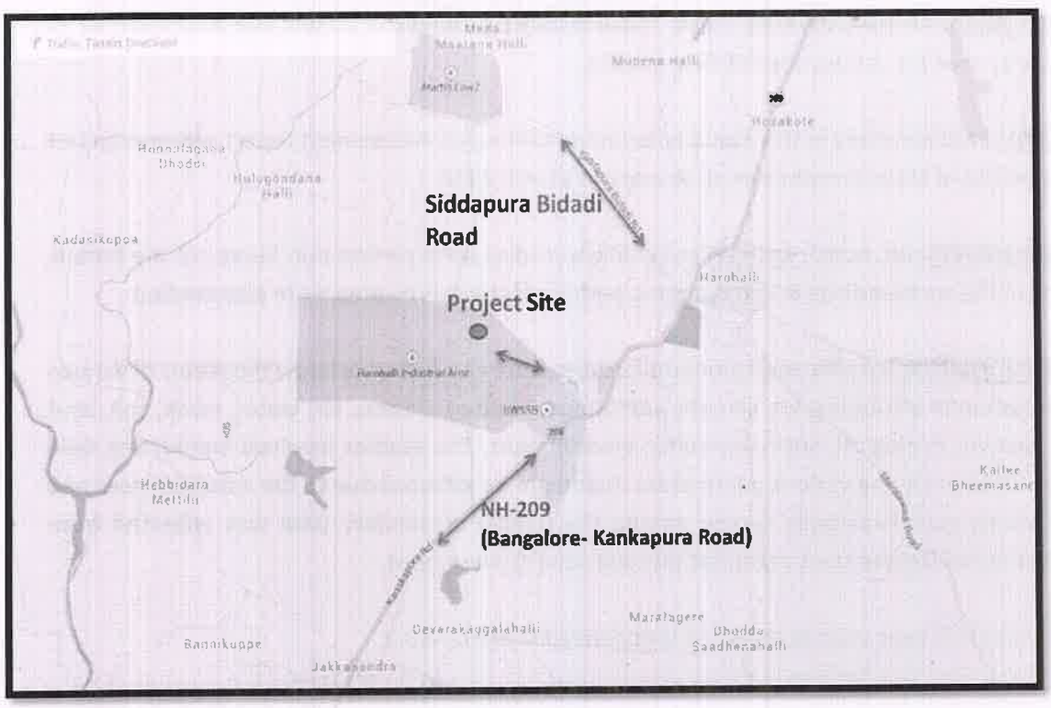


Fig 3.1: Location map of the project site

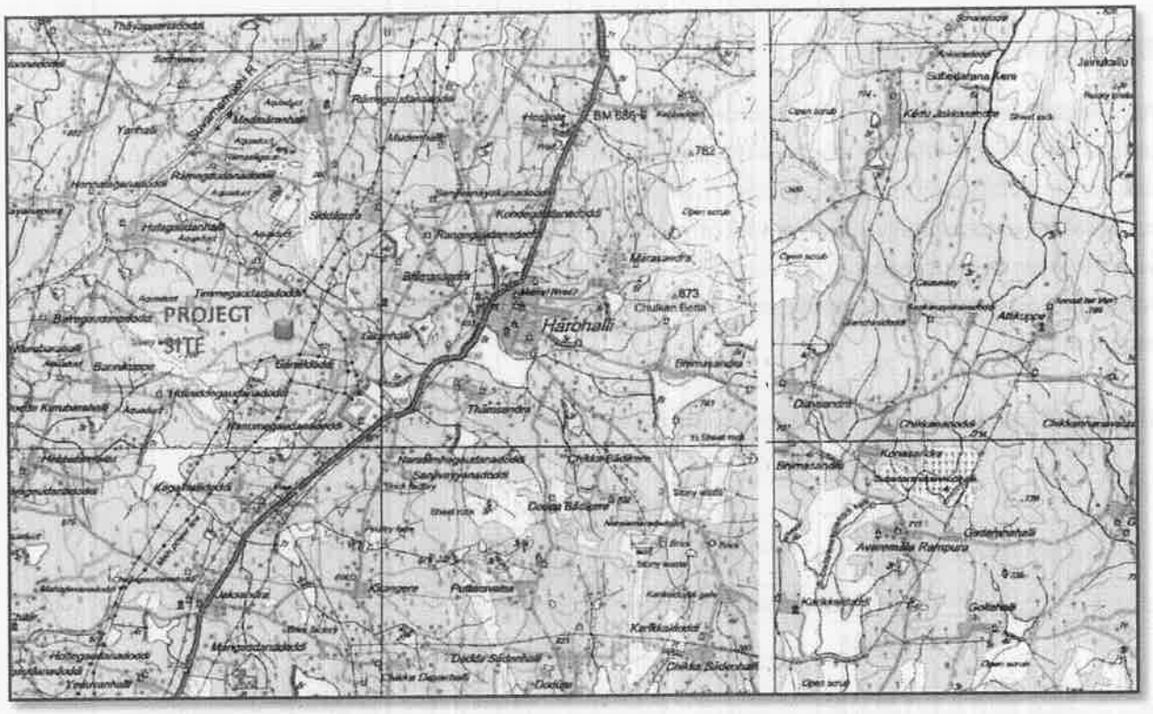


Fig 3.2: Topo map of the study area

Source: Survey of India; Scale: 1:50000

3.2 ESTABLISHMENT OF BASELINE

3.2.1 Meteorological data

Assessment of the micro and macro meteorology is important from the standpoint of understanding the nature and extent of air pollution in the study area. Climate has an important role in the build-up of pollution levels. The climatic condition of the area may be classified as moderately or seasonally dry, tropical or temperate savanna climate with four seasons in a year. Winter is critical for air pollution build-up because of frequent calm conditions with temperature inversions resulting in poor atmospheric mixing, natural ventilation and high emission loads.

The classification of months according to the seasons is given in the following table.

Season	*Period*
Summer	March to May
Monsoon	June to September
Post monsoon	October to November
Winter	December to February

The metrological data reflecting minimum, maximum temperature in ^{0}C, relative humidity in %, rainfall in mm/hr, wind speed in m/s, mixing height in m, cloud cover in tenths and atmospheric pressure in mb for the year 2017 obtained from https://www.worldweatheronline.com/lang/en-in/kanakapura-weather-averages /karnataka/ in.aspx has been appended as table 3.1.

TABLE 3.1: METEOROLOGICAL DATA OF KANAKAPURA FOR THE YEAR 2017

Month	Temperature ^{0}C		Relative humidity %	Precipitation rate (mm)	Atmospheric Pr. (mb)	Wind speed (m/hr)	Cloud cover (%)
	Min	Max					
Jan	16	32	62	20.1	1014.3	7.8	21
Feb	17	36	45	0.2	1014.4	8.3	4
Mar	21	37	51	65.8	1011.4	7.4	16
Apr	23	39	50	39.8	1009.9	6.5	7
May	23	33	72	364.1	1008.9	7.6	28
June	22	28	79	179	1008.6	12.1	53
July	21	32	69	53.9	1009.4	13.4	47
Aug	22	30	78	259.6	1008.3	12.8	59
Sept	21	28	80	558.4	1009.3	8.9	53
Oct	19	27	83	354.2	1010.2	7.8	50
Nov	19	28	80	172.8	1011.8	8.7	50
Dec	20	28	82	0.3	1012.3	10.2	51

3.2.2 TEMPERATURE

The mean maximum temperature is observed at (39°C) in the month of April and the mean minimum temperature at (17°C) is observed in the month of February.

In the summer season the mean minimum temperature is observed during the month of March (21°C). During the monsoon the mean maximum temperature is observed to be 28°C in the month of June with the mean minimum temperature at 21°C during July. By the end of September with the onset of post monsoon season (October - November), day temperatures drop slightly with the mean maximum temperature at 28°C in November and mean minimum temperature is observed at 19°C for both October & November. The values are presented in table 3.1.

3.2.3 RELATIVE HUMIDITY

Minimum and maximum values of relative humidity have been recorded. The minimum humidity is observed to be at 50 % in the month of April and the maximum is 83 % in the month of October. The values are presented in table 3.1.

3.2.4 RAINFALL

The monsoon in this region usually occurs twice in a year i.e. from June to September and from October to November. The maximum annual rate of precipitation over this region ranges between 558.4 mm/hr.

3.2.5 ATMOSPHERIC PRESSURE

The maximum and the minimum atmospheric pressures are recorded during all seasons. The mean maximum and minimum pressure values are observed to be 1014.4mb in the month of February and 1008.3 in the month of August respectively. The values are presented in table 3.1.

3.2.6 WIND

The data on wind patterns are pictorially represented by means of wind rose diagrams for the entire year. (for different seasons).

3.2.7 CLOUD COVER

The minimum cover measured in the unit of percentage is 4 % during February months. The maximum observed cloud cover is 59 % during the months of August.

The following charts show yearly weather trends with information on monthly weather averages and extremes.

- **Temperature**

The chart below plots the average high and low temperature for each month of the year. It also shows the maximum and minimum recorded temperatures.

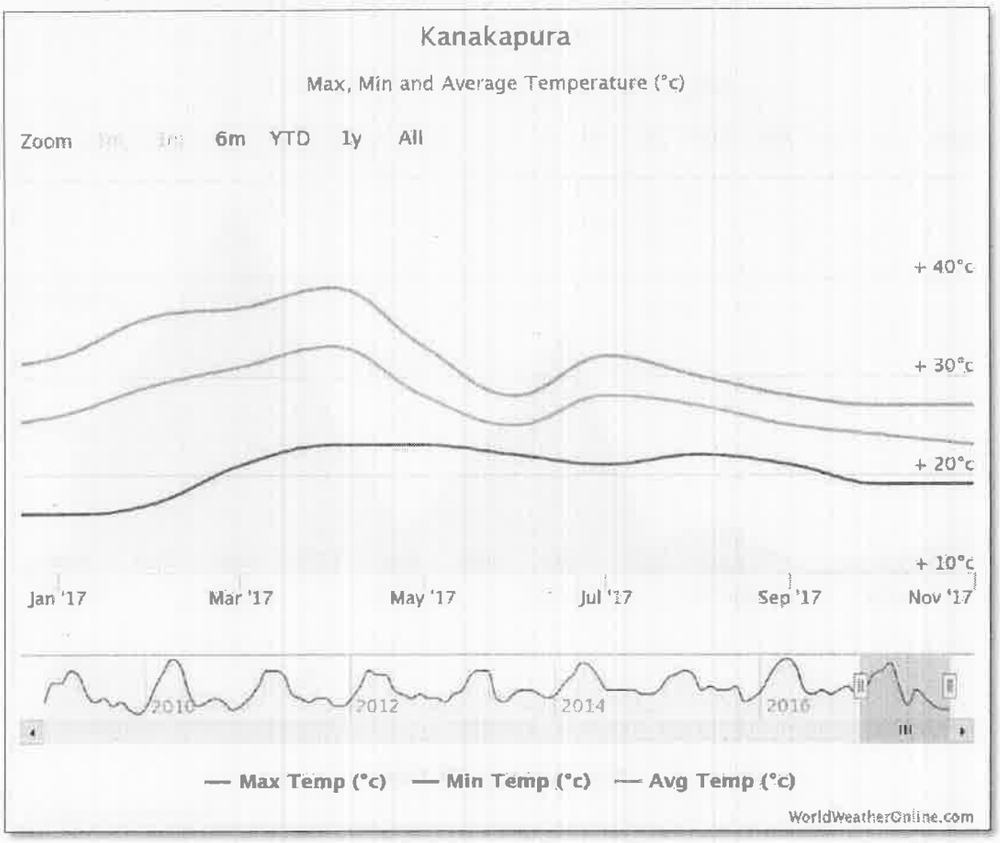


Fig – 3.3 Temperature Chart

- Rainy days

The chart below plots the average number of days in any month that you can expect to see rain falling.

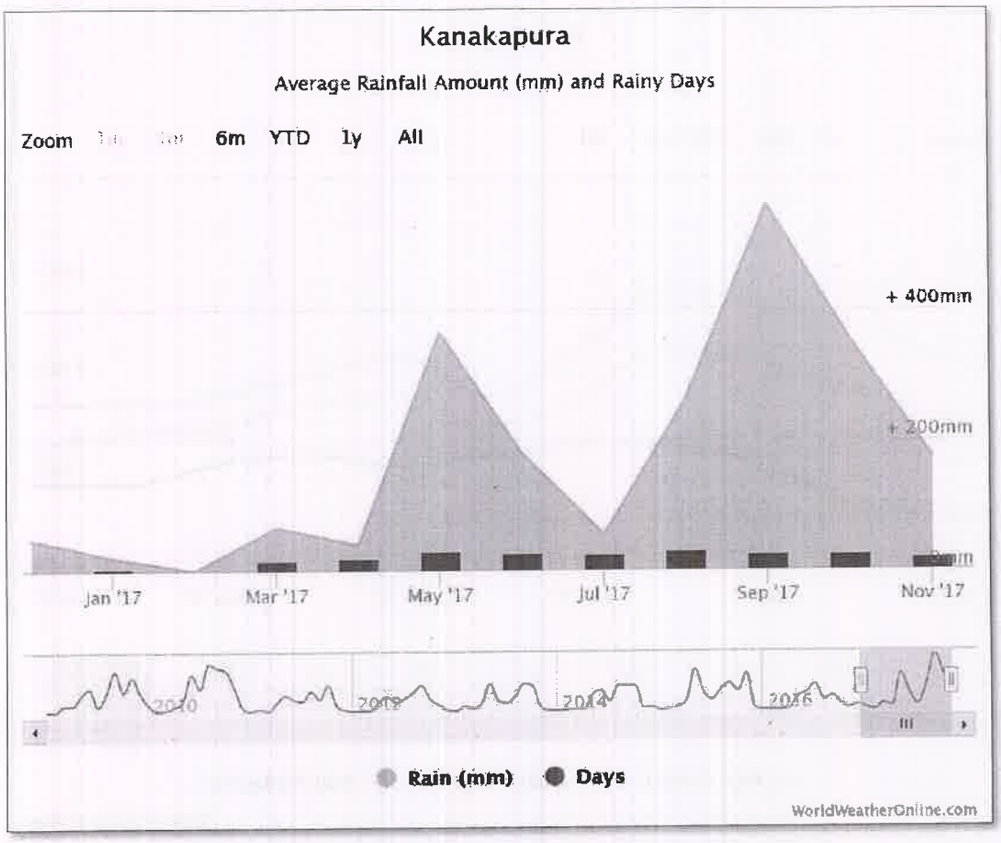


Fig – 3.4 Average Rainfall Chart

- Wind Speed

The chart below plots the average daily wind speed you can expect for any month. It also shows the maximum recorded sustained wind speed for each month.

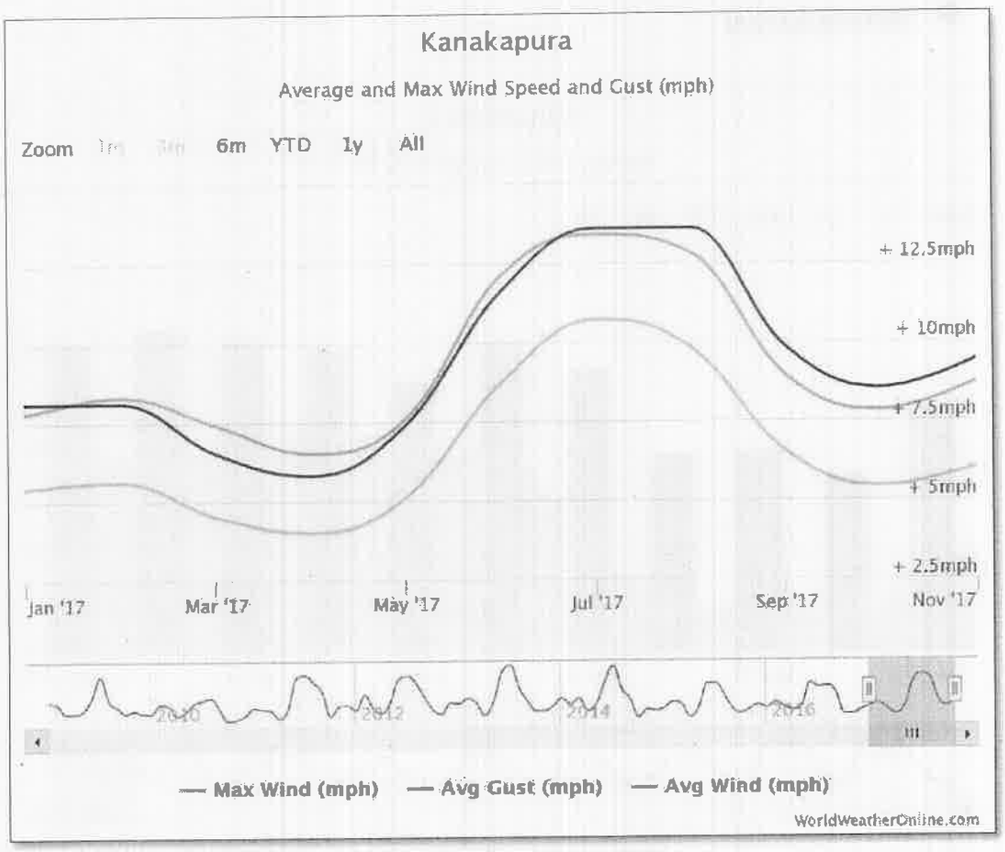


Fig – 3.5 Windspeed Chart

● Humidity & Cloud

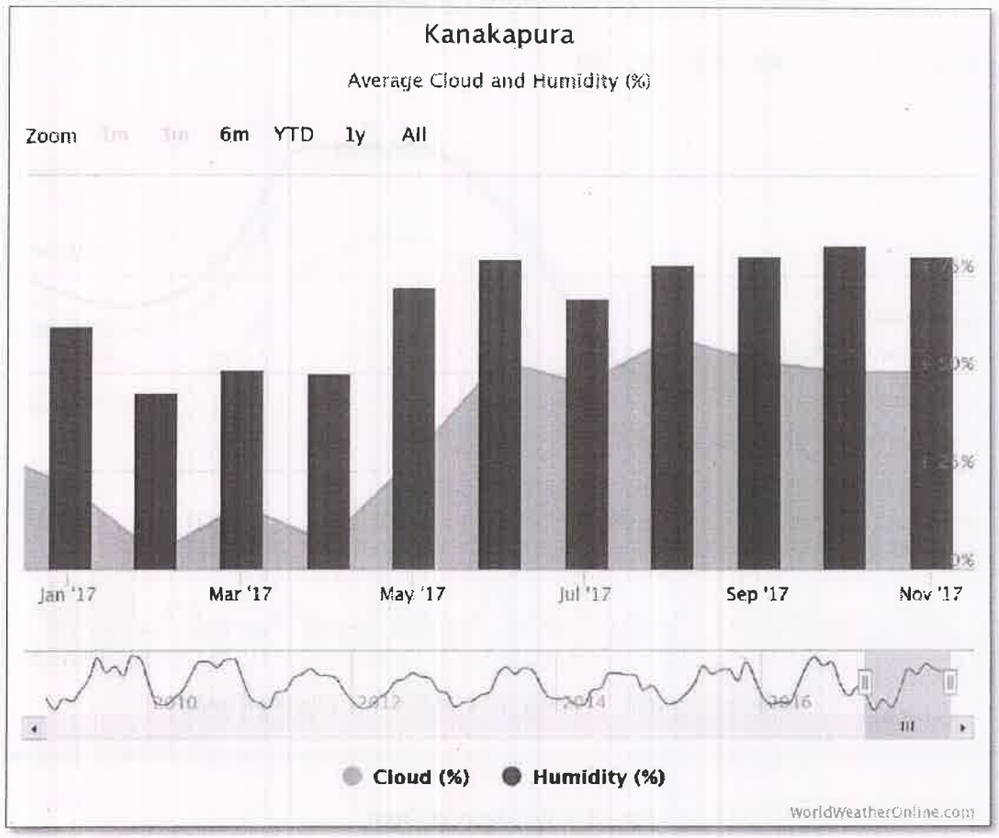


Fig 3.6 Cloud & Humidity Chart

- Atmospheric Pressure

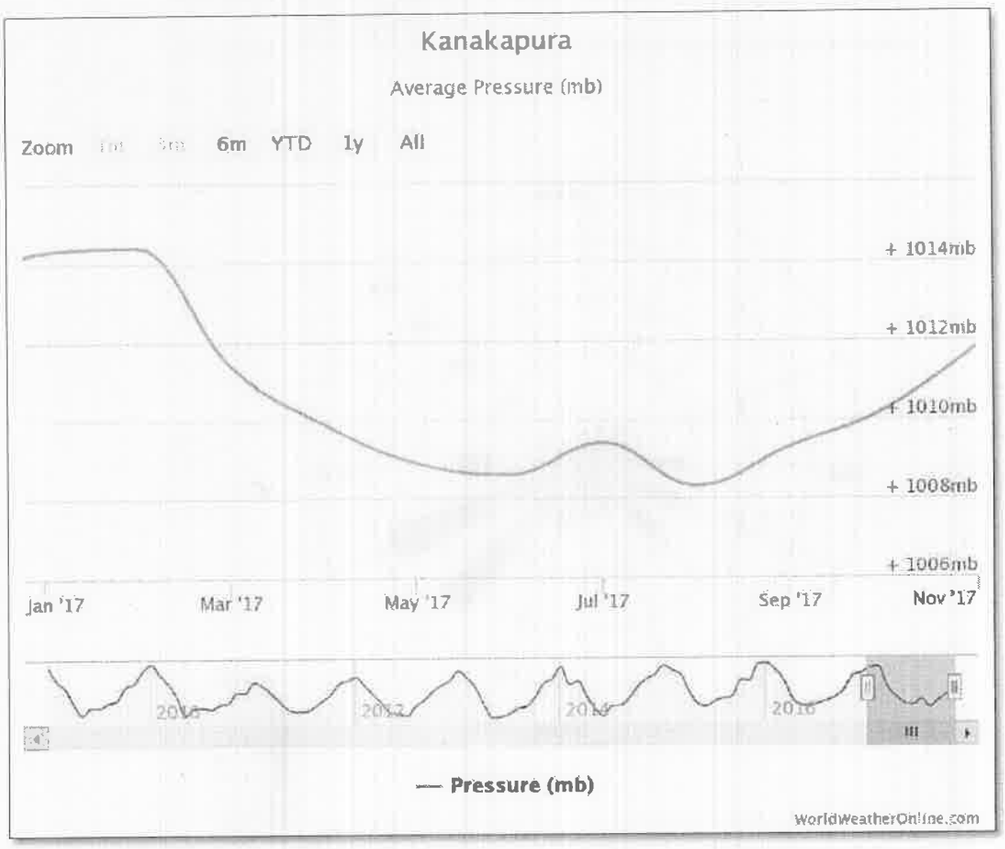
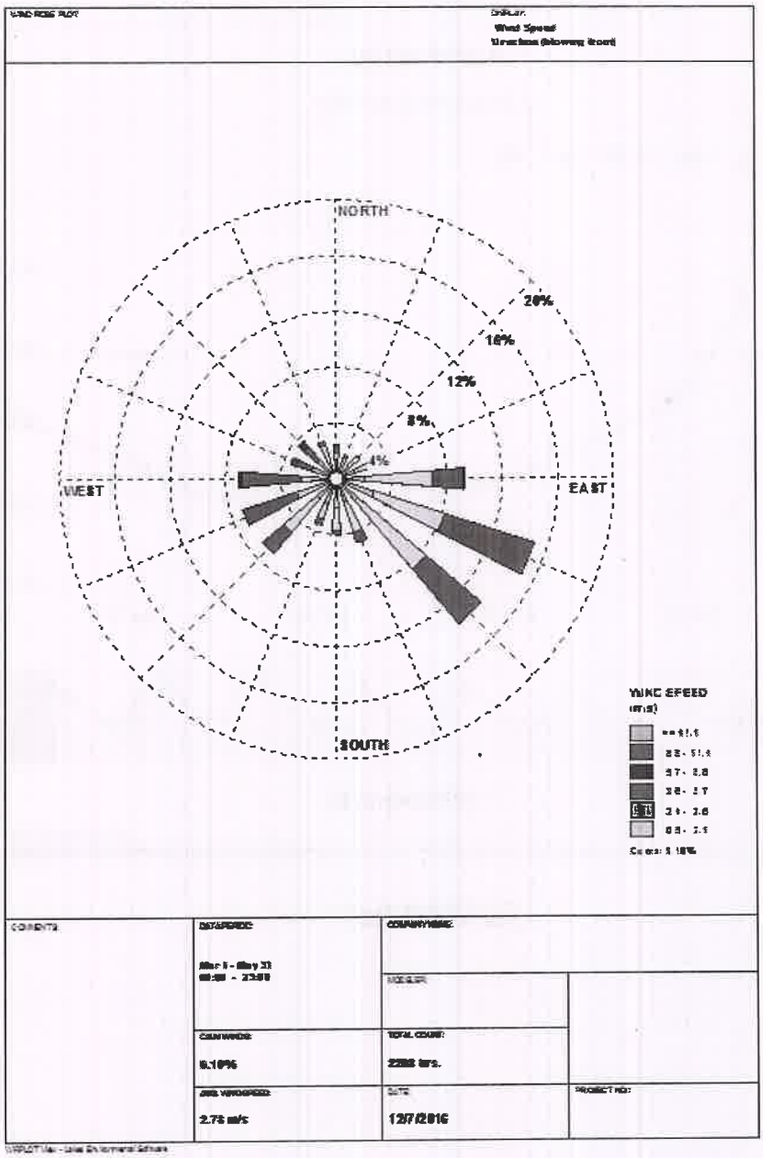


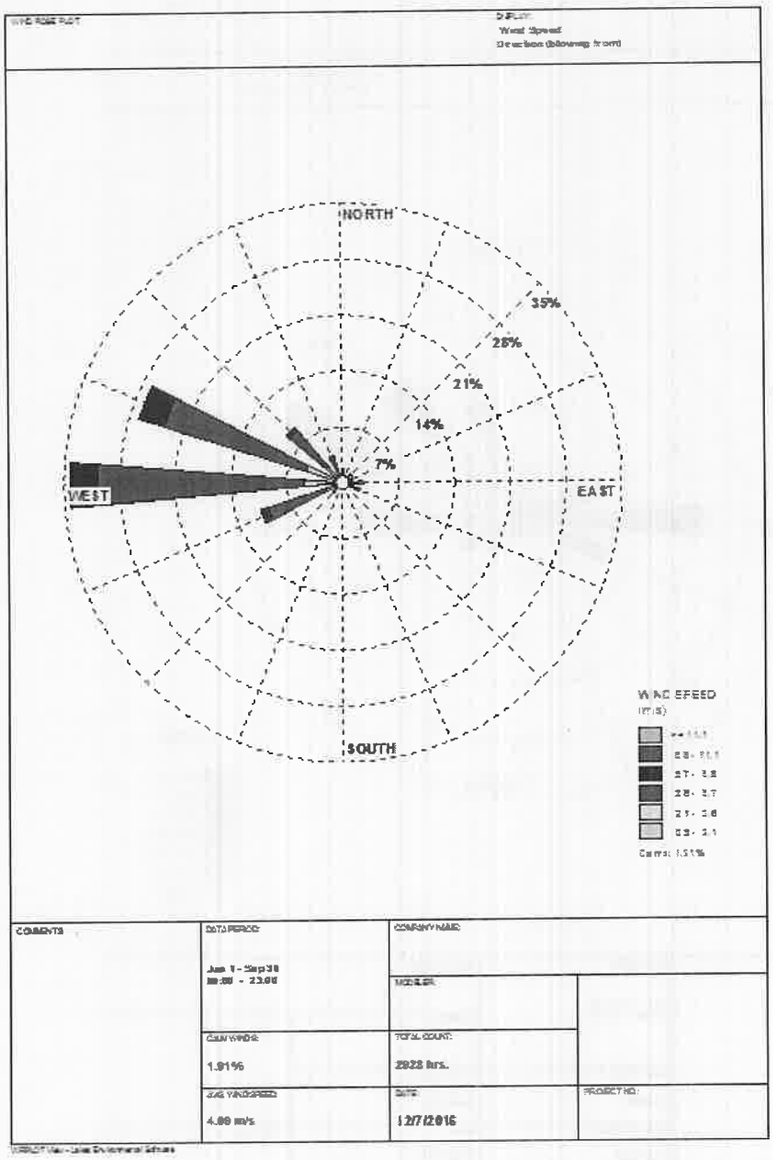
Fig 3.7 Pressure

Fig 3.8: Wind rose diagrams

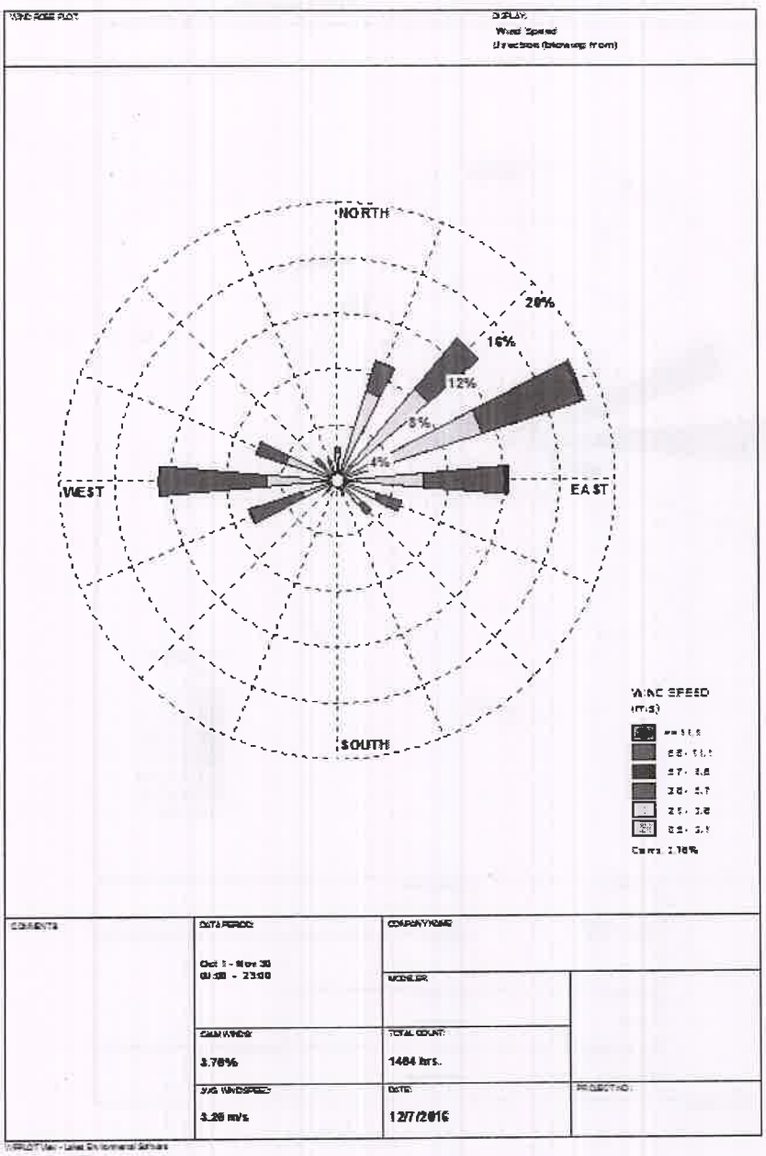
1) March to May (summer season)



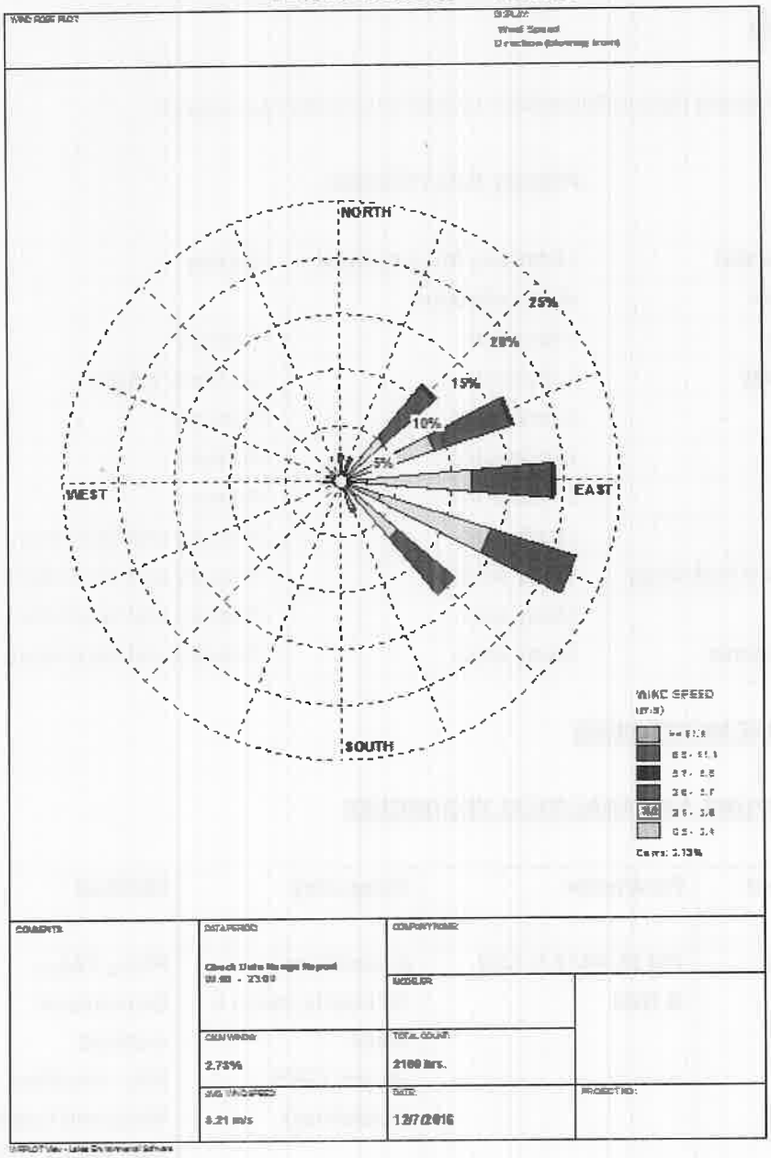
2) **June to September (monsoon season)**



3) October to November (post monsoon season)



4) December to February (winter season)



3.3 BASELINE MONITORING

Baseline Data

i) Primary data collected for various environmental aspects

Primary data collected

Environmental Parameters	Locations for proposed data collection	Source
Air Quality	6 locations	Primary
Meteorology	1 location	secondary data
Water	6 locations	Primary
Soil	6 locations	Primary
Noise	6 locations	Primary
Ecology	Study Area	Primary and Secondary
Geology and Hydrology	Study Area	Primary and Secondary
Land use	Study area	Primary and Secondary
Socio-Economic	Study Area	Primary and Secondary

3.3.1 BASELINE MONITORING

3.3.3.1 SAMPLING AND ANALYTICAL TECHNIQUES

Environment Aspect	Parameter	Frequency	Method
Ambient Air Quality	PM10, PM2.5, SO2 & NOx	6 Locations 24 hourly, twice a week (as per CPCB Guidelines)	PM_{10}, $PM_{2.5}$: Gravimetric method SO_2 : Modified West and Gaeke Method (IS : 5182, Part II) NOx : Jacobs and Hochheiser Method (IS 5182 Part VI)

Water Quality	pH, EC, Total alkalinity, Chlorides, 18.59, Hardness, Ca, Mg, TDS, DO, COD, BOD, Sulphate, Phosphate, Na, K, Cu, Fe, Total coliform & *E.coli*	Once in study period	Physical, chemical & bacteriological
Noise Quality	Noise levels in dB(A)	Once in study period	IS: 4954 as adopted by CPCB.
Soil Quality	Physical, Chemical Characteristics, Soil Texture	Once in study period	BIS specifications

3.3.2 AIR QUALITY

The baseline air quality was established by monitoring major air pollutants like suspended particulate matter, oxides of sulfur & nitrogen at various locations near the project site.

High volume samplers were used for ambient air sampling. Suspended Particulate Matter (SPM) i.e. $PM_{2.5}$ & PM_{10}, sulfur dioxide (SO_2), oxides of nitrogen (NO_x), NH_3, Pb, O_3, Benzo(a) pyrene in particulate phase, As, Ni, CO etc. were determined. Samples were collected continuously from all the stations for 24 hours. Samples thus collected were analyzed for various pollutants as above.

Baseline data for ambient air quality was collected during the months of January to March 2018. The sampling stations along with their distance and direction from the project site, ambient air quality monitoring stations, wind rose diagram showing the direction of the blowing wind during the analysis period, ambient air quality analysis data & National Ambient Air Quality Standards specified by MoEF are detailed subsequently.

The observations made during the study period are presented under the forthcoming sub-sections.

The Ambient air sampling stations détails is shown in the below table 3.2.

Table 3.2: Ambient air sampling stations

Sl. No.	*Code no.*	*Name of the station*	*Direction from the site*	*Distance from site (km)*
1	A 1	Project site	-	-
2	A 2	Harohalli	North –East	2.43
3	**A 3**	**Meda Maaranahalli (Downwind direction)**	**North**	**2.65**
4	A 4	Hulugondana Halli	North West	2.28
5	A 5	Jakkasandra	South	3.15
6	A 6	Doddasadenahalli	South – East	4.75

3.3.2.1 AIR QUALITY AT ALL LOCATION:

The *Air quality data analysis at the project site & other locations* in the table 3.3 & *Ambient air quality standards – MoEF as per the notification dated 16th November 2009 for industrial, residential & rural areas* is shown table 3.4 below.

Table 3.3: Air quality data analysis results

Sl. No.	Parameter	Description	24 Hrs concentration (µg/m³) Monitoring station					
			A1	A 2	A 3	A 4	A 5	A 6
1	Particulate matter (size less than 10 µm), (PM_{10}), µg/m³	January 2018	62.3	62.6	48.5	45.2	53.6	43.6
		February 2018	65.4	66.5	49.6	46.8	55.8	46.2
		March 2018	71.2	71.9	51.6	48.3	58.7	48.9
2	Particulate matter (size less than 2.5 µm), ($PM_{2.5}$) ,µg/m³	January 2018	30.1	30.3	21.2	22.3	28.2	20.3
		February 2018	31.3	31.5	22.8	23.1	29.3	21.2
		March 2018	33.2	33.6	23.1	23.9	29.9	22.6
3	Sulfur dioxide (SO_2), µg/m³	January 2018	15.6	14.9	14.1	14.2	15.8	14.5
		February 2018	16.2	15.3	14.9	15.6	16.3	15.4
		March 2018	18.3	18.1	15.2	15.9	17.8	15.9
4	Nitrogen oxides (NO_x), µg/m³	January 2018	11.1	10.2	9.2	9.1	10.9	9.5
		February 2018	11.9	12.0	9.8	9.5	12.0	9.9
		March 2018	12.3	13.2	10.2	10.5	11.9	10.6
5	Ammonia (NH_3), µg/m³	January 2018	5.4	5.3	4.3	4.2	4.9	4.5
		February 2018	5.6	5.4	4.5	4.3	5.1	4.9
		March 2018	5.7	5.6	4.8	4.9	5.2	5.0
6	Lead (Pb), µg/m³	January 2018	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
		February 2018	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
		March 2018	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
7	Ozone (O_3), µg/m³	January 2018	2.5	1.2	0.8	0.1	0.2	Nil
		February 2018	2.8	1.0	0.6	0.8	0.1	Nil
		March 2018	2.1	1.0	0.4	0.65	0.15	Nil
8	Carbon monoxide, (CO), mg/m³	January 2018	0.8	1.3	0.3	Nil	0.1	Nil
		February 2018	1.2	1.9	0.2	0.1	Nil	Nil
		March 2018	2.2	2.3	Nil	0.3	Nil	Nil

Table 3.4: Ambient air quality standards – MoEF as per the notification dated 16th November 2009 for industrial, residential & rural areas

	Air quality parameter	*Concentration*	
		24 hrs	*Annual*
1	Particulate matter (size less than 2.5 µm), ($PM_{2.5}$) ,µg/m^3	60	40
2	Particulate matter (size less than 10 µm), (PM_{10}), µg/m^3	100	60
3	Sulfur-di-oxide (SO_2), µg/m^3	80	50
4	Nitrogen dioxide (NO_x), µg/m^3	80	40
5	Ammonia (NH_3), µg/m^3	400	100
6	Lead (Pb), µg/m^3	1	0.5
7	Ozone (O_3), µg/m^3	180 – 1 hr	100 – 8 hrs
8	Benzene (C_6H_6), µg/m^3	-	5
9	Carbon monoxide (CO), mg/m^3	4 – 1 hr	2 – 8 hrs
10	Arsenic (As), ng/m^3	-	6
11	Nickel (Ni), ng/m^3	-	20
12	Benzo(a) pyrene in particulate phase, ng/m^3	-	1
13	Volatile organic compounds (VOCs), µg/m^3	-	NS

Note:

- 24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.
- Whenever and wherever monitoring results on two constitutive days of monitoring exceed the limits specified above for the respective category, it shall be considered adequate reason to institute regular or continuous monitoring and further investigation.

3.3.2.2 OBSERVATIONS

It has been observed that the maximum concentration of all the parameters monitored at all the locations are within the limits specified by MoEF (as per the notification dated 16th November 2009 for industrial, residential & rural areas). Marginally high values are observed at Project site & Harohalli are due to the frequent movement of vehicles.

3.3.3 NOISE ENVIRONMENT

The proposed project M/s. Mother Earth Environ Tech Private Limited., is in the existing premises. There will be no change in the noise level as the existing infrastructure will be made use.

There will be some amount of noise due to the movement of vehicles carrying raw materials, chemicals, fuels, tools & tackles required for manufacturing process and also transportation of finished products to its destination. The movement of personnel from their residence to industry would also contribute to noise & traffic in the area but will not be more than the existing., which would not result in any drastic change in either the existing traffic pattern or noise levels of the area.

Background noise levels were measured in 6 locations. A sound level meter was used for measuring the noise level at one-hour interval continuously for 24 hrs at 1.5 m above ground level, about 3 m from walls, buildings or other sound reflecting sources.

The measurements were carried out in such a way that the monitoring locations were 1 m away from the sources and 1 m away from the edge of the roads. The lowest & highest noise levels and the limits as per Environmental Protection Rules, 1986 for both industrial and commercial areas are presented in the following table 3.7 and summary of noise levels is shown in table 3. 6.

Table 3.5: Noise level monitoring stations

Sl. No.	*Code no.*	*Name of the station*	*Direction from the site*	*Distance from site (km)*
1	N1	Project site	-	-
2	N2	Harohalli	North –East	2.43
3	**N3**	**Meda Maaranahalli (Downwind direction)**	**North**	**2.65**
4	N4	Hulugondana Halli	North West	2.28
5	N5	Jakkasandra	South	3.15
6	N6	Doddasadenahalli	South – East	4.75

Table 3.6: Summary of noise levels

Sl. No.	*Code No.*	*Name of the Station*	*Lowest dB (A)*	*Highest dB (A)*
1	N1	Project site	*64*	*67*
2	N2	Harohalli	*65*	*68*
3	**N3**	**Meda Maaranahalli**	*55*	*62*
4	N4	Hulugondana Halli	*59*	*63*
5	N5	Jakkasandra	*53*	*62*
6	N6	Doddasadenahalli	*58*	*63*

Note:- Noise level monitoring is crried out during the day time.

Table 3.7: Limits as per Environmental Protection Rules, 1986

Limits as per Env. Protection Rules, 1986 in dB(A)L_{eq}							
Industrial area		*Commercial area*		*Residential area*		*Silent zone*	
Day	Night	Day	Night	Day	Night	Day	Night
75	70	65	55	55	45	50	40

3.3.3.1 OBSERVATIONS

The noise level in the study area varies between 61.3 – 67.5 It has been observed that the maximum noise levels at all the locations are within the limits specified for industrial areas. Marginally higher noise levels can be attributed to the movement of large number of trucks, lorries, government buses and other vehicles in the national highway.

3.3.4 WATER ENVIRONMENT

3.3.4.1 RECONNAISSANCE SURVEY

In order to assess the existing water quality, the water samples were collected three different locations within the study area and analyzed as per the procedure specified in standard methods for examination of water and wastewater published by American Public Health Association and Bureau of Indian Standards (APHA/BIS). Name of the locations, orientation with respect to the project site along with the type of source, the analytical data for surface water quality and ground water quality at all locations is shown in the following table 3.8 .

Table 3.8: Water sampling stations

Sl. No.	*Code No.*	*Name of the Station*	*Direction from site*	*Distance from site (km)*	*Source/ Type*
1	W 1	Project site	-	-	Ground Water
2	W 2	Harohalli	North –East	2.43	Ground Water
3	**W 3**	**Meda Maaranahalli (Downwind direction)**	**North**	**2.65**	**Ground Water**
4	W 4	Hulugondana Halli	North West	2.28	Ground Water
5	W 5	Jakkasandra	South	**3.15**	Ground Water
6	W 6	Doddasadenahalli	South – East	4.75	Ground Water
7	SW 1	Hebbidara Mettilu Lake water	South – West	1.94	Lake Water
8	SW 2	Harohalli Lake water	East	2.00	Lake Water

3.3.4.2 SURFACE WATER

There are no major perennial rivers within the study area. The results of the analysis of surface water samples collected from Hebbidara Mettilu lake& Harohalli Lake is appended in the following table 3.9

Table 3.9: Surface water quality

Sl. No.	*Tests*	*Unit*	Results	
			SW1	*SW2*
1	Colour, True colour units	-	15.2	12.5
2	Odour	-	Slight odour	Slight odour
3	Turbidity	NTU	19.5	15.9
4	pH	-	7.0	7.2
5	Chlorides as Cl	mg/L	56.0	156.5
6	Total hardness as $CaCO_3$	mg/L	290.0	395.0
7	Calcium as Ca	mg/L	59.8	69.6
8	Magnesium as Mg	mg/L	52.3	65.9
9	Total dissolved solids	mg/L	315.6	596.8
10	Sulfates as SO_4	mg/L	48.0	45.9
11	Copper as Cu	mg/L	<0.05	<0.05
12	Iron as Fe	mg/L	0.25	0.29
13	Manganese as Mn	mg/L	<0.1	<0.1
14	Nitrate as NO_3	mg/L	1.8	1.9
15	Fluoride as F	mg/L	0.5	0.6
16	Phenolic compounds as C_6H_5OH	mg/L	Absent	Absent
17	Mercury as Hg	mg/L	<0.001	<0.001
18	Cadmium as Cd	mg/L	<0.001	<0.001
19	Selenium as Se	mg/L	<0.01	<0.01
20	Arsenic as As	mg/L	<0.01	<0.01
21	Cyanide as CN	mg/L	Absent	Absent
22	Lead as Pb	mg/L	<0.01	<0.01
23	Zinc as Zn	mg/L	<1	<1xx`
24	Anionic detergents as MBAS	mg/L	<0.2	<0.2
25	Chromium as Cr^{+6}	mg/L	<0.01	<0.01
26	Residual free chlorine	mg/L	<0.05	<0.05
27	Alkalinity as $CaCO_3$	mg/L	265	249
28	Aluminum as Al	mg/L	<0.01	0.01
29	Boron as B	mg/L	<0.1	<0.1
30	Dissolved Oxygen	mg/L	5.1	5.3
31	Coliform organisms /100 ml	-	498	652
32	E-coli Bacteria/100 ml	-	Present	Present

Table 3.10 Surface water quality standards

Designated-Best-Use	Designated-Best-Use	
Drinking Water Source without conventional treatment but after disinfection	A	• Total Coliforms Organism MPN/100ml shall be 50 or less. • pH between 6.5 and 8.5 • Dissolved Oxygen 6mg/l or more • Biochemical Oxygen Demand 5 days 20°C 2mg/l or less • Total Coliforms Organism MPN/100ml shall be 500 or less pH between 6.5 and 8.5 Dissolved Oxygen 5mg/l or more • Biochemical Oxygen Demand 5 days 20°C 3mg/l or less • Total Coliforms Organism MPN/100ml shall be 5000 or less pH between 6 to 9 Dissolved Oxygen 4mg/l or more • Biochemical Oxygen Demand 5 days 20°C 3mg/l or less • pH between 6.5 to 8.5 Dissolved Oxygen 4mg/l or more • Free Ammonia (as N) 1.2 mg/l or less • pH between 6.0 to 8.5 • Electrical Conductivity at 25°C micro mhos/cm Max.2250 • Sodium absorption Ratio Max. 26 • Sodium absorption Ratio Max. 26
Outdoor bathing (Organised)	B	
Drinking water source after conventional treatment and disinfection	C	
Propagation of Wild life and Fisheries	D	
Irrigation, Industrial Cooling, Controlled Waste disposal	E	
	Below-E	Not Meeting A, B, C, D & E Criteria
From the above results it is inferred that the water quality is affected due to surface runoff and sewage entry in to the lakes.		

3.3.4.3 GROUND WATER

Ground water is the major source of water in the district, occurring under water table conditions in the weathered mantle of granite gneisses and in the joints, cracks and crevices of the basement rock. The depth of water also dependent on topography and varies depending on the depth of weathering and type of aquifer.

The results of the analysis of Ground water samples collected from the project site and others locations is appended in the following table 3.11.

Table 3.11: Ground water quality

Sl. no.	Parameter	GW1	GW2	GW3	GW4	GW5	GW6	Limits as per IS:10500-2012	
								Acceptable	Permissible
1.	Colour, True colour units	<5	<5	<5	<5	<5	<5	Max-5	Max-15
2.	Odour	Agreeble	Agreeble	Agreeble	Agreeble	Agreeble	Agreeble	Agreeble	-
3.	Taste	Agreeble	Agreeble	Agreeble	Agreeble	Agreeble	Agreeble	Agreeble	-
4.	Turbidity, NTU	0.3	0.1	1.3	0.15	0.25	0.23	Max.1	Max.5
5.	Total dissolved solids, mg/L	598	657	586	625	636	869	Max.500	Max.2000
6.	pH	7.0	7.11	7.12	7.22	7.13	7.20	6.50-8.50	No relaxation
7.	Aluminium, as Al, mg/L	BDL	0.01	0.02	0.01	0.03	0.01	Max.0.03	Max.0.2
8.	Boron, as B, mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Max.0.50	Max.1.0
9.	Calcium, mg/L	57	62	75	69	59	61	Max.75	Max.200
10.	Chlorides, mg/L	71	62	75	79	86	98	Max.250	Max.1000
11.	Copper, mg/L	BDL	BDL	BDL	BDL	BDL	BDL	Max.0.05	Max.1.5
12.	Flouride, mg/L	0.2	0.6	0.3	0.5	0.3	0.3	Max.1.0	Max.1.5
13.	Residual Free	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Max.0.20	Min.0.20

	Chlorine, mg/L								
14.	Iron, mg/L	BDL	0.12	0.10	0.2	0.2	0.19	Max.1.0	No relaxation
15.	Magnesium, mg/L	27	41	29	35	39	34	Max.30	Max.100
16.	Manganese, mg/L	BDL	BDL	BDL	BDL	BDL	BDL	Max.0.1	Max.0.3
17.	Nitrates, mg/L	23	28	21	24	29	30	Max.45	No relaxation
18.	Phenolic compounds, mg/L	Absent	Absent	Absent	Absent	Absent	Absent	Max.0.001	Max.0.002
19.	Selenium, mg/L	BDL	BDL	BDL	BDL	BDL	BDL	Max.0.01	No relaxation
20.	Sulphates, mg/L	42	43	45	44	42	41	Max.200	Max.400
21.	Alkalinity, as CaCo3, mg/L	242	250	302	248	266	298	Max.200	Max.600
22.	Total hardness, mg/L	255	268	249	326	284	398	Max.200	Max.600
23.	Zinc, as Zn, mg/L	1	<1	<1	<1	<1	<1	Max.0.5	Max.0.15
24.	Cadmium, mg/L	BDL	BDL	BDL	BDL	BDL	BDL	Max.0.003	No relaxation
25.	Cyanide, as CN, mg/L	Nil	Nil	Nil	Nil	Nil	Nil	Max.0.05	No relaxation
26.	Mercury, mg/L	BDL	BDL	BDL	BDL	BDL	BDL	Max.0.001	No relaxation
27.	Arsenic, mg/L	BDL	BDL	BDL	BDL	BDL	BDL	Max.0.01	No relaxation
28.	Total Chromium, as Cr, mg/L	BDL	BDL	BDL	BDL	BDL	BDL	Max.0.05	No relaxation
29.	Lead, as Pb, mg/L	BDL	BDL	BDL	BDL	BDL	BDL	Max.0.01	No relaxation

3.3.4.4 OBSERVATIONS

The physicochemical quality of the ground water sources at and around the plant site has been analyzed, which indicates that almost all the parameters analyzed are within "Maximum Acceptable Limits As per IS:10500-2012".

3.3.5 SOIL AND GEOLOGY

Baseline data for land environment was collected at Six locations in order to assess the soil quality of the study area. Soil samples at a depth of one and half feet were collected using sampling augers, spades and field capacity apparatus. The list of locations and the orientation with reference to the project site are listed in table 3.14. Soil samples were analyzed for physical and chemical parameters the results of which are given in table 3.13 and sampling locations marked in the Google map is shown in fig 3.9.

Table 3.12: Soil sampling stations

Sl. No.	*Code No.*	*Name of the Station*	*Direction from site*	*Distance from site (km)*
1	S 1	Project site	-	-
2	S 2	Harohalli	North –East	2.43
3	S 3	**Meda Maaranahalli (Downwind direction)**	**North**	**2.65**
4	S 4	Hulugondana Halli	North West	2.28
5	S 5	Jakkasandra	South	**3.15**
6	S 6	Doddasadenahalli	South – East	4.75

Table 3.13: Physico-chemical characteristics of soil

Parameter	Unit	S1	S2	S3	S4	S5	S6
pH (10% Solution)	--	6.95	6.78	6.14	7.14	6.64	6.87
EC (10% Solution)	µs/cm	145	118	101	183	106	115
Organic Carbon	%	0.76	02.61	0.49	0.47	0.62	0.53
Magnesium as Mg	Mg/kg	435	562	552	98	484	674
Available Potassium as K	Kg/ha	301	374	361	276	365	261
Available Nitrogen as N	Kg/ha	318	291	297	282	253	320
Available Phosphorous as P	Kg/ha	26.4	31.9	29.9	25.1	28.3	25.3
Iron as Fe	Mg/Kg	610	550	490	635	515	535
Chloride as Cl	Mg/kg	92	188	198	245	194	147
Copper as Cu	Mg/kg	0.49	0.31	0.31	0.61	0.36	0.32
Boron as B	Mg/kg	1.1	1.21	1.12	1.48	1.17	1.42
Zinc as Z	Mg/kg	21.9	18.3	17.3	21.6	24.4	16.4

The results of the analysis show that the nature of the soil is healthy at the sampling locations and are good for plants/ afforestation.



Fig 3.9: Location of sampling stations

Source: Google Earth

Table 3.14: LOCATION OF SAMPLING STATIONS

Code no. on Google map	*Name of the Station*	*Direction from site*	*Distance from site (km)*	*Sampling location code*
A1	Project site	-	-	A1, N1, W1, S1
A2	Harohalli	North –East	2.43	A2, N2, W2, S2
A3	**Meda Maaranahalli (Downwind direction)**	**North**	**2.65**	**A3, N3, W3, S3**
A4	Hulugondana Halli	North West	2.28	A4, N4, W4, S4
A5	Jakkasandra	South	**3.15**	A5, N5, W5, S5
A6	Doddasadenahalli	South – East	4.75	A6, N6, W6, S6
SW1	Hebbidara Mettilu Lake water	South – West	1.94	SW1
SW2	Harohalli Lake water	East	2.15	SW2

3.4 ECOLOGY

The industry plot is in the KIADB industrial area. From the present proposed activity no adverse impact on the immediate neighborhood is expected as the all the pollution control measures and process controls will be in place and followed.

Ecological survey of the study area was carried out by actual field visits of the lease area to observe the various species of flora and fauna. Personal enquiries/discussion with local people and forest department officials was also conducted to get a fair idea of the existing ecological status.

The area does not have any hiding place for wild life and hence they are not spotted in the area. The flora and fauna existing in the study area is presented below.

3.4.1 FLORA

Land use pattern within the study zone is industrial oriented with rural village settings. Floral composition in the study area is presented in the table 3.15 below.

Table 3.15: Flora in the study area

Sl. No.	*Botanical name*	*Local name*	*Distribution*
1	Bambusa bamboo	Big-Bamboo	Occasional
2	Azadirachta indicia	Bevu	Common
3	Acacia suma	Bilijali	Rare
4	Casuarinas equsetifolia	Galimara	Occasional
5	Alangum lamrkil	Ankola	Rare
6	Parthenium hystresporus	Congress grass	Common
7	Ficus religiosa	Arali	Predominant
8	Mangifera indica	Mavu	Predominant
9	Vitex negundo	Lakki-gida	Rare
10	Bauhinia variegate	--	Common
11	Ficus mysotrensis	Gonimara	Common
12	Pongamia pinnata	Honge	Common
13	Cleredendron inerne	--	Occasional
14	Artocarpus integrifolia	Halasu	Rare
15	Acacua Arabica	Gobli	Rare
16	Asparagus recemosa	--	Rare
17	Terminalia catapa	--	Common
18	Michaelia chamara	Sampige	Occasional
19	Barleria buxifloria	--	Rare
20	Eucalyptus teretilmonis	Neelagiri	Common
21	Govofiar ottleformis	Buthale	Rare
22	Acacia ferruginea	Kaggali	Common
23	Bombax ceiba (Bombax malabaricum)	Burga	Common
24	Tinospora cordifolia	--	Occasional
25	Cymbopogon felxuosos	Ginger grass	Occasional
26	Dendrocalamus strictus	Small bamboo	Occasional
27	Crotalaria verrucosa	--	Occasional
28	Emblica officinalis (Phylanthusembilaca)	Amla, Nalli	Occasional
29	Teprosia purpuria	--	Common
30	Albizzia amara	Chukkiau	Common
31	Cymbopo nardus	Citronella grass	Common
32	Erythrine variegate (Erythrina indica)	Hongarike	Common
33	Delbergia latifolia	Beete	Occasional

3.4.2 FAUNA

The area under consideration is not suitable for any rare or endangered or endemic or threatened wildlife as there are no forests or other protected areas. Fauna observed in the region include domestic animals, retiles and birds. The composition of fauna in the study area is presented in the table 3.16 below.

Table 3.16: Fauna in the study area

Sl. No.	*Botanical name*	*Local name*	*Distribution*
1	Bambusa bamboo	Big-Bamboo	Occasional
2	Azadirachta indicia	Bevu	Common
3	Acacia suma	Bilijali	Rare
4	Casuarinas equsetifolia	Galimara	Occasional
5	Alangum lamrkil	Ankola	Rare
6	Parthenium hystresporus	Congress grass	Common
7	Ficus religiosa	Arali	Predominant
8	Mangifera indica	Mavu	Predominant
9	Vitex negundo	Lakki-gida	Rare
10	Bauhinia variegate	--	Common
11	Ficus mysotrensis	Gonimara	Common
12	Pongamia pinnata	Honge	Common
13	Cleredendron inerne	--	Occasional
14	Artocarpus integrifolia	Halasu	Rare
15	Acacua Arabica	Gobli	Rare
16	Asparagus recemosa	--	Rare
17	Terminalia catapa	--	Common
18	Michaelia chamara	Sampige	Occasional
19	Barleria buxifloria	--	Rare
20	Eucalyptus teretilmonis	Neelagiri	Common
21	Govofiar ottleformis	Buthale	Rare
22	Acacia ferruginea	Kaggali	Common
23	Bombax ceiba (Bombax malabaricum)	Burga	Common
24	Tinospora cordifolia	--	Occasional
25	Cymbopogon felxuosos	Ginger grass	Occasional
26	Dendrocalamus strictus	Small bamboo	Occasional
27	Crotalaria verrucosa	--	Occasional
28	Emblica officinalis (Phylanthusembilaca)	Amla, Nalli	Occasional
29	Teprosia purpuria	--	Common
30	Albizzia amara	Chukkiau	Common
31	Cymbopo nardus	Citronella grass	Common
32	Erythrine variegate (Erythrina indica)	Hongarike	Common
33	Delbergia latifolia	Beete	Occasional

3.5 SOCIO-ECONOMIC ENVIRONMENT

The baseline data referring to the socio-economic environment is collected by way of secondary sources such as census records, statistical hand book and relevant official records with the government agencies and primary sources such as the socio-economic surveys conducted by different Govt. & Non Govt. Agencies.

The growth of industrial sectors and infrastructure development in and around the agricultural area i.e. villages and semi-urban settings and towns is bound to create certain socio-economic impacts on the local populace. The impacts may be either positive or negative depending on the nature of development. To assess such impact it is necessary to know the existing socio-economic order of the study area, which will be helpful in improving the overall quality of life.

3.6 DEMOGRAPHIC STRUCTURE

The information collected from the secondary sources are from the district census statistical hand books and the records of the National Informatics Center, New Delhi in respect of the population, infrastructure facilities available and the occupational structures of the study area.

The socio-ecological aspect of the study include the agro based economy, industry based economy and occupational structure of the workers.The distributions of population in the study area as per the census record of the 2011 are presented as table 3.17

Table 3.17: Distribution of population

Particulars	*Harohalli*
	2011
Total residential houses	3121
Total population	13044
Population male	6562
Population female	6482
Schedule caste male	1172
Schedule caste female	1191
Schedule tribe male	42
Schedule tribe female	47
Literates male	5001
Literates female	4282
Main workers male	3609
Main workers female	1410
Marginal workers male	216
Marginal workers female	144
Non workers male	2699
Non workers female	4883

Source: District census handbook

Male population – 50.30 %
Female population – 49.69 %

3.6.1 SOCIAL INFRASTRUCTURE AVAILABLE

Infrastructure is the basic physical and organizational structures needed for the operation of a society or enterprise or the services and facilities necessary for an economy to function.

The term typically refers to the technical structures that support a society, such as roads, water supply, sewers, electrical grids, telecommunications and so forth and can be defined as "the physical components of interrelated systems providing commodities and services essential to enable, sustain or enhance societal living conditions.

Viewed functionally, infrastructure facilitates the production of goods and services, and also the distribution of finished products to markets, as well as basic social services such as schools and hospitals; for example, roads enable the transport of raw materials to a factory.

The list of hospitals & other infrastructural facilities available in the vicinity of the proposed industry is tabulated in below table 3.18.

Table 3.18: List of infrastructural facilities in the surroundings

Sl. No.	*Hospital*	*Distance from the Plant*	*Direction w.r.t. the Plant*
1	Govt Hospital, Harohalli	2.12	North East
2	Govt Hospital, Kanakapura	13.88	South
3	NH-209	1.53	East
4	Bangalore city	30	North
5	Ramanagara City	17.39	West
6	Ramanagara city railway station	19.00	West

Note: All distances mentioned are aerial.

3.7 CONNECTIVITY

The site is connected by Kanakapura road which is a National Highway no. NH-209 and an internal asphalt road from the Main road which is of 1.53 Km in length approximately. The site location is around 17.39 km and about 30 km from Ramanagara and Bangalore city terminal.

Connectivity to the project site is detailed in the following table 3.19. Google map showing the same is appended subsequently *in fig 3.10.*

Table 3.19: Connectivity from the project site

Sl. No.	*Road*	*Distance from the project site (km)*	*Direction w.r.t. project site*
1	NH-209	1.53	East
2	Bangalore city	30	North
3	Ramanagara City	17.39	West
4	Ramanagara city railway station	19.00	West

Note: All distances mentioned are aerial

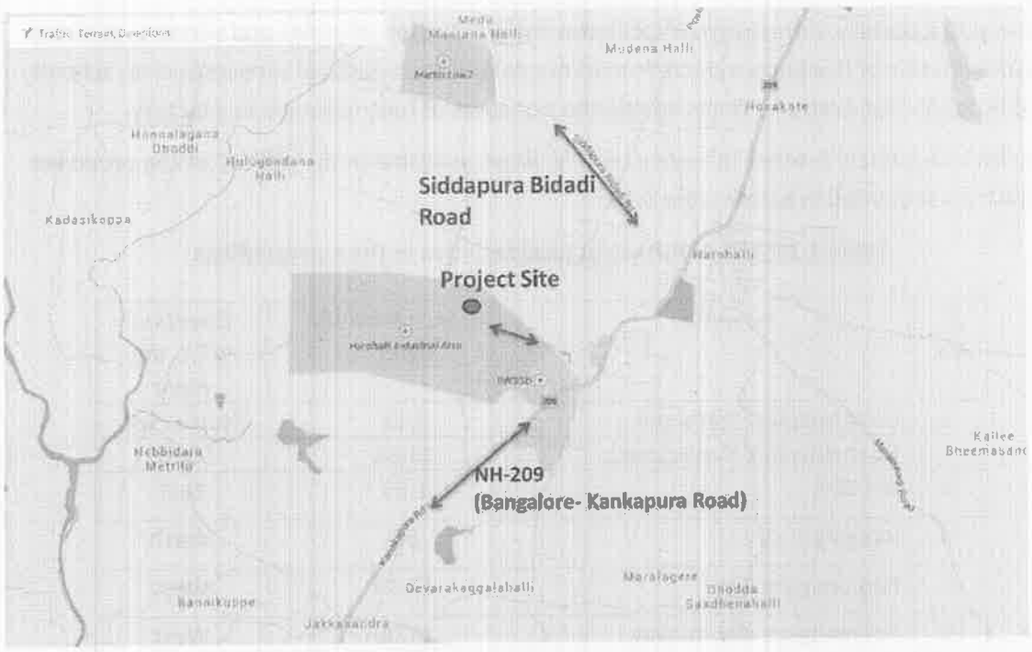
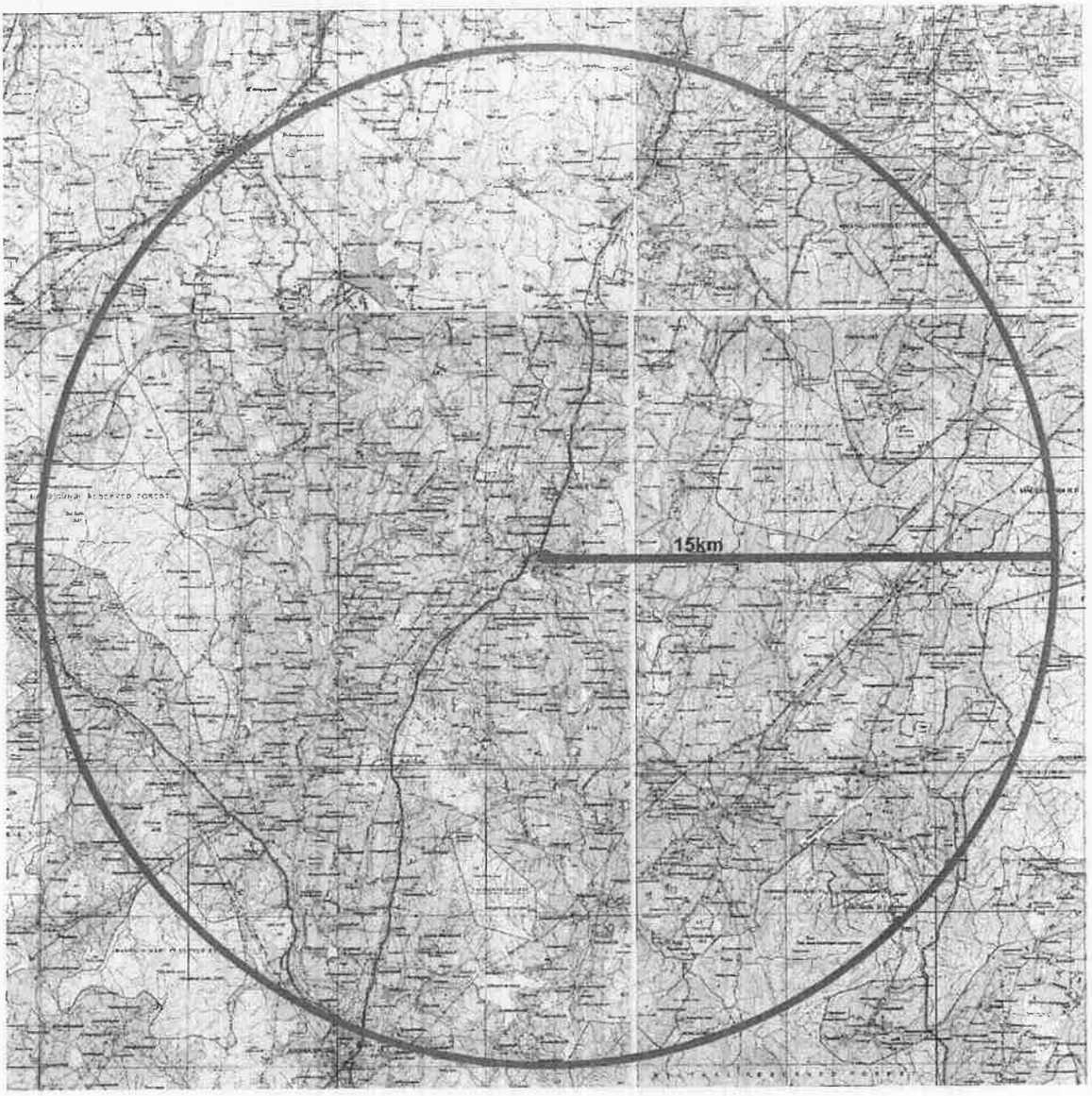


Fig 3.10: Google map showing connectivity



Source: Survey of India; Scale: 1:50000

Fig :- 3.11 TOPO MAP COVERING 15 KM DISTANCE FROM THE PROJECT SITE

The details of 1 km, 5 km & 10 km distance Google map is showing in below fig 3.12,3.13 & 3.14.

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Fig 3.12: GOOGLE MAP COVERING 1 KM AERIAL DISTANCE FROM THE PROJECT SITE

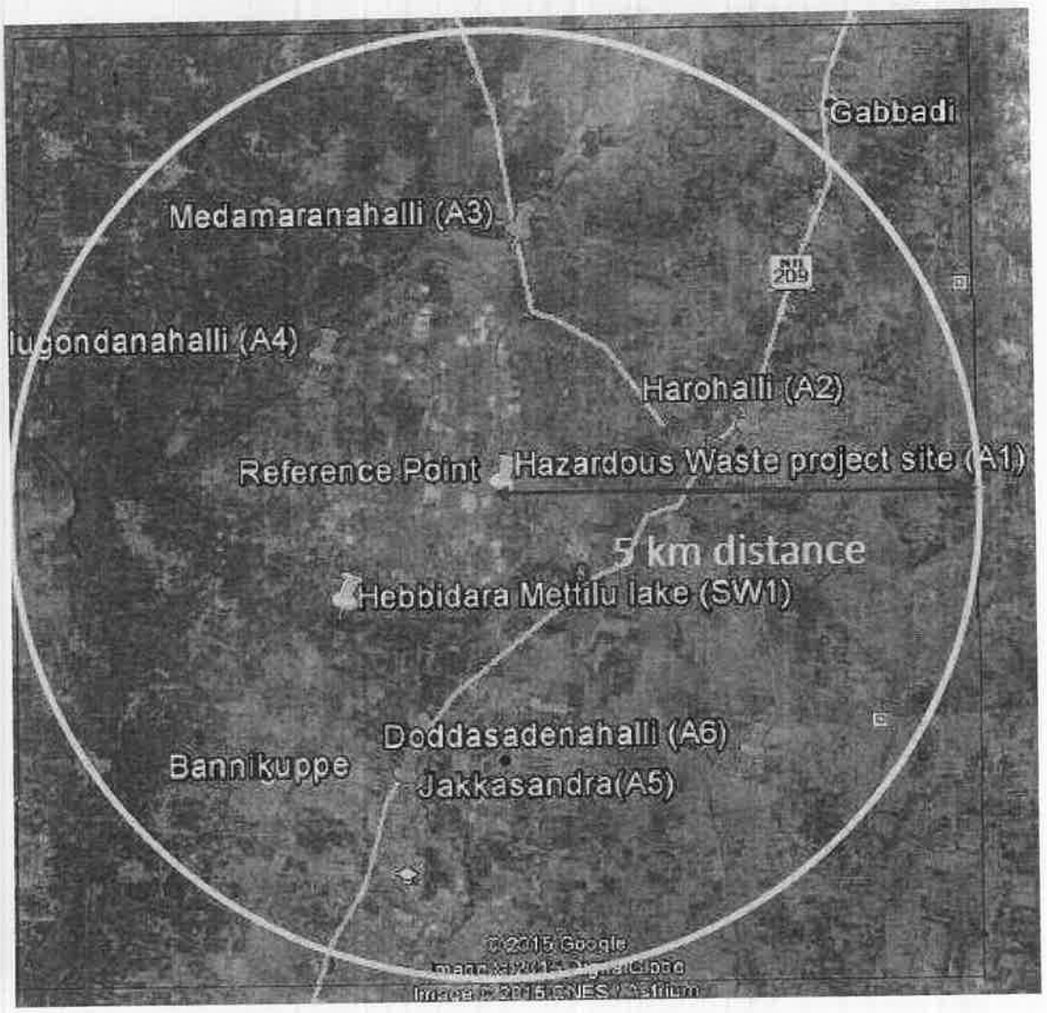


Fig 3.13: GOOGLE MAP COVERING 5 KM AERIAL DISTANCE FROM THE PROJECT SITE

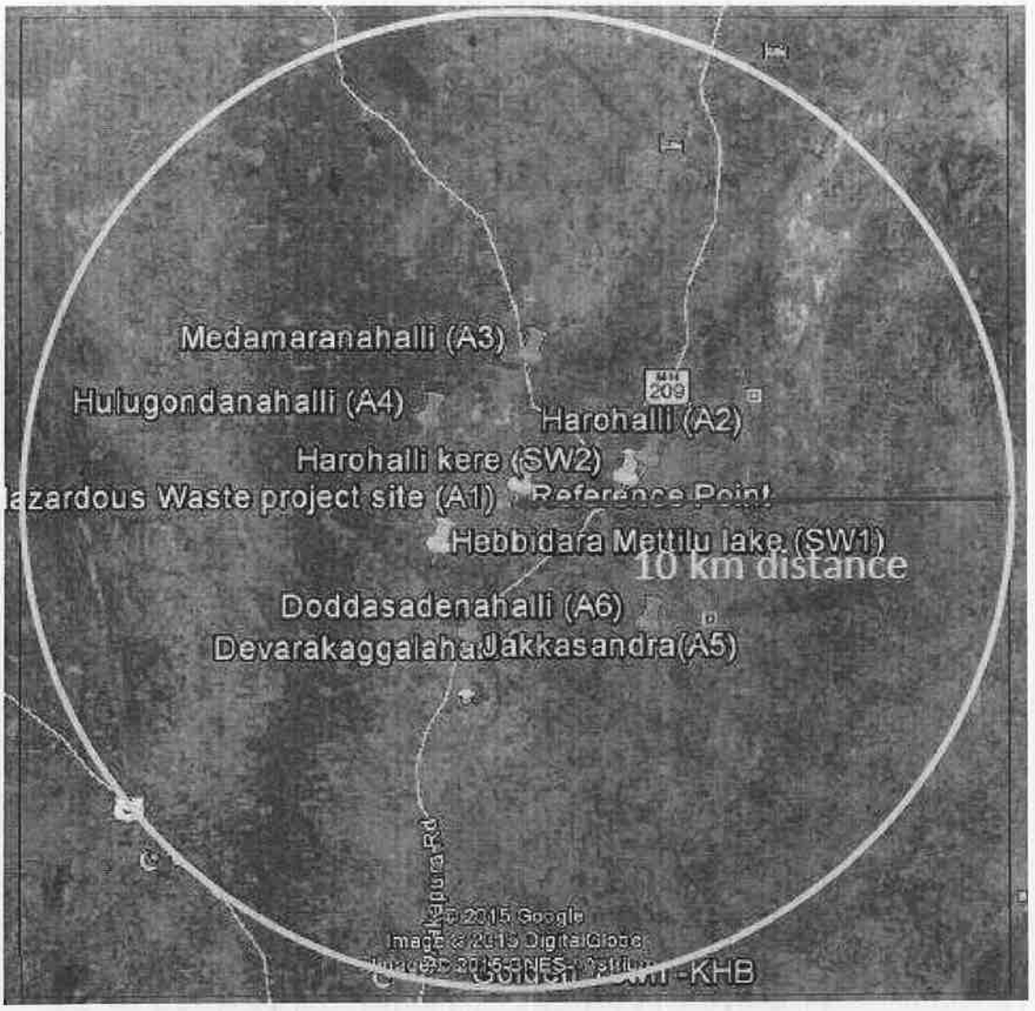


Fig 3.14: GOOGLE MAP COVERING 10 KM AERIAL DISTANCE FROM THE PROJECT SITE

3.8 BASE MAPS OF ALL ENVIRONMENTAL COMPONENTS

The major environmental components in the surroundings along with the distance & direction from the project site are tabulated in below table 3.20 . Google maps showing the locations of the environmental parameters are appended as figure 3.14 below.

Table 3.20: Existing land-use pattern

Sl. No.	*Particulars*	*Details*	*Distance from the project site (km)*	*Direction w.r.t. project site*
1	Agriculture	Minor activities - scattered	-	-
2	National park, forest	Bannerghatta National Park	13.00	North – East
3	Water bodies	Harohalli Lake	2.00	East

Note:

a) All distances mentioned are aerial.

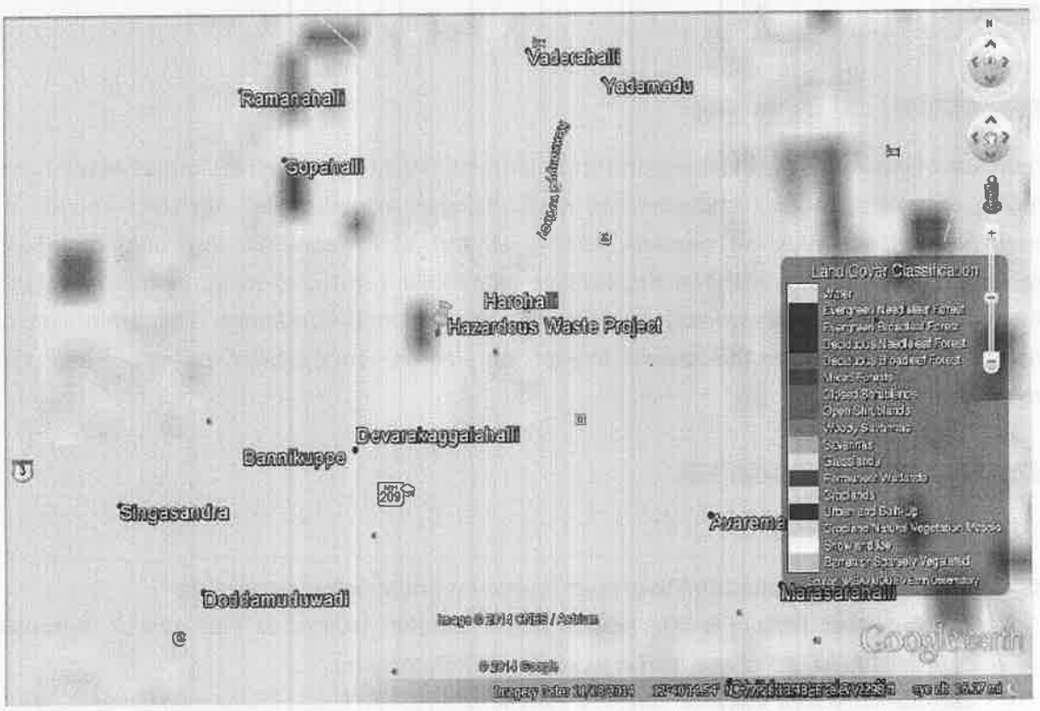


Fig 3.15: Google map showing land-use pattern

CHAPTER 4
ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

4.1 DETAILS OF INVESTIGATED ENVIRONMENTAL IMPACTS DUE TO PROJECT LOCATION, POSSIBLE ACCIDENTS, PROJECT DESIGN, PROJECT CONSTRUCTION, REGULAR OPERATIONS, FINAL DECOMMISSIONING OR REHABILITATION OF COMPLETED PROJECT

4.1.1 ENVIRONMENTAL IMPACTS DUE TO PROJECT LOCATION, POSSIBLE ACCIDENTS, PROJECT DESIGN

INTRODUCTION

Prediction of impacts is the most important component in the Environmental Impact Assessment studies. Several scientific techniques and methodologies are available to predict impacts of developmental activities on physical, ecological and socio-economic environments. Such predictions are superimposed over the baseline (pre-project) status of environmental quality to derive the ultimate (post-project) scenario of environmental conditions. The prediction of impacts helps to minimize the adverse impacts on environmental quality during pre and post project execution.

IMPACT DUE TO PROJECT LOCATION

➧ **PROJECT LOCATION**

Major environmental impacts due to project location is not anticipated because

- ✓ The Proposed Project is "Hazardous Waste Landfill" located at Plot no.217, Harohalli Industrial Area, 2nd phase, Kanakapura Taluk, Ramanagara.
- ✓ The site is located towards South of Bangalore city, The site is connected by Kanakapura road which is a National Highway no. NH-209 and an internal asphalt road from the Main road which is of 1.53 Km in length approximately.
- ✓ No national park is located in the vicinity (10 km radius - aerial).

Environmental impacts due to the operation stages of the project were predicted. The impacts during the construction phase is not envisaged as the project is expansion of hazardous waste landfill facility.

Adequate environmental management measures were incorporated during the entire planning of operation stages of the project to minimize the adverse environmental impacts and assure sustainable development of the area.

POSSIBLE ACCIDENTS

CONSTRUCTION PHASE

No construction activities are proposed in the project as optimum utilization of the existing infrastructural facilities will be made. Therefore environmental impacts due to possible accidents during construction are not anticipated.

OPEARTION PHASE

PERSONAL SAFETY (PPE)

The following Personal Protection Equipments (PPE) are proposed to be provided

1. Helmet
2. Goggles
3. Nose masks
4. Uniform
5. Aprons
6. Hand gloves
7. Safety shoes

PLANT SAFETY

The following measures and initiatives are proposed to ensure plant safety

1) Safety manual
2) MSDS
3) Onsite emergency plan
    - Fire extinguishers
    - Flame-proof fittings
    - Emergency no.s
4) Insurance coverage in case of fire (PLI)
5) Electric safety, audit.
6) Continuous training and mock drills are conducted for onsite and offsite operations.

➧ **ENVIRONMENT SAFETY**

The following measures are taken for environmental safety in case of accidents

1) Important telephone no.s
2) MSDS
3) Environment policy
4) Evacuation procedure

➧ **SAFETY AUDIT**

1) Internal audit
2) SOP for safety audit
3) Safety training
4) First-aid training
5) Mock drill in case of emergency with respect to fire accident and handling of extinguishers.

➧ **HEALTH SAFETY**

1) Annual medical check –up
2) Medi-claim scheme for all employees.

➧ **PROJECT DESIGN**

The industry is designed with utmost consideration to the environment. A total area of 5,546 sq m i.e. 34.26 % of the total plot area is reserved exclusively for green-belt/landscape development.

4.1.2 ENVIRONMENTAL IMPACTS DUE TO PROJECT DURING REGULAR OPERATIONS

The Environmental Impact Statement enumerates the likely impacts due to the implementation of the proposed project on the six basic environmental parameters, which are listed below.

1. Air environment
2. Noise environment
3. Water environment
4. Land environment
5. Biological environment
6. Socio-economic environment

The impacts on the above parameters have been identified, analyzed and classified as adverse, beneficial impacts and the impact matrix is presented later in the report.

4.2 ACTIONS LIKELY TO AFFECT THE ENVIRONMENT

Table 4.3 enumerates the various activities of M/s. Mother Earth Environ Tech Private Limited., which are likely to have impact on the various environmental parameters. The impact matrix appended later (as table 4.4) identifies all such impacts.

4.2.1 AIR ENVIRONMENT

4.2.1.1 OPERATION PHASE

FUGITIVE EMISSIONS DURING LOADING/UNLOADING AND TRANSPORTATION OF WASTE

Emissions of fugitive dust, bio-aerosols are quite common from operational activities viz. waste transportation, receipt, unloading, processing and storage. However given that the Indian HWM is characterized by high moisture content and also taking into account that the proponent will be implementing appropriate mitigation measures viz. selection of vehicles with PUC, covered transportation of waste, etc., the impact is not considered to be of significance.

4.2.2 NOISE ENVIRONMENT

4.2.2.1 OPERATION PHASE

DG sets are the major noise generating sources during the operation phase. Also handling and conveying of hazardous waste can be a source of noise pollution.

4.2.3 WATER ENVIRONMENT

4.2.3.1 OPERATION PHASE

Domestic sewage from the employees of the facility & leachate generation are the major parameters of consideration during the operation phase.

The domestic sewage generated from the facility is treated in Septic tank & Up flow anaerobic filter . Leachate waste water is collected and pretreated and sent to CETP for final treatment and disposal.

4.2.4 LAND AND BIOLOGICAL ENVIRONMENT

4.2.4.1 OPERATION PHASE

- **IMPACTS**

- Discharge of wastewater.
- Storage and disposal of solid wastes.

- **MITIGATION MEASURES**

  - The domestic sewage generated from the facility is treated in Septic tank & Up flow anaerobic filter . Leachate waste water is collected and pretreated and sent to CETP for final treatment and disposal.
  - The domestic solid wastes are segregated at source, collected in bins and composted and inert portion will be handed over to authorized recyclers.

4.2.5 SOCIO-ECONOMIC ENVIRONMENT

4.2.5.1 OPERATION PHASE

The proposed project will increase the employment potential by creating direct and in-direct employment opportunities. Preference will be given to the local skilled, semi-skilled and unskilled workers. At present there are 25 people working including management and workers.

4.3 MEASURES FOR MINIMIZING & / OR OFFSETTING ADVERSE IMPACTS IDENTIFIED & MITIGATION MEASURES – ENVIRONMENTAL MANAGEMENT PLAN (EMP)

4.3.1 INTRODUCTION

The Environmental Management Plan (EMP) is aimed at mitigating the possible adverse impacts of a project and ensuring the existing environmental quality. The EMP converses all aspects of planning, construction and operation of the project relevant to environment. It is essential to implement the EMP right from the planning stage and operation stage. Therefore, the main purpose of the Environmental Management Plan (EMP) is to identify the project specific activities that would have to be considered for significant adverse impacts and the mitigation measures required.

There is no construction activity in the project. Therefore, there is no impact due to construction. In the operational phase the environmental impacts are due to continuous operation of the project, hence, the emphasis in the Environment Management Plan (EMP) is to minimize such impacts.

Environmental Management Plan has been discussed in the following sections separately.

4.3.2 SCOPE OF EMP

- Collection of data on the baseline environmental quality around the proposed industry including air, water, noise and land environments.
- Identification and assessment of potential adverse and beneficial environmental impacts due to the proposed project.
- Preparation of an EMP to minimize the adverse impacts.
- Preparation of post-project monitoring plan to ensure that the EMP achieves its desired objectives.

4.3.3 EMP DURING CONSTRUCTION PHASE

The proposed project is coming in an existing facility and therefore does not involve construction activities.

4.3.4 EMP DURING OPERATION PHASE

4.3.4.1 AIR ENVIRONMENT

FUGITIVE EMISSIONS DURING LOADING/UNLOADING AND TRANSPORTATION OF WASTE

Emissions of fugitive dust, are quite common from operational activities viz. waste transportation, receipt, unloading, processing and storage. However given that the Indian HWM is characterized by high moisture content and also taking into account that the proponent will be implementing appropriate mitigation measures viz. selection of vehicles with PUC, covered transportation of waste, etc., the impact is not considered to be of significance.

MITIGATION MEASURES

- Select waste transportation vehicles having valid PUC.
- Control fugitive emission along internal roads through periodic water sprinkling.
- Ensure waste transportation through covered vehicles as specified in HWM Rules 2008.
- Use odor neutralizing sprays where necessary.
- Develop and implement a Green Belt Development Plan & Pollution Prevention & Abatement Plan

4.3.5 NOISE ENVIRONMENT

Potential impact on noise quality is anticipated from operation machineries and vehicles during operation of landfill site.

4.3.6 IMPACT ON ROAD & TRAFFIC

Operational traffic will be passing through NH-209 and site road. The frequency of operational traffic will be inadequate to disturb the nearby residence along site approach road.

4.3.7 MITIGATION MEASURES – NOISE QUALITY

All noise generating equipment will be used during day time for brief period of its requirement. Proper enclosures will be used for reduction in noise levels, where ever possible the noise generating equipment will be kept away from the human habitation. Therefore, impact on noise environment due to proposed project would be insignificant. All vehicles entering into the project will be informed to maintain speed limits, and not blow horns unless it is required.

4.3.8 IMPACT ON WATER QUALITY

4.3.8.1 DISCHARGE OF SURFACE RUN-OFF

Surface water quality impact is however anticipated from discharge of surface run-off generated from landfill site during monsoon if not handled correctly. During monsoon the landfill is covered with tarpaulin or HDPE sheets. All such run-off will be channeled through storm water drains to a storm water collection tank. From the collection tank the storm water will get recharged to ground and also this water is used for green belt.

The possible mitigation measures to address the aforesaid impacts include:

- Provision of leachate collection and treatment in accordance with the Leachate Management Plan
- Provision of lined storm water drainage network onsite equipped with sediments traps/interceptors.

4.3.9 GROUND WATER RESOURCES

4.3.9.1 SOURCING OF WATER FOR OPERATIONAL PHASE

The water will be sourced from KIADB.

4.3.9.2 IMPACT ON GROUND WATER QUALITY

4.3.9.2.1 OPERATIONAL PHASE

- ✓ **Leachate generated from Secured Landfill Facility.**

The possible mitigation measures to address the aforesaid impacts include:

- The leachate waste water is being collected in impervious tanks, given primary treatment for pH adjustment and pretreated effluent is sent to CETP for final Treatment and disposal.

4.3.10 LAND ENVIRONMENT

Table 4.1:- Land Environment

Environmental impacts	*Mitigation proposed*
(a) Discharge of wastewater.	Domestic sewage is treated in septic tank and up-flow filter and the treated sewage is used on land for green belt.
(b) Storage and disposal of solid wastes.	The total quantity of domestic solid wastes generated which will be segregated at source, collected in bins and composted. The composted waste will be used as manure for landscape development.

The details of the hazardous waste generated from project are described in detail earlier in this report. These wastes are stored in hazardous waste storage area and disposed through authorized agencies.

4.3.11 STROM WATER MANAGEMENT

Based on the rainfall intensity of the plant area, storm water drainage system with garland canal around the site is designed. Strom water drainage system consists of well-designed network of open surface drains with recharge pits at appropriate distances to improve the infiltration efficiency of the rain water into ground so that all the storm water is efficiently drained off without any water logging.

4.3.12 RAIN WATER HARVESTING SYSTEM

Project management will make proper utilization of rainwater by harvesting by appropriate rain water-harvesting mechanism. Rainwater from surface areas is harvested through recharge pits all along the storm water drainage network at a definite pitch.

4.3.13 IMPACT OF THE TRANSPORTATION

The transport vehicle is covered to ensure that there is no spillages. The protocol as per the CPCB guidelines is followed apart from the Motor Vehicles Act.

4.3.14 IMPACT ON OCCUPATIONAL HEALTH & SAFETY

4.3.14.1 OPERATIONAL PHASE

Occupational health and safety impacts during operational phase are anticipated primarily from operation of Waste collection and segregation, Waste unloading, pre-processing, composting and storage, Landfill operations.

4.3.14.2 WASTE COLLECTION AND SEGREGATION

Waste is collected in the site in a secured manner. After analysis of the sample the waste is sent for landfill or to the secured storage for treatment before landfill as the case may be.

4.3.14.3 WASTE UNLOADING, PRE-PROCESSING, AND STORAGE

Occupational hazards in operations include vehicle and mechanical hazards resulting from tractors and trucks involved in turning wind-rows of waste to maintain aeration and moisture content. Nausea, headache and diarrhea have been identified a major health concerns among compost workers with odor problems also likely to occur as a result of poor control of moisture and air required for the composting to progress. If anaerobic conditions are allowed to occur, hydrogen sulphide, amines and other odorous materials are generated.

In line with the above discussion the proponent developed and implemented an Occupational Health & Safety Management to address the identified risks associated with the proposed SLF facility operations.

The mitigation measures to address the aforesaid impacts include:

- Integrate informal sector work into the formal work process.
- Provided adequate sanitation and safe drinking water provisions onsite.

- Ensure proper segregation of waste streams to facilitate characterization of wastes and identification of appropriate control measures and work practices
- Ensure use of appropriate PPEs viz. safety glasses, safety shoes and gloves
- Integrate occupational safety and health concerns with respect to complex and potentially more hazardous enclosed.
- Develop and implement an Occupational Health & Safety Management Plan prepared in accordance with the provisions of HWM Rules 2008 and CPHEEO Manual. Under this plan the provision of periodical health checkup of the workers shall be included.

4.3.14.4 LANDFILL OPERATIONS

The most common hazard associated with landfill operations are fires as the landfill gas generated is characterized by combustible nature due to the presence of LFG. Fires within the operational area are either surface fires or deep-seated fires.

Although there may exist a fire possibility in case the landfill gas migrates off-site and mixes with air in absence of appropriate management measures It is therefore important to manage and control the gas generated within the waste to ensure that the risks associated with its movement are minimized. Keeping in view of the above the project landfill design takes into account provision of appropriate engineering control measures viz. passive venting of LFGs, adequate waste compaction, use of appropriate PPEs etc., to prevent and/or mitigate an potential occupational safety risk.

The mitigation measures to address the aforesaid impacts include:

- Potential emergency situations associated with LFG fires will be dealt in accordance with *Landfill Gas Management Plan* and *Occupational Health & Safety Management Plan.*

4.3.15 POST CLOSURE OPERATION AND MAINTENANCE PLAN FOR THE LANDFILL

This chapter includes the Operation and Maintenance plan for the sanitary landfill, which will cover the following:

CLOSURE PLAN

The closure for the landfill includes

- Development of Closure Plan comprising of plans for compaction and to arrest the movement of waste
- Laying of of HDPE liner, protective layers on both sides of the HDPE liner, Drainage layers and final top soil and green cover.
- Proper drainage of leachate in to the leachate collection tank.
- Construction of Gas collection wells, gas collection manifold and flaring system if required. This will be assessed once the closure is in progress.
- Construction of rain water drains
- Construction of access roads.

4.3.16 AESTHETIC ENVIRONMENT

The plant is developed on industrial land with green belt plantation. Increase in fugitive emission due to very limited construction activities and increase in the vehicular movement due to the proposed activity may have minimal adverse impact on the visual quality. However, this impact can be minimized with implementation of environment management plan. Since there is no discharge of effluent to any water body, there is no adverse impact in the visual water quality. Thus, adverse impacts are minimized with various EMP measures taken by the industry on the aesthetic environment.

4.4 EMP IMPLEMENTATION SCHEDULE

Phased according to the priority, the implementation schedule is presented in the following table 4.2.

Table 4.2 :- Implementation schedule for EMP

Sl. No.	Recommendations	Requirement
1	Air pollution control measures	Existing
2	Water pollution control measures	Existing
3	Noise control measures	Existing
4	Solid waste management	Existing
5	Landscape development	Existing

The responsibility of EMP implementation lies with M/s. Mother Earth Environ Tech Private Limited., and the *financial allocation/budgetary provisions for environmental management is detailed in table 4.3.*

Table 4.3: Financial allocation/budgetary provisions for monitoring program

Sl. no.	*Description*	*Number of samples/year*	*Cost per sample in Rs.*	*Monitoring cost RS.*
1	Air monitoring Ambient air quality monitoring	16	16,000	2,56,000
2	Water quality Groundwater quality	20	1,500	30,000
3	Soil quality	16	5,000	80,000
4	Noise monitoring	16	1000	16000
			TOTAL	**3,82,000**
			Contingency LS	**18,000**
			TOTAL	**4,00,000**

4.5 IRREVERSIBLE & IRRETRIEVABLE CONSTRAINTS OF ENVIRONMENTAL COMPONENTS

There are no irreversible or irretrievable constraints of the environmental components as adequate care will be taken to prevent any major impact on the environmental parameters.

4.6 ASSESSMENT OF SIGNIFICANCE OF IMPACTS (CRITERIA FOR DETERMINING SIGNIFICANCE, ASSIGNING SIGNIFICANCE)

The significance of the impacts identified in the previous sections for various environmental parameters is detailed in this section.

Table 4.4: Actions likely to affect environment

Sl. no.	*Actions*	*Envisaged for the following*
Operational phase		
1	Temporary storage of Hazardous waste	Leachate generation - The leachate waste water will be stored securely and handed over to CETP for treatment and disposal.
2	Loading the hazardous waste in dumper	Fugitive emission - Coverage of the dumper to prevent dusting.

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4.6.1 ENVIRONMENTAL IMPACT ASSESSMENT

The environmental impact assessment is detailed in table 4.5

Table 4.5: Environmental impact assessment

Sl. no.	Environmental components	Potential Impacts	Probable source of impact	Mitigation measures	Remarks
1	Ambient air quality	Minor negative impact.	➢ Particulate and gaseous emissions from DG set. ➢ Generation of gas during landfill ➢ Odor from the landfill of hazardous waste process ➢ Vehicular movement	➢ The emissions from DG is let out through stack of heights 3 m AGL. ➢ A liner system at the base and sides of the landfill is provided which prevents migration of leachate or gas to the surrounding soil. ➢ Good landfill practices reduce impact from odour. Good practices include: (a) speedy disposal and burial of malodorous wastes; (b) Effective use of appropriate types of daily cover; (c) Progressive capping and restoration; (d) Effective landfill gas management; (e) Effective leachate management and (f) Consideration of prevailing wind direction when planning leachate treatment plants, gas flares, and direction of tipping. (g) Green belt cover and planting good fragrant species.	➢ DG sets is used only during power failure. ➢ To carry out monitoring of vents for VOC & HC. ➢ A gas collection and treatment facility (optional), which collects and extracts gas from within and from the top of the landfill and then treats it this aspect is to be assessed for its requirement before implementation.

2	Noise	Minor negative impact near noise generation sources inside the premises.	➢ Operation of Equipment ➢ Operation of DG set. ➢ Vehicular movement	➢ Acoustics is provided for noise generating equipment in the plant ➢ DG set is provided with acoustic enclosure. ➢ Free flow of vehicles, no honking at site and outside.	-
3	Water quality	Minor impact.	Leachate waste water management. Sewage and sullage.	➢ Leachate wastewater is sent to CETP for final treatment and disposal. ➢ The domestic sewage is treated in Septic tank and up flow filter.	Adequate measures are adopted for collection and storage of effluents (leachate) generated in the project, pretreatment and also to prevent spillages and overflows. Therefore, pollution due to effluent in the surrounding areas is not anticipated.
4	Land environment	Minor impact	Excavated soil from cell-1 & 2.	Excavated soil is used construction of embankment and soil cover in the landfill.	-

4.6.2 IMPACT MATRIX

Table 4.6 presents the Impact matrix for the actions identified and table 4.6 various environmental parameters. A rating scale has been devised to give severity of impacts in the following manner.

Table 4.6:- IMPACT MATRIX

			Phase I					Phase II						Phase III										
			Pre-construction					Construction/Establishment						Operation and maintenance										
			TSDF facility					Landfill						Landfill										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Environment	Component	Project activities / Parameter/ factor	Detailed topographic survey	Land acquisition	Site cleaning	Burning of wastes, refuse and cleared vegetation	Site preparation/change in topography	Civil works such as earth moving and building of structures including temporary structures	Heavy equipment operations	Disposal of construction waste	Generation of sewerage	Influx of construction workers	Deforestation	Transportation of waste to facility from member industry	Storage of waste and stabilization	Water requirement	Waste material storage/ transport	Waste material handling	Fugitive emissions	Solid/ hazardous waste disposal	Leachate storage and handling	Spills and leaks	Transport of workers	Movement of vehicles
Physical	Soil	Erosion risks			-								-											
		Contamination/quality													D						D	D		
		Consolidation																			D			
	Resource	Construction material –stone, aggregates						D		C		A												

			Phase I					Phase II						Phase III										
			Pre-construction					Construction/Establishment						Operation and maintenance										
			TSDF facility					Landfill						Landfill										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
		Land especially undeveloped or agricultural land		-	-	-	-	C					-											
	Water	Water quality									C					C	D	D		D	D	C		
		Alteration of hydraulic regime						-																
		Alteration of surface runoff and interflow					-	-		C			-											
		Alteration of aquifers														C								
	Air	Air quality							E					C	C		C	C	C			C	-	C
		Noise & odor				-			D						D		D	D	C	C		C		C
Biological	Terrestrial flora	Terrestrial ecology land use			-	-	-	-									C							
	Aquatic Biota	Aquatic ecology			-		-	-			-		-			-	-					-		

			Phase I					Phase II						Phase III										
			Pre-construction					Construction/Establishment						Operation and maintenance										
			TSDF facility					Landfill						Landfill										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	Terrestrial Fauna	Disturbance of habitat by noise or vibration			-	-	-	-	-				-		-									
		Environmental Hazards												D	D	-	D	D	D	D	D	D		C
Social	Economy	Creation of new economic activities and status					-	A					A		-								A	A
		Commercial value of properties				-	-					-	-	-						-	-			
		Conflict due to negotiation and/ compensation payments		-	-	-	-																	

			Phase I					Phase II						Phase III										
			Pre-construction					Construction/Establishment						Operation and maintenance										
			TSDF facility					Landfill						Landfill										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
		Generation of temporary and permanent jobs	-	-	-	-	-	A	A	B	-	A	-	A	-	-	-	A	-	A	-	-	A	A
		Effect on crops reduction of farmland productivity	-	-	-	-	-																	
	Education	Training in new technologies and new skills to workers						A	A	A				A	A		A	A	A	A	A	A		
	Public order	Political conflicts	-																					
		Unrest, demonstrations & social conflicts	-																					

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			Phase I					Phase II						Phase III										
			Pre-construction					Construction/Establishment						Operation and maintenance										
			TSDF facility					Landfill						Landfill										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	Infrastructure and services	Conflicts with projects of urban, commercial or industrial development	-																					
	Security	Road and fire accidents caused by												D	D									
	Health	Temporary				-								D	D	-	D	D	D	D	D	D	-	-
		Acute												-	D		D	D	D		D	D		
		Chronic												-	D		D	D	D		D	D		
	Cultural	Land use and quality														-	D	D		D	D	D		
		Recreation	-																					
		Aesthetics and human interest	-																					
		Cultural status	-																					

A : Strongly beneficial (positive) impact , B :Low beneficial impact
C : Low adverse impact (localized in nature) , D :Moderate adverse (negative) impact
E : Strong adverse (negative) impact, - : No conceivable impacts on environment

CHAPTER 5

ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)

5.1 ALTERNATIVES FOR TECHNOLOGY

The proposed project is expansion of existing hazardous waste TSDF Facility. The technology is only landfilling the landfillable hazardous waste with pre-treatment if required.

5.2 ALTERNATIVES FOR SITE

The proposed expansion is in already established facility at designated KIADB industrial area, Harohalli, Ramanagara Taluk,. Hence no alternative sites are considered.

CHAPTER 6

ENVIRONMENTAL MONITORING PROGRAM

6.1 Introduction

Environmental monitoring Program is an essential tool for sustainable development. An Environmental monitoring program provides a delivery mechanism to address the adverse environmental impacts of a project during its execution, to enhance project benefits, and to introduce standards of good practice to be adopted for all project works. An environmental monitoring program is important as it provides useful information and helps to:

- Assist in detecting the development of any unwanted environmental situation, and thus, provides opportunities for adopting appropriate control measures.
- Monitoring & tracking the effectiveness of Environment Management Plan & implementation of mitigation measures planned.
- Define the responsibilities of the project proponents, contractors and environmental monitors and provides means of effectively communicating environmental issues among them.
- Define monitoring mechanism and identify monitoring parameters.
- Evaluate the performance and effectiveness of mitigation measures proposed in the Environment Management Plan (EMP) and suggest improvements in management plan required if any.
- Identify training requirement at various levels.
- Identification of any significant adverse transformation in environmental condition to plan additional mitigation measures

6.2 Monitoring points /locations and components

Environmental monitoring plan is decided considering the environmental impact likely to occur due to operation of the project as the main scope of monitoring program is to track timely and regularly change in the environmental condition and to take timely action to protect the environment.

6.3 FREQUENCY, LOCATION, DATA ANALYSIS, REPORTING SCHEDULES

Table 6.1: Post Project Monitoring Parameters & Frequency

Sl. No	*Particulars*	*Monitoring frequency*	*Duration of monitoring*	*Important parameters for monitoring*
I	*Air quality*			
1.	Project premises AAQM	Once in three month	24 hourly sample	As per AAQ Standards in EP Rules.
II	*Water and wastewater quality*			
b	Water quality			
c	Wastewater quality stipulated in EP Rules.	Random sample of ground water twice a year pre and post monsoon.		For all drinking water parameters
III	*Soil quality*	Once in a quarter		For parameters pH, N, P K, Iron, Chloride, EC, etc
IV	*Noise monitoring*			
1.	Project premises	quarterly	Day and night	As per KSPCB stipulations

6.4 MONITORING METHODOLOGIES

Monitoring of environmental pollutants shall be done as per the guidelines provided by MoEF&CC / CPCB / SPCB and standard monitoring procedures. The monitoring shall be carried out through NABL / MoEF recognized laboratory.

6.5 DOCUMENTATION AND REPORTING

Methodology of monitoring (sampling & analysis) shall be prepared as separate documents as SOP (Standard Operating Procedure) wherever required.

The records of the monitoring program shall be kept on regular basis for all aspects of the monitoring. Immediately upon the completion of monitoring as per the planned schedule, report shall be prepared & necessary documents shall be forwarded to the concerned regulatory agencies.

6.6 DETAILED BUDGET & PROCUREMENT SCHEDULES

On regular basis, Environment Management Cell will inspect the necessity & availability of the materials, technologies, services & maintenance works. The cell shall make appropriate budget for the same. Regular record review for change in financial requirement of environment management will be done and appropriate budgetary provisions will be made along with other budgets, budget for environmental management shall be prepared and revised regularly up on requirement. The budget will include provisions for:

- Environmental Monitoring Program
- Operation & Maintenance of environmental Technologies/Equipments
- Laboratory works for Environmental management activities
- Emergency Purchase of necessary material, Equipments, tools, services, protective equipment

Detailed budgetary provisions for monitoring program is detailed in the following table 6.2.

Table 6.2: Financial allocation/budgetary provisions for monitoring program

Sl. no.	*Description*	*Number of samples/year*	*Cost per sample in Rs.*	*Monitoring cost RS.*
1	Air monitoring Ambient air quality monitoring	16	16,000	2,56,000
2	Water quality Groundwater quality	20	1,500	30,000
3	Soil quality	16	5,000	80,000
4	Noise monitoring	16	1000	16000
			TOTAL	**3,82,000**
			Contingency LS	**18,000**
			TOTAL	**4,00,000**

CHAPTER 7

ADDITIONAL STUDIES

7.0 INTRODUCTION

The process activities are associated with certain risks. Therefore, Hazop analysis and risk assessment are addressed in detail as additional studies.

7.1 Public Hearing

As per the OM No. J-11013/36/2014- IA-I dated 10th December 2014 "Public Consultation" is exempted for the industries which are located in industrial estate or parks notified prior to 14.09.2006 i.e. the EIA Notification 2006. As the facility is located at Plot no.217, Harohalli Industrial Area, 2nd phase, Kanakapura Taluk, Ramanagara. Public Consultation is not required.

7.2 RISK ASSESSMENT

7.2.1 INTRODUCTION

Hazard analysis involves the identification and quantification of the various hazards (unsafe conditions). On the other hand, risk analysis deals with identification and computation of risks. The equipment in the plant and personnel are prone to accidents resulting from the hazards present in the plant.

Risk analysis follows an extensive hazard analysis. It involves the identification and assessment of risks the neighboring populations are exposed to as a result of hazards present. This requires a thorough knowledge of probability of failure, credible accident scenario, vulnerability of population to exposure etc. Much of this information is difficult to get or generate. Consequently, the risk analysis is often confined to maximum credible accident studies. It provides basis for preparation of on-site and off-site emergency plan and also to incorporate safety measures.

7.2.1.1 APPROACH TO THE STUDY

Risk involves the occurrence or potential occurrence of some accidents consisting of an event or sequence of events. The risk assessment study covers the following:

- Identification of potential hazard area;
- Identification of representative failure cases;
- Visualization of the resulting scenarios in terms of fire and explosion;
- Assess the overall damage potential of the identified hazardous events and the impact zones form the accidental scenarios;
- Furnish the recommendations on the minimization of the worst accident possibilities
- Preparation of Disaster Management Plan;
- Emergency Plan, which includes Occupational and Health Safety Plan;

Environmental risk analysis deals with the identification and quantification of risks, the equipment and personnel are exposed to, from the hazards present in the area.

Risk analysis follows hazard analysis (Risk = Hazard x Probability of occurrence). It involves identification and assessment of risks to the plant personnel and neighboring populations. This requires a thorough knowledge of failure probability, credible accident scenario, vulnerability of population etc. Much of this information is difficult to procure. Consequently, the risk analysis is confined to maximum credible accident studies. The subsequent sections shall address the identification of various hazards and risks in the operations, which will give a broad identification of risks involved.

7.2.2 OBJECTIVE & SCOPE

The objective of the study is to carry out risk analysis and prepare disaster management plan/emergency preparedness plans.

The risk analysis/assessment study covers the following:

(a) Identification of potential hazard due fuel storage.

(b) Assess the overall damage potential of the identified hazardous events and impact zones from the accident scenarios.

(c) Suggestions and recommendations on the minimization of the accident possibilities.

7.3 RISK ASSESSMENT & MANAGEMENT PLAN

A. CONSTRUCTION PHASE

Sl. No.	Potential	Mitigation
1	Accidental fire	Fire safety gadgets
2	Fall of objects	Use of personal protection devices-helmets
3	Working at great heights	Protection to prevent fall with life safety belts and nets.
4	Accidents from machinery	Personal protection gadgets
5	Electrical mishap	Adopting safety measures to prevent any act of negligence and providing electrical safety measures like fire extinguishers.

B. OCCUPANCY PHASE

Precautions for risk and disaster management plan:

- Once the likelihood of the disaster is suspected, preventive actions should be undertaken by the project in-charge.
- Conditional maintenance of Equipments, materials and expertise for use during emergency.
- The electrical systems should be provided with automatic circuit breakers activated by over-current.
- Fire extinguishers will be provided at pre-notified locations inside the building.
- Proper escape routes will be planned and displayed in the public domain.
- Selected representatives will be given proper training to guide other inhabitants during fire accidents.
- Periodic awareness program will be conducted for the occupants on their roles during emergency situations.

Important telephone numbers like police authorities, fire department and hospitals etc. of use during emergency situations should be made available.

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7.4 DISASTER MANAGEMENT

Disaster is an unexpected event due to sudden failure of the system, external threats, internal disturbances, earthquakes, fire and accidents. Following subsection describes the measures to be undertaken by the project proponent to prevent / minimize risk of unexpected event.

The details of disaster management system are discussed in the following section.

7.4.1 DEFINING THE NATURE OF EMERGENCY

7.4.1.1 INTRODUCTION

An Emergency can be defined as an "Occurrence of such magnitude so as to create a situation in which normal pattern of life within a facility is suddenly disrupted, adversely affecting not only the personnel and property within the facility, but also in its vicinity". Such an occurrence may result in On Site implication like:

7.4.1.2 POTENTIAL / ACTUAL EMERGENCY

1. The following maximum credible accident scenarios may occur in a hazardous waste landfill (TSDF)

I. Slop Failure of landfill
II. Water accumulation at landfill due to heavy rain
III. Road accident during transportation of Hazardous waste

Precaution is always better than cure. To mitigate the slope failure during designing and operation of landfill the Stability analysis criteria are considered and are as follow.

The capping activity will be also carried out immediate once the waste filling is completed in Particular cell. After completion of capping of landfill site there should not be chances of increase moisture content of filled waste, so there should not be any chances of failure of top slop. Only present active cells are only under operation so failure of slop is also minimize. To prevent the failure of slop during the operation we will be compacting it with dozer and roller. We will also making temporary bund wall to prevent any sliding of waste during operation.

7.4.1.3 WATER ACCUMULATION IN LANDFILL DUE TO HEAVY RAIN:

Diesel pumps and Electric pumps capacity to pump out the accumulated water due to heavy rain. In the event of a landfill instability such as a slop failure the first concern is always safety, safety of site personal, safety of site entrance, and safety of general public. The situation will need to be assessed concisely and necessary emergency procedures and precautions implemented as quickly as possible.

Following steps to be carried out;

- Implementation of onsite emergency plan.
- Incoming waste to be stopped.
- Slop failure may increase exposure risk to personnel and public so necessary PPEs to be provided.
- Relocation and covering of waste to be performed quickly and safely.
- Perform mitigating activity to limit further contamination or damage
- Work to be done round the clock
- Primary report to be prepared and make ready for proper interval

– How much Moved?
– Has it stopped moving completely?

7.4.1.4 TO PREVENT ROAD ACCIDENT FOLLOWING PRECAUTIONS TO BE TAKEN

- Transportation of waste by only authorized vehicles.
- Regular training to drivers.
- Organize awareness program.
- Implementation of MSDS and TREM (Transport Emergency Card) card.

Emergency prevention through good design, operation, maintenance and inspection are essential to reduce the probability of occurrence and consequential effect of any eventuality. However, it is not possible to eliminate totally such eventualities and random failures of equipment or human errors due to their unconscious movements just cannot be ruled out. An essential part of major hazard control is therefore, concerns with mitigating the effects of such emergency and restoration of normalcy at the earliest. The overall objective of a disaster management plan is to make use of the combined resources at the site and outside services to achieve the following:

a) To localize the emergency and if possible eliminate it;
b) To minimize the effects of the accident on people and property;
c) Effect the rescue and medical treatment of casualties;

d) Safeguard other people;
e) Evacuate people to safe areas;
f) Informing and collaboration with statutory authorities.
g) Provide authoritative information to news media;
h) Initially contain and ultimately bring the incident under control;
i) Preserve relevant records and equipment for the subsequent enquiry into the cause and circumstances of the emergency;
j) Investigating and taking steps to prevent reoccurrence

The DMP is therefore relates to the identification of sources, from which hazards can arise and the maximum credible loss scenario that can take place in the concerned area. The management plan takes into account the maximum credible loss scenario – actions that can successfully mitigate the effects of losses/ emergency needs to be in a well-planned manner so that the requirement of efforts to be put in is least.

7.4.2 ACTUATION OF THE PLAN

Any emergency starts as a small incident that may become a major accident, if not controlled in time. At the initial stage, a fire organization chart (would be prepared separately for each facility) needs to be put into action. If the incident goes beyond control, the Main Incident Controller will need to actuate the on-site plan at the appropriate stage as considered necessary. During idle shift/ holidays, the security personnel will combat the incident as per the fire organization chart below and at the same time inform various emergency controllers for guidance and control the situation. An organization needs to be set up once the site is operational by appointing key personnel and defining their specific duties that will be handy in emergency.

7.4.3 EMERGENCY EQUIPMENT

The site controller will maintain a list of emergency handling equipment including details of fire extinguishers, protective clothing, and personal protective equipment for emergency handlers etc. Details of fire management services of Bangalore city and neighboring hospitals will be available with site controller in his operating checklist.

7.4.4 EMERGENCY RESPONSE

I. DANGEROUS SITUATIONS:

These are defined as the following:
- Any fire or explosion in the facility

- Any fire in the service buildings
- Exercise fire drill.

II. ACTIONS IN THE EVENT OF FIRE:

Basic actions are detailed above.

- Extinguishing fires: A small fire at a point of leakage should be extinguished by enveloping with a water spray or a suitable smothering agent such as CO_2. Firefighting personnel working in or close to un-ignited vapor clouds or close to fire, must be protected continuously by water sprays. Fire fighters should advance towards the fire downwind if possible - BE CAREFUL TO AVOID H_2S EXPOSURE.

- In case the only valve that can be used to stop the leakage is surrounded by fire, it may be possible to close it manually. The person attempting the closure should be continuously protected by water sprays, fire entry suit, water jet blanket etc. The person must be equipped with a safety belt and a manned lifeline. In case of rapid increase in decibel level, evacuate the area, as there would have been over pressurization.

III. RESPONSE SEQUENCE FOR DANGEROUS SITUATIONS:

Person noticing the fire should attempt to isolate and extinguish the fire with the available equipment and inform or arrange to inform the leader/ senior representative regarding the

- Location of the fire
- What is burning?
- The extent of fire
- Callers name and number
- Do not disconnect unless the person on the other side repeats the message or acknowledges it.

A.SECURITY ON DUTY COORDINATORS WILL:

- Respond to the scene of the incident
- Arrange to send the necessary firefighting equipment to the scene of the incident
- Extinguish the fire with the available equipment.

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B.SECURITY OFFICER WILL:

- Sound the Siren as per the Siren Code
- Inform the Site Main / Incident Controller and act as per his instructions.
- To ensure gates are open to regulate traffic in such a way that free movement of outside assistance like fire tenders, ambulance etc., is available.

A. Security should cordon off the area and local city firefighting staff should be notified. The facility will have the firefighting water system but may not be equipped with staff to operate it. Local fire fighters may need to be notified.

B. All Other Management /Ass/Labors Staff on hearing the siren, should STOP their operations/ work, switch off lights, fans, engines, air conditioners etc., close pipeline valves and line up in front of their working places and meet at a pre-arranged location. These people will assist in evacuating the residents if necessary.

IV. POST EMERGENCY FOLLOW UP:

- All cases of fire occurrence, no matter how small, must be reported promptly to the Coordinator for follow up.
- Under no circumstances should fire extinguishing equipment once used be returned to its fixed location before it is recharged/ certified fit by the Fire chief/ Safety Manager.
- Used fire extinguishers must be laid horizontally to indicate that they have been expended.

V. EARLY WARNING / ALARM SYSTEM:

An audible electric alarm (siren) should be located in the main gate. The different sounds that should be generated by the alarm are:

SMALL FIRE : No Siren

MAJOR FIRE : A wailing Siren for two minutes.

Sirens will be sounded three times for thirty seconds with an interval of 15 seconds in between

EMERGENCY : Same type of Siren as in case of major fire but the same will be sounded for three times at the interval of two minutes.

ALL CLEAR (For Fire) : Straight Run Siren for two minutes.

TEST : Straight run Siren for two minutes.

7.4.5 EMERGENCY CONTROL CENTRE (ECC)

The Control Room will be nominated as the ECC. At the time of the emergency On-site Controller assisted by other designated coordinators shall take position to perform their duties. The security office at the gate shall be the standby. The Emergency Control Center will be the focal point in case of an emergency from where the overall operations to handle the emergency are directed and coordinated. It will be located outside the area of potential hazards and easily approachable.

The Emergency Control Center should have the following resources available:

- Copies of the DMP
- Layout Plan of the complex.
- Information regarding Safety Equipment, Fire Fighting material
- A list of telephones of key and essential staff of the company along with their residential numbers.
- Copies of the local Telephone Directories.
- A list of important telephone numbers like those of neighboring industries, Fire Brigade, Hospitals etc.,
- Personal Protective Equipment.
- First – Aid Kit.
- Communication equipment – Internal and External telephones and other communication equipment.
- Requisite stationary items.
- Personnel to act as messengers.

The communication equipment is checked periodically to ensure that they are functional. The ECC is capable of being activated within a few minutes upon declaration of an emergency.

7.4.6 MEDICAL RESOURCES:

The medical management for the possible emergency situations essentially consists of treatment for burns and maybe some asphyxiation cases. They could cause burns injuries. Material Safety Data Sheets and other relevant information would also be available at the facility to enable ready treatment of any casualty, should the unfortunate need arise. It is also proposed to circulate any important Health and Toxicology material available through the latest research to all Doctors.

7.4.7 RESPONSE EVALUATION, TESTING AND UPDATING OF THE PLAN:

Formulation of a Disaster Management Plan cannot possibly be an end by itself. It needs to be tested by holding of periodical mock emergency simulations and drill. Any shortcomings revealed during such exercise should thereafter be corrected by amending the plan. The plan should be for times to come; hence, it must be reviewed at periodic intervals. The plan should also be reviewed and updated when:

- Major alteration or extension of plant is carried out.
- Major change in habitation or land use of the neighborhood takes place.
- Important telephone numbers used are altered, facilities are changed.

Mock drills activating the Disaster Preparedness Plan will be conducted periodically for ensuring its efficiency during emergency as well as for refinement and updation. These drills based on the plan will help achieve its objectives.

7.4.8 PREVENTIVE ACTION

Once the likelihood of a disaster is suspected, action has to be initiated to prevent a failure. Engineers responsible for preventive action should identify sources of repair Equipments, materials, labor and expertise for use during emergency.

7.4.9 REPORTING PROCEDURES

The level at which a situation will be termed a disaster shall be specified. This shall include the stage at which the surveillance requirements should be increased both in frequency and details. The project in-charge should notify the officer for the following information

- Exit points for the public,
- Safety areas at the site,
- Nearest medical facilities.

7.4.10 EMERGENCY MEASURES

The proposed project is designed as per the NBC norms and occurrence of accidents is not envisaged. The emergency measures are adopted to avoid any failure in the system such as lights, fire, means of escape, ventilation shafts etc. The aim of Emergency Action Plan is to identify areas, population and structures likely to be affected due to a catastrophic event of accident. The action plan should also include preventive action, notification, warning procedures and co-ordination among various relief authorities. These are discussed in following sections.

7.4.11 EMERGENCY LIGHTING

Emergency lights operated on battery power should be provided at appropriate locations. The system should supply power to at least 25 % of the lights at those locations for a period of 2 hours. Minimum of 2 transformers should be kept energized and should feed independently alternate rows of lights so that incase of failure of one transformer, there will not be complete darkness.

7.4.12 FIRE PROTECTION

Fire protection is one of the most essential services to be provided. In design component of the project adequate measures have to be undertaken as per the provisions of the National Building Code (SP 7: 1983 Part IV Amendment No. 3 of January 1997).

The building materials should be of appropriate fire resistance standard. Wood shall not be used for any purpose, excluding artificial wood products, which are flame resistant. The materials which have zero surface burning characteristics need to be used. The electrical systems shall be provided with automatic circuit breakers activated by the rise of current and by over-current. The design will include provision for the following:

- Fire prevention measures,
- Fire control measures,
- Fire detection systems,
- Means of escape,
- Access for fireman &
- Means of firefighting.

Accumulation of refuse of any inflammable material like paper, plastic cartons constitute a major fire hazard and should not be permitted. Smoking should be strictly prohibited at all public locations.

All aspects of fire prevention and control will be dealt in close collaboration with the city firefighting authority. Smoke control will be achieved by the following means.

Down stand bulkheads of a minimum depth of 600 mm to provide smoke containment. Adequate firefighting measures have been taken into account while designing the distribution system for the area.

7.4.13 FIRE FIGHTING FACILITY:

FIRE FIGHTING, GAS LEAK CONTROL AND RESCUE OPERATION

A) Role of Manager (Fire and Safety) / Shift In-Charge (Fire & Safety)

1. Incident Controller will be the only person to direct the firefighting and Emergency operation.
2. Keep the constant touch with the SMC / Incharge - EHS.
3. Direct the crew members to the scene of emergency and arrange replenishment of Manpower / equipment / extinguishing media etc.,

B) Role of EHS Representative:

1. On being notified about the location of fire/ gas leakage/ other emergency immediately proceed to the help.
2. Decide his line of action in consultation with Incident controller and take appropriate measures to handle the emergency.
3. Assessing the severity of the incident immediately report to emergency controller about the gravity of the situation.
4. He will assess the extra requirement required if any from the neighboring industry.

C) Fire crew members

1. On hearing emergency alarm, emergency siren they shall immediately report to operation in charge and proceed to the scene of emergency and work under the direction of IC/ Dy. IC.
2. The personal availability at the scene of incident to be made optimize.

7.4.14 ON SITE EMERGENCY PLAN

The activities related to emergency time activities shall be divided into two parts.
These are

- Pre-emergency activities
- Post-emergency Activities

7.4.14.1 PRE-EMERGENCY ACTIVITIES

7.4.14.1.1 FIRE SYSTEM TESTING

- To prepare list of various fire-fighting equipment (Fire Extinguishers, etc.,) installed at various locations in the unit along with detailed specifications.
- To prepare schedule for testing of all these equipment and check operability.
- To maintain record of testing and mark dates of testing on the equipment.
- To carry out repairs/replacement of defective equipment Frequency: Once in a month.

7.4.14.1.2 MUTUAL AID SCHEME

•To prepare Mutual Aid Scheme and enter into agreement with the neighboring units for getting or extending help during emergency.
• To appoint coordinator for follow-up under mutual Aid Scheme.
• To review the scheme once in a year with coordinators of neighboring units w.r.t scope of help, type of aid, contact persons, etc.
• To include the scheme in mock drills.

7.4.14.1.3 MOCK-DRILLS

• To conduct minor mock drills to train employees about their role / duties during Emergency.
• To refresh training to the employees for firefighting, spill control, use of personal protective equipments etc.,
• To check whether various members of emergency control committee, remember their role / duties properly and to find out the faults and points of improvement in their performance.
• To check whether the various equipment for emergency control are operating satisfactorily and find and rectify the draw-backs if any.
• To conduct major mock-drills with permission from the authorities. Mock drills will be regularly conducted in our unit by our Emergency Control Organization and the findings are compiled to analyze whether employees are familiarized with the emergency control procedures and what sort of training is required to be given.

7.4.14.2 SAFETY TRAINING

To organize regular training for the employees for handling of safety equipment, use of personal protective equipment, first-aid, etc. by internal/external faculty, as well as by sending persons outside to attend safety programs etc. The topics covered in safety training will be –
• Training on fire fighting
• Training on spill control
• Training on toxic release control
• Training on good housekeeping
• Training on use of PPE

The records of the training programs will be maintained by the Safety Committee. New topics will be included in the safety training programs year by year to upgrade safety knowledge among the workers.

Frequency: Once in a year

7.4.14.3 PERSONAL PROTECTIVE EQUIPMENT

- To procure adequate number of personal protective equipment (aprons, hand gloves, safety goggles, helmets, nose masks, safety belts, gas cartridges, self-breathing apparatus, safety shoes etc.,) suitable for landfill operations and maintain records of use.
- To have proper system for issuing the PPE and disposal of used PPE.
- To train the workers about proper use of PPE.

7.4.14.4 COMMUNICATION

- To maintain internal/external telephones in working order.
- To check alarms / siren / loudspeakers for workability
- To provide manual emergency bells at various location for use during power failure
- To periodically check wind cock for wind direction
- To check lightning arrestors installed at different locations for physical condition and proper earthing connection.

7.4.14.5 EMERGENCY LIGHTS

- To keep sufficient number of emergency torch/ batteries in ECC as well as at the production site
- To maintain the one DG sets available in the site as stand-by for power failure. The D.G. sets are set to start functioning within two minutes of failure of electricity.

7.4.14.6 EMERGENCY CONTROL ROOM

It is necessary to maintain the Emergency Control Room and keep it equipped with all necessary items, documents, telecommunication systems, PPE etc. required in case of an emergency.

7.4.14.7 ASSEMBLY POINTS

- To fix assembly points on the site for non-essential workers.
- To fix assembly points for plant emergency staff and coordinators.
- To maintain record of no. of workers gathered at the assembly points at the time of emergency. The Safety Committee shall nominate a person for this duty.

7.4.14.8 LIAISON WITH STATE AUTHORITIES

• To liaison with civil authorities, local hospitals, Fire-Brigade, Collector, factories Inspector, Police, etc regarding emergency activities and need for external aid.

• To keep the details regarding name, address & telephone numbers of various govt. authorities and neighboring units available and update the details from time to time.

• To inform about Mock-drill in advance and if required conduct mock-drill in presence of any of these authorities.

• To submit report of Mock-drill conducted and the out comings with photograph to factories Inspector.

7.4.14.9 HOSPITAL FACILITIES

• To equip Occupational Health Centre with First-Aid and medicines

• To keep Health records (esp. blood-group records) of all employees

• To liaison with hospitals in the area of the unit

• To keep list of blood donors ready for reference

• To update arrangements with neighboring units for emergency first aid.

7.4.14.10 OUTSIDE SHELTER

• To reserve space in nearby schools/hospitals/buildings for temporary shelter during emergency.

• To arrange for clothing, food, medicine in temporary shelter.

7.4.14.11 STATUTORY INFORMATION

Statutory Information about chemicals handled in the unit, methods of prevention and control, first aid measures etc., shall be given to

- Workers
- Public and Neighboring units
- Government authorities & outside emergency services.

7.4.14.12 LIST OF SUPPLIERS OF SAFETY EQUIPMENT

• To prepare and preserve list of suppliers of safety equipment e.g first aid box, medicines, fire extinguishers, PPE, communication, self breathing apparatus, chlorine kit, etc.,

• To check all supplies every three months.

• To update the list and keep it ready-to-refer location in the plant as well as at ECC.

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7.4.14.13 FIRE PREVENTION PLAN

- List of major work-place fire hazards.
- Potential ignition sources.
  - ✓ Sparks from electrical fitting / motors
  - ✓ Sparks from welding operations
  - ✓ Sparks from static electricity
- Fire prevention & control measures.
- Use of flameproof electrical fittings and electric motors wherever necessary
- No welding shall be done anywhere in the plant without prior permission from safety officer and necessary precautions from in charge of the area.
- Ignition system of boiler should be provided with guard.
- All vessels and pipeline should be properly earthed to prevent static electricity.
- The vent lines of all vessels and tanks holding flammable materials should be provided with flame arrestors.
- Fire extinguishers shall be provided at all critical locations in the unit.

7.4.15 POST EMERGENCY ACTIVITIES

These activities are to be carried out after an emergency is over so as to establish the cause of the emergency and decide the measures to be taken to prevent its re-occurrence. These activities are –

1. Collection of records of accident, injury, damage to property, buildings, equipment, material and loss of production.
2. Collection of contaminated fire water and send for treatment and final disposal.
2. Conducting enquiries and concluding preventive measures.
3. Making insurance claim for the materialistic loss / damage.
4. Implementation of enquiry report's recommendations.
5. Rehabilitation of affected persons within and outside the plant.
6. Restarting the plant and normalizing the operations.

7.4.16 ACTIONS TO BE TAKEN IN CASE OF VARIOUS SCENARIOS

7.4.16.1 ACTION PLAN FOR ELECTRICAL FIRE

a) Disconnection of the electric supply of the affected area.

b) Attempt to extinguish the fire with the help of CO_2 fire extinguishers.

c) If the fire still persists, ensure complete isolation of electric supply of that area and use water.

7.4.16.2 ACTION PLAN FOR OFFICE FIRE

a) Disconnection the electric supply of the affected area.
b) Attempt to extinguish the fire with the help of DCP/CO2 fire extinguishers.
c) Save all records from fire.

7.4.16.3 ACTION PLAN FOR PERSON FLAME

a) Bring the water gel blanket.
b) Open the bag inside the container to remove blanket. If the bag is already open, such blanket should not be used for burn victims.
c) The blanket can be held as a screen between the victim and the fire.
d) If possible lay down the victim and wrap the blanket around the victim. Leave the victim wrapped in blanket and seek medical help.

7.4.16.4 ACTION PLAN FOR FOOD/WATER POISONING

a) Persons observing the symptom should inform the location in change for assessing the situation.
b) Safety Officer should announce instructions of the location in charge to all employees.
c) Shift in charge should call the doctor and ambulances and also alert all hospitals to meet any exigencies.
d) To render first aid and induce vomiting to the affected persons.
e) The ambulances and vehicles available should be mobilized to be in readiness to transport large number of people if required.
f) Safety Officer to report to location in charge for required sanitation and medical assistance.

7.4.16.5 ACTION PLAN FOR ELECTRIC SHOCK CASUALTIES

- Electric shock results in irreversible damage to brain cells followed by deterioration of other organs.
- Rescue and first aid – Do first thing first, quickly and without fuss or panic.
- Switch off the supply if this can be done at once. If not possible, use a dry stick, dry cloth or other nonconductor to separate the victim of electrical contact. The rescuer must avoid receiving shock himself by wearing gloves or using a jacket to pull the victim. Always keep in mind that delay in rescue and resuscitation may be fatal. Every second counts.
- Artificial respiration

Give artificial respiration, if breathing has stopped. There are several methods of artificial respiration. If the victim is not injured over the face, try mouth to mouth. If the victim is injured over the face, use Silverster Brosch method.

(a) Mouth to mouth method.
(b) Silverster Brosch method.

7.4.16.6 EVACUATION & TRANSPORTATION

All non-essential workers shall be evacuated from incident area and adjacent areas to safe assembly points. Assembly points shall be clearly marked and assembly point in-charge will also be designated. The assembly point in-charge will be a well-trained supervisor who shall keep record of persons arriving at the assembly point and direct them for proper gathering. He shall also inform the ECC about the persons gathered at the assembly point. Those in need of medical treatment shall be transported to first-aid center / hospital as the case may be. In case of major emergency all nonessential workers shall be transported to temporary shelter.

7.4.16.7 SAFE CLOSE-DOWN

As per the instructions from IC or SMC, some parts or full of the plant shall be closed down by the essential workers. The procedure for safe shut-down and start-up will be given in safety manual given to all workers.

7.4.16.8 USE OF MUTUAL AID

Mutual aid from neighboring units shall be called up as and when required. The aid shall be taken under the supervision of SMC.

7.4.16.9 USE OF EXTERNAL AUTHORIES

Outside authorities such as Police, District Emergency Authority (DEA), Factory Inspector, Disaster Management Centre, GIDC officer, Industries Association, Regional Pollution Control Board, nearby hospitals etc. shall be informed of the on-site and off-site emergency plans and called in as per need.

7.4.16.10 MEDICAL TREATMENT

Injured workers shall be located and given prompt first-aid by essential workers and key personnel. Those requiring medical treatment shall be taken to the hospital / outside medical center.

7.4.16.11 ACCOUNTING FOR PERSONNEL

Through daily muster rolls and with the help of shift-in-charge the head count shall be undertaken to find out whether persons are missing and if so immediate search shall be carried out to locate them. The list shall include company employees, contract workers

as well as visitors. Help from local authority or fire-brigade shall be taken if required. This list shall be kept with time keeper / security officer at any time and shall be used to account for personnel. Injured shall be taken to hospitals and their families/relatives shall be informed Casualties would be identified, their families and local authority shall be informed.

7.4.16.12 ACCESS TO RECORDS

In order to inform families/relatives of injured/dead, an up-to-date list of names and addresses of all the workers is maintained in addition to the muster roll where shift-wise attendance is marked. Such list includes health records. This list will be available at the ECC and one such copy shall be available at our head office.

7.4.16.13 PUBLIC RELATIONS

Our General Manager shall be the only nominated person to issue administrative statement about the accident or emergency to news/media. No other person shall divulge any information to any news / media person.

7.4.16.14 REHABILITATION

In case of Toxic release, Senior Officers would ensure that the incident area shall be safe and cleaned up of all mess. Then only, he would allow people to re-enter the location. In case of fire, the Senior Officers shall ensure that the area is cooled down and there are no chances of re-ignition. IC shall arrange for clean-up of the area and then only people shall be allowed to re-enter the area for work.

Even when all clear has been given, great care shall be taken when re-entering affected areas and no work in connection with the salvage, collection of evidence or start up shall be taken up until a thorough examination of the area has been carried out. The statutory powers of the Factory Inspector shall be kept in mind before any evidence is disturbed. Particular care shall be taken to avoid the introduction of possible sources of ignition, such as diesel engines, hand or power operated tools, flame cutting equipment, etc. until it has been established that no flammable materials are present where they could be ignited.

7.5 OFF-SITE EMERGENCY PLAN

An offsite emergency arises only if there is a failure or delay in implementation of an onsite emergency plan or due to a road accident to a vehicle carrying the hazardous waste material outside the activity site. Since the quantity of the material and the hazardous

nature of the material transported is not very high the chances of a huge spread of toxic gas or other losses is expected to be very low and is well within the control limits of the driver and the cleaner of the truck carrying the material. Even the estimated loss is low the preparedness and the knowledge to implement the control measures in the event of any accident happening will further minimize the probable losses. Some of the onsite emergencies such as an explosion or a major fire in storage site can also turn as offsite emergency if there is failure of tackling such emergency.

7.5.1 NEED OF THE OFF – SITE EMERGENCY PLAN

An offsite emergency arises only if there is a failure or delay in implementation of an onsite emergency plan or due to a road accident to a vehicle carrying the hazardous waste material outside the activity site. An off-site emergency plan is prepared to deal with those incidents which have the potential to harm persons or the environment outside the boundary of the factory premises. A major accident, major emergency and disaster may affect areas outside the plant. An explosion can scatter debris over wide areas and its effects of blasts can cover considerable distances. Wind can spread burning fumes of toxic gases. Thus the events like these described above can affect outside areas and combating them needs an Off-site Emergency plan.

Envisaging such a rare incident, an off-site emergency plan should be drawn up for the following purpose.

1. To provide basic information about the risk and environmental impact assessment related to the unit to local / district authorities, police, fire-brigade, surrounding units, and the general public. To appraise them of consequences and the protection / prevention measures and control actions and to seek their help to communicate with public in case of a major emergency.

The information from all industries shall enable district authorities to educate public about what could go wrong, and to train them of measures to be taken as an individual.

2. To enable district authorities to prepare the off-site emergency plan (contingency) for the district or particular area and to organize rehearsals and initiate actions learnt from these incidents.

Our Emergency Plan shall be made after considering the all possible effects of incidents on the neighboring population and the remedial measures will be devised in consultation with the local authorities and emergency services.

7.5.2 STRUCTURE OF THE OFF-SITE EMERGENCY PLAN

IC District Authorities Mutual Aid teams, outside SMC (Collector, Factory services, voluntary Essential Workers Inspector, Police) organizations (Implementing Information, Evacuation (Fire-fighting, action plan, First-aid, Shelter, informing nearby Hospitalization, public) Transportation)

7.5.3 ROLE OF SITE MANAGEMENT

The Off-Site emergency Plans are dovetail so that the emergency services shall be summoned at the appropriate time and shall be provided with accurate information and a correct assessment of the situation. The responsibility for this is with the Site Main Controller. The Site Main Controller shall provide a copy of our On-Site and Off-Site Emergency Plan to the District authorities, the Factories Inspectorate and the Emergency Services, so that on the basis of information and such authorities can make their emergency preparedness plan to formulate and execute the District / Area off Site Emergency Plan. Further on the advice of the authorities we can also modify our plan to make our plan more effective and perfect.

7.5.4 ROLE OF EMERGENCY CO-ORDINATION OFFICER (ECO)

The various emergency services will be coordinated by the Emergency Co-ordination officer (ECO), who will likely to be a Collector. The ECO will liaise closely with the Site Main Controller. The Emergency Control Centre of the factory can be utilized by the ECO to keep liaison with the Site Main Controller.

7.5.5 ROLE OF THE FIRE AUTHORITIES

The control of fire is normally the responsibility of the senior fire officer who would take over the handling of fire from the IC on arrival at the site.

- The senior fire officer may also have similar responsibility for other events such as explosion and toxic releases. Fire authority having major hazard units in the area shall- Familiarize themselves with the location and site of all stages of flammable materials, water and foam supply points, firefighting equipment.
- Act as observer of an on-site exercise involving only site personnel.

7.5.6 ROLE OF THE HEALTH AUTHORITIES

Health authorities, including Doctors, Surgeons, Hospitals, and Ambulances so on, have a vital part to play following a Major Accident and they should form an integral part of any emergency plan. In case of major fires, injuries will be the result of the effects of thermal radiation to a varying degree, and the knowledge and experience to handle this type of injuries cases may be generally available in most of the hospitals. But in case of major

toxic releases, the effects vary according to the chemical, which has leaked, and it is important for health authorities that might be involved in dealing with the aftermath of a toxic release to be familiar with the treatment appropriate to such casualties.

Major Off-Site incidents are likely to require medical equipment and facilities additional to those available locally and a Medical 'Mutual Aid' scheme should exist to enable the assistance of neighboring authorities to be obtained in the event of an emergency.

7.5.7 ROLE OF TELEPHONE DEPARTMENT

The communication system between the factory and the various above role-playing authorities must be effective. The ineffective public telephone system will not be useful in emergency.Therefore, telephone department should maintain the phones and if required temporary telephone connection may be provided to various above authorities to deal the emergency.

7.5.8 ROLE OF POLICE AND EVACUATION AUTHORITIES

- To protect life and property
- To control traffic movement
- To inform people to remain indoors or evacuate
- To carry-out evacuation
- To identify dead, deal with casualties and inform relatives of dead or injured.

For evacuation, the following criteria are useful:

a) In case of major fire, only houses close to fire and in the direction of smoke need evacuation

b) If fire is escalating and in turn threatening a store of hazardous material, it is necessary to evacuate people nearby if time is available; otherwise they should be informed to keep themselves indoor and shield from the fire.

c) For release of toxic gases, limited evacuation may be appropriate in downwind direction with windows closed and provides good protection. Toxic gases which are hazardous down to much lower concentration cover a long distance. This factor must be considered while deciding upon the need and extent of evacuation.

7.5.9 ROLE OF THE MUTUAL-AID AGENCIES

Mutual-aid arrangements shall be made in areas of fire & toxicity control, medical and transport &evacuation. All partners of mutual-aid shall extend all possible help in these areas

7.6 SOCIAL IMPACT ASSESSMENT R&R ACTION PLANS

The proposed project in a vacant plot which does not have any habitation and therefore no re-settlement & re-habilitation is envisaged.

CHAPTER 8

PROJECT BENEFITS

8.1 IMPROVEMENTS IN THE PHYSICAL INFRASTRUCTURE, SOCIAL INFRASTRUCTURE

M/s. Mother Earth Environ Tech Private Limited, Bangalore., is expanding its existing hazardous waste landfill facility. This TSDF facility will enable the industries in Karnataka for secured disposal of landfillable hazardous waste.
The proposed project will be beneficial to the surrounding area/community in terms of employment generation, social development & other indirect benefits.

8.2 TANGIBLE BENIFITS

The proposed project will generate direct and indirect employment opportunities for the local people. The plant will create employment as under

The total employment potential of the industry is detailed below
Managerial – 5
Skilled – 10
Semi-skilled – 5
Un-skilled –5
TOTAL - 25

Additionally, certain works like security will be outsourced on contract. Secondary employment in the form of providing services to the employed manpower will also be developed in the neighboring villages.

The company will also take part in the development of the surroundings villages by following ways:

- There will not be any displacement of people from the project as the industry is coming up in the designated industrial area in the existing allotted plot from KIADB and land being allocated to the project. Also it is an existing & on-going industry.
- Employment opportunities for the local people.

8.3 SOCIO-ECONOMIC BENEFITS

- With coming up of the proposed project the employment opportunities (direct as well as indirect) will increase and local people will be employed on the priority basis as per their skills.
- During operation phase 25 people will get direct employment opportunity.
- The transportation of the material will involve a network of persons engaged in collection and transportation of material, thus developing the indirect employment opportunity.
- The proposed project will help in creating pollution free clean environment and will generate source of income from otherwise considered waste. This will help in improving the living conditions of the people.
- The project will involve the treatment of waste in scientific way without causing environmental problems such as odor, health hazard etc.
- Local people will be employed in the project. Due to coming of the proposed project the surrounding environment will not face any problem related to pollution because appropriate pollution control equipment will be followed.
- During operational phase more than 33% of the plant area will become green under landscape/land cover.
- Conducting Medical Camps for medical examination of the villagers and distribution of medicines.
- Funding the local educational facilities.
- The company will also provide funds for the various development activities of the neighboring villages as and when required.

CHAPTER 9

ENVIRONMENTAL COST BENEFIT ANALYSIS

Cost–benefit analysis (CBA), sometimes called benefit–cost analysis (BCA), is a systematic process for calculating and comparing benefits and costs of a project for two purposes

- to determine if it is a sound investment (justification/feasibility)
- to see how it compares with alternate projects (ranking/priority assignment)

It involves comparing the total expected cost of each option against the total expected benefits, to see whether the benefits outweigh the costs, and by how much.

In CBA, benefits and costs are expressed in money terms, and are adjusted for the time value of money, so that all flows of benefits and flows of project costs over time (which tend to occur at different points in time) are expressed on a common basis in terms of their "present value."

ENVIRONMENTAL COST-BENEFIT ANALYSIS, refers to the economic appraisal of policies and projects that have the deliberate aim of improving the provision of environmental services or actions that might affect (sometimes adversely) the environment as an indirect consequence.

Environmental cost and benefit analysis can inform an assessment of sustainability . In a general sense, applying a rigorous analytic environmental cost and benefit analysis framework can help ensure that a sustainability assessment clearly describes and accounts for different economic, social, and environmental impacts in a way that addresses analytic concerns such as double counting and the treatment of varying time frames.

MEEPL is operating common TSDF and doing Environment Management through Hazardous waste treatment and disposal. All activities, process and operation are concerned with Environment management and improvement. The funds earmarked for

environment protection measures shall be maintained in a separate account and there shall be no diversion of these funds for any other purpose. Compare to individual industry managing hazardous waste of their own including in captive facility, the common facility for proposed expansion will have environmental benefit in terms of proper land filling, appropriate leachate collection and treatment in the appropriately in the lined landfill system of following guidelines by CPCB. The expansion project will generate direct and indirect employment opportunities for the local people. The proposed expansion is capacity enhancement of existing secured landfill facility (SLF) at existing secured landfill, as a part of the Common Hazardous Waste Treatment, Storage and Disposal facilities (TSDFs), which will create employment including skilled as well as semi-skilled staff directly or indirectly. During Construction phase of expansion, the laborer's and workers will be hired from nearby villages. Number of persons required during construction phase is 50 no's and 25 required during operation. The secondary employment in the form of providing services to the employed manpower will also be developed in the neighboring villages. The company will also provide the helping hand in the development of the nearby villages by arranging regular medical checkup camp for the employees. The project will generate a fair amount of direct, indirect and induced employment in the study region. The local economy will receive a boost due to employee spending and services generated by applicant.

9.1 COST-BENEFIT ANALYSIS FOR M/S. MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

CBA for M/s. Mother Earth Environ Tech Private Limited, Bangalore tabulated below table9.1

TABLE 9.1: CBA FOR M/S. MOTHER EARTH ENVIRON TECH PRIVATE LIMITED.,

Costs	*Benefits*
Charges paid to Pollution Control Board for not meeting standards or threat of closure.	Savings in costs for meeting standards.

DAMAGES CAUSED BY WATER POLLUTION	BENEFITS INCURRED DUE TO WATER POLLUTION PREVENTION/CONTROL
a) Waterborne diseases b) Degradation of soil fertility and increase in toxicity c) Degradation of water aquifer	a) Savings due to water and air borne diseases avoided through proper treatment of both domestic & industrial wastewater. b) Degradation of soil fertility, & water aquifer reversed.
DAMAGES CAUSED BY AIR POLLUTION a) Airborne diseases. b) Losses to farmers due to increase in oxides of sulfur concentrations.	BENEFITS INCURRED DUE TO AIR POLLUTION PREVENTION/CONTROL a) Savings due to air borne diseases avoided through proper maintenance & management of air pollution sources. b) Losses to the farmers reversed.
DAMAGES CAUSED BY NOISE POLLUTION Health & behavioral effects on humans	BENEFITS INCURRED DUE TO NOISE POLLUTION PREVENTION/CONTROL Health & behavioral effects on humans reversed.
DAMAGES CAUSED BY SOLD/HAZARDOUS WASTE a) Impact on aesthetics. b) Degradation of groundwater aquifer.	BENEFITS INCURRED DUE TO SOLID WASTE MANAGEMENT/CONTROL a) Impacts on aesthetics reversed by proper management. b) Degradation of water aquifer reversed by proper management.
-	BENEFITS TO THE SOCIAL/ECONOMIC ENVIRONMENT a) Employment and income generation from plant. b) Infrastructural development benefits due to proximity of plant.

CHAPTER 10

ENVIRONMENTAL MANAGEMENT PLAN (EMP)

10.1 INTRODUCTION

The Environment Management Plan (EMP) is required to ensure sustainable development in the area of the proposed project. Hence it needs to be an all encompasses plan for which the industry, Government, Regulating agencies like Pollution Control Board working in the region and more importantly the population of the area need to extend their co-operation and contribution.

It has been evaluated that the project area will not be affected significantly with proposed project. Mitigation measures at the source level and an overall Management Plan at the site level are elicited so as to improve the surrounding environment.

The following mitigation measures are recommended in order to synchronize the economic development of the project area with the environmental protection of the region. The construction phase impacts are mostly short term, restricted to the plot area and not envisaged on the larger scale. Also since it is coming in an existing industry major impacts are not anticipated. In the operational phase the environmental impacts are due to continuous operation of the project, hence, the emphasis in the Environment Management Plan (EMP) is to minimize such impacts.

The emphasis on the EMP development is on the following:

- Mitigation measures for each of the activities causing the environmental impact;
- Monitoring plans for checking activities and environmental parameters and monitoring responsibilities;
- Role responsibilities and resource allocation for monitoring.

Following sections describes in brief the environment management plan proposed for construction and operation phases.

10.2 MITIGATION MEASURES

Each of the activities during production phase is critically reviewed for suggestion of mitigation measures. Based on this, the table 10.1 gives the mitigation measures for the activities considered to be causing significant environmental impacts during operation phase.

In general the best housekeeping practices are incorporated in the design as well as in production phase to reduce the short term impacts due to the proposed activities.

Environmental Management Plan (EMP) is required to operate the site as per the Environmental Regulations and to achieve sustainable development of the region. Considering the nature of industries in the region, waste generated, TSDF Facility will be developed and operated. As the TSDF Site is in the KIADB, all the infrastructure facilities are available.

The EMP are prepared considering the following aspects of TSDF operation;

- Construction of the landfill and other facilities
- Operation of the landfill
- Transportation
- Leachate management
- Monitoring and control
- Closure of the landfill
- Post closure maintenance

10.2.1 OBJECTIVES OF ENVIRONMENTAL MANAGEMENT PLAN

The main objectives in formulating the environment management plan are,

- Identifying those construction activities that may have a detrimental impact on the environment;
- Detailing the mitigation measures that will need to be taken, and the procedures for their implementation;
- Establishing the reporting system to be undertaken during the construction.
- To handle hazardous waste as per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and guidelines prepared and published by CPCB.
- Collection, transportation, treatment and disposal of hazardous waste generated by member industries in environmentally sound manner.

- Construction, operation and post closure maintenance of the site without any environmental impact to the surroundings area.
- Monitoring and control of the facility operations.
- To protect from the accidental hazards
- Continuously development and management of hazardous waste in the area
- Continuously to provide good working conditions for employee.
- To provide funds (budgeting & allocation) for EMP.

10.3 ENVIRONMENT MANAGEMENT PLAN AND MITIGATION MEASURES

10.3.1 OPERATIONAL PHASE MANAGEMENT

As disposal of waste takes place at the operating cell of the landfill, new cell construction will be going on simultaneously. Once sufficient waste is disposed, coverage will be provided. All efforts will be taken to minimize leachate generation. During monsoon period, extra care will be taken to prevent entry of water to the waste disposed. Temporary coverage will be provided during monsoon.

Treatment of solid waste for landfill is an important aspect. If the waste is not meeting the acceptance criteria for direct landfilling, specific treatments will have to be given. The organic incinerable hazardous waste shall not be accepted from the industries.

The applicable waste treatments are as follows;

- If waste is acidic -> Neutralization
- If waste contains Heavy Metals ->Stabilization
- If waste contains water more than permissible limit -> stabilization/solidification

Detailed study was carried out for operational phase aspect, impact and their mitigation measure. Control measures have been incorporated in the process system to minimize impact on environment and smooth operation of the site.

10.3.2 SECURED LANDFILL

For Management of hazardous wastes generated from industries and to avoid damage to the environment and health of the people in general, Hazardous Waste Management Scheme (HWMS) has been designed in accordance with requirement and provisions of Hazardous and other Waste (Management, Handling and Transboundary Movement)

Rules, 2016 and CPCB Published Protocol for Performance Evaluation and Monitoring of the Common Hazardous Waste Treatment Storage and Disposal Facilities including Common Hazardous Waste Incinerators. The landfill facility is designed and under supervision of IISc, Banglaore.

The different components of HWMS are given below.

1. Collection
2. Transportation
3. Analysis of Hazardous waste
4. Storage and Handling
5. Treatment
6. Disposal
7. Leachate collection, treatment and disposal.

A brief emergency plan for collection, transportation, treatment, storage, handling and disposal of hazardous waste has been prepared in order to minimize impact.

10.3.3 COLLECTION SYSTEM

Hazardous waste from members industries will be collected by dedicated vehicles. The transportation vehicles for waste will be hook loaders or hydraulic dumpers so that manual exposure will be avoided. Manifest will be used for collection and transportation of wastes.

10.3.4 TRANSPORTATION

Transportation of hazardous waste will be done as per CPCB Guidelines. The dumpers will be covered to prevent spillage or dusting. The drivers will be imparted training. The containers / dumpers will be marked with the name of TSDF, contact details and the other details required. The transport vehicles conform to guidelines issued by KSPCB and in-conformity with Motor Vehicle Act.

10.3.5 ANALYSIS OF HAZARDOUS WASTE

As the industry approaches MEETPL for membership, samples will be collected and comprehensive analysis will be carried out. Each type of waste will be analyzed. This will help the facility to decide on the treatment required, if any.

As the waste dumper reaches MEETPL site, samples are taken and finger-print analysis is carried out. If the waste passes the quick test, then it is sent for disposal at the landfill. If the waste needs any treatment, it will be given and then only will be disposed off.

10.3.6 STORAGE

Temporary storage facility with impermeable flooring shall be made particularly for monsoon.

The waste received shall be stored in intermediate hazardous waste storage facility.

10.3.7 HANDLING

Handling of Hazardous Waste is to be carried out with utmost care. As the waste is transported through hydraulic dumpers, manual handling is avoided. Moreover, the persons employed at the site will be using Personal Protective Equipments like Gum Boots, Gloves, Goggles, Dust Mask, Helmet etc. All the waste handling like spreading, compaction, coverage will be carried out with the help of machinery like JCB / Bulldozer.

10.3.8 DISPOSAL

The site operations will be carried out in a phased manner. Operating area of the landfill will be clearly earmarked and the wastes cleared by Quality Control Department will be only disposed off at this area. The hydraulic dumpers will be dumping waste mechanically. Once sufficient waste is disposed in the operational area, JCB or Bull Dozer will be used for spreading and compaction of the waste. The waste which are not meeting the quick tests, are subjected to appropriate treatment before disposal.

The operation of the site will be carried out only during day time.

10.3.9 LEACHATE COLLECTION SYSTEM, TREATMENT AND DISPOSAL

One of the important areas of landfill management is leachate collection, treatment and disposal. MEETPL have waste acceptance criteria which specify the limit for moisture content. As per this criteria, the waste should pass the PFLT (Paint Filter Liquid Test). This will ensure that the free moisture from the solid waste will be minimum. However, the water content in the waste will be coming out during compaction.

A well designed leachate collection system is the main component of the landfill. Proper slopes are provided at the bottom of the cells for easy movement of the leachate to the leachate collection wells provided. Sufficient number of leachate collection wells are considered in the design. The collected leachate will be pumped out using submerged pumps.

The collected leachate will be sent for CETP for final treatment and disposal.

All efforts will be taken to minimize leachate generation. To prevent water entry to the operation area of the landfill, temporary coverage with tarpaulin will be provided during monsoon season. During heavy rains, the waste will be temporarily stored.

10.4 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

a. OPERATION OF THE FACILITIES/UTILITIES

Table 10.1: Environmental management plan during operation of the facilities/utilities

Activity	Environmental impacts	Management action to Be taken	Remarks
Secured Landfill Facility			
Temporary storage of Hazardous waste	Leachate generation	Collection of leachate and treatment	Implemented
Loading the hazardous waste in dumper	Fugitive emission	Coverage of the dumper to prevent dusting	
	Spillage of waste on the floor	- Avoid spillages by careful handling of the solid waste - Clean the floor regularly and collect the waste & dispose in landfill	
	Leakages / spillages during transportation	inspection of the dumpers and ensuring that there is no leakage / spillage	
	health impacts on the workers.	Usage of Hydraulic dumpers / hook loaders to prevent manual handling Usage of PPEs by all employees Medical check up – pre employment and routine	
Transportation			
Transportation of waste	Littering the waste on the road	Inspect the dumpers and ensure that there is no leakage / spillage from the vehicle. - Loaded dumpers / trucks with waste should be fully covered.	

		-Impart training to the drivers.- Dumpers/ trucks should be leak proof.	
	Disposal of waste at non designated place.	- Develop strict tracking system (manifest system).	
	Contamination of the tyres of vehicles entering landfill area.	After loading/ unloading the waste, tyres should be washed and washed water shall be sent to treatment.	
Final Disposal			
Final disposal of the hazardous waste into secured landfill facility.	Violent reaction / fire	Strictly follow the Acceptance criteria. Check the reactivity of the wastes prior to disposal	
	Excessive leachate generation in monsoon season	Cover the sub-cells of the facility with tarpaulin to prevent entry of rain water Closing monitoring of the site round-the-clock during monsoon	
	Blowing away of the waste dust with the wind	- Spray water during summer season - Cover the waste layer with fresh soil and compact it.	
	Disposal of waste at the wrong place in the premises Leachate handling	Provide indicators and sign boards for systematic operation. Properly designed leachate collection wells. Daily monitoring of levels in the wells. Transfer of leachate from the wells to storage for Treatment.	
Sanitary facilities for the staff	Generation of the waste water.	Sewage water to be taken to Septic Tank for disposal	

Monitoring activity (Monitoring activity should continue even after closure of the facility)	Groundwater pollution	Monitoring groundwater at upstream and downstream of the site Groundwater monitoring surrounding the site as per predesigned plan	
	Air pollution	Ambient Air Monitoring for various parameters at the site and surroundings for AAQ standards under EP rules.	
	Soil Pollution	Soil sampling from various locations and analysis	
Operation, maintenance and closure of the facility	Contamination of environment	As a compensatory measure, green belt shall be developed in the minimum 15 meter strip of land encircling the site.	
Post closure phase	Ambient air quality	Monitoring of ambient air quality for various parameters, monthly	
	Emission from landfill vents	Monitoring of vents for HCs / VOCs, monthly	
	Leachate generation	Sampling and analysis of leachate for various parameters.	
	Groundwater monitoring	Monitoring of groundwater, once in a week, upstream and downstream	
	Soil contamination	Monitoring of soil samples, once in a month.	
	Stability of the landfill	Regular inspection and maintenance of the coverage system	

10.5 GREEN BELT DEVELOPMENT

Tree plantation is one of the effective remedial measures to control the air pollution and noise pollution. It also improves aesthetics. It is an established fact that trees and vegetation act as a vast natural sink for the gaseous as well as particulate air pollutants due to enormous surface area of leaves. It also helps to attenuate the ambient noise level.

Plantation around the pollution sources control the air pollution by filtering the air particulates and interacting with gaseous pollutant before it reaches to the ground. Tree plantation also acts as buffer and absorber against accidental release of pollutants.

In Green belt area about 200 tree is planted. M/s. MEEPL has is developed 4,978.70 sq m area as greenbelt and other forms of greenery.

The selection of tree species suitable for plantation at the TSDF site shall be governed by guiding factors as stated below.

- The trees should be tolerant to air pollutants present in the area
- The trees should be able to grow and thrive on soil of the area, be evergreen, Inhabitant, having minimum of leaf fall.
- The trees should be tall in peripheral curtain plantation and with large and spreading canopy in primary and secondary attenuation zone.
- The trees should possess extensive foliar area to provide maximum impinging surface for continued efficient adsorption and absorption of pollutants.
- The trees should be fast growing and indigenous and should maintain ecological, land and hydrological balance of the region.
- It is also recommended to plant few trees, which are sensitive to air pollution, as air pollution indicator.
- It is also recommended to carry out extensive plantation within premises.

10.6 SOCIO ECONOMIC ACTIVITIES

The TSDF Facility will improve overall environmental conditions in the industrial estate as the hazardous wastes generated by the industries will be disposed of in an environmentally acceptable manner. The facility also will help development of the region and up liftment of the community.

Some social contributions of the facility will be;

1. Support to the school students / community in environmental awareness.
2. Employment to the local persons.
3. Tree plantation in and around TSDF Site.

10.7 Capitals and O&M Cost for Environmental Management

Initial cost of the project: - Rs.16,55,00,000/-,

Expansion cost :- Rs.3,21,00,000

Monitoring cost is Rs. 4.00 Lakh/ Annum.

The Company will be charging member industries for the waste disposal based on waste characteristics and quantity. For taking care of post maintenance of TSDF Site, separate fund will be created considering all foreseeable costs.

10.8 ENVIRONMENTAL POLICY

M/s. Mother Earth Environ Tech Private Limited, Bangalore, having its registered office at # 2542, 28th Cross,17th Main Road, Banashankari 2nd Stage, Bangalore - 560 070. , is proposes establishing "Hazardous Waste Landfill" Project at Survey no.217, Harohalli Industrial Area, 2nd phase, Kanakapura Taluk, Ramanagara.

The Board of Directors of M/s. Mother Earth Environ Tech Private Limited recognize the important responsibility it has towards the environment, and is committed to:

- Complying with all applicable environmental legislation.
- Planned evaluation of compliance by external auditors and the implementation of improvement programmes.
- Continuous improvement by following best practice guidance produced by appropriate regulatory and advisory organizations and aim to get certified to ISO14001, the internationally recognized Environmental Management System standard.
- Ensuring that all employees are aware of their duty to fellow employees, customers and those who live in the surrounding community, to act in an environmentally responsible and safe manner.
- Collecting, analyzing and publishing key environmental performance metrics to enable the group to continually review assess and improve its environmental performance.

The Board delegates responsibility for oversight of environmental policy and performance to all to the Director, Management and employees for local implementation of this policy. This policy and its implementation will be reviewed on a regular basis by the Board to ensure that it remains appropriate and relevant to the organization. The Group is committed to providing the necessary support in order to ensure that all sites can fulfill the requirements outlined in this policy.

This policy will be communicated to everyone working for or on behalf of the Group. The noncompliance will be communicated and will be brought to the notice of all the board of directors during the board meeting.

10.9 DESCRIPTION OF THE ADMINISTRATIVE ASPECTS OF ENSURING THAT MITIGATIVE MEASURES ARE IMPLEMENTED & THEIR EFFECTIVENESS MONITORED, AFTER APPROVAL, IMPLEMENTATION AND DURING OPERATION

In order to maintain the environmental quality within the standards, regular monitoring network to maintain environmental quality will be implemented.

10.9.1 ENVIRONMENT MANAGEMENT CELL

A separate Environment Management Cell is established to monitor and control the environmental quality. Members of the Environmental Cell would be well qualified and experienced in the concerned field. Some experienced people & few new people will be appointed to take care of the requirement.

Services of reputed laboratories as well as that of a consultant of repute would be engaged for various monitoring & other environmental management needs of the plant from time to time.

10.9.2 Organizational Structure of Environmental Management

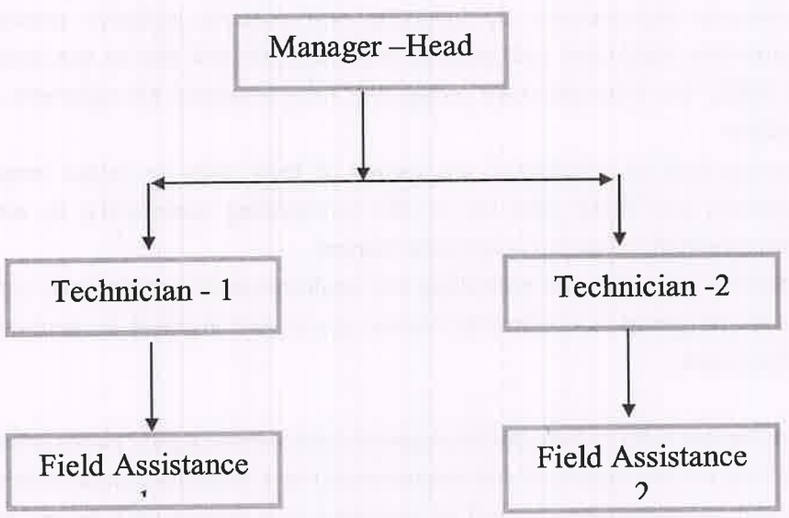


Fig. 10.1: Schematic Representation of organizational structure of environment management

CHAPTER 11

SUMMARY & CONCLUSION

11.1 OVERALL JUSTIFICATION FOR IMPLEMENTATION OF THE PROJECT

The Environmental Impact Assessment studies carried out for the proposed project of M/s. Mother Earth Environ Tech Private Limited, has been completed. The study conducted has covered various facets of the proposed project starting with the need for project, collection and transportation of waste, water requirement, availability of land, process involved etc.,

In addition to this the metrological data and baseline environmental features have been evaluated to understand the environmental setting of the project site. Based on the baseline environmental survey air pollution modeling studies were carried out to predict the impact of the proposed project on the air environment. Also the ecological features of the location including the flora & fauna, socio-economic environment, the demographic structure have been evaluated.

Based on the above studies an Environmental Impact Statement has been prepared to ascertain the possible impacts of the proposed project on the environmental parameters like air, water, land, biological and socio-economic environment. An impact matrix has also been prepared based on the observations of the impacts on the environment.

An Environmental Management Plan has been prepared covering the environmental aspect and the management plan required to be adopted by the management not only during the course of setting up of the proposed industry but also during its operational phase. An environmental monitoring plan is envisaged deciding frequency, location, data analysis, reporting schedules.

Detailed risk assessment study is carried out to evaluate the risks involved due to storage of various solvents & precautionary measures to be taken for prevention/management of such risks.

The conclusions drawn from the above study relates to the fact that the proposed project of the ***"Common Hazardous waste landfill Project"*** activity undertaken by the management of the plant has certain level or marginal impacts on the local environmental setting, which will not affect the natural environmental setting of the study zone either drastically or otherwise. However, certain beneficial impacts are anticipated in terms of the employment opportunities created during the operation of the plant. Also there will be economic growth at the regional level.

The plant has created Environmental Management Cell to monitor and implement programs to improve its environmental status from time to time and will adopt all such technological advances to reduce the impact due to its operation on the environment.

- Mitigation measures is undertaken to prevent adverse impacts on the surrounding environment like air, water, land and biological.
- There shall be economic growth and development at the local and regional level.

To put it in a nutshell the management of M/s. Mother Earth Environ Tech Private Limited, strongly believes in the concept of sustainable development and understands the impacts of the proposed project on the environment from the Environmental Impact Assessment studies conducted. It is committed to construct and establish the project without giving room for any adverse impacts on the environment and also lays emphasis on the implementation of the recommendations of the Environmental Management Plan in true spirits.

11.2 EXPLANATION OF HOW ADVERSE EFFECTS HAVE BEEN MITIGATED

The measures adopted to mitigate the impacts due to the proposed project is tabulated below table 11.0.

The measures adopted to mitigate the impacts due to the proposed expansion is tabulated below.

Table 11.0 :- Measures adopted to mitigate the impacts

Sl. no.	*Parameter*	*Mitigation measures*
1	Water pollution sources	
	Domestic sewage	Treated in Septic tank followed by up flow filter
	Leachate waste water	Sent to CETP for treatment and disposal.
2	Air pollution sources	
	D.G. sets	Stacks of adequate heights
3	Noise pollution sources – DG sets	In-built acoustic enclosures.
4	Solid/Hazardous waste	
	Domestic garbage	Organic portion will be treated in compost pits and used as manure. Inorganic portion will be sent for recycling.

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CHAPTER 12

DISCLOSURE OF CONSULTANTS ENGAGED

12.1 THE NAMES OF THE CONSULTANTS ENGAGED WITH THEIR BRIEF RESUME & NATURE OF CONSULTANCY RENDERED

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Ph. : 080-41466009
E mail id – info@samrakshan.co.in, samrakshanblr@gmail.com

On the office memorandum of MOEF & CC no. F. No. J-l1013t7712004- IA II (I) Dated 2nd December, 2009 reagrding Accreditation of the EIA Consultants with Quality Council of India (ACly National Accreditation Board of Education and Training (NABET), the Honerable HighCourt of Karnataka has been approached by Sri Nandakumar.S and HAnumatha Raj Urs. T.H in W.P no. 12624-12625/2017(GM-RES). The Honerable High Court has deffered the implementation of impugned notification. Copy of the order high Court order dated 24-03-2017 is enclosed.

INTRODUCTORY PROFILE

SAMRAKSHAN is a Bangalore, Karnataka based Environmental Engineering Consultancy Company. SAMRAKSHAN is an off shoot of AQUATECH ENVIRO ENGINEERS, Bangalore. We are leading solutions providers of B2B solutions in the field of Environment since two decades. SAMRAKSHAN is a specialized solution providers, we serve varied industries like Distillery, Sugar, Fertilizers, Pharmaceuticals, Power generation, Service industries, Common waste disposal facilities etc.,

Professional Services Offered:

We undertake works related to Pollution Control,

- Environmental Impact Assessment studies,
- Preparation of Environmental Management plan,

- design and execution of Effluent / wastewater and water treatment plants,
- air pollution control and management,
- solid and hazardous waste management,
- Due-diligence studies.
- Assists clients for implementation of conditions stipulated in the Environmental Clearances, Consent to Establish and consent to operate issued by the Regulatory agencies.
- Assist clients in Environment related Project Management Consultancy.
- Imparting training to the industries for Environment regulatory compliances.
- Compliance report preparation.
- We also undertake assisting clients in techno-legal issues before the Hon'ble High Court, NGT and Supreme Court etc.,

KEY PERSONNEL OF THE ORGANISATION

Name	Qualifications	Designation	Experience
Mr. Nanda Kumar S	B E (Civil), PG Diploma in Ecology and Environment, FIE	Chief Executive Officer	37 Years at Karnataka State Pollution Control Board (Retired as CEO, KSPCB)
Dr. C T Puttaswamy	B E (Chem.,), M Tech (Env.,), Ph. D.,	Technical Advisor	20 Years experience in industry, research and development, environmental consultancy and Teaching for graduate and postgraduate engineering courses.
Mr. Vasudevaiah		Technical Advisor	30 year experience in chemical, water and Waste Water, air samples analysis, as senior Chemist in KSPCB laboratory and retired from Public Health Institute.
Mr. B Ramaiah	B E (Civil)	Technical Advisor	35 Years of service at Karnataka State Pollution Control Board (Retired as MS, KSPCB)
Mr. G R Manjunath	B E (Mech.), M Tech (Env.,)	Technical Advisor	16 years industrial and environmental consultancy
Mr. Nandakishore	B E (Chem)	Technical Advisor	30 Years experience in Pharmaceutical and related industries.

Mr. Channakesava	B E (Env.,)	Sr. Manager - Projects	15 Years in implementation of Water, Wastewater treatment plant from concept to commissioning.
Mr. Hanumantha Raj Urs	M Sc (Env. Sce), PGDIS	Sr. Manager - Environment	12 Years experience in environmental consultancy.
Mrs. Lakshmi L S	B E (Chem.,)	Chemical Engineer	8 Years experience in environmental consultancy.
Mrs. Rohini. S	B E (Env.)	Environmental Engineer	9 Years experience in environmental consultancy.
Mr. Santhosh	M A (Economics)	Admin and Logistic Manager	10 Years experience in administration and logistics

12.2 LABORATORY FOR ANALYSIS:

NAME OF LABORATORY	SCOPE OF SERVICES	ACCREDITATION STATUS
M/s. Vsix Analytical Labs Pvt. Ltd. #77, (502/503), 21st 'D' Cross, Sunkadakatte, Bangalore – 560 091.	**Monitoring and Analysis of:** 1. Ambient Air Quality Monitoring 2. Ground and Surface Water Quality Monitoring 3. Noise Level Monitoring and 4. Soil Quality Monitoring 5. Metrological data collection	NABL, OHSAS 18001 : 2007

Annexure -A

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State Level Environment Impact Assessment Authority-Karnataka

(Constituted by MoEF, Government of India, under section 3(3) of E(P) Act, 1986)

No. SEIAA 1 IND 2015 Date: 28-08-2015

To,

M/s Mother Earth Environ Tech Private Limited
#2542, 28th Cross, 17th Main Road,
Banashankari 2nd Stage
Bangalore-560 070

Sir,

Sub: Establishment of Hazardous Waste Landfill at Plot. No. 217 of Harohalli Industrial area, 2nd Phase, Kanakapura Taluk, Ramanagar District By M/s Mother Earth Environ Tech Private Limited – Issue of Environmental Clearance – Reg.

*****

This has reference to your application dated 29th December 2014 addressed to SEIAA, Karnataka and subsequent letters addressed to SEIAA/SEAC, Karnataka seeking prior environmental clearance for the above project under the EIA Notification, 2006. The proposal has been appraised as per prescribed procedure in the light of the provisions under the EIA Notification, 2006 on the basis of the mandatory documents enclosed with the application viz., the Application in Form 1, EIA Report and the additional clarifications furnished in response to the observations of the SEAC, Karnataka. SEAC has recommended for issue of Environmental Clearance in its meetings held on 13th & 14th July 2015.

2. It is, inter-alia, noted that M/s Mother Earth Environ Tech Private Limited have proposed for Hazardous Waste Landfill consists with Cell-1 of 50,000 Tons capacity and Cell-2 of 45,000 Tons capacity. The total plot area is 14,424.6Sqm. Total water consumption is 3 KLD will be met from KIADB supply, out of which 0.5 KLD for domestic purpose and 2 KLD for green belt. One number DG set of 100 KVA will be installed for emergency power back-up. The total cost of the project is Rs.16.55 Crores.

3. The wastewater generation will be 0.4 KLD domestic sewage shall be treated in Septic tank and Soak pit and 2KLD Leachate generated from landfill waste. The solid waste generated is inorganic and organic of quantity

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e-mail: msseiaakarnataka@gmail.com Website : http://seiaa.kar.nic.in

1.2Kg/day and 0.8 Kg/day respectively shall be composted and used as manure for landscape. The Hazardous waste such as used oil/lubricant oil of 50 Ltr/Annum and Used bags of 50 Bag/day shall be send to Authorized reprocesser.

4. The project proposal has been considered by SEAC during the meeting held on 9th, 10th and 11th February 2015 and ToR was issued on 3rd March 2015 for conducting Environment Impact Assessment (EIA) Study. The project is located within the notified industrial area and hence does not require public consultation. The EIA has been conducted and report submitted by M/s. Aqua Tech Enviro Engineers, No. 3391, 6th Main, 3rd Cross, RPC Layout, Vijayanagar 2nd Stage, Bangalore-560 040. The O. M dated 02.12.2009, 18.03.2010 and 28.06.2010 issued by the MoEF, GoI, regarding mandatory accreditation of environmental consultants from NABET/QCI is not applicable in this case in view of the stay granted by High Court of Karnataka in W. P. No. 15575/2012 (GM-RES): (Sri. K R Sreeharsha S/o Late K V Ramaswamy, R/AT No. 5/76, IV main N R Colony, Bangalore-560 009 V/s M/s. Union of India represented by MoEF, GoI & DFEE, GoK) on 18.05.2012. The proponent has submitted the EIA report on 19th June 2015.

5. Based on the information submitted by you and your consultant M/s. M/s. Aqua Tech Enviro Engineers, No. 3391, 6th Main, 3rd Cross, RPC Layout, Vijayanagar 2nd Stage, Bangalore-560 040. The State Level Expert Appraisal Committee (SEAC) examined the proposal in the meeting held on 13th and 14th July 2015 and has recommended for issue of Environmental Clearance.

6. The SEIAA Karnataka has considered the project in its meeting held on 25th July 2015 and after due consideration of the relevant documents submitted by the project proponent and additional clarifications furnished in response to its observations and the appraisal and recommendation of the SEAC, have accorded environmental clearance as per the provisions of Environmental Impact Assessment Notification-2006 and its subsequent amendments, subject to strict compliance of the following terms and conditions:-

Part A- SPECIFIC CONDITIONS

1. 'Consent to Establish' shall be obtained from State Pollution Control Board under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.
2. Transportation and handling of Hazardous Wastes shall be as per the Hazardous Wastes (Management, Handling and Trans-boundary Movement)) Rules, 2008 including the section 129 to 137 of Central Motor Vehicle Rules, 1989.
3. Necessary provision shall be made for firefighting facilities within the complex.
4. The Project Proponent should carryout periodical air quality monitoring in and around the site including VOC, HC.
5. The Project Proponent should develop green belt all alotig the periphery

of the TSDF with plant species that are significant and used for the pollution abatement.

6. The proponent should ensure that the project fulfills all the provisions of Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 including collection and transportation.
7. The gas generated from the Landfill facility shall be collected and disposed as per rules
8. The Leachate from the facility shall be collected and treated to meet the prescribed standards before disposal.
9. The proponent should obtained necessary clearance from the Ground Water Authority.
10. The depth of the land fill should be decided based on the ground water level at the site.
11. Project proponent should prepare and implement an On Site Emergency Management Plan.
12. Project proponent should carryout periodical ground water/ monitoring soil in and around the site to check the contamination.
13. Project proponent should carryout periodical ground water/ soil monitoring in and around the site to check the contamination including TCLP test for heavy metals.
14. Green belt of 15 meters shall be provided all along the periphery of the site, as committed. The green belt area shall not be used for any other purpose.
15. All measures for air pollution control shall be adopted.
16. Rain water runoff from the landfill area and other hazardous waste management area shall be collected and diverted to the leachate treatment plant.
17. There shall not be any spillage from the transportation vehicles.
18. Zero discharge system shall be adopted.
19. Double containment system shall be provided for all waste transport vehicles to avoid spillage. The spillage shall be cleared immediately.
20. Vehicles should prominently display complaint numbers for use of public as well as antidotes to any toxic waste.
21. All the recommendations of EMP/ DMP shall be strictly complied.
22. The project proponent will set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.
23. Untreated domestic effluent should not be discharged into open drain. Till the sewerage system in the Industrial Estate, which is presently being laid, is completed, the domestic effluent should be treated in a well designed septik tank with soak pit, as committed. As soon as the sewerage system is made operational the domestic effluent from the project should be discharged only into the sewerage system for treatment in terminal STP.
24. Final disposal measures - the hazardous wastes should prevent contamination of ground water, surface water and ambient air quality.

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY * KARNATAKA *

25. Facility for land filling should be designed with protective measures against pollution of ground water, surface water and air fugitive dust, wind-blown litter, bad odour, fire hazard, bird menace, pests or rodents, greenhouse gas emissions, slope instability and erosion.
26. Proper mechanism should be adopted for extraction of leachate and treatment of the same as committed.
27. The facility capacity shall handle only to the maximum designated capacity.
28. Stray animals shall not be allowed to move around the facilities.
29. Manual handling of waste shall be prohibited. If unavoidable due to constraints, manual handling shall be carried out under proper precaution with due care for safety of workers.
30. Vehicles used for transportation of wastes shall be covered. Waste should not be visible to public, nor exposed to open environment preventing their scattering.
31. Transportation vehicles shall be so designed that multiple handling of wastes, prior to final disposal, is avoided.
32. First aid and sanitation arrangements shall be made for the drivers and other contract workers.
33. Regular online monitoring of the ambient air quality and water quality shall be carried out in monitoring stations and frequency of monitoring shall be decided in consultation with the State Pollution Control Board. Periodic reports shall be submitted to the SEIAA Karnataka, Department of Ecology and Environment, Government of Karnataka, Bangalore/ KSPCB.
34. Green belt shall be developed in at least 33% of the total project area as committed with suitable species of the plants as per the CPCB guidelines. Planting aromatic and flowering climbers to cover the compound shall be undertake further 4 to 6 rows of bamboo mixed with aromatic trees. Grafted 'Kenda Sampige 'shall get priority.
35. The result of online monitoring shall be displayed in the project site in such a way that it is predominantly visible to the general public.
36. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
37. The project Authority shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
38. Vehicles used for transportation of the municipal solid waste shall be properly cleaned and sanitized after every load is unloaded at the site. No un-cleaned vehicle shall be allowed to ply on the roads of the city.
39. The project Authority shall establish odour control system comprising of Air ventilation system and odour removal system. Bio filters shall also be provided for odour control over area such as waste reception pit, pre-sorting area, windrow composting pads and curing sheds and screening & packing.
40. All the required mitigation measures shall be employed to avoid hazards arising out of land fill site.

41. The project authority shall not handle the Hazardous waste other than those listed in the project proposal.
42. The project Authority shall take extra care while handling the hazardous waste containing heavy metal such as Lead, Mercury, Arsenic, Cadmium, Zinc, Cobalt etc., if Any to avoid the accidental entry into the Eco-system and to contain safely in the cells appropriately if such heavy metal cannot be recovered.

B. GENERAL CONDITIONS;

1. The project proponent should set up necessary facility for onsite testing of wastes to decide the requirement of treatment if any, before disposal.
2. The implementation of the project vis-à-vis environmental action plans shall be monitored by MoEF Regional Office at Bangalore / KSPCB/ CPCB/ and the Department of Environment & Ecology, Government of Karnataka, Bangalore. A six monthly compliance status report shall be submitted to monitoring agencies.
3. The project authorities shall strictly adhere to the stipulations made by the Karnataka State Pollution Control Board.
4. No further expansion or modifications in the plant shall be carried out without prior approval of the SEIAA/Ministry of Environment and Forests as the case may be. In case of deviations or alterations in the project proposal from those submitted to this Authority for clearance, a fresh reference shall be made to the Authority to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
5. The project proponent shall also comply with all the environmental protection measures and safeguards as per the information provided.
6. In case of any deviation or alteration in the project proposed from that submitted to SEIAA, Karnataka for clearance, a fresh reference shall be made to the SEIAA, Karnataka to assess the adequacy of the condition (S) imposed and to incorporate additional environmental protection measures required, if any.
7. A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parisad/Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.
8. The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the KSPCB. The criteria pollutant levels namely; SPM, RSPM, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.
10. A separate environment management cell with qualified staff shall be set up for implementation of stipulated environmental safeguards.

11. Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These cost shall be included as part of project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure shall be reported to the Ministry.
12. The environmental clearance accorded shall be valid for a period of 5 years to start of the project.
13. The project authorities shall inform the MoEF Regional Office at Bangalore / KSPCB/ CPCB/ and the Department of Environment & Ecology, Government of Karnataka, Bangalore, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.
14. The SEIAA, Karnataka reserves the right to stipulate additional conditions, if found necessary.
15. The above conditions will be enforced, inter-alia under the provisions of the Hazardous Wastes (Management, Handling and Trans-boundary Movement) Rules, 2008 along with their amendments and rules.
16. Officials from the Department of Environment and Ecology, Government of Karnataka, Bangalore/ Regional Office of MoEF, Bangalore, KSPCB who would be monitoring the implementation of Environmental safeguards should be given full cooperation, facilities and documents/ data by the project proponents during their inspection. A complete set of all the documents submitted to SEIAA should be forwarded to the CCF, Regional Office of MoEF, Bangalore/ Department of Environment and Ecology, Government of Karnataka, Bangalore and KSPCB.
17. The Authority reserves the right to add additional safeguard measures subsequently, if found necessary, and to take action including revoking of the environment clearance under the provisions of the Environment (Protection) Act, 1986, to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner.
18. The project proponent should advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded environmental Clearance and copies of clearance letters are available with the Karnataka State Pollution Control board and may also be seen on the website of the Ecology and Environment Department at http://seiaa.kar.nic.in or http://seiaa.karnataka.gov.in The advertisement should be made within 7 days from the day of issue of the clearance letter and a copy of the same should be forwarded to the Regional Office of MOEF at Bangalore/ Department of Ecology and Environment, Government of Karnataka, Bangalore.
19. These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification, 2006.

20. The SEIAA, Karnataka may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

Yours faithfully,

28/8/15

(RAMACHANDRA)
Member Secretary,
SEIAA - Karnataka.

Copy to:

1) The Secretary, Ministry of Environment & Forests, Government of India, Paryavaran Bhavan, CGO Complex, Lodi Road, New Delhi-110003.
2) The Member Secretary, Karnataka State Pollution Control Board, Bangalore.
3) The APCCF, Regional Office, Ministry of Environment & Forests (SZ), Kendriya Sadan, IV Floor, E & F wings, 17th Main Road, Koramangala II Block, Bangalore – 560 034.
4) Guard File.

CHAPTER -5

HALF-YEARLY COMPLIANCE OF STIPULATED ENVIRONMENTAL CONDITIONS/ SAFEGUARDS IN THE ENVIRONMENTAL CLEARANCE REF.Letter No. SEIAA 1 IND 2015 on dated 25.08.2015.

For Hazardous waste TSDF Project at M/s. **Mother Earth Environ Tech Private Limited**.Plot No.217, 2nd phase KIADB Industrial Area, Harohalli, KanakapuraTaluk, Ramanagara District, Bangalore-562112.

Compliance report for the year ending on 31st December 2017

S.NO	Conditions	Status of Compliance
1.		Available.
2.	It is inter-alia noted that M/s mother Earth Environ tech Private Limited have proposed for Hazardous Waste landfill consists with Cell-1 of 50,000 Tons capacity and Cell-2 of 45,000 Tons capacity. The total plot area is 14,424.6Sqm, total water consumption is 3 KLD will be met from KIADB supply, out of which 0.5 KLD for domestic Purpose and 2KLD for green belt. One number DG set of 100 KVA will be installed for emergency power back-up The total cost of the Project is Rs.16.55 Crores.	As per the detailed hydro geological survey report the site drawing has been changed. (from the drawing which is submitted for Environmental clearance). As per the modified design and drawings,EC amendment under process at present under the review of SEIAA. Total Plot area is 14,424.6 Sqm. At present one cell no. 01 is prepared as per the CPCB guidelines. The MEEPL has started receiving the landfillable Hazardous waste from industries with effect from 16.04.2016 and being stored in the land fill in a secured manner. However, during execution to optimise the utility of the site, there is some variation in the layout. This is resulting in increase in the capacity of storage. Hence, application is made to Karnataka

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		SEIAA for environmental clearance for the enhancing capacity under EIA Notification 2006. Appraisal of Pre feasibility Report is made by KSEAC. We are awaiting Terms of Reference for preparing the EIA report. Construction of Cell no.02 is yet to be taken up. KIADB is yet to give water supply. At present water is drawn from the bore well located within the premises.
3.	The waste water generation will be 0.4 KLD domestic Sewage shall be treated in septic tank and soak pit and 2 KLD leachate generated from landfill waste. the solid waste Generated is inorganic and organic of quantity 1.2Kg/day and 0.8 Kg/day respectively shall be composted and used as manure for landscape the Hazardous waste such as used oil/lubricant oil of 50Ltr/Annum and used bags of 50 bag/day shall be to Authorised reprocesser.	Sewage of 0.4 KLD is connected to Septic tank and Soak pit. Solid organic and inorganic waste generation is below the stipulated quantities. Hazardous waste is disposed as per the Authorisation issued by KSPCB under the HW Rules. Copy of the Authorisation is enclosed as **Annexure I**.
Part A-SPECIFIC CONDITIONS		
1.	Consent to Establish shall be obtained from State Pollution Control Board under the air (Prevention and control of pollution) Act, 1981 and the water (prevention and control of pollution) Act, 1974.	CTE obtained from Karnataka State Pollution Control Board Letter No: KSPCB/SEO(WMC)/CFE/2015-16/1471 on dated 04.11.2015. Copy of the same has been attached as **Annexure-II**

2.	Transportation and handling of Hazardous wastes shall be as per the Hazardous wastes (Management, Handling and Trans-boundary Movement) Rules, 2008 including the section 129 to 137 of central motor vehicle rules, 1989.	Transportation of Hazardous waste is done as per the Hazardous and other Waste (Management, Handling and Trans-boundary Movement) Rules, 2016 and the transport vehicles conform to the Section 129 to 137 of CMV rules 1989 and guidelines issued by KSPCB. Vehicles for transportation of hazardous waste are authorised by Karnataka state Pollution Control Board.
3.	Necessary provision shall be made for fire fighting facilities within the complex.	Fire extinguisher (DCP) is provided and maintained. Photograph is enclosed as **Annexure III.**
4.	The project proponent should carryout periodical air quality monitoring in and around the site including VOC, HC.	We are monitoring air quality. The Reports are attached as **Annexure - IV.** Monitoring of VOC and HC will be carried out from this year.
5.	The project proponent should develop green belt all along the periphery of the TSDF with plant species that are significant and used for the pollution abatement.	we have planted 1500 saplings in and around of the TSDF plant. Green belt will be further developed by planting aromatic and horticultural plants/trees.
6.	The proponent should ensure that the project fulfils all the provisions of Hazardous waste (Management, Handling and Trans-boundary Movement) Rules, 2008 including collection and transportation.	Authorisation is obtained from KSPCB under the HWM Rules and the conditions stipulated therein are followed.
7.	The gas generated from the landfill facility shall be collected and disposed as per rules.	So far the land fill activities are going on, During the closure of the cell no 01, provision will be made to collect the gas generated form the land fill facility.
8.	The Leachate from the facility shall	Consent under the Water Act is

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	be collected and treated to meet the prescribed standards before disposal.	accorded by KSPCB for treatment of Leachate in CETP. Accordingly, it is collected and sent to Common Effluent Treatment Plant (CETP) for further treatment and disposal.
9.	The proponent should obtaine necessary clearance from the ground water authority.	As per the Karnataka Ground water (Regulation & Control of development and Management), Act, 2011 Ramnagaradist or Kanakapura taluk, is not declared as notified area, hence No permit/clearance is required. Ref.No:- (dpal.kar.nic.in/ao2011/250f2011(E).pdf + notified area list)
10.	The depth of the landfill should be decided based on the ground water level for the site.	As per geological report the ground water depth level is 70 meters, based on this land fill depth is designed. The average depth of the ground level is 15 m.
11.	The project proponent should prepare and implement an onsite Emergency Management Plan.	Complied. On site emergency plan is prepared & implemented and Mock drills are also conducted in periodically.
12.	Project Proponent should carryout periodical ground water /monitoring soil in and around the site to check the contamination.	Complied. Regular Monitoring of Ground water and soil being carried in and around the site, as per the Soil samples monitoring protocol indicated in the guidlines issued by CPCB. The analysis report is enclosed as **Annexure -V**
13.	Project Proponent should carryout periodical ground water /monitoring soil in and around the site to check the contamination including TCLP test for heavy metals.	
14.	Green belt of 15 meters shall be provided all along the periphery of the site, as committed. The green belt area shall not be used any	While executing the project due to some technical issues practically green belt of 11 m on north side, 12 m on west side and 16 m on west side is provided.

	other purpose.	Whereas, on southern side another proposed second cell is yet to be constructed. We have already planted three rows tree sapling all around the periphery of the proposed cell while executing the project. However, green belt area as required, as per the EC conditions in the available vacant land on the other two sides will be taken up.
15.	All measures for air pollution control shall be adopted.	Air pollution control measures are adopted as per the conditions stipulated in the consent issued by KSPCB under the Air Act and Water Act.
16.	Rain water runoff from the landfill area and other hazardous waste management area shall be collected and diverted to the leachate treatment plant.	Complied with. Rain water from the landfill and other hazardous waste management area are taken to leachate collection tank and the collected rain water is sent to CETP.
17.	There shall not be any spillage from the transportation vehicles.	Regular checking of any leakages/spillage is done and using all vehicles for transportation of hazardous waste are authorised by Karnataka state Pollution Control Board.
18.	Zero discharge system shall be adopted.	Being Fallowed. We are not discharging out side. Leachate is collected and sent to CETP for treatment and disposal. This is followed as per the consent issued by KSPCB.
19.	Double containment system shall be provided from all waste transport vehicles to avoid spillage.	Complied with. It is ensured that no spillage take place during transportation of waste. The

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	The Spillage shall be cleared immediately.	waste collected from the generator is either in drums or in bags. As such there is no possibility of spillage.
20.	Vehicles should Prominently display complaint numbers for use of public as well as antidotes to any toxic waste.	Following
21.	All the recommendations of EMP/DMP shall be strictly complied.	All recommendations of EIA, EMP are implemented.
22.	The Project proponent will set up separate environmental Management cell for effective implementation of the stipulated environmental safeguards under the supervision of a senior executive.	Complied. The company has drawn its environmental policy for meeting the mandates list. The company has the full time professionals with chemical engineering & science background. They have been trained and exposed on environmental issues related to TSDF. They are all qualify & competent in meeting the environmental compliance requirements. Further, company has also engaged the services of external environmental consultant M/s Samrakshan, Bangalore who are guiding the company periodically. Organisation structure of Environmental cell is attached as **Annexure -VI**
23.	Untreated domestic effluent should not be discharged into open drain. Till the sewerage system in the Industrial Estate, which is presenting being laid, is completed, the domestic effluent should be treated in a well designed septic tank with soak pit, as committed. AS soon as the	A well designed Septic tank and soak pit is provided for the sewage treatment and disposal.

	sewerage system is made operational the domestic effluent from the project should system is made operational the domestic effluent from the project should be discharged only into the sewerage system for treatment in terminal STP.	
24.	Final Disposal measures-The hazardous wastes should prevent contamination of ground water, Surface water and ambient air quality.	Regular Monitoring of ground water and ambient air quality being carried out.
25.	Facility for land filling should be designed with protective measures against pollution of ground water, Surface water and air fugitive dust, wind –blown litter, bad odour, fire hazard, bird menace, pests or rodents, green house gas emissions, Slope instability and erosion.	Complied with. The design and operation of the landfill is done as per CPCB guidelines. To know the contamination in ground water, surface water, Soil and Air regular monitoring is carried out as per consent condition and reports are submitted to KSPCB.
26.	Proper mechanism should be adopted for extraction of leachate and treatment of the same as committed.	Complied with. Drainage is provided for landfill to collect the Leachate & collected with submersible pumps & the Leachate is sent to CETP for treatment as per the consent condition of KSPCB.
27.	The facility capacity shall handle only to the maximum designated capacity.	At present only one cell is in operation. the second cell construction is yet to be taken up. As there is change in lay out and the optimal utilisation of the site is made there is going to be some increase in the containment capacity, for which application for EC is made under the EIA Notification 2006. ToR is being issued by

		SEIAA for preparation of EIA report.
28.	Stray animals shall not be allowed to move around the facilities.	Noted & Following.
29.	Manual handling of waste shall be prohibited. If unavoidable due to constraints, manual handling shall be carried out under proper precaution with due care for safety of workers.	Complied with. Following all safety precautions. Provided required Personal Protective equipments to the workers viz. rubber gloves, masks, goggles, helmets, safety shoes, dress etc are supplied to the workers.
30.	Vehicles used for transportation of wastes shall be covered. Waste should not be visible to public, nor exposed to open environment preventing their scattering.	Complied with. The waste is covered with tarpaulin sheet while transportation.
31.	Transportation vehicles shall be so designed that multiple handling of wastes, prior to final disposal, is avoided.	There is no multiple handling of waste. Waste from the generator to the TSD facility is transported directly through the designated and approved vehicles.
32.	First aid and sanitation arrangements shall be made for the drivers and other contract workers.	First aid and sanitation arrangements are in place. It is a part of OHS.
33.	Regular online monitoring of the ambient air quality and water quality shall be carried out in monitoring stations and frequency of monitoring shall be decided in consultation with the State Pollution Control Board. Periodic reports shall be submitted to the SEIAA Karnataka, Department of Ecology and Environment,	We are maintaining. Regular Monitoring of Ambient air quality, Stack, Noise, Ground water and soil being carried out as per the frequency stipulated in the consent order issued by KSPCB. the copies of analysis reports are submitted to KSPCB.

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	Government of Karnataka, Bangalore/ KSPCB.	
34.	Green belt shall be developed in at least 33% of the total project area as committed with suitable species of the plants as per the CPCB guidelines. Planting aromatic and flowering climbers to cover the compound shall be undertake further 4 to 6 rows of bamboo mixed with aromatic trees. Grafted 'KendaSampige 'shall get priority.	Please refer condition no 14 for details about the green belt.
35.	The result of online monitoring shall be displayed in the project site in such a way that it is predominantly visible to the general public.	The site monitoring results are displayed in the project. Photo graph attached **Annexure-VI**
36.	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Occupational health surveillance of the workers is being done on regular basis and records are being maintained.
37.	The project Authority shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.	Noted. MEEPL is member of Haraholli Industrial area association for taking care of eco-developmental measures including community welfare measures in the project area.
38.	Vehicles used for transportation or the municipal solid waste shall be properly cleaned and sanitized after every Load is unloaded at the site. No un-cleaned vehicle shall be allowed to ply on the roads of the city.	MEEPL is not transporting municipal solid waste. However, due care is taken to clean the hazardous waste transport vehicle. The water used for washing is collected and sent to CETP.

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39.	The project Authority shall establish odour control system comprising of Air ventilation system and odour removal system. Bio filters shall also be provided for odour control over area such as waste reception pit, per-sorting area, windrow composting pads and curing sheds and screening &-packing.	This condition is not relevant to the activity. However aromatic plants are planted for odour control.
40.	All the required mitigation measures shall be employed to avoid hazards arising out of land fill site.	All necessary mitigation measures suggested in the risk assessment analysis and also being implemented.
41.	The project authority shall not handle the Hazardous waste other than those listed in the project proposal.	The Hazardous land fillable waste as per the HW Rules and as per the authorisation issued by the KSPCB to the generator and to the TSDF site is only accepted.
42.	The project authority shall take extra care while handling the hazardous waste containing heavy metal such as Lead, Mercury, Arsenic, Cadmium, Zinc, Cobalt etc., if Any to avoid the accidental entry into the Eco-system and to contain safely in the cells appropriately if such heavy metal cannot be recovered.	Noted
PART-B GENERAL CONDITIONS		
1.	The Project proponent should set up necessary facility for onsite testing of wastes to decide the requirement of treatment if any, before disposal.	A laboratory has been established to test the incoming wastes and given suitable disposal pathway of the waste.
2.	The implementation of the project vis-à-vis environmental action	Six monthly EC compliance status reports are submitted regularly. The

	plans shall be monitored by MoEF Regional Office at Bangalore / KSPCB/CPCB/ and the Department of Environment & Ecology, Government of Karnataka, Bangalore. A Six-monthly compliance status report shall be submitted to monitoring agencies.	previous EC compliance submission date was 04.06.2017.
3.	The project authorities shall strictly adhere to the stipulations made by the Karnataka State Pollution Control Board.	The conditions stipulated in the authorization issued under the HW rules and consent under the Water and Air Act.
4.	No further expansion or modifications in the plant shall be carried out without prior approval of the SEIAA/Ministry of Environment and Forests as the case may be, in case of deviations or alterations in the project proposal from those submitted to this authority for clearance, a fresh reference shall be made to the authority to assess the adequacy of conditions imposed and to add additional environmental protection measures required, If any.	Application is made to SEIAA for modification of EC/ issue of fresh EC, as the layout of the Cell No 1 and Cell No 2 is modified to optimize the area of the cells, this is resulting in increase in holding capacity.
5.	The project proponent shall also comply with all the environmental protection measures and safeguards as per the information provided.	Complied with.
6.	In case of any deviation or alteration in the project proposed from that submitted to SEIAA, Karanataka to assess the adequacy	Please refer point no. 4 above.

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	of the condition (S) imposed and to incorporate additional environmental protection measures required,If any.	
7.	A copy of the clearance letter shall be sent by the proponent to concerned panchayat, Zillparisad / Municipal corporation, Urban local Body and the Local NGO, If any ,from whom suggestions/representations, If any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	Complied.
8.	The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the regional office of MoEF, the respective Zonal Office of CPCB and the KSPCB. The criteria pollutant levels namely; SPM, RSPM, So2,NOX (ambient levels as well as stack emissions) or critical sectrol parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	Complied. The EC compliance status is uploaded in our company website . Compliance of the status is being sent to RO of MoEF and Zonal Officer of the SPCB. Ambient Air quality report is displayed at main gate of the company.
10.	A Separate environment management cell with qualified	Environmental management cell is established.

	staff shall be set up for implementation of stipulated environmental safeguards.	
11.	Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These cost shall be included as part of project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure shall be reported to the Ministry.	Noted.
12.	The environmental clearance accorded shall be valid for a period of 5 Years to start of the project.	The project is implemented within the validity period of the EC.
13.	The project authorities shall inform the MoEF Regional office at Bangalore/KSPCB/CPCB/ and the department of Environment & Ecology, Government of Karnataka , Bangalore, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	Complied.
14.	The SEIAA, Karnataka reserves the right to stipulate additional conditions ,If found necessary.	Noted.
15.	The above conditions will be enforced, inter-alia under the provisions of the Hazardous waste (Management, Handling and Trans-boundary Movement) Rules, 2008 along with their amendments and	Noted.

	rules.	
16.	Officials from the Department of Environment and Ecology, Government of Karnataka, Bangalore/Regional Office of MoEF, Bangalore, KSPCB who would be monitoring the implementation of Environmental Safeguards should be given full cooperation, Facilities and documents /data by the project proponents during their inspection. A complete set of all the documents submitted to SEIAA should be forwarded to the CCF, Regional Office of MoEF, Bangalore /Deportment of Environment and Ecology, Government of Karnataka, Bangalore and KSPCB.	Noted & agreed.
17.	The Authority reserves the right to add additional safeguard measures subsequently, If found necessary, and to take action including revoking of the environment clearance under the provisions of Environment (Protection) Act,1986, to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner.	Noted & agreed.
18.	The project proponent should advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded environmental clearance and	Done. In News Advertisement Came in Hindu &Udayavani.

	copies of clearance letters are available with the Karnataka State Pollution Control Board and my also be seen on the website of the Ecology and Environment Department at http://seiaa.kar.nic.in or http://seiaa.karnataka.gov.in the advertisement should be made within 7 days from the day of issue of the clearance letter and a copy of the same should be forwarded to the regional office of MoEF at Bangalore/Department of Ecology and Environment , Government of Karnataka, Bangalore.	
19	These Stipulations would be enforced among others under the provisions of water (Prevention and Control of Pollution) Act,1974,the Air(Prevention and control of Pollution) at 1981, the Environment (Protection) Act,1986,The Public Liability(Insurance)Act,1991 and EIA Notification,2006.	The conditions stipulated by KSPCB in authorization and consent are complied.
20.	The SEIAA, Karnataka may revoke or suspend the clearance, If implementation of any of the above conditions is not satisfactory.	Noted & agreed.

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(Authorization copy)

(Annexure-I)

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ವೆಬ್‌ಸೈಟ್ / Website : http://kspcb.gov.in

☎ 25581383, 25589112
25588151, 25588270
25588142, 25586520

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
Karnataka State Pollution Control Board

"ಪರಿಸರ ಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ.49, ಚರ್ಚ್‌ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ, ಭಾರತ
"Parisara Bhavana", 1st to 5th Floor, # 49, Church Street, Bengaluru - 560 001, Karnataka, INDIA

[SEE RULE 5(4)]

GRANT OF AUTHORIZATION BY SPCB FOR OCCUPIERS OF FACILITIES FOR GENERATION, STORAGE AND DISPOSAL OF HAZARDOUS WASTE

Ref: 1. Authorization application filed by the industry under Rule 5(3) of Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 as amended up to 2010, at Regional Office, Ramanagara on 23/03/2016 (Reg No. 108247).
2. Inspection of the industry by the Regional Officer, Ramanagara on 23.03.2016.
3. Proceedings of CCM held on 01/04/2016.

1. No.PCB/469/WMC/Authorization/2016/108-38 Dated: 13 APR 2016
2. The Manager of M/s. Mother Earth Enviroh Tech Pvt Ltd., Plot No.217, KIADB Industrial Area, Harohalli, 2nd Phase, Kanakapura Taluk, Ramanagara is hereby granted an authorization for generation, storage and disposal under Rule 5(4) of Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 as amended up to 2010 for **handling Hazardous Waste** in the manner indicated below while carrying on the activity of Hazardous waste landfill facility of capacity 95000 Tons/ten years.
3. The authorization granted to operate a facility for generation, storage and disposal of Hazardous Waste as indicated below.

Waste Category	Hazardous Waste generated	Quantity	Method of Handling
5.1	Used Oil	0.05 KL/A	Shall be collected in Leak proof containers and disposed only to CPCB registered reprocessors/common collection centre provided the oil meets the standards as per schedule-5 of the Rules
5.2	Oil soaked cotton waste	0.06 MT/A	Shall be stored in secure manner and handed over to KSPCB authorized incinerator.
5.2	Oil contaminated filters	10 No's/A	Shall be stored in secure manner and handed over to KSPCB authorized incinerator.
5.2	Used bags (contaminated with chemicals and oil)	18250 No's/A (2 MT/A)	Shall be stored in secure manner and handed over to KSPCB authorized incinerator.
5.2	Contaminated hand gloves, gum boots etc.,	600 Pairs/A	Shall be land filled in the same facility
	Land disposable hazardous waste	95000 MT/10 years	Shall be stabilized in stabilization pits provided within the industry and then land filled by scientific procedure

3(a) The applicant is permitted to dismantle CFL/tube light as per norms of CPCB.
4. This authorization is issued with reference to the application dated **23/03/2016** and will be in force for a period from **up to 30.06.2020** ("This Authorization is valid only when the Consents are valid").
5. The applicant shall install MEE (Multiple Effect Evaporators) for disposing the leachate generated from the waste within six months.
6. The authorization is subjected to the conditions stated below and such conditions as may be specified in the Rules for the time being in force under the Environment (Protection) Act, 1986.

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7. The applicant shall install web camera at the entrance of the gate, figure print sampling station and treatment area.
8. The applicant shall install hood ducting and air pollution control equipment with chimney to the waste stabilization/processing area to control the odor/ smell nuisance to the surrounding area.

Member Secretary

TERMS & CONDITIONS OF AUTHORIZATION

1. The person authorized shall comply with the provisions of the Environment (Protection) Act, 1986 and the Rules made there under.
2. This authorization shall be produced for inspection at the request of an Officer authorized by the Karnataka State Pollution Control Board.
3. The person authorized shall not rent, lend, sell, transfer or otherwise transport the hazardous wastes without obtaining prior permission of the SPCB/PCC.
4. Any unauthorized change in personnel, 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 authorized person to take prior permission of the Karnataka State Pollution Control Board to close down the facility.
6. An application for the renewal of an authorization shall be made 60 days before the date of expiry.
7. All the fire Hazard waste shall be stored as per CPCB guidelines published on Nov 2008 to avoid any fire accident.
8. The Person authorized shall bring to the notice of the Board, if any increase in quantity, change in category and handling operation. In such cases, the authorized Person has to obtain fresh authorization.
9. Karnataka State Pollution Control Board reserves the right to review, impose additional condition or conditions, revoke, change or alter the terms and conditions of this authorization or to suspend or cancel this authorization.
10. The Person authorized shall take steps for reduction and prevention of the waste generated or for recycling or reuse.
11. The occupier shall ensure that, the nonferrous metal wastes specified in Schedule-4 of the Rules, used oil and waste oil are sold only to CPCB/KSPCB Registered units.
12. The authorized person shall maintain the records at site in Form-3 and shall submit the annual returns in Form-4 within 30th June every year for the Period April to March and manifest in Form-13.
13. The transportation of hazardous waste shall have to be carried out only through registered/authorized vehicles meant for transportation of hazardous waste.
14. **The Person Authorized shall not store the Hazardous Waste more than ninety days as per Rule 7 (1).**
15. **Display Boards**
    The person authorized shall display sign boards at the storage site as "Hazardous Waste Storage Site" and "Danger" and the site shall be provided with accident preventive measures.

Draft Approved By
Member Secretary

Member Secretary

To:
The Authorized Signatory,
M/s. Mother Earth Environ Tech Pvt Ltd.,
Plot No.217, KIADB Industrial Area,
Harohalli, 2nd Phase, Kanakapura Taluk,
Ramanagara.

Note: *Refer the following Guidelines prepared by CPCB in respect of*

1. *Guidelines for setting up of operating facility ; Hazardous Waste (Management, handling and Transboundary Movement) Rules, 2008 as amended upto 2010.*
2. *Guidelines for common Hazardous Waste Incineration.*
3. *Guidelines for proper functioning & up keep of disposal sites*
4. *Guidelines for transportation of Hazardous Waste and other Guidelines issued from CPCB time to time.*

(Consent to Establish)

(Annexure-II)

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ದೂರವಾಣಿ 25581383, 25589112
25588151, 25588270
25588142, 25586520

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
Karnataka State Pollution Control Board

"ಪರಿಸರಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ.49, ಚರ್ಚ್‌ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ, ಭಾರತ
"Parisara Bhavana", 1st to 5th Floor, # 49, Church Street, Bengaluru - 560 001, Karnataka, INDIA

No. KSPCB/SEO (WMC)/CFE/2015-16/ 1471

Date: - 4 NOV. 2015

To,
The Managing Director,
M/s. Mother Earth Environ Tech Pvt. Ltd.,
No.2542,28th Cross, 17th Main Road,
Banashankari 2nd Stage,
Bengaluru - 560070

DESPATCHED

Sir,

Sub: Establishment of Hazardous Waste landfill facility at Plot No.217, KIADB Industrial Area, 2nd Phase, Kanakapura Taluk, Ramanagara District by M/s. Mother Earth Environ Tech Pvt. Ltd. of capacity 95000 Tons/ten years – reg.

Ref:
1. Your CFE application resubmitted vide HD.Reg.No. 100322 dt: 06/10/2015 at Regional Office, KSPCB, Ramanagara.
2. Inspection of the industry by RO, KSPCB, Ramanagara on 25/02/2015 and report dated 31/03/2015.
3. Proceedings of the CCM held on 13/05/2015.
4. Board Letter No: KSPCB/SEO-WMC/Mother Earth/2015-16/308 dt: 12/06/2015.
5. SEIAA-Karnataka Environmental Clearance letter No: SEIAA 1 IND 2015 dt: 28/08/2015
6. Regional Office, KSPCB, Ramanagar letter No:1114 dt: 06/10/2015.

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With reference to the above, it is to be informed that, the Board hereby accords consent for establishment under the Water (Prevention & Control of Pollution) Act 1974, and the Air (Prevention & Control of Pollution) Act 1981, for Establishment of Hazardous Waste landfill facility at Plot No.217, KIADB Industrial Area, 2nd Phase, Kanakapura Taluk, Ramanagara District by M/s. Mother Earth Environ Tech Pvt. Ltd. of total capacity 95000 Tons/ten years (consisting of 2 cells with capacity 50,000 Tons and 45000 Tons), subject to the following conditions;

1. This consent for establishment is valid for a period of five years from the date of issue.
2. The applicant shall not undertake expansion/diversification without the prior consent of the Board.

SENIOR ENVIRONMENTAL OFFICER

3. The applicant shall obtain necessary license/clearance from other relevant statutory agencies before taking up construction.
4. There shall not be any complaints against the industry from the surrounding public in respect of water, air or Noise/solid waste generation.

I. WATER CONSUMPTION:

1. The source of water shall be from KIADB and total water consumption shall be 3 KLD out of which 0.5 KLD for domestic purpose and 2 KLD for green belt.

II. WATER POLLUTION CONTROL:

1. The domestic effluent of quantity not exceeding 0.4 KLD shall be treated in Septic tank and Soak pit. No overflow from the soak pit is allowed. The septic tank and soak pit shall be designed as per the IS 2470 Part-I & II. There shall not be any discharge of domestic effluent outside the factory premises.
2. The trade effluent as leachate of quantity not exceeding 2 KLD generated shall be collected in leachate pond and treated to the standards as indicated in Annexure-I.
3. The applicant shall discharge the effluent only to the place mentioned in the consent order.

B. SPECIFIC CONDITIONS:

1. The rain water coming in contact with the waste storage sheds, landfill area and all waste processing areas shall have to be segregated, collected and taken to effluent treatment plant (leachate pond) within the TSDF premises, treated and used inside the TSDF facility for any useful applications and shall not be discharged outside the premises.
2. There shall not be any storm water outlets anywhere in the surroundings of compound wall built around the TSDF premises. The total rain water coming from the catchment area of the TSDF facility shall be collected and stored inside the premises and used for TSDF construction/operation.
3. Effluent generated due to activities like tyre washing, truck washing and other similar activities shall be strictly segregated and treated and used only in TSDF application.
4. Any spillage happened in the TSDF premises and places during transportation shall be cleaned up immediately and precautions shall be taken to avoid public access to such places.
5. Only authorized persons shall operate the trucks meant for transportation of hazardous waste from generator to TSDF premises.
6. All types of emergency handling equipments inside the truck meant for transportation of hazardous waste and at TSDF facility shall be maintained properly and the people should be trained to use the safety apparatus.
7. The TSDF premises is meant for handling, processing, treatment and disposal of land disposable hazardous waste in to the landfill only. Hence no other facilities are permitted to be established within this TSDF premises without obtaining necessary clearance from the Government of Karnataka, KIADB and KSPCB as applicable. The unit shall establish strictly accords to CPCB TSDF guidelines.

SENIOR ENVIRONMENTAL OFFICER

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8. The operator is permitted to collect from generators only landfill able hazardous waste. No other wastes like incinerable and recyclable wastes shall be collected by the operator from any generator/industry for any reason.
9. The landfill shall have to be designed and constructed as a secured facility to contain the waste material and any leachate generated during the process. To meet these requirements, the base, slope, liner system etc., of the landfill shall have to be designed and constructed as per the guidelines of MoEF/CPCB (Guidelines for setting up of Operating Facility- Hazardous Waste Management, HAZWAMS/11/98-99 and Criteria for Hazardous Waste Landfills, HAZWAMS/17/2000-01) and the conditions stipulated in the consent issued herewith.
10. The applicant shall earmark and provide separate area for storing the waste at TSDF. The hazardous waste should not be stored for more than two weeks at this temporary storage area.
11. Concentration limits/ criteria for acceptance of hazardous wastes for direct disposal to secured landfill is indicated in Annexure-II.
12. The applicant shall be responsible for;
    a. Accepting hazardous wastes at TSDF from the generators authorized by the Karnataka State Pollution Control Board only.
    b. Establishing a system for optimal movement of hazardous waste transportation.
    c. Fingerprint analysis to confirm the wastes (Free liquid content (paint filter liquid Test and Liquid Release Test), pH, Calorific value, Flash point, Reactive sulfide, Reactive cyanide, chemical compatibility, any other specific parameter considering the merit of the case).
    d. Undertake cleanup operation in case of contamination resulting from TSDF.
    e. Pollution and the odour arising out of TSDF operations and subsequent abatement.
    f. Compliance of regulations concerning occupational safety and health of TSDF employees.

C. AIR POLLUTION CONTROL:

1. The discharge of emissions from the premises of the applicant shall pass through the air pollution control equipment and discharged through stacks/chimneys mentioned in Annexure-III where from the Board shall be free to collect the samples at any time in accordance with the provisions of the Act and Rules made there under.
2. The industry shall upgrade/modify/replace the control equipments if they are found inadequate to meet the standards stipulated. Prior permission of the Board shall be obtained for the same.
3. If there is going to be any new air pollution sources in future, the project authorities shall apply and obtain consent for establishment for the same from the Board.

SENIOR ENVIRONMENTAL OFFICER

4. There shall not be installation of any new air pollution sources within the factory premises.

D. NOISE POLLUTION CONTROL:

1. The industry shall ensure that the ambient noise levels within its premises shall not exceed the limits i.e. 75 dB(A) Leq during day time and 70 dB(A) Leq during night time as specified in the Environment (Protection) Rules.

E. SOLID WASTE (OTHER THAN HAZARDOUS WASTE) DISPOSAL:

1. The applicant shall segregate solid waste from Hazardous waste and store it properly till treatment/disposal without causing pollution to Environment.
2. The applicant shall strictly comply with the conditions stipulated in the authorization issued under Hazardous Wastes (Management, Handling & Transboundry Movement) Rules 2008.

F. HAZARDOUS WASTES (MANAGEMENT, HANDLING & TRANSBOUNDRY MOVEMENT) RULES 2008:

1. The industry shall apply and obtain authorization under Hazardous Wastes (Management, Handling & Transboundry Movement) Rules 2008, and comply with the conditions of the authorization. The applicant shall apply for authorization along with the consent for operation (CFO) application under the Rules in Form-I to obtain authorization and comply with conditions.
2. The applicant shall obtain Public Liability Insurance as per Public Liability Insurance Act, 1991.
3. The hazardous wastes need to be handled in an environmentally safe manner avoiding the possibilities of contaminating the nearby environment and eliminate the chances of accidents leading to environmental catastrophe. The requirements of handling, including labeling, packaging, transport and storage to be done as per the guidelines issued by the CPCB from time to time.
4. The applicant shall comply with the Guidelines prepared by CPCB in respect of "Guidelines for setting up of operating facility ; Hazardous Waste (Management, handling and Transboundary Movement) Rules, 2008 as amended upto 2010".
5. The applicant shall comply with the Guidelines prepared by CPCB in respect of "Guidelines for common Hazardous Waste Incineration".
6. The applicant shall comply with the Guidelines prepared by CPCB in respect of "Guidelines for proper functioning & up keep of disposal sites".
7. The applicant shall comply with the Guidelines prepared by CPCB in respect of "Guidelines for transportation of Hazardous Waste and other Guidelines issued from CPCB time to time".

G. MONITORING AND REPORTING:

1. The applicant shall maintain log books to reflect the working condition of pollution control systems and also self monitoring results and keep it open for inspection.

SENIOR ENVIRONMENTAL OFFICER

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2. The applicant shall conduct ambient air quality monitoring at three points inside the TSDF premises in twice a week to cover.
3. The applicant shall conduct monitoring of all Borewell samples located inside the TSDF premises once a month and outside the TSDF premises once in three months and submit the report to the concerned Regional Office of the Board.
4. The applicant shall conduct soil samplings at two points inside the TSDF premises and one point outside the TSDF premises once in three months.
5. The parameters for the above said samplings are as per CPCB guidelines.

H. GENERAL:

1. The industry shall not commission the expanded activity for trial or regular production unless necessary water & air pollution control equipments are installed to the satisfaction of the Board. The industry shall ensure that the treatment plant and control equipments are completed and commissioned accordingly.
2. The industry shall not change or alter (a) the quality, quantity or rate of discharge/emissions and (b) install/replace/alter the water or air pollution control equipments without the prior approval of the Board.
3. The industry shall immediately report to the Board of any accident or unforeseen act or event resulting in release of discharge of effluents or emissions or solid wastes etc. in excess of the standards stipulated. And the industry shall immediately take appropriate corrective and preventive actions under intimation.
4. The industry is liable to reinstate or restore, damaged or destroyed elements of environment at his cost, failing which, the applicant/occupier as the case may be shall be liable to pay the entire cost of remediation or restoration in advance an amount equal to the cost estimated by Competent Agency or Committee.
5. The applicant shall comply with all the Rules and guidelines issued from time to time.
6. The applicant shall provide alternate power supply sufficient to operate all pollution control equipments utilized by the applicant to maintain compliance with the terms and conditions of this consent.
7. The applicant shall provide port holes for sampling the emissions. Access platforms for carrying out stack sampling electrical points and all other necessary arrangements including ladder.
8. The applicant shall furnish Environmental statement for every financial year ending with 31st of March in Form-V as per Environment (Protection) Rules, 1986. The statement shall be furnished before the end of September.
9. The applicant shall go for ISO 14000 and shall have Environmental Cell headed by qualified Environmental Engineer/scientist for the Management of Environmental aspects.
10. The applicant shall ensure that proper Environmental Management system is in place.
11. The applicant shall develop and maintain adequate green belt all around the periphery.

A. Jamel

SENIOR ENVIRONMENTAL OFFICER

12. The applicant shall crate facility for rain water harvesting within the factory premises.
13. All the drums and machineries shall be placed within the shed and floor shall be impervious.
14. The Board reserves the right to review, impose additional condition or conditions, revoke, change or alter the terms and conditions.
15. This CFE does not give ~~any~~ right to the Party/Project Authority/Industry to forego any legal requirement that is necessary for setting/operation of the plant.
16. This consent is issued without prejudice to any Court Cases pending in any Hon'ble Court
17. The industry shall furnish pointwise compliance to the conditions given under this consent for establishment within 30 days.

Please note that this is only consent for establishment issued to you to proceed with the formalities for establishment of the industry and does not give any right to proceed with trial/regular production. For this purpose, separate consents of the Board for discharge of liquid effluent and the emissions to the air shall have to be obtained by remitting prescribed consent fee. The application for consent has to be made 45 days in advance of commissioning for trial production of the plant.

The receipt of this letter may please be acknowledged.

FOR AND ON BEHALF OF
KARNATAKA STATE POLLUTION CONTROL BOARD

Sd/-
SENIOR ENVIRONMENTAL OFFICER

Encl.: Annexure-I, II & III

Note:
1. *It is advised to regularly check the health of workers exposed to very high noise levels and suitable measures to avoid any ill effects shall be taken.*
2. *It is advised to take all safety measures to avoid any injury to its employees and local people as per the approved Onsite and Offsite Emergency Plan.*

COPY TO:
1. The Environmental Officer, KSPCB, Regional Office, Ramanagara, for information and necessary action.
2. Master copy (Dispatch).

SENIOR ENVIRONMENTAL OFFICER

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ANNEXURE-I

Leachate Disposal Standards

Sl.No.	Parameter	Standards for disposal on Inland surface (mg/L)
1	Adsorbable Organic Halogens (AOX)	0.50
2	Poly Aromatic Hydrocarbons (PAH)	0.059
3	Benzene	0.14
4	Toluene	0.08
5	Xylene (sum of o, m, p-xylene)	0.32
6	Suspended Solids	200
7	Dissolved solids (inorganic)	2100
8	pH	5.5-9.0
9	BOD (3 Days at 27 ° C)	100
10	Arsenic	0.2
11	Cyanide	0.2
12	Chloride	600

A. Kamel

SENIOR ENVIRONMENTAL OFFICER

Annexure-II

Concentration limits/ criteria for acceptance of hazardous wastes for direct disposal to secured landfill

Leachate Quality*	Concentration
pH	4-12
Total Phenols	< 100mg/L
Arsenic	< 1 mg/L
Lead	< 2mg/L
Cadmium	< 0.2 mg/L
Chromium-VI	< 0.5 mg/L
Copper	< 10 mg/L
Nickel	< 3 mg/L
Mercury	< 0.1 mg/L
Zinc	< 10 mg/L
Fluoride	< 50 mg/L
Ammonia	< 1,000 mg/L
Cyanide	< 2 mg/L
Nitrate	< 30 mg/L
Adsorbable organic bound Chlorine	< 3 mg/L
Water soluble compounds except salts	< 10%
Calorific value	< 2500 Kcal/Kg
Strength	
Transversal strength (Vane Testing)	> 25 KN/m²
Unconfined Compression Test	> 50 KN/m²
Axial Deformation	< 20%
Degree of Mineralization or Content of Organic Materials (Original Sample)	
Annealing loss of the dry residue at 550°C	< 20% by weight (for non-biodegradable waste) < 5% by weight (for bio-degradable waste)
Extractible Lipophilic contents (Oil & Grease)	< 4% by weight

*Leachate quality is based on Water Leach Test

SENIOR ENVIRONMENTAL OFFICER

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Annexure-III

Discharge of Air Emissions

Ch. No.	Chimney Attached to	Minimum Chimney Height to be Provided Above ground level	Ratio to emission NM3/Hr.	Constituents to be controlled in the emission.	Tolerance limits Mg/NM3 & frequency of monitoring	Air Pollution Control equipment to be installed, in addition to Chimney height as per Col (3)	Date of which air pollution Control equipments shall be provided to achieve the stipulated tolerance limits and chimney heights conforming to stipulated heights.	Remarks
1.	100 KVA DG Set	4m ARL	–	SO_2	–	Acoustic Enclosure	Before Commissioning	1) The emission rate of all chimneys shall be reported within 30 days. 2) There shall be no smell or odour nuisance from the industry. 3) There shall be no other Sources of air pollution.

A. Jamell

SENIOR ENVIRONMENTAL OFFICER

(Fire fighting system at TSDF site)

(Annexure-III)

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NABL Accredited Laboratory
48/A-4, KIADB Industrial Area, Doddaballapur, Bengaluru-561203
Tel: 080-27630563.E-mail: lab@egsspl.com, factory@egsspl.com

TC-5873

TEST REPORT

EGSSPL/TF/16/00

Customer Name and Address	M/S. Mother Earth Environ Tech Pvt. Ltd Plot No.: 217,KIADB industrial area, 2nd Phase,Harohalli - 562112, Kanakpura Taluk, Ramnagara	Sample Collected On	21.09.2017
Sample Type	Soil Sample (Near Stabilization Shed)	Sample Receipt on	21.09.2017
Date of Analysis Start	21.09.2017	Sample RC No	300
Date of Analysis End/ Date Of Report	27.09.2017/28.09.2017	Sample Code No	EGSSPL/S-7
Report No	EGSSPL/S-7/17-18	Quantity of the Sample Received	1Kg

S. No	PARAMETERS	RESULTS	TEST METHOD
1	pH @24.8^{0}C	8.66	IS 2720:PART-26:1987
2	Conductivity@25^{0}C, µs/cm	506	IS 14767: 2000
3	Sand, % *	59	HMIES-S.K.Maiti, 2011
4	Silt, % *	30	HMIES-S.K.Maiti, 2011
5	Clay, % *	11	HMIES-S.K.Maiti, 2011
6	Chlorides as Cl, mg/Kg *	18.6	HMIES-S.K.Maiti, 2011
7	Bulk Density, g/cc *	0.6	HMIES-S.K.Maiti, 2011
8	Water Holding Capacity,% *	55	HMIES-S.K.Maiti, 2011
9	Available Potassium, kg/ha *	980	HMIES-S.K.Maiti, 2011
10	Available Sodium, kg/ha *	281	HMIES-S.K.Maiti, 2011
11	Total Chromium as Cr, mg/Kg *	7.7	US-EPA 3050B:1996
12	Copper as Cu, mg/Kg	0.7	US-EPA 3050B:1996
13	Iron as Fe, mg/Kg	610.8	US-EPA 3050B:1996
14	Zinc as Zn, mg/Kg	1.4	US-EPA 3050B:1996
15	Nickel as Ni, mg/Kg	1.2	US-EPA 3050B:1996
16	Lead as Pb, mg/Kg	1	US-EPA 3050B:1996
17	Cadmium as Cd, mg/Kg	<0.1	US-EPA 3050B:1996

"The tests marked with an asterisk (*) are not accredited by NABL"

Note: 1. Sample Drawn by us
2. Soil Sample Collected 50Cmtrs Depth from Ground Level

End Of Report

Signed KP
Analysed By

Verified By

Authorized Signatory
(P.Hanumanthaiah)
Technical Manager

ECO GREEN SOLUTION SYSTEMS PVT LTD

An ISO 9001:2015 & OHSAS 18001:2007 Certified Company
NABL Accredited Laboratory **TC-5873**
48/A-4, KIADB Industrial Area, Doddaballapur, Bengaluru-561203
Tel: 080-27630563.E-mail: lab@egsspl.com, factory@egsspl.com

Date: 21.09.2017

Sampling Point



P. Nadu

Sampling Done By:

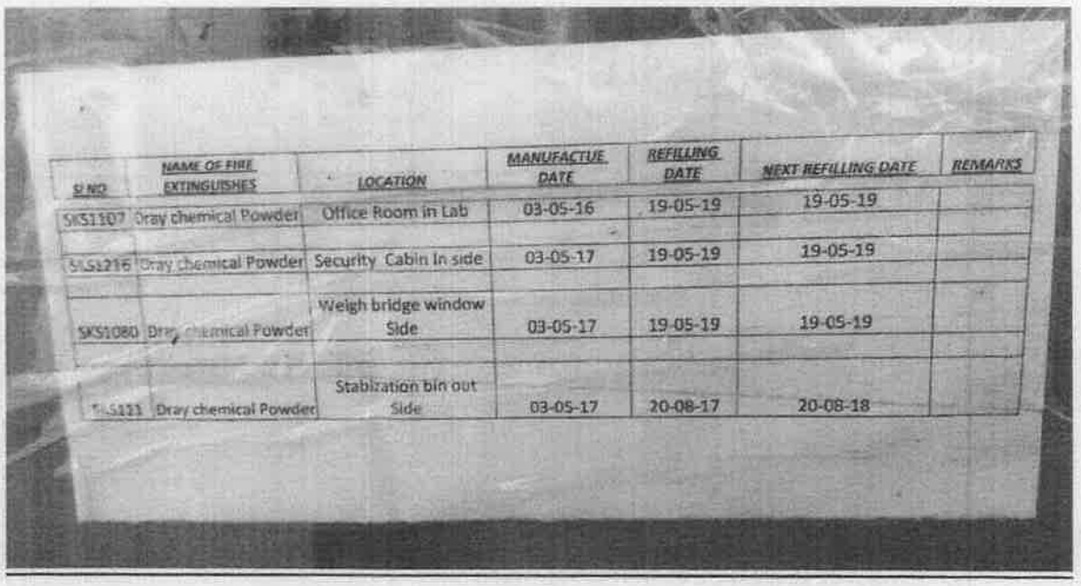
A35

(Ambient Air Quality)

(Annexure-IV)

Fire fighting system at TSDF site

Location of the Fire extinguishers display



SI NO	NAME OF FIRE EXTINGUISHES	LOCATION	MANUFACTUE DATE	REFILLING DATE	NEXT REFILLING DATE	REMARKS
SKS1107	Dray chemical Powder	Office Room in Lab	03-05-16	19-05-19	19-05-19	
SKS1216	Dray chemical Powder	Security Cabin In side	03-05-17	19-05-19	19-05-19	
SKS1080	Dray chemical Powder	Weigh bridge window Side	03-05-17	19-05-19	19-05-19	
SKS111	Dray chemical Powder	Stabization bin out Side	03-05-17	20-08-17	20-08-18	

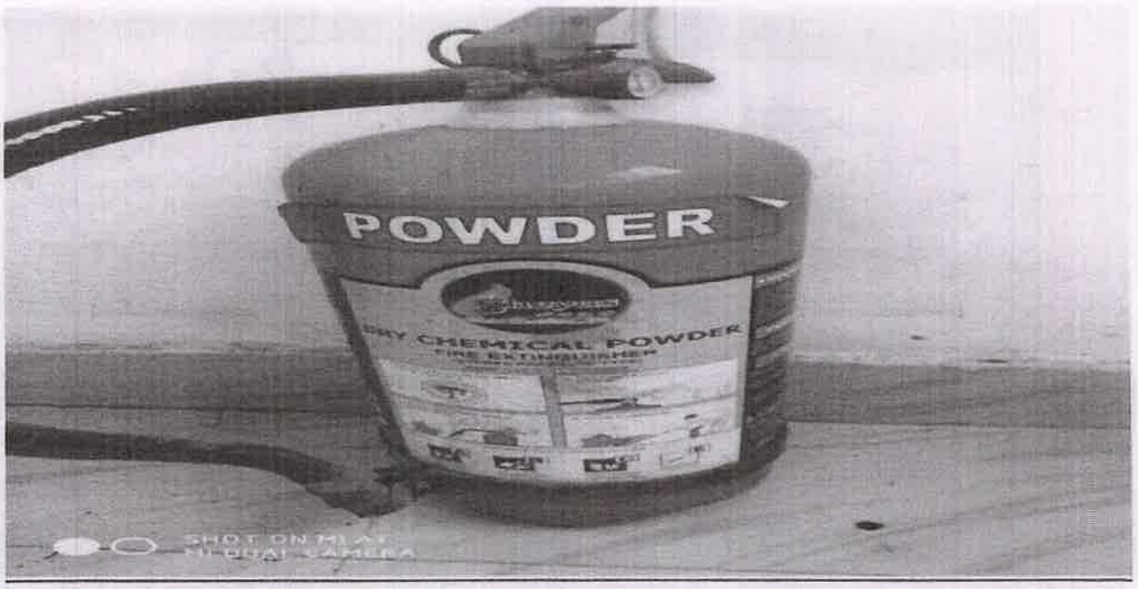
Fire extinguisher at office room in lab



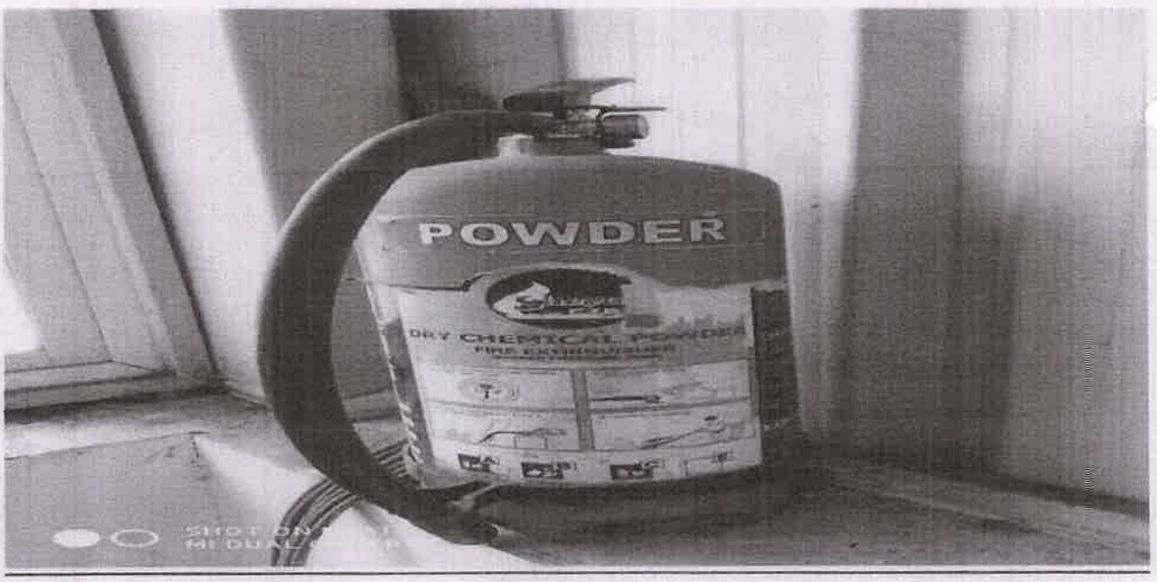
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Fire fighting system at TSDF site

Fire extinguisher at Security cabin



Fire extinguisher at Weighbridge cabin

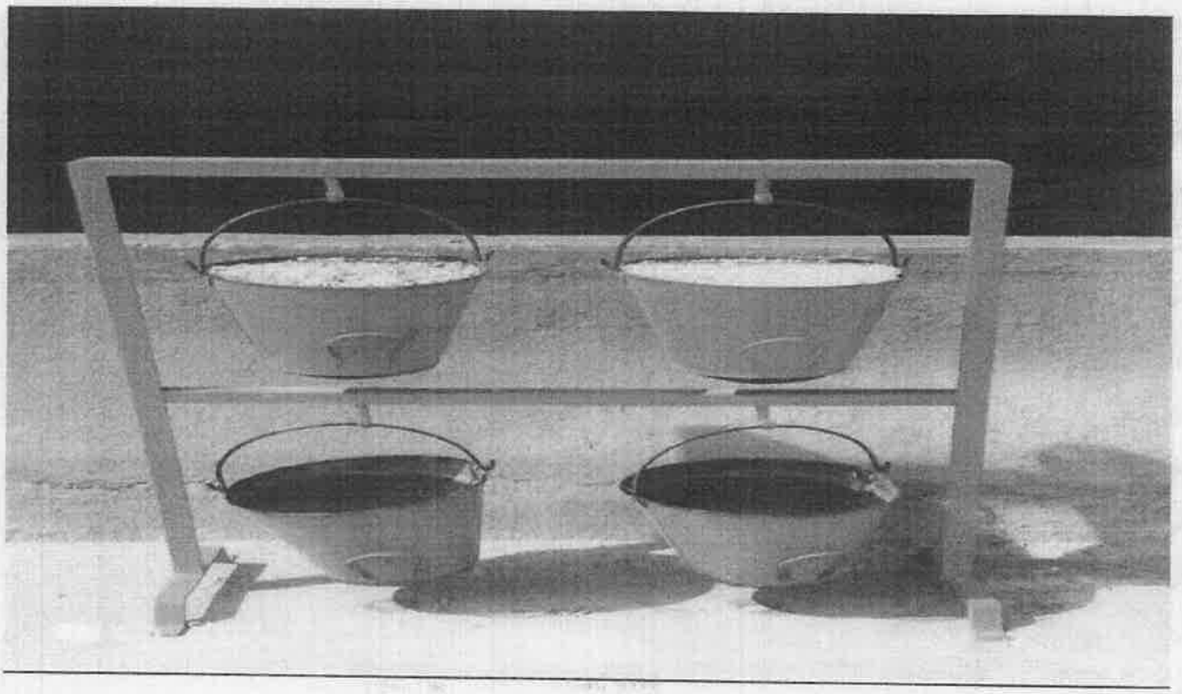


Fire fighting system at TSDF site

Fire extinguisher near Stablization bin



Fire bucket system near Hazardous waste storage shed



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(Soil & Water Quality)

(Annexure-V)

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NABL Accredited Laboratory **TC-5873**
48/A-4, KIADB Industrial Area, Doddaballapur, Bengaluru-561203
Tel: 080-27630563.E-mail: lab@egsspl.com, factory@egsspl.com

TEST REPORT

EGSSPL/TF/16/00

Customer Name and Address	M/S. Mother Earth Environ Tech Pvt. Ltd Plot No.: 217,KIADB industrial area, 2nd Phase,Harohalli - 562112, Kanakpura Taluk, Ramnagara	Sample Collected On	21.09.2017
Sample Type	Soil Sample (Near Stabilization Shed)	Sample Receipt on	21.09.2017
Date of Analysis Start	21.09.2017	Sample RC No	300
Date of Analysis End/ Date Of Report	27.09.2017/28.09.2017	Sample Code No	EGSSPL/S-7
Report No	EGSSPL/S-7/17-18	Quantity of the Sample Received	1Kg

S. No	PARAMETERS	RESULTS	TEST METHOD
1	pH @24.8°C	8.66	IS 2720:PART-26:1987
2	Conductivity@25°C, µs/cm	506	IS 14767: 2000
3	Sand, % *	59	HMIES-S.K.Maiti, 2011
4	Silt, % *	30	HMIES-S.K.Maiti, 2011
5	Clay, % *	11	HMIES-S.K.Maiti, 2011
6	Chlorides as Cl, mg/Kg *	18.6	HMIES-S.K.Maiti, 2011
7	Bulk Density, g/cc *	0.6	HMIES-S.K.Maiti, 2011
8	Water Holding Capacity,% *	55	HMIES-S.K.Maiti, 2011
9	Available Potassium, kg/ha *	980	HMIES-S.K.Maiti, 2011
10	Available Sodium, kg/ha *	281	HMIES-S.K.Maiti, 2011
11	Total Chromium as Cr, mg/Kg *	7.7	US-EPA 3050B:1996
12	Copper as Cu, mg/Kg	0.7	US-EPA 3050B:1996
13	Iron as Fe, mg/Kg	610.8	US-EPA 3050B:1996
14	Zinc as Zn, mg/Kg	1.4	US-EPA 3050B:1996
15	Nickel as Ni, mg/Kg	1.2	US-EPA 3050B:1996
16	Lead as Pb, mg/Kg	1	US-EPA 3050B:1996
17	Cadmium as Cd, mg/Kg	<0.1	US-EPA 3050B:1996

"The tests marked with an asterisk (*) are not accredited by NABL"

Note: 1. Sample Drawn by us
2. Soil Sample Collected 50Cmtrs Depth from Ground Level

End Of Report

Analysed By **Verified By** **Authorized Signatory**
(P.Hanumanthaiah)
Technical Manager

441

ECO GREEN SOLUTION SYSTEMS PVT LTD

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NABL Accredited Laboratory
48/A-4, KIADB Industrial Area, Doddaballapur, Bengaluru-561203
Tel: 080-27630563.E-mail: lab@egsspl.com, factory@egsspl.com

TC-5873

Date: 21.09.2017

Sampling Point



P. Nadu

Sampling Done By:

442

ECO GREEN SOLUTION SYSTEMS PVT LTD

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NABL Accredited Laboratory
48/A-4, KIADB Industrial Area, Doddaballapur, Bengaluru-561203
Tel: 080-27630563.E-mail: lab@egsspl.com, factory@egsspl.com

TC-5873

TEST REPORT

EGSSPL/TP/16/00

Customer Name and Address	M/S. Mother Earth Environ Tech Pvt. Ltd Plot No.: 217,KIADB industrial area, 2nd Phase,Harohalli - 562112, Kanakpura Taluk, Ramnagara	Sample Collected On	21.09.2017
Sample Type	Soil Sample (Near Stabilization Shed)	Sample Receipt on	21.09.2017
Date of Analysis Start	21.09.2017	Sample RC No	300
Date of Analysis End/ Date Of Report	27.09.2017/28.09.2017	Sample Code No.	EGSSPL/S-7
Report No	EGSSPL/S-7/17-18	Quantity of the Sample Received	1Kg

S. No.	PARAMETERS	RESULTS	TEST METHOD
1	pH @24.8°C	8.66	IS 2720:PART-26:1987
2	Conductivity@25°C, µs/cm	506	IS 14767: 2000
3	Sand, % *	59	HMIES-S.K.Maiti, 2011
4	Silt, % *	30	HMIES-S.K.Maiti, 2011
5	Clay, % *	11	HMIES-S.K.Maiti, 2011
6	Chlorides as Cl, mg/Kg *	18.6	HMIES-S.K.Maiti, 2011
7	Bulk Density, g/cc *	0.6	HMIES-S.K.Maiti, 2011
8	Water Holding Capacity,% *	55	HMIES-S.K.Maiti, 2011
9	Available Potassium, kg/ha *	980	HMIES-S.K.Maiti, 2011
10	Available Sodium, kg/ha *	281	HMIES-S.K.Maiti, 2011
11	Total Chromium as Cr, mg/Kg *	7.7	US-EPA 3050B:1996
12	Copper as Cu, mg/Kg	0.7	US-EPA 3050B:1996
13	Iron as Fe, mg/Kg	610.8	US-EPA 3050B:1996
14	Zinc as Zn, mg/Kg	1.4	US-EPA 3050B:1996
15	Nickel as Ni, mg/Kg	1.2	US-EPA 3050B:1996
16	Lead as Pb, mg/Kg	1	US-EPA 3050B:1996
17	Cadmium as Cd, mg/Kg	<0.1	US-EPA 3050B:1996

"The tests marked with an asterisk (*) are not accredited by NABL".

Note: 1. Sample Drawn by us
2. Soil Sample Collected 50Cmtrs Depth from Ground Level

End Of Report

Reena - KP
Analysed By

Verified By

Authorized Signatory
(P.Hanumanthaiah)
Technical Manager

443

ECO GREEN SOLUTION SYSTEMS PVT LTD

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NABL Accredited Laboratory
48/A-4, KIADB Industrial Area, Doddaballapur, Bengaluru-561203
Tel: 080-27630563.E-mail: lab@egsspl.com, factory@egsspl.com

TC-5873

CIN NO: U74140KA2005PTC036991

TEST REPORT

EGSSPL/TF/09/01

1	Customer Name & Address	M/S.Mother Earth Environ Tech Pvt. Ltd Plot No.: 217,KIADB industrial area, 2nd Phase,Harohalli - 562112, Kanakpura taluk,Ramnagara	7	Sample Collected On	23.09.2017
2	Sample Source/Type	Near office/Ground Water	8	Sample Receipt on	23.09.2017
3	Date of Analysis Start	23.09.2017	9	Sample RC No	301
4	Date of Analysis Completion/ Date Of Report	28.09.2017/28.09.2017	10	Sample Code No	EGSSPL/568
5	Report No	EGSSPL/568	11	Quantity of Sample Received	2Ltrs
6	Sampling Methodology	IS 3025:PART-1:1987 (Reaffirmed 2003)	12	Appearance of Sample	Colorless Liquid

S.No	Parameters	Results	As Per IS 10500:2012		Test Method
			DL	PL	
1	pH @24.9°C	7.03	6.5-8.5	No Relaxation	IS 3025:Part-11:1983(Reaffirmed-2012)
2	Total Dissolved Solids, mg/L,	450	500	2000	IS 3025:Part-16: 1984 (Reaffirmed-2006)
3	Color, Hazen Units*	2	5	15	IS 3025:Part-04:1983(Reaffirmed-2002)
4	Odour *	Agreeable	Agreeable	Agreeable	IS 3025:Part-05:1983(Reaffirmed-2002)
5	Turbidity as NTU	BDL	1	5	IS 3025:Part-10:1984 (Reaffirmed-2012)
6	Chromium as Cr, mg/L*	BDL	0.05	No Relaxation	APHA 22nd Edition:2012-3111 B
7	Copper as Cu, mg/L*	BDL	0.05	No Relaxation	APHA 22nd Edition:2012-3111 B
8	Nickel as Ni, mg/L*	BDL	0.02	No Relaxation	APHA 22nd Edition:2012-3111B
9	Iron as Fe , mg/L	0.1	0.3	No Relaxation	APHA 22nd Edition:2012-3111 B
10	Zinc as Zn, mg/L	BDL	5.0	15	APHA 22nd Edition:2012-3111 B
11	Lead as Pb, mg/L*	BDL	0.01	No Relaxation	APHA 22nd Edition:2012-3111 B
12	Cadmium as Cd, mg/L	BDL	0.003	No Relaxation	APHA 22nd Edition:2012-3111 B
13	Taste *	Agreeable	Agreeable	Agreeable	APHA 22nd Edition:2012-2160 B
14	Manganese, mg/L*	BDL	0.1	0.3	APHA 22nd Edition:2012-3111 B
15	Sulphates, mg/L	5	200	400	APHA 22nd Edition.2012 4500-SO_4^{2-} E
16	Calcium as Ca, mg/L	68.1	75	200	IS 3025:Part-40: 1991 (Reaffirmed-2009)
17	Total Hardness, mg/L	350	200	600	IS 3025:Part-21: 2009
18	Magnesium as Mg, mg/L	43.7	30	100	IS 3025:Part-46:1994 (Reaffirmed -2009)
19	Chlorides as Cl, mg/L	72.1	250	1000	IS 3025:Part-32: 1988 (Reaffirmed-2009)
20	Alkalinity as $CaCO_3$ mg/L	266	200	600	IS 3025:Part-23:1986 (Reaffirmed -2009)
21	Dissolved Phosphates ,mg/L	0.1	-	-	IS 3025:Part-31: 1988 (Reaffirmed-2009)
22	Nitrate Nitrogen, mg/L	1	45	No Relaxation	IS 3025:Part-34: 1988 (Reaffirmed-2009)
23	Fluorides as F, mg/L	0.5	1.0	1.5	APHA 22nd Edition 2012 4500-F D
24	Arsenic as As, mg/L*	BDL	0.01	0.05	APHA 22nd Edition:2012-3111 B
25	Cyanide as CN, mg/L*	BDL	0.05	No Relaxation	APHA 22nd Edition 2012 4500-CN- E
26	Aluminum as Al ,mg/L *	BDL	0.03	0.2	APHA 22nd Edition:2012-3111 B
27	Phenolic Compounds, mg/L*	BDL	0.001	0.002	APHA 22nd Edition:2012-5530 C
28	Total Coliforms,CFU/100ml *	Absent	Shall not be detected in 100ml Sample		IS:1622:1981
29	E.Coli, CFU/100ml *	Absent	Shall not be detected in 100ml Sample		IS:15185
30	Oil & Grease , mg/L	BDL	0.5	No Relaxation	IS 3025:Part-39:1991(Reaffirmed-2009)

"The tests marked with an asterisk (*) are not accredited by NABL"

** End of Report**

BDL: Below Detection Limit

Reena · KP
Analysed By

Verified By

AuthorizedSignatory
(P.Hanumanthaiah)
Technical Manager

(Environmental Cell)

(Annexure-VI)

ENVIRONMENT MANAGEMENT CELL

Objective :-To develop Environmentally Safe systems for Hazardous waste disposal process and to achieve no environmental pollution by the TSDF.

Our Environmental Policy ;-

1. To Conduct business in fair, safe, transparent, comprehensive and technically sound manner.
2. ToMeet all the environmental and Pollution control mandates that are applicable and to comply beyond requirement.
3. Training staff to raise awareness on environmental issues and ensure their support in improving the Company's performance.
4. To continuously improve and develop keeping in view of the latest techniques in the environmental management system.

(Display Board)

(Annexure-VII)

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Ambient Air Quality Results is Displayed at Main Gate Board

Name and Address of the Industry	M/s Mother Earth Environ Tech Pvt. Ltd. Plot No.217, KIADB Industrial Area, Harchalli, 2nd Phase, Kanakapura Taluk, Ramanagar		INR NO* : 106246
Water Act Consent No : PCB / WMC / 469 / HWM / 2015 / OB - 39	Water Consumption in KLD	Waste Water in KLD	Mode of Treatmoit : Biological / Chemical On Land/Re-Used/To Water body/to sewer/CETP/Others
	I. Domestic	I. Domestic	
Valid Upto	II. Industrial	II. Industrial	
Air Act :			
Consent No	1. No of Chimney 2. Fuel Consuption (Qty/month)	Control Equipment Types & Nos :	Quantity of Emissions :
	-Electricity		i. SO2 = Kg/month
	-HSD/FO/LDO/LPG/LSHS		ii. NOx = Kg/month
	-Coal/coak/Wood/Agro Waste		iii. SPM = Kg/month
Valid Upto : 30-06-2020	-Others		iv. Others = Kg/month
Non-Hazardous Solid Waste :			
Quantity generated/Month	Quantity Stored at Site ( )		Quantity Disposed
Authorization No :	Category of Waste and Quantity Generated/Month	Quantity Stored at Site ( )	
PCB / 469 / WMC / 2015 / OB - 38			Quantity Disposed / Month / Year to Authorized facility / recycler / reprocessor / TSDF / re-refiners
Valid upto : 30-06-2020	Details of Hazardous Chemicals handlec with Quantity & Nature	Quantity treated at Site ( )	
	Quantity generated & Stored at Site		Quantity Disposed
	Quantity generated & Stored at Site		Number of BatteriesDisposed per month / Year

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TEST REPORT

Issued To:
M/s, MOTHER EARTH ENVIRON TECH Pvt. Ltd
Plot No. 217, KIADB Industrial Area
2nd Phase Harhalli Kanakpura Taluk
Bangalore

Report No.	:	**RN/18030046**
Report Date	:	15/03/2018
Sample Code No.	:	**VN/18030046**
Date	:	07/03/2018
Party Ref. No.	:	T.R.F
Date	:	07/03/2018
Page No	:	1 of 2

Sample Particulars:		
Name of the sample	:	**Borewell Water**
Sampleing Location	:	Near Office Building
Analysed by	:	M.K.H,V.K.B & D.N
Analysis Start Date	:	07/03/2018
Analysis Completion Date	:	15/03/2018
Sample Received By	:	S.S
Sample Quantity	:	2ltr+250ml
Reference for Sampling and Handling of Samples	:	VMP-01/26
Note	:	The sample was collected by our Representative

Sl. No.	Test Parameters	Result	Standards IS:10500:2012			Protocol
	Chemical Test:		Detection limits	Acceptable Limits	Permissible Limits	
	Description	Colourless liquid				
	Table 1 Organoleptic and physical Parameters					
1	Colour, Hazen units, Max	<5	-	5	15	IS:3025(Part 4)
2	Odour	Agreeable	-	Agreeable	--	IS:3025(Part 5)
3	Taste	Agreeable	-	Agreeable	Agreeable	IS:3025(Part 7 & 8)
4	Turbidity,NTU, Max	0.3	-	1	5	IS:3025(Part 10)
5	Total dissolved solids, Max	598	-	500	2000	IS:3025(Part 16)
6	pH @ 25° C	7.0	-	6.5 to 8.5	No relaxation	IS:3025(Part 11)
	Table 2 General Parameters concerning substances Undesirable in Excessive Amounts					
7	Aluminium(as Al),mg/l,Max	BDL	0.02	0.03	0.2	IS:3025(Part 55)
8	Anionic Detergents(as MBAS),mg/l,Max	<0.1	-	0.2	1.0	Annex K of IS 13428
9	Boron (as B),mg/l,Max	<0.1	-	0.5	1.0	IS:3025(Part 57)
10	Calcium (as Ca),mg/l,Max	57	-	75	200	IS:3025(Part 40)
11	Chloride(as Cl),mg/l,Max	101	-	250	1000	IS:3025(Part 32)
12	Copper(as Cu),mg/l,Max	BDL	0.002	0.05	1.5	IS:3025(Part 42)
13	Fluoride(as F),mg/l,Max	0.2	-	1.0	1.5	IS:3025(Part 60)
14	Free Residual chlorine,mg/l,Max	<0.1	-	0.2	1.0	IS:3025(Part 26)
15	Iron (as Fe),mg/l,Max	0.2	-	0.3	No relaxation	IS:3025(Part 53)
16	Magnesium(as Mg),mg/l,Max	27	-	30	100	IS:3025(Part 46)

77 (502/503), 21st 'D' Cross, Muthurayaswamy Lay-out, Srigandhakaval, Sunkadakatte, Bengaluru-560 091
Ph. : 080-29778998 | E-mail : sales@vsixlabs.in | Website : www.vsixlabs.in

Please refer to terms and conditions on the overleaf.

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ISO 9001 REGISTERED | Cert. No. OHSL/600 | T-3048/3049

TEST REPORT

Issued To:
M/s, MOTHER EARTH ENVIRON TECH Pvt. Ltd
Plot No. 217, KIADB Industrial Area
2nd Phase Harhalli Kanakpura Taluk
Bangalore

Report No. : **RN/18030046**
Report Date : 15/03/2018
Sample Code No. : **VN/18030046**
Date : 07/03/2018
Party Ref. No. : T.R.F
Date : 07/03/2018
Page No : 2 of 2

17	Manganese(as Mn),mg/l,Max	BDL	0.002	0.1	0.3	IS:3025(Part 59)
18	Nitrates(as NO_3),mg/l,Max	23	-	45	No relaxation	IS:3025(Part 34)
19	Phenolic Compounds(as C_6H_5OH),mg/l,Max	Absent	-	0.001	0.002	IS:3025(Part 43)
20	Selenium(as Se),mg/l,Max	BDL	0.002	0.01	No relaxation	IS:3025(Part 56)
21	Sulphate(as SO_4),mg/l,Max	42	-	200	400	IS:3025(Part 24)
22	Total Alkalinity(as $CaCO_3$),mg/l,Max	242	-	200	600	IS:3025(Part 23)
23	Total Hardness (as $CaCO_3$),mg/l,Max	255	-	200	600	IS:3025(Part 21)
24	Zinc(as Zn),mg/l,Max	1	-	5	15	IS:3025(Part 49)
	Table 3 Parameters Concerning Toxic substances					
25	Cadmium (as Cd),mg/l.Max	BDL	0.002	0.003	No relaxation	IS:3025(Part 41)
26	Cyanide (as CN),mg/l,Max	NIL	-	0.05	No relaxation	APHA
27	Mercury (as Hg),mg/l,Max	BDL	0.0002	0.001	No relaxation	IS:3025(Part 48)
28	Total Arsenic (as As),mg/l,Max	BDL	0.0002	0.01	0.05	IS:3025(Part 37)
29	Total Chromium (as Cr),mg/l,Max	BDL	0.02	0.05	No relaxation	IS:3025(Part 52)
30	Lead (as Pb),Mg/l,max	BDL	0.002	0.01	No relaxation	IS:3025(Part 47)

Note: BDL: Below Detection Limit
Remarks: The given sample conforms to the Permissable limits as per IS 10500:2012 Water Specification for the above tested Physico-chemical analysis only.

Authorised Signatory
Gunavathy M.K
Quality Manager

END OF TEST REPORT

77 (502/503), 21st 'D' Cross, Muthurayaswamy Lay-out, Srigandhakaval, Sunkadakatte, Bengaluru-560 091
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TEST REPORT

Issued To:
M/s, MOTHER EARTH ENVIRON TECH Pvt. Ltd
Plot No. 217, KIADB Industrial Area
2nd Phase Harhalli Kanakpura Taluk
Bangalore

Report No.	:	**RN/18030044**
Report Date	:	10/03/2018
Sample Code No.	:	**VN/18030044**
Date of Receipt	:	07/03/2018
Party Ref. No.	:	T.R.F
Date	:	07/03/2018
Page No.	:	1 of 1

Sample Particulars:

Name of the sample	:	**Ambient Air**
Sampling Location	:	Near Land Fill Area
Analysed by	:	M.M.R
Analysis Start Date	:	07/03/2018
Analysis Completion Date	:	10/03/2018
Sample Received By	:	S.S
Reference for Sampling and Handling of Samples	:	VMP-01/26
Note	:	The sample was collected by our Representative

Sl. No	Test Parameters	Results	Detection Limits	Limits (As per NAAQ standard)	Protocol
1	Particulate Matter (PM_{10}), $\mu g/m^3$	71.2	-	100	IS:5182(Part-23)
2	Particulate Matter ($PM_{2.5}$), $\mu g/m^3$	33.2	-	60	EA/0001
3	Sulphur dioxide as SO_2 , $\mu g/m^3$	6.8	-	80	IS:5182(Part-2)
4	Oxides of Nitrogen as NO_2, $\mu g/m^3$	12.3	-	80	IS:5182(Part-6)
5	Ammonia as NH_3, $\mu g/m^3$	5.7	-	400	EA/0001
6	*Carbon monoxide (CO), ppm	Nil	-	2.0	EA/0001
7	Ozone (O_3), ppm	Nil	-	100	EA/0001
8	Lead as Pb, $\mu g/m^3$	BDL	0.02	1	EA/0002
9	Arsenic as As, ng/m^3	BDL	0.0002	6	EA/0003
10	Nickel as Ni, ng/m^3	BDL	0.02	20	EA/0002
11	Benzene, $\mu g/m^3$	ND	1.0	5.0	IS:5182(P-11):2006 (Reaffirmed 2012)
12	Benzo (a) Pyrene ng/m^3	ND	0.005	1.0	IS:5182(P-12):2004 (Reaffirmed 2009)

Note : BDL :- Below Detection Limit
ND :- Not Detected

Remarks: The given sample is tested for above specified Chemical parameters only as per customer's requirement.

Authorised Signatory
Gunavathy M.K
Quality Manager

- END OF TEST REPORT -

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TEST REPORT

Issued To:
M/s, MOTHER EARTH ENVIRON TECH Pvt. Ltd
Plot No. 217, KIADB Industrial Area
2nd Phase Harhalli Kanakpura Taluk
Bangalore

Report No.	:	**RN/18030044**
Report Date	:	10/03/2018
Sample Code No.	:	**VN/18030044**
Date	:	07/03/2018
Party Ref. No.	:	T.R.F
Date	:	07/03/2018
Page No	:	1 of 1

Sample Particulars:		
Name of the sample	:	**Soil**
Sampling Location	:	Near Land Fill Area
Analysed by	:	A.S.C
Analysis Start Date	:	07/03/2018
Analysis Completion Date	:	12/03/2018
Sample Received By	:	S.S
Sample Quantity	:	2Kg
Reference for Sampling and Handling of Samples	:	VMP-01/26
Note	:	The sample was collected by our Representative

Sl. No.	Test Parameters	Results	Protocol
	Description	Brown coloured soil	
1	pH at 25°C	7.51	IS 2720(P-26)
2	Conductivity in micromhos/cm,	389	IS 14767
3	Organic carbon Kg/hectare	0.18	IS 2720 (Part 22)
4	Moisture Content in %	5.1	IS 2720(P-2)
5	Nitrogen as N in %	1.4	IS 14684
6	Phosphorous as P in Kg/kectare	25	WC/0042
7	Potassium as K in %	0.28	ES/0001
8	Boran as B in ppm	0.1	IS 14685
9	Zinc as Z in ppm	1.4	WC/0042
10	Manganese as Mn in ppm	0.9	WC/0042
11	Iron as Fe in ppm	8.6	GA/0003

Remarks: The given sample tested for above specified Chemical analysis only as per customer's requirement.

Authorised Signatory
Gunavathy M.K
Quality Manager

- END OF TEST REPORT -

77 (502/503), 21st 'D' Cross, Muthurayaswamy Lay-out, Srigandhakaval, Sunkadakatte, Bengaluru-560 091
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Please refer to terms and conditions on the overleaf.

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सत्यमेव जयते

State Level Environment Impact Assessment Authority-Karnataka

(Constituted by MoEF, Government of India, under section 3(3) of E(P) Act, 1986)

No. SEIAA 18 IND 2017 Date: 11-06-2018

To,

Sri Paramesh. T. N
Director,
M/s Mother Earth Environ Tech Private Limited
#2542, 28th Cross, 17th Main Road,
Banashankari 2nd Stage,
Bangalore-560 070.

Sir,

Sub: Expansion of Hazardous Waste Landfill facility at Plot. No. 217 of Harohalli Industrial area, 2nd Phase, Kanakapura Taluk, Ramanagar District By M/s Mother Earth Environ Tech Private Limited – Issue of Environmental Clearance – Reg.

*****

This has reference to your online application dated 20th September 2017 bearing proposal No.SIA/KA/MIS/20429/2017 addressed to SEIAA, Karnataka on the subject mentioned above along with Form-1 and Pre-Feasibility report as per the EIA Notification, 2006.

2. It is inter-alia noted that prior Environmental Clearance has been issued by SEIAA, Karnataka to this project vide letter No. SEIAA 1 IND 2015 dated 28th August 2015 for hazardous waste land fill consists with Cell-1 of 50,000 Tons Capacity and Cell-2 of 45,000 Tons capacity. The total plot area is 14,424.6 Sqm. Total water consumption is 3 KLD out of which 0.5 KLD for domestic purpose and 2 KLD for green belt.

3. It is a proposal seeking Environmental clearance for expansion of Hazardous Waste Landfill facility at Plot. No. 217 of Harohalli Industrial Area, 2nd Phase, Kanakapura Taluk, Ramanagar District of M/s. Mother Earth Environ Tech Private Limited on a plot area of 1.62 Ha. The proposed expansion project facility comprise of enhancing the capacity of Cell No-1:- from 50,000 MT to 1,00,000 MT and Cell No-2:- from 45,000 MT to 51,000 MT with a total capacity of 1,51,000 MT. This is a project falling under the category 7 (d) of the Schedule to EIA Notification 2006.

4. The State Expert Appraisal Committee (SEAC), Karnataka has considered the proposal during their meeting held on 20th & 21st November 2017. Based on the consideration of the documents submitted, the committee

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Website : http://seiaa.kar.nic.in http://seiaa.karnataka.gov.in http://environment.karnataka.gov.in
e-mail: msseiaakarnataka@gmail.com

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prescribed the Terms of Reference (ToR) for preparing EIA/EMP report with one season baseline data other than monsoon for the above mentioned project. The SEIAA Karnataka after the recommendation of the SEAC have in their meeting held on 20th December 2017 and decided to accord the Standard Terms of Reference (ToR) along with additional Terms of Reference, in accordance with the provisions of Environmental Impact Assessment Notification-2006 and its subsequent amendments made thereon. Accordingly ToRs were issued vide Authority letter No. SEIAA 18 IND 2017 dated 12.01.2018 for conducting Environment Impact Assessment Study. The EIA has been conducted and report submitted by M/s Samrakshan, F-4, 1st Floor, Swastik Manandi Archade, S.C. Road, Sheshadripuram, Bangalore- 560020 with Shri Nanda Kumar S. Applicability of the Notification No. S. O 648 (E) dated 3rd March 2016 issued by the MoEF, GoI, regarding mandatory accreditation of Environmental consultants from NABET/QCI stands deferred in this case in view of the interim order granted by High Court of Karnataka in W. P. No. 12624-12625.2017 (GM-RES): (Shri S. Nanda Kumar Vs. Union of India. The proponent has submitted the EIA report on 06.04.2018.

5. Based on the information submitted by you and presentation made by Environmental consultant, the State Level Expert Appraisal Committee (SEAC) examined the proposal in the meeting held on 18th & 19th May 2018 and has recommended for issue of Environmental Clearance.

6. The SEIAA Karnataka after due consideration of the relevant documents submitted by the project proponent, additional clarifications furnished in response to its observations and the recommendation of the SEAC have in its meeting held on 1st June 2018 in accordance with the provisions of Environmental Impact Assessment Notification-2006 and its subsequent amendments and decided to accord Environmental Clearance under the provisions thereof to the above mentioned M/s. Mother Earth Environ Tech Private Limited., for expansion of Hazardous Waste Landfill facility at Plot. No. 217 of Harohalli Industrial area, 2nd Phase, Kanakapura Taluk, Ramanagar District subject to implementation of the following conditions and environmental safeguards:

Part A- SPECIFIC CONDITIONS

1. 'Consent to Establish' shall be obtained from State Pollution Control Board under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.
2. Transportation and handling of Hazardous Wastes shall be as per the Hazardous Wastes (Management, Handling and Transboundary Movement)) Rules, 2008 including the section 129 to 133 of Central Motor Vehicle Rules, 1989.
3. Necessary provision shall be made for firefighting facilities within the complex.
4. The Project Proponent should carryout periodical air quality monitoring in

STATE ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY ★ KARNATAKA ★

and around the site including VOC, HC.

5. The Project Proponent should develop green belt all along the periphery of the TSDF with plant species that are significant and used for the pollution abatement.
6. The green belt shall be developed in at least 33% of the total project area. Planting aromatic and flowering climbers to cover the compound shall be undertaken.
7. The gas generated from the Landfill facility shall be collected and disposed as per rules
8. The Leachate from the facility shall be collected and treated to meet the prescribed standards before disposal.
9. The proponent should obtaine necessary clearance from the Ground Water Authority.
10. The depth of the land fill should be decided based on the ground water level at the site.
11. Project proponent should prepare and implement an On Site Emergency Management Plan.
12. Project proponent should carryout periodical ground water/ monitoring soil in and around the site to check the contamination.
13. Project proponent should carryout periodical ground water/ soil monitoring in and around the site to check the contamination including TCLP test for heavy metals.
14. All measures for air pollution control shall be adopted.
15. Rain water runoff from the landfill area and other hazardous waste management area shall be collected and diverted to the leachate treatment plant.
16. There shall not be any spillage from the transportation vehicles.
17. Zero discharge system shall be adopted.
18. Double containment system shall be provided for all waste transport vehicles to avoid spillage. The spillage shall be cleared immediately.
19. Vehicles should prominently display complaint numbers for use of public as well as antidotes to any toxic waste.
20. All the recommendations of EMP/DMP shall be strictly complied.
21. The project proponent will set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.
22. Untreated domestic effluent should not be discharged into open drain. Till the sewerage system in the Industrial Estate, which is presenting being laid, is completed, the domestic effluent should be treated in well designed septik tank with soak pit, as committed. As soon as the sewerage system is made operational the domestic effluent from the project should be discharged only into the sewerage system for treatment in terminal STP.
23. Final disposal measures – the hazardous wastes should prevent contamination of ground water, surface water and ambient air quality.

STATE LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY ★ KARNATAKA ★

24. Facility for land filling should be designed with protective measures against pollution of ground water, surface water and air fugitive dust, wind-blown litter, bad odour, fire hazard, bird menace, pests or rodents, greenhouse gas emissions, slope instability and erosion.
25. Proper mechanism should be adopted for extraction of leachate and treatment of the same as committed.
26. The facility capacity shall handle only to the maximum designated capacity.
27. Stray animals shall not be allowed to move around the facilities.
28. Manual handling of waste shall be prohibited. If unavoidable due to constraints, manual handling shall be carried out under proper precaution with due care for safety of workers.
29. Vehicles used for transportation of wastes shall be covered. Waste should not be visible to public, nor exposed to open environment preventing their scattering.
30. Transportation vehicles shall be so designed that multiple handling of wastes, prior to final disposal, is avoided.
31. First aid and sanitation arrangements shall be made for the drivers and other contract workers.
32. Regular online monitoring of the ambient air quality and water quality shall be carried out in monitoring stations and frequency of monitoring shall be decided in consultation with the State Pollution Control Board. Periodic reports shall be submitted to the SEIAA Karnataka, Department of Ecology and Environment, Government of Karnataka, Bangalore/ KSPCB.
33. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
34. The project Authority shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
35. Vehicles used for transportation of the hazardous waste shall be properly cleaned and sanitized after every load is unloaded at the site. No un-cleaned vehicle shall be allowed to ply on the roads of the city.
36. The project Authority shall establish odour control system comprising of Air ventilation system and odour removal system. Bio filters shall also be provided for odour control over area such as waste reception pit, pre-sorting area, windrow composting pads and curing sheds and screening & packing.
37. All the required mitigation measures shall be employed to [illegible] hazards arising out of land fill site.
38. The project authority shall not handle the Hazardous waste other than those listed in the project proposal.
39. The project Authority shall take extra care while handling the hazardous waste containing heavy metal such as Lead, Mercury, Arsenic, Chromium.

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY KARNATAKA

Zinc, Cobalt etc., if Any to avoid the accidental entry into the Eco-system and to contain safely in the cells appropriately if such heavy metal cannot be recovered.

40. The project proponent shall comply with the suggestions / comments made in the report of the Regional Office of MoEF&CC, Government of India on the compliance report vide letter dated 14.02.2018.

B. GENERAL CONDITIONS;

1. The project proponent should set up necessary facility for onsite testing of wastes to decide the requirement of treatment if any, before disposal.
2. The implementation of the project vis-à-vis environmental action plans shall be monitored by MoEF Regional Office at Bangalore / KSPCB/ CPCB/ and the Department of Environment & Ecology, Government of Karnataka, Bangalore. A six monthly compliance status report shall be submitted to monitoring agencies.
3. The project authorities shall strictly adhere to the stipulations made by the Karnataka State Pollution Control Board.
4. No further expansion or modifications in the plant shall be carried out without prior approval of the SEIAA/Ministry of Environment and Forests as the case may be. In case of deviations or alterations in the project proposal from those submitted to this Authority for clearance, a fresh reference shall be made to the Authority to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
5. The project proponent shall also comply with all the environmental protection measures and safeguards as per the information provided.
6. In case of any deviation or alteration in the project proposed from that submitted to SEIAA, Karnataka for clearance, a fresh reference shall be made to the SEIAA, Karnataka to assess the adequacy of the condition (S) imposed and to incorporate additional environmental protection measures required, if any.
7. A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parisad/Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.
8. The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the KSPCB. The criteria pollutant levels namely; SPM, RSPM, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.
10. A separate environment management cell with qualified staff shall be set up for implementation of stipulated environmental safeguards.

11. Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These cost shall be included as part of project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure shall be reported to the Ministry.
12. The environmental clearance accorded shall be valid for a period of 5 years to start of the project.
13. The project authorities shall inform the MoEF Regional Office at Bangalore / KSPCB/ CPCB/ and the Department of Environment & Ecology, Government of Karnataka, Bangalore, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.
14. The SEIAA, Karnataka reserves the right to stipulate additional conditions, if found necessary.
15. The above conditions will be enforced, inter-alia under the provisions of the Hazardous Wastes (Management, Handling and Trans-boundary Movement) Rules, 2008 along with their amendments and rules.
16. Officials from the Department of Environment and Ecology, Government of Karnataka, Bangalore/ Regional Office of MoEF, Bangalore, KSPCB who would be monitoring the implementation of Environmental safeguards should be given full cooperation, facilities and documents/ data by the project proponents during their inspection. A complete set of all the documents submitted to SEIAA should be forwarded to the CCF, Regional Office of MoEF, Bangalore/ Department of Environment and Ecology, Government of Karnataka, Bangalore and KSPCB.
17. The Authority reserves the right to add additional safeguard measures subsequently, if found necessary, and to take action including revoking of the environment clearance under the provisions of the Environment (Protection) Act, 1986, to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner.
18. The project proponent should advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded environmental Clearance and copies of clearance letters are available with the Karnataka State Pollution Control board and may also be seen on the website of the Ecology and Environment Department at http://seiaa.kar.nic.in or http://seiaa.karnataka.gov.in The advertisement should be made within 7 days from the day of issue of the clearance letter and a copy of the same should be forwarded to the Regional Office of MOEF at Bangalore/ Department of Ecology and Environment, Government of Karnataka, Bangalore.
19. These stipulations would be enforced among others under the provisions of water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 2006.

STATE ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY ★ KARNATAKA ★ सत्यमेव जयते

20. The SEIAA, Karnataka may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

Yours faithfully,

(RAMACHANDRA)
Member Secretary,
SEIAA - Karnataka.

Copy to:

1) The Secretary, Ministry of Environment, Forests and Climate Change, Indira Paryavaran Bhavan, Jor Bagh Road, Aliganj, New Delhi- 110 003.
2) The Member Secretary, Karnataka State Pollution Control Board, Bangalore.
3) The APCCF, Regional Office, Ministry of Environment & Forests (SZ), Kendriya Sadan, IV Floor, E & F wings, 17th Main Road, Koramangala II Block, Bangalore – 560 034.
4) Guard File.

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Consent For Establishment -Expand
(CFE-EXP)

Consent No. CTE-308185 Valid upto: 30/06/2023

Industry Colour: RED Industry Scale: LARGE

Karnataka State Pollution Control Board
Parisara Bhavana,No.49, Church Street,Bengaluru-560001
Tele : 080-25589112/3, 25581383
Fax:080-25586321
email id: ho@kspcb.gov.in

(This document contains 5 pages including annexure & excluding additional conditions)

Consent Order No: CTE-308185 **PCB ID:** 27521 **Date:** 15/10/2018

To,

The Applicant,

Mother Earth Environ Tech Pvt. Ltd

No.2542, 17th Main, 28th cross, Banashankari 2nd Stage, Bangalore-70

Sir,

Sub: Consent for Expansion of the unit in the Existing premises under the Water (Prevention & Control of Pollution) Act,1974 & the Air (Prevention & Control of Pollution) Act, 1981

Ref: 1.CFE expansion application submitted by the organization on 27/06/2018 at Regional Office KSPCB

2.Inspection of the project site by Regional Officer on 17/07/2018

3.Proceedings of the CCM date 30/08/2018 held on28/08/2018

With reference to the above, Karnataka State Pollution Control Board hereby accords **Consent for Expansion** of the unit in the existing premises under the Water (Prevention & Control of Pollution) Act, 1974 & the Air (Prevention & Control of Pollution) Act, 1981 at the location indicated below subject to the terms & conditions indicated in Schedule Annexed.

Location:

Name of the Industry: Mother Earth Environ Tech Pvt. Ltd

Address: Plot No.217, 2nd Phase, KIADB Harohalli Indl. Area, Kanakapura Tq

Industrial Area: Harohalli I.A Phase II, Harohalli,

Taluk: Kanakapura, District: Ramnagaram

CONDITIONS:

1. The Consent for Expansion is granted considering the following activities:

Sr	Product Name	CFE Qty	CFO Qty	Applied Qty/Month	Units	Existing/Proposed
1	hazardous waste landfill facility	95000.0000	95000.0000 - TON	0.000	TON	Existing
2	hazardous waste landfill facility	56000.0000	0.000 - TON	56000.0000	TON	Proposed

2. This consent for establishment is valid up to 30/06/2023 from the date of issue.
3. The applicant shall not undertake further expansion/diversification without the prior consent of the Board.
4. The applicant shall obtain necessary license/clearance from other relevant statutory agencies as required under the law.

I. WATER CONSUMPTION:

1. The source of water shall be from Borewell, No Source and shall obtain prior permission from the concerneds

authority.Total water consumption shall not exceed as indicated below:

Particulars	Water Consumption(KLD)	Water Discharge(KLD)	Water Source	Existing/Proposed
Domestic Purpose	0.5	0.4	Borewell	Existing
Domestic Purpose	0.5	0.5	Borewell	Proposed
Others	0.5	0.5	Borewell	Existing
Others	0.0	1.5	No Source	Existing
Others	0.0	2.0	No Source	Proposed

Karnataka State Pollution Control Board
Parisara Bhavana,No.49, Church Street,Bengaluru-560001
Tele : 080-25589112/3, 25581383
Fax:080-25586321
email id: ho@kspcb.gov.in

(This document contains 5 pages including annexure & excluding additional conditions)

II. WATER POLLUTION CONTROL:

1. The discharge from the premises of the applicant shall pass through the terminal manhole/manholes where from the Board shall be free to collect samples in accordance with the provisions of the Act/Rules made there under.

2. The sewage/domestic effluent shall be treated in Septic Tank with Soak pit.No overflow from the soak pit is allowed.The septic tank and Soak pit shall be as per IS 2470 Part-I & Part-II.

3. The Effluent Treatment Plant proposal is generally agreeable and shall be constructed as per the specifications mentioned in the proposal and it shall consist of following units.

Sr	ETP Code	Category Name	Capacity	Units	Existing/Proposed
1	COL	P-Collection Tank	1.00	1	Existing
2	COL	P-Collection Tank	36.00	1	Existing
3	FLO	P-Floculator	1.00	1	Existing
4	NUE	P-Nuctralization	1.00	1	Existing
5	PRI	Primary	1.00	1	Existing
6	STS	Septic tank & Soak pit	0.00	1	Existing

4. The industry shall treat the domestic wastewater in the Sewage Treatment Plant (STP) as per the proposal submitted. It shall meet the standards specified in Annexure-I & shall be used on land for gardening/greenbelt within the factory premises.

5. If the treatment plant does not achieve the effluent standards stipulated in this consent order and/ or if it is found to be inadequate, then the industry shall have to modify the units so as to meet the standards with prior consent of the Board.

6.All the treatment units shall be totally impervious.

7.The applicant shall provide separate flow meter for measuring the quantity of effluents through ETP and separate energy meter and shall maintain a logbook for the verification of inspecting officers.

8. The applicant shall operate and maintain Treatment Plant continuously and maintain at all times to achieve the stipulated standards as per Annexure-I & also maintain regular log-books/operation records.

9.There shall not be any increase in generation of Domestic sewage due to proposed expansion.

10. There shall be no bypass or discharge of effluents either within or outside the factory premises under any circumstances.

11. There shall not be any discharge of untreated trade/domestic sewage inside/outside the industry premises.

12. The applicant shall explore the possibility of reducing freshwater consumption & adopt recycling/ reuse.

III. AIR POLLUTION CONTROL:

1. The type of emissions, stack heights and the air pollution control equipment for the air pollution control sources to be installed as specified in **Annexure-II.**

2. The discharge of emissions from the air pollution sources shall pass through the stacks/chimneys mentioned in **Annexure-II** where from the Board shall be free to collect the samples at any time in accordance with the provisions of the Act and Rules made there under.

3. The stacks shall have port holes and platforms as per the guidelines specified in **Annexure-II** to facilitate monitoring of emissions.

4. The applicant shall upgrade/modify/replace the control equipments if they are found inadequate to meet the standards stipulated with Prior permission of the Board shall be obtained for the same.

5. There shall not be any other sources of air pollution from the proposed expansion.

6. If there is going to be any new air pollution sources in future, the project authorities shall apply and obtain consent for establishment for the same from the Board.

7. Any fugitive emission has to be controlled to meet the ambient air quality standards.

IV. SOLID WASTE (OTHER THAN HAZARDOUS WASTE) DISPOSAL:

1. The applicant shall collect, treat and dispose off all solid waste generated during construction i.e. Muck, and Garbage after construction if any in such manner so as not to cause environmental pollution.

2. The details of solid waste generated from the expansion activity shall be as follows

Sr	Solid Waste Name	Qty-Unit	Mode of Disposal
1	Domestic solid waste	0.1500 - M.T	OTH

Karnataka State Pollution Control Board
Parisara Bhavana,No.49, Church Street,Bengaluru-560001
Tele : 080-25589112/3, 25581383
Fax:080-25586321
email id: ho@kspcb.gov.in

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(This document contains 5 pages including annexure & excluding additional conditions)

V.HAZARDOUS AND OTHER WASTES (MANAGEMENT & TRANSBOUNDRY MOVEMENT) RULES 2016:

1. The industry shall apply and obtain authorization under Hazardous and Other Wastes (Management & Transboundry Movement) Rules 2016, and comply with the conditions of the authorization. The applicant shall apply for authorization along with the consent for operation (CFO) application under the Rules in Form-I to obtain authorization and comply with conditions.

2. There shall not be any Hazardous Waste generation from the proposed expansion project.

VI. NOISE POLLUTION CONTROL:

1. The applicant shall ensure that the ambient noise levels within its premises shall not exceed the limits i.e 75 dB(A) Leq during day time and 70 dB(A) Leq during night time as specified in the Environment (Protection) Rules.

VII. GENERAL CONDITIONS:

1. The applicant shall transport and store the raw materials in a manner so as not to cause any damage to environment, life and property. The applicant shall be solely responsible for any damages to environment.

2. The applicant shall not commission the proposed plant for trial or regular production unless necessary pollution control measures are installed as specified in this Consent Order.

3. The applicant shall ensure that the treatment plant and control equipments are completed and commissioned simultaneously along with construction of the factory and erection of machineries.

4. The applicant shall not change or alter (a) raw materials or manufacturing process, (b) change the products or product mix (c) the quality, quantity or rate of discharge/emissions and (d) install/replace/alter the water or air pollution control equipments without the prior approval of the Board.

5. The applicant shall immediately report to the Board of any accident or unforeseen act or event resulting in release of discharge of effluents or emissions or solid wastes etc. in excess of the standards stipulated. And the industry shall immediately take appropriate corrective and preventive actions under intimation.

6. The applicant is liable to reinstate or restore, damaged or destroyed elements of environment at his cost, failing which, the applicant/occupier as the case may be shall be liable to pay the entire cost of remediation or restoration in advance an amount equal to the cost estimated by Competent Agency or Committee.

7. The Board reserves the right to review, impose additional condition or conditions, revoke, change or alter the terms and conditions.

8. This CFE does not give any right to the Party/Project Authority/Industry to forego any *other* legal requirement that is necessary for setting/operation of the plant.

9. The applicant shall furnish point wise compliance to the conditions given under this consent for establishment within 30 days.

10. The applicant shall take measures to develop green belt all along the periphery of the factory premises.

11. This consent is issued without prejudice to any Court Cases pending in any Hon'ble Court

12. The applicant shall comply with all the Conditions and guidelines issued by the Board from time to time.

Please note that this is only consent for establishment issued to you to proceed with the formalities for expansion of the industry and does not give any right to proceed trial/regular production. For this purpose, separate consents of the Board for discharge of liquid effluent and the emissions to the air shall have to be obtained by remitting prescribed consent fee. The application forconsent has to be made 45 days in advance of commissioning for trial production of the plant.

The receipt of this letter may please be acknowledged.

Consent Fee paid : Rs. 15000

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Consent For Establishment -Expand
(CFE-EXP)

Consent No. CTE-308185 Valid upto: 30/06/2023

Industry Colour: RED Industry Scale: LARGE

Karnataka State Pollution Control Board
Parisara Bhavana,No.49, Church Street,Bengaluru-560001
Tele : 080-25589112/3, 25581383
Fax:080-25586321
email id: ho@kspcb.gov.in

(This document contains 5 pages including annexure & excluding additional conditions)

NOTE:

The Conditions II(1,3,4,5,6,7,8,9,10,11), IIImentioned in the schedule are not applicable.

Additional Conditions:

1. The applicant shall pretreat the leachate before handing over to Common Effluent Treatment Plant.
2. Considering the location with respect to criteria for hazardous waste landfill notified by CPCB, following specific conditions are stipulated;
   a) Effects should be made to minimize the smell.
   b) Ensure the air emissions are well within the limits.

FOR AND ON BEHALF OF

KARNATAKA STATE POLLUTION CONTROL BOARD

RAMESH A - CHIEF/SENIOR ENVIRONMENTAL OFFICER

Encl.: Annexure-I & II.

COPY TO:

1. The Environmental Officer, KSPCB, Regional Office Ramanagar for information and necessary action.

1. Master copy (Dispatch).
2. Office copy.

Chim.No.	Chimney attached to	Capacity/ KVA Rating	Minimum chimney height to be provided above ground level (in Mts)	Constituents to be controlled in the emission	Tolerance limits mg/NM3	Fuel	Air pollution Control equipment to be installed,in addition to chimney height as per col.(4)	Date of which air pollution control equipments shall be provided to achieve the stipulated tolerance limits and chimney heights conforming to stipulated heights.
1	D.G. Sets	25 KVA	6	PM(mg/NM3),SO2 (PPM),NOx(PPM)	NA,NA,NA	DIE	AEC	Before commissioning.

Note:

AEC : Accoustic Enclosures

Consent For Establishment -Expand
(CFE-EXP)

Consent No. CTE-308185 Valid upto: 30/06/2023

Industry Colour: RED Industry Scale: LARGE

Karnataka State Pollution Control Board
Parisara Bhavana,No.49, Church Street,Bengaluru-560001
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email id: ho@kspcb.gov.in

(This document contains 5 pages including annexure & excluding additional conditions)

LOCATION OF SAMPLING PORTHOLES, PLATFORMS, ELECTRICAL OUTLET.

1. Location of Portholes and approach platform:

Portholes shall be provided for all Chimneys, stacks and other sources of emission. These shall serve as the sampling points. The sampling point should be located at a distance equal to at least eight times the stack or duct diameter downstream from any flow disturbance such as bend, expansion, contraction and visible flame. Further, the selected port has to be at least 2 stack/duct diameter before stack/duct exit or from any other flow disturbance. For rectangular stacks, an equivalent diameter can be calculated using following expression.

$$\text{Equivalent Diameter} = \frac{2\,(\text{Length} \times \text{Width})}{(\text{Length} + \text{Width})}$$

2. The diameter of the sampling port should not be less than 100mm dia".Arrangements should be made so that the porthole is closed firmly during the non sampling period.

3. An easily accessible platform to accommodate 3 to 4 persons to conveniently monitor the stack emission from the portholes shall be provided. Arrangements for an Electric Outlet Point off 230 V 15 A with suitable switch control and 3 Pin Point shall be provided at the Porthole location.

4. The ladder shall be provided with adequate safety features so as to approach the monitoring location with ease.

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Speed Post

F. No B-29016 (SC)/1/2017-18/WM-II/ 12674 November 14, 2018

To

The Chairman
Karnataka Pollution Control Board "Parisara Bhavana", 1st to 5th Floor 49. Church Street, Bengaluru — 560001

Modified Directions under Section 5 of the Environment (Protection) Act, 1986 in case of M/s Mother Earth Environ Tech Private Limited, Harohalli, Kanakapura Taluk, Ramanagara District, Bangalore

WHEREAS, the Central Government has notified the Hazardous and Other Wastes Management and Transboundary Movement) Rules, 2016 (herein referred to as HOWM Rules, 2016) in exercise of the powers conferred by sections 6, 8 and 25 of the Environment (Protection) Act, 1986 and in supersession of the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 (herein referred to as HWM Rules, 2008), for safe and environmentally sound management of hazardous and other wastes;

WHEREAS, M/s Mother Earth Environ Tech private Limited (herein referred to as MEETPL), is operating a common TSDF, having common secured landfill disposal facility, at Plot No. 217, KIADB Industrial area, Harohalli, Kanakapura Taluk, Ramanagara District, Bangalore. Environmental Clearance (herein referred to as EC) has been issued to M/s Mother Earth Environ Tech Private Limited, Bangalore by the State Environment Impact Assessment Authority (herein referred to as SEIAA), Karnataka, vide its order no. SEIAA 1 IND 2015 dated 28/8/2015 and Consent to Establish has been granted by the SPCB vide its order no. KSPCB/SEO(WMC)/CFE/2015-16/1471 on 04/11/2015.

WHEREAS, as per Rule 16(1) of the HOWM Rules, the State Government, the occupier, the operator of common Disposal Facility or any association of occupiers shall individually or jointly or severally be responsible for identification of sites for establishing a common facility for treatment, storage and disposal of the hazardous waste in, the State. Similar provisions prevailed under Rule 18(1) of HWM Rules, 2008;

WHEREAS, as per Schedule VII read with Rule 21 of the HOWM Rules, 2016, identification and notification of site(s) for common hazardous and other waste treatment, storage and disposal pf are Hong duties of the State Government/Union, Territory Government/ Administration as laid down at S No 3 (i) and (iii) of the said Schedule VII; Similar provisions prevailed under Rule 23 (schedule VII) of i1NM Rules, 2008:

WHEREAS, as per Rule 6(1) of the HOWM Rules, the occupier engaged in handling, generation, collection, storage, packaging, transportation, ,use, treatment, processing, recycling, recovery, pre-processing, co-processing, utilization, offering for sale, transfer or disposal of the hazardous and other wastes shall obtain authorization from the' State Pollution Control Board/Pollution Control Committee (SPCB/PCC). Similar provisions prevailed under Rule 5(1) of HWM Rules, 2008;

WHEREAS, as per Rule 6 (2) of the HOWM Rules, on receipt of an application complete in all respect for the authorization, the SPCB/PCC may, after such inquiry as it considers necessary, and on , being satisfied that the applicant possesses appropriate

'परिवेश भवन' पूर्वी अर्जुन नगर दिल्ली-110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

facilities for collection, storage, packaging, transportation, treatment, processing, use, destruction, recycling, recovery, pre-processing, co-processing, utilization, offering for sale, transfer or disposal of the hazardous and other waste, as the case may be, and after ensuring technical capabilities and equipment complying with the standard operating procedure or other guidelines specified by the Central Pollution Control Board from time to time and through site inspection, grant authorization to the applicant. Similar provisions prevailed under Rule 5(4) of HWM Rules, 2008;

WHEREAS, as per Rule 16(2) of the HOWM Rules, the operator of common facility, shall design and set up the treatment, storage and disposal facility as per technical guidelines issued by the Central Pollution Control Board in this regard from time to time and shall obtain approval from SPCB/PCC for design and layout in this regard; Similar provisions prevailed under Rule 18(2) of HWM Rules, 2008;

WHEREAS, as per Rule 16(3) of the HOWM Rules, SPCB/PCC shall monitor the setting up and operation of the Common or captive TSDF, regularly; Similar provisions prevailed under Rule 18(3) of HWM Rules, 2008;

WHEREAS, CPCB has published 'Criteria for Hazardous Waste Landfills', which outlines locational criteria (w.r.t. lakes, ponds, rivers wetlands, flood plains, highways, habitation, critical habitat area, water supply wells, Airports, coastal zone, etc.) for hazardous waste landfills and it has also been stipulated that if it is absolutely essential to site a landfill within the restricted zone, then appropriate design measures are to be taken and prior permission from the SPCB/PCC should be obtained;

WHEREAS, the aforesaid CPCB guidelines also outlines that additional area as high as 30% of the total area in case of small to medium landfills (< 5 hectare area to 20 hectares) has been prescribed to accommodate all infrastructures and support facilities as well as to allow formation of a green belt around the landfill;

WHEREAS, the aforesaid CPCB guidelines also outlines requirement of various facilities such as surface drainage system which collects and removes all surface runoff from the landfill site, settling pond, on-site laboratory for finger printing analysis, monitoring of unsaturated zone and groundwater zone beneath and around landfill, etc.;

WHEREAS, condition number 14 and 34 stipulated under the Environmental Clearance granted by SEIAA are that green belt of 15 meters shall be provided all along the periphery of the site and green belt shall be developed in at least 33 % of the total project area;

WHEREAS, Schedule VII of read with Rule 21 of the HOWM Rules, 2016, monitoring of compliance of various provisions and taking action against violations of the said HOWM Rules are among duties of the State Pollution Control Boards or Pollution Control Committees as laid down at S.No. 4(iii) and (vi) of the said Schedule VII; similar previsions prevailed under Rule 23 (schedule VII) of HWM Rules, 2008;

WHEREAS, a petition dated 09th March, 2017 against the aforesaid common hazardous waste disposal facility operated by M/s Mother Earth Environ Tech Private Limited at Plot No. 217, KIADB Industrial area, Harohalli, Kanakapura Taluk, Ramanagara District, Bangalore, was received from M/s Society for Sustainable Development, Madihaguda, Miyapur, Hyderabad, with regard to violations of site selection criteria, no notification of the site by the State Government, inadequate size for operation of HW common TSDF, no green belt development as per the conditions of EC, etc.;

WHEREAS, CPCB vide letter no. B-29016(SC)/1/07/WM-I1/2714 dated 12th May 2017 forwarded the aforesaid petition to Karnataka SPCB for examination and providing their comments

WHEREAS, a similar petition dated 27th October 2017 against the said common hazardous waste disposal facility was also received from M/s Karnataka Waste Management Project, Dabaspet, Bengaluru, with regard to violations of site selection criteria, no notification of the site by the State Government, inadequate size for operation of HW common TSDF, no green belt development as per the conditions of EC, etc.

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WHEREAS, Karnataka SPCB examined the aforesaid petition dated 09th March, 2017 and provided their comments vide letter no. PCB\WMC\469\HWM\2017-18\493 dated 04th January, 2018, based on the inspection conducted on 04th October, 2017. Upon examination the following observations were made;

(i) It has been informed that as per records of Karnataka SPCB, there is no notification of the site for common TSDF by the State Government which is required as per Rule 21 of the said HOWM Rules, 2016 (similar provisions prevailed under Rule 23 of the HWM Rules, 2008). However, monitoring the setting up and operation of the Common or captive TSDF, regularly, monitoring of compliance of various provisions and taking action against violations of the said HOWM Rules are among duties of the State Pollution Control Boards as laid down under Rule 16(3) of the HOWM Rules, 2016, and S. No. 4(iii) and (vi) of Schedule VII of the HOWM Rules, 2016 (similar provisions prevailed under Rule 18(3) and 23 of Schedule VII of the HWM Rules, 2008)

(ii) The SLF site doesn't meet the location criteria specified in the said guidelines "Criteria for Hazardous Waste Landfills" in terms of drinking water wells existing within 500 meters distance, water body at about 200meters, and habitation (Ganaldoddi village) within 500 meters from a notified habitat area. In accordance with provisions of the said guidelines, absolute essentiality of siting the SLF within the restricted zone and appropriate design measures taken thereof by Karnataka SPCB have not been reported in the said letter of Karnataka SPCB.

(iii) The SLF being small sized landfill requires to have additional area as high as 30% of the total area in case of small to medium landfills (< 5 hectare area to 20 hectares) to accommodate all infrastructures and support facilities as well as to allow formation of a green belt around the landfill, as stipulated in the said CPCB guidelines. Further, various facilities such as surface drainage system which collects and removes all surface runoff from the landfill site, settling pond, on-site laboratory for finger printing analysis, monitoring of unsaturated zone and groundwater zone beneath and around landfill, etc. have also been prescribed in the said guidelines.

The status of availability of the above and, granting approval for design and layout of the common TSDF by Karnataka SPCB, in accordance with the CPCB guidelines and Rule 16(2) of the HOWM Rules, 2016 (similar provisions prevailed under Rule 18(2) of the HWM Rules, 2008), have not been reported in the said letter of Karnataka SPCB;

(iv) Green belt of 15 meters on the west and north side of the secured landfill (SLF) of the said common TSDF has not been developed which is violation of condition of the Environmental Clearance granted by SEIAA. Further, compliance of the other condition of the said Environmental Clearance about development of at least 33% of the total project area as green belt has not been reported in the said letter of Karnataka SPCB.

WHEREAS, Karnataka SPCB was directed under section 5 of Environmental (Protection) Act, 1986, vide direction no. B-29016 (SC)/1/2017-18/WM-II/18396 dated 20/03/2018 to (i) to examine compliance of the aforesaid observations vis-a-vis provisions of the Rules and CPCB guidelines; (ii) in case of non-compliances of provisions of the Rules/CPCB guidelines Karnataka SPCB shall stop collection and disposal of hazardous wastes at the common TSDF operated by the said M/s MEETPL and initiate necessary actions;

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WHEREAS, in response to above directions, Karnataka SPCB vide letter no. PCB/WMC/469/HWM(2017)/2018-19/756 dated 08/05/2018 forwarded the proceedings of the personal hearing given to M/s MEETPL which revealed that the non-compliance of the provisions of HOWM Rules and CPCB guidelines have not been resolved. M/s MEETPL was, therefore, inspected by officials of Karnataka SPCB and RD, Bengaluru on 15/06/2018;

WHEREAS, CPCB convened a meeting with officials of Ministry of Environment, Forest & Climate Change, Karnataka SPCB, Karnataka Industrial Areas Development Board (KIADB) and representatives from M/s Karnataka Waste Management Private Limited and M/s MEETPL on 20th September, 2018, at CPCB, Delhi, under the chairmanship of Member Secretary, Central Pollution Control Board. Decisions taken in the said meeting were communicated to Karnataka SPCB vide CPCB letter no. B-29016/TSDF-63/18/WM-II Div./11996 dated 12/10/2018 for taking actions;

WHEREAS, the Central Government vide Notification No. S.0 730(E) dated 16th July, 2002, has delegated the powers under Section 5 of the Environment (protection) Act, 1986 (29 of 1986) to the Chairman, CPCB, to issue directions to any industry or any local or any other authority for the violation of the standards and rules relating to hazardous waste, bio-medical waste, hazardous chemicals, industrial solid waste, municipal solid waste including plastic waste notified under the Environment (Protection) Act, 1986 and amendments thereof; and

NOW, THEREFORE, in exercise of the powers vested under Section 5 of the Environment (Protection) Act, 1986, Karnataka SPCB is directed herewith to ensure compliance of the following decisions taken in the aforesaid meeting held on 20th September, 2018;

1. Collection and disposal of hazardous waste by M/s MEETPL into their common SLF shall not be allowed unless Karnataka SPCB arrives that such siting is absolutely essential in the State and that upon compliance with the following:

   (a) Appropriate design measures have been adopted for siting the common TSDF within the restricted distances and approval of design of the common TSDF has been granted by Karnataka SPCB in compliance with Rule 16 (2) of the HOWM Rules, 2016;

   (b) Layout of the common TSDF is approved by Karnataka SPCB in compliance with Rule 16 (2) of the HOWM Rules, 2016. Such layout shall incorporate green belt requirement and all requisite infrastructures prescribed in the said CPCB guidelines i.e management of surface run-off water, separate area for equipment shelter, temporary waste storage, stockpiling of cover material and liner material, emergency exit, leachate management, etc.

   (c) Verification by Karnataka SPCB that M/s MEETPL has set up the common TSDF in accordance with approved design and layout, as above;

2. M/s MEETPL shall maintain the manifest system for movement of leachate from the TSDF to authorised CETP in accordance with Rule 19 of the HOWM Rules, 2016.

3. Karnataka SPCB shall levy and collect financial penalty from M/s MEETPL in accordance with Rule 23 (2) of the HOWM Rules, 2016, and CPCB guidelines *"Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty"* for each violation stipulated under the HOWM Rules, 2016, (such as, non-compliance w.r.t manifest system (i.e. Rule 19), not obtaining design & layout approval from SPCB (i.e. Rule 16 (2)), violation of condition of authorisation ((i.e. Rule 6(2)), not operating the facility in environmentally sound manner (i.e. Rule 16 (4), etc.).

4. Further, Karnataka SPCB shall also coordinate with Karnataka State Forest, Ecology and Environment/SEIAA, Karnataka for the following:

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a) Notification of all the Common TSDFs in Karnataka including M/s MEETPL as required under the Rule 16 (1) of the Rules.

b) Expansion granted to M/s MEETPL by SEIAA despite non-compliances with regard to non-development of requisite green belt, location criteria and non-availability of requisite infrastructure.

Receipt of these directions be acknowledged and action taken report in compliance with the above directions be submitted to this office within 15 days from issuance of this direction.

(S.P. Singh Parihar)
Chairman

15-5-18

ಫ್ಯಾಕ್ಸ್ / Fax : 080-25586321
ಈಮೇಲ್ / E-mail : ho@kspcb.gov.in
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ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ

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Karnataka State Pollution Control Board

"ಪರಿಸರಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ.49, ಚರ್ಚ್ ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ, ಭಾರತ
"Parisara Bhavana", 1st to 5th Floor, # 49, Church Street, Bengaluru - 560 001, Karnataka, INDIA

No. PCB/WMC/2018/294

Dated: 05 DEC 2018

To

The Member Secretary,
Central Pollution Control Board,
Parivesh Bhawan,
New Delhi – 1100

Sir,

Sub: Modified directions issued under Section 5 of the Environment (Protection) Act, 1986, in case of M/s. Mother Earth Environ Tech Pvt. Ltd., Harohalli, Kanakapura Taluk, Ramanagara District, Bangalore – reg.

Ref: 1. CPCB letter F.No.B-29016/TSDF-63/18/WM-II/DIV/11996, dated 12.10.2018.
2. Inspection of the Facility by the Chairman of the Board on 30.10.18
3. CPCB letter F.No.B-29016 (SC)/1/2017-18/WM-II/12674, dated 14.11.2018.
4. This office letter No.PCB/WMC/2165/2017/4155, DTD.14.11.2018.

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With reference to the above, directions issued under Section 5 of the Environment (Protection) Act, 1986, in case of M/s. Mother Earth Environ Tech Pvt. Ltd., Harohalli, Kanakapura Taluk, Ramanagara District, Bangalore vide Ref (1) wherein directions were issued including Collection and disposal of hazardous waste by M/s.Mother Earth Environ Tech Pvt. Ltd., (MEETPL), Bengaluru, into their common SLF shall be stopped immediately by Karnataka SPCB.

The Board is in receipt of the modified directions issued under Section 5 of the Environment (Protection) Act, 1986, in case of M/s. Mother Earth Environ Tech Pvt. Ltd., Harohalli, Kanakapura Taluk, Ramanagara District, Bangalore vide Ref (3). In the modified directions, the following para of the direction issued vide Ref (1) is withdrawn.

> *"Collection and disposal of hazardous waste by M/s.Mother Earth Environ Tech Pvt.Ltd., (MEETPL), Bengaluru, into their common SLF shall be stopped immediately by Karnataka SPCB. Further, Karnataka SPCB shall examine absolute essentially of siting the SLF within the restricted distance of zone of habitation and drinking water supply as stipulated in CPCB guidelines – "Criteria for Hazardous Waste Landfills"*

SPCB/WMC

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In the above connection, it is to be informed that

1. The Karnataka State Pollution Control Board (KSPCB) has approved the design of TSDF in compliance with Rule 16(2) of HOWM Rules, 2016 and communicated to you vide Ref.(4).
2. The KSPCB has approved layout of TSDF in compliance with Rule 16(2) of HOWM Rules, 2016 and communicated to you vide Ref (4).
3. The Chairman, KSPCB has inspected the facility on 30.10.2018 for verification as per the directions vide Ref (1). The copy of the Inspection Report is enclosed (Due to typographical error, the date of inspection of the Chairman of the Board was indicated as 10.10.2018 instead of 30.10.2018 in the report carliarly). Copy enclosed.
4. As regards to location criteria, KIADB which is an agency to develop infrastructure has identified the land and the Environmental Clearance is also issued by SEIAA.

The above issues were communicated to you vide this office letter cited under Ref (4).

In view of the compliance to the 1 (a), (b), (c) of the Modified directions M/s. Mother Earth Environ Tech Pvt. Ltd., Harohalli, Kanakapura Taluk, Ramanagara District, Bangalore is allowed for collection and disposal of hazardous waste.

The Board has already taken up the matter with the Department of Forest, Ecology & Environment, Government of Karnataka regarding Notification of the site and also informed the Government to take up the matter with the SEIAA regarding expansion issues as per the modified direction issued vide Ref (3).

The compliances to the directions communicated to you on 14.11.2018. The modified directions was also issued on 14.11.2018. In view of the above, it is requested to consider the compliances reported in the Board letter cited under Ref (4) and recommended to withdraw the modified directions issued to the M/s. Mother Earth Environ Tech Pvt.Ltd., Harohalli, Kanakapura Taluk, Ramanagara District. The Board will monitor the TSDF.

Yours faithfully,
Sd/-
Member Secretary

Copy to:

1. Regional Officer, Ramanagara for information.
2. M/s. Mother Earth Environ Tech Pvt.Ltd., Harohalli, Kanakapura Taluk, Ramanagara (D)
3. Office copy.

Member Secretary

O/C

SEO-WMC

INSPECTION NOTES OF SRI LAKSHMAN, CHAIRMAN, KARNATAKA STATE POLLUTION CONTROL BOARD ON 30-10-2018.

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Name & address of the industry	Mother Earth Environ Tech Pvt Ltd, Plot No.217, Harohalli Industrial Area, II Phase, Kanakapura Taluk, Ramanagara District.

####

M/s. Mother Earth Environ Tech Pvt Ltd, is operating a Hazardous Waste Land fill facility. The Central Pollution Control Board on 12/10/2018 has issued directions Under Section 5 of the Environmental (Protection) Act, 1986 to initiate action against the facility. In the said directions the KSPCB is required to verify whether the facility has been set up in accordance with approved design & Layout of the Common TSDF.

The facility has submitted its layout plan, The KSPCB has approved the layout plan as per rule 16(2) of Hazardous and other wastes (Management and Transboundary Movement) Rules 2016, on 27/10/2018.The Board has also approved the design of TSDF facility on 27/10/2018

The facility was inspected to verify whether it has been established in accordance with design and layout approved by KSPCB and whether it was absolute essentiality for the state to establish the land fill facility within the restricted zone.

The unit was inspected along with the following officers of the board Sri C Siddaramaiah, Regional Officer, Ramanagar. and Sri Ameenulla Baig, Smt H A Meenakshi, Sri T R Kumaraswamy, Sri P Rajesh, Sri Hariprasad, Sri Mrutyunjay B, Dr. D Naveen, Kum. Umme Hamida, Assistant Environmental Officers .

Sri. T N Paramesh, Managing Director of the facility was also present.

Sri C Siddaramaiah, Regional Officer. Ramanagar submitted as under

A. The first Environmental Clearance was issued by SEIAA Karnataka on 28.08.2015 for establishing Hazardous waste landfill facility consisting of two cells with capacity 95000 Tons, They have obtained EC amendment from SEIAA Karnataka on 11.6.2018 for increasing the landfill capacity from 95000 Tons to 1.51.000 Tons.

B. Consent to establishment of the Board was accorded on 4-11-2015 and for expansion on 15-10-2018. Consent for operation is valid for 95000 Tons and disposal of CFL/Tube lights upto 30-6-2021.

C. Authorization under the Hazardous and other wastes (Management and Transboundary Movement) Rules is valid upto 30-6-2020.

1 |

SEO-WMC

D. Regional office Ramnagara is carrying out Ground water monitoring and ambient air quality monitoring regularly.

Following are the observations:-

1. Facilities available are compared with the item no 5.4 of the criteria for hazardous waste landfills published by CPCB.

Requirement as per item no 5.4 of the criteria for hazardous waste landfills published by CPCB	Status
Accesses Road	Accesses Road from Entry to Landfill cells is existing
Equipment Shelter	Separate area for equipments is available which is provided with shelter.
Weighing scale	Weigh bridge is installed at the entrance.
Office space	Existing
Waste inspection facility	Available
Temporary waste storage / disposal sites for special waste	Available.
Demarcation of the land fill areas and areas for stock filling cover material and liner material	Land fill sites are demarcated and for liner material storage. area is demarcated near office building. As regards to stock filling cover material, no specific area is available. The representative of the facility informed that during construction of cell-2 due to technical reasons the removed materials were transported and stored in a separate land, whenever required, material will be brought back and utilized. They have made an agreement with land owner for the same.
Location of surface water drainage facility	Provided storm water drains (garland canals) on East, West & North side. They have constructed two collection tanks of capacity 30 KL & 15 KL for collecting the storm water from the TSDF area.
Location of land fill leachat management facility	Provided. Regional Officer, Ramnagara informed that the facility has raised the height of leachate collection tank recently, thus providing free board of about 1.5 ft. Any excess leachate will automatically flow into the pre-treatment tank avoiding any spill over.
Location of gas management facility (optional)	Not available., The Representative of the facility informed that only after capping of cell , this facility is required.

A. Kumar

SEO-WMC

Location of monitoring wells/ environmental monitoring facilities	Within the site there are 5 monitoring borewells and around the site there are 5 more monitoring borewells, Regional officer, Ramnagara informed that they are regularly monitoring the water and the quality of water is well within the limits. The borewell water was examined and physical observations indicates that the water is clear.
Fencing and green belt along the peripheral boundary	Compound wall provided on all the sides except eastern side where fencing is provided with ACP sheets. Green belt of width about 15 m on East, 1.5 m on the North, 3.5 m on the west upto cell-1 length and 17 m for cell-2 length. Towards South they have provided 15 m lawn. The total green belt provided is about 33 %.
Emergency exits	Available

2. The Board has approved the design details. The Managing director of the facility informed that the project was apprised by the ministry of Environment, Forest And Climatic Change through WAPCOS who has approved the proposals after site visit. The facility has provided double liner as per design.

3. The managing director of the facility informed that the proposal of establishment of the site was approved by the State level Single window clearance committee and the Karnataka Industrial Area Development Board which is an agency responsible for creating infrastructure has given the particular land for development of landfill facility and government is in the processing of notifying the site .

4. Suggestions given:

   a) The existing cell (cell-1) has been filled to above ground level in some portions. They have provided monsoon capping with 1 mm HDPE liners for the same. They have been informed to maintain proper slope of the bund in line with angle of repose of the soil and cover the slopes with coir mat with grass grown to prevent any bund erosion during rain.

   b) The new waste storage shed was in use. The waste stabilization is being done in the same shed. They have covered all the sides of the shed to prevent entry of rainwater into the shed. They were advised to raise the sill level of the shed so as to prevent outflow of leachate from the shed.

A. Kumar

FEO-WMC

c) Informed to analyse the quality of storm water for basic parameters like pH, EC & TDS to check any contamination and if found contaminated, the same shall be pumped to leachate collection tank for sending to CETP. Permanent pumping arrangement shall be made..

d) Lawn of 15 m width is existing and they have been directed to plant the sapling immediately in this area also.

e) They have been directed to conduct VOC monitoring at regular intervals along with Ambient Air Quality monitoring and submit the reports

5. The Regional Officer, Ramnagar was directed to regularly analyse the water samples from monitoring borewells including borewells from adjacent villages.

The Managing Director of the facility informed that they will comply with the directions issued from time to time by the regulating agencies.

The facility has provided infrastructure as per the approved layout and design. As regards to location, the KIADB which is an agency to develop infrastructure has identified the land and Environmental clearance is also issued by SEEIAA. As the facility is already operating since two years, any stoppage of facility for siting criteria is likely to result in illegal disposal of waste. Hence, the facility can be permitted to operate at the said site. However, facility is required to be operated as per the applicable Regulations and guidelines.

Copy of the report be sent to CPCB with a request to withdraw the directions issued on 12-10-2018 and the Regional officer shall monitor

(LAKSHMAN)
CHAIRMAN
KARNATAKA STATE POLLUTION CONTROL BOARD

SEO-WMC

A-18

ATS

Consent For Operation
(CFO-Air,Water)

Consent No. AW-311640
Valid upto: 30/06/2021

Industry Colour: RED Industry Scale: LARGE

Karnataka State Pollution Control Board
Parisara Bhavana,No.49, Church Street,Bengaluru-560001
Tele : 080-25589112/3, 25581383
Fax:080-25586321
email id: ho@kspcb.gov.in

(This document contains 4 pages including annexure & excluding additional conditions)

Combined Consent Order No. AW-311640 **PCB ID:** 27521 **Date:** 23/03/2019

Combined consent for discharge of effluents under the Water (Prevention and Control of Pollution) Act , 1974 and emission under the Air (Prevention and Control of Pollution)Act , 1981

Ref: 1. Application filed by the applicant/organization on 24/01/2019

2.Inspection of the Industry/organization/by RO, on 19/01/2019

3.Proceedings of the CCM dated 13/03/2019 ,held on 02/03/2019

Consent is hereby granted to the Occupier under Section 25(4) of the Water (Prevention & Control of Pollution) Act, 1974 (herein referred to as the Water Act) & Section 21 of Air (Prevention & Control of Pollution) Act, 1981, (herein referred to as the Air Act) and the Rules and Orders made there under and authorized the Occupier to operate /carryout industry/activity & to make discharge of the effluents & emissions confirming to the stipulated standards from the premises mentioned below and subject to the terms and conditions as detailed in the Schedule Annexed to this order.

Location:

Name of the Industry: Mother Earth Environ Tech Pvt. Ltd

Address: Plot No.217, 2nd Phase, KIADB Harohalli Indl. Area, Kanakapura Tq

Industrial Area: Harohalli I.A Phase II, Harohalli,

Taluk: Kanakapura, District: Ramnagaram

CONDITIONS:

a) Discharge of effluents under the Water Act:

Sr	Water Code	WC(KLD)	WWG(KLD)	Remark
1	Domestic Purpose	1.000	0.900	Sewage shall be disposed to Septic tank and Soak pit
2	Others	0.500	0.500	Wash water from tyre wash area. To be disposed to CETP after pre-treatment
3	Others	0.000	3.500	Leachate from Landfill cells. To be disposed to CETP after pre-treatment

b) Discharge of Air emissions under the Air Act from the following stacks etc.

Sl. No.	Description of chimney/outlet	Limits specified refer schedule
The details of Sources, control equipments and its specification, type of fuel,constituents to be controlled in emissions etc. are detailed in Annexure-II.		

The consent for operation is granted considering the following activities/Products;

Sr	Product Name	Applied Qty/Month	Unit
1	hazardous waste landfill facility with 2 cells	151000.0000	TON

This consent is valid for the period from 24/01/2019 **to** 30/06/2021

To,

Mother Earth Environ Tech Pvt. Ltd

No.2542, 17th Main, 28th cross, Banashankari 2nd Stage, Bangalore-70

COPY TO:

The Environmental Officer, KSPCB, Regional Office Ramanagar for information and necessary action.

2. Master Register.
3. Case file.

Consent Fee paid : Rs. 75000

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Consent For Operation
(CFO-Air,Water)

Consent No. AW-311640
Valid upto: 30/06/2021

Industry Colour: RED Industry Scale: LARGE

Karnataka State Pollution Control Board
Parisara Bhavana,No.49, Church Street,Bengaluru-560001
Tele : 080-25589112/3, 25581383
Fax:080-25586321
email id: ho@kspcb.gov.in

(This document contains 4 pages including annexure & excluding additional conditions)

SCHEDULE

TERMS AND CONDITIONS

A. TREATMENT AND DISPOSAL OF EFFLUENTS UNDER THE WATER ACT.

1. The discharge from the premises of the occupier shall pass through the terminal manhole/manholes where from the Board shall be free to collect samples in accordance with the provisions of the Act/Rules made there under.

2(a). The sewage/domestic effluent shall be treated in septic tank and with soak pit. No overflow from the soak pit is allowed. The septic tank and soak pit shall be as per IS 2470 Part-I & Part-II.

2(b). The treated sewage effluent discharged shall conform to the standards specified in Annexure-I.

3(a). The trade effluent generated in the industry shall be treated in the ETP and treated effluent shall confirm to the standards stipulated by the Board in Annexure-I

3(b). The trade effluent shall be handed over to CETP and maintain logbook of effluent generated & sent every day.

4. The applicant shall install flow measuring/recording devices to record the discharge quantity and maintain the record.

5. The applicant shall not change or alter either the quality or the quantity or the place of discharge or temperature or the point of discharge without the previous consent/ permission of the Board.

6. The applicant shall not allow the discharge from the other premises to mix with the discharge from his premises. Storm water shall not be allowed to mix with the effluents on the upstream of the terminal manhole where the flow measuring devices are installed.

7. The daily quantity of domestic effluent and trade effluent from the industry shall not exceed the limits as indicated in this consent order:

8. The applicant shall discharge the effluents only to the place mentioned in the Consent order and discharge of treated/untreated outside the premises is not permitted.

B. EMISSIONS:

1. The discharge of emissions from the premises of the applicant shall pass through the air pollution control equipment and discharged through stacks/chimneys mentioned in **Annexure-II** where from the Board shall be free to collect the samples at any time in accordance with the provisions of the Act and Rules made there under.The tolerance limits of the constituents forming the emissions in each of the stacks shall not exceed the limits laid down in Annexure-II.

2. The applicant shall provide port holes for sampling of emission, access platforms for carrying out stack sampling, electrical points and all other necessary arrangements including ladder as indicated in Annexure-II.

3. The applicant shall upgrade/modify/replace the control equipment with prior permission of the Board.

C.MONITORING & REPORTING:

1. The applicant shall get the samples of effluents & emissions collected and get them analyzed once a month/either by in house monitoring laboratory or through EP approved laboratories for the parameters as Indicated in Annexure I & II.

2. The applicant shall maintain log books to reflect the working condition of pollution control systems and also self monitoring results and keep it open for inspection.

D. SOLID WASTE (OTHER THAN HAZARDOUS WASTE) DISPOSAL:

1.The applicant shall segregate solid waste from Hazardous Waste, Municipal Solid Waste and store it properly till treatment/disposal without causing pollution to the surrounding Environment.

2.The solid waste generated shall be handled & disposed by scientific method without causing eye sore to the general public and to the surrounding environment.

Karnataka State Pollution Control Board
Parisara Bhavana,No.49, Church Street,Bengaluru-560001
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E. NOISE POLLUTION CONTROL:

1. The applicant shall ensure that the ambient noise levels within its premises shall not exceed the limits i.e 75 dB(A) Leq during day time and 70 dB(A) Leq during night time as specified in under the Air (Prevention and Control of Pollution) Act, 1981.

F. HAZARDOUS AND OTHER WASTES (MANAGEMENT & TRANSBOUDARY MOVEMENT)Rules2016:

The applicant shall comply with the provisions of the Hazardous and other Wastes (Management & Transboundry Movement) Rules 2016.

G. GENERAL CONDITIONS:

1. The applicant shall not allow the discharge from the other premises to mix with the discharge from his premises.

2. The applicant shall promptly comply with all orders and instructions issued by the Board from time to time or any other officers of the Board duly authorized in this behalf.

3. The applicant shall set-up Environmental Cell comprising of qualified and competent personnel for complying with the conditions specified.

4. The Board reserves the right to review, impose additional conditions, revoke, change or alter terms and conditions of this consent.

5. The applicant shall forthwith keep the Board informed of any accidental discharge of emissions/effluents into the atmosphere in excess of the standards laid down by the Board. The applicant shall also take corrective steps to mitigate the impact.

6. The applicant shall provide alternate power supply sufficient to operate all Pollution control equipments.

7. The entire premises shall always be kept clean. The effluent holding area, inspection chambers, outlets, flow measuring points should made easily approachable.

8. The applicant shall display the consent granted in a prominent place for perusal of the inspecting officers of the Board.

9. The applicant his heirs, legal representatives or assignee shall have no claims what so ever to the continuation or renewal of this consent after expiry of the validity of consent.

10. The applicant shall make an application for consent for subsequent period at least 45 days before expiry of this consent.

11. The applicant shall develop and maintain adequate green belt all around the periphery.

12. The applicant shall provide rain water harvesting system and shall provide proper storm water management system.

13. This consent is issued without prejudice to any Court Cases pending in any Hon'ble Court

14. The applicant shall furnish the Environmental statement for every financial year ending with 31st March in Form-V as per Environment (Protection) Rules, 1986. The statement shall be furnished before the end of September.

15. The applicant shall display flow diagram of the pollution control system near the pollution contol system/s.

NOTE:

The Conditions A[2(b), 3(a)] & B mentioned in the schedule are not applicable.

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Consent For Operation
(CFO-Air,Water)

Consent No. AW-311640
Valid upto: 30/06/2021

Industry Colour: RED Industry Scale: LARGE

Karnataka State Pollution Control Board
Parisara Bhavana,No.49, Church Street,Bengaluru-560001
Tele : 080-25589112/3, 25581383
Fax:080-25586321
email id: ho@kspcb.gov.in

(This document contains 4 pages including annexure & excluding additional conditions)

Chim.No.	Chimney attached to	Capacity/ KVA Rating	Minimum chimney height to be provided above ground level (in Mts)	Constituents to be controlled in the emission	Tolerance limits mg/NM3	Fuel	Air pollution Control equipment to be installed,in addition to chimney height as per col.(4)	Date of which air pollution control equipments shall be provided to achieve the stipulated tolerance limits and chimney heights conforming to stipulated heights.
1	D.G. Sets	00	0	PM(mg/NM3),SO2 (PPM),NOx(PPM)	--,--,--	DIE	AEC	Before commissioning.

Note:

AEC : Accoustic Enclosures

Note:

1. The Noise levels within the premises shall not exceed 75 dB (A) leq during day time and 70 dB(A) leq during night time respectively.

2. The DG set shall be provided with acoustic measures as per Sl.No.94 in Schedule-I of Environment (Protection)Rules.

3. There shall be no smell or odour nuisance from the industry.

LOCATION OF SAMPLING PORTHOLES, PLATFORMS, ELECTRICAL OUTLET.

1. Location of Portholes and approach platform:

   Portholes shall be provided for all chimneys, stacks and other sources of emission. These shall serve as the sampling points. The sampling point should be located at a distance equal to atleast eight times the stack or duct diameters downstream and two diameters upstream from source of low disturbance such as a Bend, Expansion, Construction Valve, Fitting or Visible Flame for rectangular stacks, the equivalent diameter can be calculated from the following equation.

$$\text{Equivalent Diameter} = \frac{2\,(\text{Length} \times \text{Width})}{(\text{Length} + \text{Width})}$$

2. The diameter of the sampling port should not be less than 100 mm dia". Arrangements should be made so that the porthole is closed firmly during the non sampling period

3. An easily accessible platform to accommodate 3 to 4 persons to conveniently monitor the stack emission from the portholes shall be provided. Arrangements for an Electric Outlet Point of 230 V 15 A with suitable switch control and 3 Pin Point shall be provided at the Porthole location.

4. The ladder shall be provided with adequate safety features so as to approach the monitoring location with ease.

For and on behalf of the
Karnataka State Pollution Control Board

Signature Not Verified
Digitally signed by
Date: 2019.03.26 15:27:33
+05:30

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A80

Form 2 -[Rule 6(2)] Authorization under Hazardous & Other Wastes [Management & Transboundary Movement]Rules,2016

Authorization No: 313144

Valid upto: 30/06/2020

(This document contains 5 pages excluding annexure)

KARNATAKA STATE POLLUTION CONTROL BOARD
Parisara Bhavana,No.49, Church Street,Bengaluru-560001
Tele : 080-25589112/3, 25581383
Fax:080-25586321
email id: ho@kspcb.gov.in

Authorization No: 313144 **PCB ID:** 27521 **Date:** 12/06/2019

FORM FOR GRANT OR RENEWAL OF AUTHORISATION BY STATE POLLUTION CONTROL BOARD TO THE OCCUPIERS, RECYCLERS, REPROCESSORS, REUSERS, USER AND OPERATORS OF DISPOSAL FACILITIES

Ref: 1. Authorization application submitted by the industry/organization on 03/04/2019 at Regional Office.

2. Inspection of the project site/organization by Regional Officer , Ramanagar on 03/04/2019
3. Proceedings of CCM dated: 05/04/2019 , held on: 30/04/2019

1. Number of authorization 313144 and date of issue 12/06/2019

2. Reference of application No. 71190 Inward Date 03/04/2019

3. Managing Director of Mother Earth Environ Tech Pvt. Ltd is hereby granted an authorization based on the enclosed signed inspection report for Generation,Collection,Reception,Storage,Transport,Pre-processing,Treatment,Disposal or any other use of hazardous or other wastes or both on the premises situated at the location Address: Plot No.217 , 2nd Phase, KIADB Harohalli Indl. Area, Kanakapura Tq Industrial Area : Harohalli , Taluk : Kanakapura , District : Ramnagaram

Details of Authorization:

Category of Hazardous waste as per the Schedule I,II & IV of these rules	Description of Hazardous Waste	Quantity/Annum	Unit	Authorized Mode of Disposal or recycling or utilization or co-processing, etc.,
I	5.2~Wastes Residues Containing Oil	0.050	M.T	As Per Annexure
I	5.1~Used Spent Oil	0.050	KLT	As Per Annexure

1. The authorization shall be valid for a period upto 30/06/2020

A. General Conditions of authorization:

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KARNATAKA STATE POLLUTION CONTROL BOARD
Parisara Bhavana,No.49, Church Street,Bengaluru-560001
Tele : 080-25589112/3, 25581383
Fax:080-25586321
email id: ho@kspcb.gov.in

Form 2 -[Rule 6(2)] Authorization under Hazardous & Other Wastes [Management & Transboundary Movement]Rules,2016

Authorization No: 313144

Valid upto: 30/06/2020

(This document contains 5 pages excluding annexure)

1. The authorized person shall comply with the provisions of the Environment (Protection) Act, 1986 and the Rules made there under.

2. The authorization or its renewal shall be produced for inspection at the request of an Officer authorized by the Karnataka State Pollution Control Board.

3. The person authorized shall not rent, lend, sell, transfer or otherwise transport the hazardous wastes and other wastes except what is permitted through this authorization and without obtaining prior permission of the KSPCB.

4. Any unauthorized change in personnel, equipment or working conditions as mentioned in the application by the person authorized shall constitute a breach of this authorization.

5. The person authorized shall implement Emergency Response Procedure (ERP) for which this authorization is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time.

6. The person authorized shall comply with the provisions outlined in the Central Pollution Control Board guidelines on "Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty".

7. It is the duty of the authorized person to take prior permission of the Karnataka State Pollution Control Board to close down the facility.

8. The imported hazardous and other wastes shall be fully insured for transit as well as for any accidental occurrence and its clean-up operation.

9. The importer or exporter shall bear the cost of import or export and mitigation of damages if any.

10. Any other conditions for compliance as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.

11. An application for the renewal of an authorization shall be made **'3' months** before the date of expiry.

12. The Person authorized shall bring to the notice of the Board, if any increase in quantity, change in category and handling operation. In such cases, the authorized Person has to obtain fresh authorization.

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Form 2 -[Rule 6(2)] Authorization under Hazardous & Other Wastes [Management & Transboundary Movement]Rules,2016

Authorization No: 313144

Valid upto: 30/06/2020

(This document contains 5 pages excluding annexure)

KARNATAKA STATE POLLUTION CONTROL BOARD
Parisara Bhavana,No.49, Church Street,Bengaluru-560001
Tele : 080-25589112/3, 25581383
Fax:080-25586321
email id: ho@kspcb.gov.in

13. Karnataka State Pollution Control Board reserves the right to review, impose additional condition or conditions, revoke, change or alter the terms and conditions of this authorization or to suspend or cancel this authorization.

14. The Person authorized shall take steps for reduction and prevention of the waste generated or for recycling or reuse.

15. The authorized person shall maintain the records at site in Form-3 and shall submit the annual returns in Form-4 within 30th June every year for the Period April to March and manifest in Form-10.

16. The record of consumption and fate of the imported hazardous and other wastes shall be maintained.

17. The hazardous and other waste which gets generated during recycling or reuse or recovery or per-processing or utilization of imported hazardous or other wastes shall be treated and disposed of as per specific conditions of authorization.

18. The transportation of hazardous waste shall have to be carried out only through registered/authorized vehicles meant for transportation of hazardous waste.

19. The Person Authorized shall not store the Hazardous Waste more than ninety days as per Rule 8 (1).

20. The Person Authorized shall transport and store the raw materials in a manner so as not to cause any damage to environment, life and property. The applicant shall be solely responsible for any damages to environment.

21. Display Boards: The person authorized shall display sign boards at the storage site as "Hazardous Waste Storage Site" and "Danger" and the site shall be provided with accident preventive measures.

Additional Conditions:

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Form 2 -[Rule 6(2)] Authorization under Hazardous & Other Wastes [Management & Transboundary Movement]Rules,2016

Authorization No: 313144

Valid upto: 30/06/2020

(This document contains 5 pages excluding annexure)

KARNATAKA STATE POLLUTION CONTROL BOARD
Parisara Bhavana,No.49, Church Street,Bengaluru-560001
Tele : 080-25589112/3, 25581383
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email id: ho@kspcb.gov.in

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Form 2 -[Rule 6(2)] Authorization under Hazardous & Other Wastes [Management & Transboundary Movement]Rules,2016

Authorization No: 313144

Valid upto: 30/06/2020

(This document contains 5 pages excluding annexure)

KARNATAKA STATE POLLUTION CONTROL BOARD
Parisara Bhavana,No.49, Church Street,Bengaluru-560001
Tele : 080-25589112/3, 25581383
Fax:080-25586321
email id: ho@kspcb.gov.in

General Conditions Nil are not applicable.

For and on behalf of the
Karnataka State Pollution Control Board

COPY TO:

1. The Environmental Officer, KSPCB, Regional Office,for information and to inspect the industry during your next visit to the area.
2. Master copy (Dispatch).
3. Office copy.

Signature Not Verified
Digitally signed by
Date: 2019.06.12 16:30:37
+05:30

A-9.

A-20

A85

SHRIRAM INSTITUTE FOR INDUSTRIAL RESEARCH

(A unit of Shriram Scientific and Industrial Research Foundation)

14 - Th, Sadarmangala Industrial Area, Whitefield Road,
Bengaluru - 560048
An ISO - 9001, 14001 & OHSAS 18001 Certified Institute

Website : www.shriraminstitute.org
E-mail Id : customercare@shriraminstitute-bangalore.org

TEST CERTIFICATE

NO : C2/0000020776

Issued To :
Client Code : (BANG01M1210)
MOTHER EARTH ENVIRON TECH PVT LTD.
PLOT NO. 217, 2ND PHASE,
KIADB INDUSTRIAL AREA, HAROHALLI,
KANAKAPUR (T), RAMANAGARA (D)

BANGALORE
KARNATAKA-562112

Date : 29/06/2019
Job No : 1906-2-B421-252
Booking No : RG1920/2/448
Booking Date : 13/06/2019
Customer Ref/No. : WO NO.: MEEPL/PO/2019-20/006
Customer Ref Dt. : 12/06/2019
UI.R NO. :

Job order No: 1906-2-B421-252

Sample Description: One sample of Ambient Air monitored by our representative on 29/06/2019 in the Premises of M/s. Mother Earth Environ Tech Pvt Ltd, Plot No.217, 2nd Phase, KIADB Industrial area, Harohalli, Kanakapur(T), Ramanagara(D), Bangalore-562112.

RESULTS

(AS PER ANNEXURE)
Page No.: 01-01

AUTHORISED SIGNATORY
EMPLOYEE CODE:(7184)

A8F

Shriram Institute for Industrial Research

(A Unit of Shriram Scientific and Industrial Research Foundation)

Annexure to Test Certificate No. C2/0000020776

Client Address:
Mother Earth Environ Tech Pvt. Ltd.,
Plot No.217, 2nd Phase,
KIADB Industrial area,
Harohalli, Kanakapur(T),
Ramanagara(D),
Bangalore-562112

Job Order No: 1906-B421-252

Results

Location: Near Land Fill Area

Sl.No	Tests	Results	Protocol
1	TVOC, ppb	184	By Toxic Gas Analyzer
2	Total Hydrocarbons (C1 to C5)	Not detected	By Gas Chromatography

SHRIRAM INSTITUTE

Authorised Signatory

(Annexure-III)
Environmental Reports

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SLN TESTING LABORATORY

NABL/ISO 9001 : 2015/OHSAS Certified Laboratory

15, 1st Floor, Premnagar, Pipeline Road, Laggere, Bangalore - 560 058.
Mob. : 9844086162, 9538888098, E-mail : slntestinglaboratory@gmail.com, Web : www.slnlabs.com

ANALYSIS REPORT OF AMBIENT AIR QUALITY

Name of the Company	M/s. Mother Earth Environ Tech Pvt Ltd.,
Address	Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli, Kanakpura taluk, Ramnagara. Karnataka-562112
Name of the Location	Near Security Main Gate Entrance
Sample Collected by	Lab Representative
Date of Collection	16/06/2020
Date of Analysis	17/06/2020
Report Number	SLNTL20060137 A
Report Date	22/06/2020
Page Number	1 of 1

Sl. No.	Parameters	Units	Results	NAAQM Standard	Test Method
1	Particulate Matter(PM_{10})	$\mu g/m^3$	71.9	100 Max	IS 5181(Part-23) 2006 (RA 2017)
2	Particulate Matter($PM_{2.5}$)	$\mu g/m^3$	37.5	60 Max	CPCB Manual
3	Oxides of Nitrogen as NO_2	$\mu g/m^3$	29.4	80 Max	IS 5182 (Part-6) 2006 (RA 2017)
4	Oxides of Sulphur as SO_2	$\mu g/m^3$	15.7	80 Max	IS 5182 (Part-2) 2001(RA 2017)
5	Lead as Pb	$\mu g/m^3$	BDL	1 Max	IS 5182 (Part-22) 2004 (RA 2014)
6	Carbon Monoxide as CO	mg/m^3	<0.1	2 Max	IS 5182 (Part-10) 1999(RA 2014)
7	Ammonia as NH_3	$\mu g/m^3$	15.2	400 Max	CPCB Manual
8	Benzene as C_6H_6	$\mu g/m^3$	BDL	5 Max	IS 5182 (Part-11) 2006 (RA 2017)
9	Benzo (a) Pyrene	ng/m^3	BDL	1 Max	IS 5182 (Part-12) 2004 (RA 2014)
10	Arsenic as As	ng/m^3	BDL	6 Max	CPCB Manual
11	Nickel as Ni	ng/m^3	BDL	20 Max	CPCB Manual
12	Ozone as O_3	$\mu g/m^3$	11.6	180 Max	5182 (Part-9) 1974 (RA 2014)

Note: - BDL: Below Detection Limit

Report Status: All the above tested parameters are within the NAAQM Standards.

**********End of the Report**********

Authorised Signatory

Note : 1. The results listed pertain only to the tested samples and applicable parameters.
2. Sample will be destroyed after 15 days from the date of issue of test certificate unless & otherwise specified.
3. This report is not be reproduced either wholly or in part and can not be used an evidence in the count of law and should not be used in any advertising media without prior written permission.
4. Sampling not done by us, unless specified.

SLN TESTING LABORATORY

NABL/ISO 9001 : 2015/OHSAS Certified Laboratory

15, 1st Floor, Premnagar, Pipeline Road, Laggere, Bangalore - 560 058.

Mob. : 9844086162, 9538888098, E-mail : slntestinglaboratory@gmail.com, Web : www.slnlabs.com

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ANALYSIS REPORT OF AMBIENT AIR QUALITY

Name of the Company	M/s. Mother Earth Environ Tech Pvt Ltd.,
Address	Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli, Kanakpura taluk, Ramnagara. Karnataka-562112
Name of the Location	Near Office
Sample Collected by	Lab Representative
Date of Collection	16/06/2020
Date of Analysis	17/06/2020
Report Number	SLNTL20060137 B
Report Date	22/06/2020
Page Number	1 of 1

Sl. No.	Parameters	Units	Results	NAAQM Standard	Test Method
1	Particulate Matter(PM_{10})	$\mu g/m^3$	64.6	100 Max	IS 5181(Part-23) 2006 (RA 2017)
2	Particulate Matter($PM_{2.5}$)	$\mu g/m^3$	27.0	60 Max	CPCB Manual
3	Oxides of Nitrogen as NO_2	$\mu g/m^3$	24.1	80 Max	IS 5182 (Part-6) 2006 (RA 2017)
4	Oxides of Sulphur as SO_2	$\mu g/m^3$	14.4	80 Max	IS 5182 (Part-2) 2001(RA 2017)
5	Carbon Monoxide as CO	mg/m^3	<0.1	2 Max	IS 5182 (Part-10) 1999(RA 2014)

Note: - BDL: Below Detection Limit

Report Status: All the above tested parameters are within the NAAQM Standards.

**********End of the Report**********

Authorised Signatory

Note : 1. The results listed pertain only to the tested samples and applicable parameters.
2. Sample will be destroyed after 15 days from the date of issue of test certificate unless & otherwise specified.
3. This report is not be reproduced either wholly or in part and can not be used an evidence in the count of law and should not be used in any advertising media without prior written permission.
4. Sampling not done by us, unless specified.

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SLN TESTING LABORATORY

NABL/ISO 9001 : 2015/OHSAS Certified Laboratory

15, 1st Floor, Premnagar, Pipeline Road, Laggere, Bangalore - 560 058.

Mob. : 9844086162, 9538888098, E-mail : slntestinglaboratory@gmail.com, Web : www.slnlabs.com

ANALYSIS REPORT OF AMBIENT AIR QUALITY

Name of the Company	M/s. Mother Earth Environ Tech Pvt Ltd.,
Address	Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli, Kanakpura taluk, Ramnagara. Karnataka-562112
Name of the Location	Near Landfill Cell 2
Sample Collected by	Lab Representative
Date of Collection	16/06/2020
Date of Analysis	17/06/2020
Report Number	SLNTL20060137 C
Report Date	22/06/2020
Page Number	1 of 1

Sl. No.	Parameters	Units	Results	NAAQM Standard	Test Method
1	Particulate Matter(PM_{10})	$\mu g/m^3$	78.4	100 Max	IS 5181(Part-23) 2006 (RA 2017)
2	Particulate Matter($PM_{2.5}$)	$\mu g/m^3$	37.1	60 Max	CPCB Manual
3	Oxides of Nitrogen as NO_2	$\mu g/m^3$	25.2	80 Max	IS 5182 (Part-6) 2006 (RA 2017)
4	Oxides of Sulphur as SO_2	$\mu g/m^3$	13.8	80 Max	IS 5182 (Part-2) 2001(RA 2017)
5	Carbon Monoxide as CO	mg/m^3	<0.1	2 Max	IS 5182 (Part-10) 1999(RA 2014)

Note: - BDL: Below Detection Limit

Report Status: All the above tested parameters are within the NAAQM Standards.

**********End of the Report**********

Authorised Signatory

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ANALYSIS REPORT OF AMBIENT AIR QUALITY

Name of the Company	M/s. Mother Earth Environ Tech Pvt Ltd.,
Address	Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli , Kanakpura taluk, Ramnagara. Karnataka-562112
Name of the Location	Near Leachate Storage Tank
Sample Collected by	Lab Representative
Date of Collection	16/06/2020
Date of Analysis	17/06/2020
Report Number	SLNTL20060137 D
Report Date	22/06/2020
Page Number	1 of 1

Sl. No.	Parameters	Units	Results	NAAQM Standard	Test Method
1	Particulate Matter(PM_{10})	$\mu g/m^3$	67.0	100 Max	IS 5181(Part-23) 2006 (RA 2017)
2	Particulate Matter($PM_{2.5}$)	$\mu g/m^3$	34.6	60 Max	CPCB Manual
3	Oxides of Nitrogen as NO_2	$\mu g/m^3$	26.5	80 Max	IS 5182 (Part-6) 2006 (RA 2017)
4	Oxides of Sulphur as SO_2	$\mu g/m^3$	14.2	80 Max	IS 5182 (Part-2) 2001(RA 2017)
5	Carbon Monoxide as CO	mg/m^3	<0.1	2 Max	IS 5182 (Part-10) 1999(RA 2014)

Note: - BDL: Below Detection Limit

Report Status: All the above tested parameters are within the NAAQM Standards.

**********End of the Report**********

Authorised Signatory

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ANALYSIS REPORT OF STACK EMISSION

Name of Company	M/s. Mother Earth Environ Tech Pvt Ltd.,
Address	Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli, Kanakpura taluk, Ramnagara. Karnataka-562112
Sample Particulars	25 KVA DG Set
Sampled By	Lab Representative
Date of Sampling	16/06/2020
Date of Analysis	17/06/2020
Report Number	SLNTL20060137 E
Report Date	22/06/2020
Page Number	1 of 1

Results:

Sl. No.	Parameters	Units	Results	Test Method
01	Particulate Matter (PM)	mg/Nm^3	26.7	IS 11255 (Part 1) :1985 (RA 2014)
02	Sulphur Dioxide (SO_2)	mg/Nm^3	7.2	IS 11255 (Part 2) :1985 (RA 2014)
03	Oxides of Nitrogen (NOx)	mg/Nm^3	18.6	IS 11255 (Part 7) :2005 (RA 2012)

**********End of the Report**********

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NOISE LEVEL MONITORING REPORT

Name of the Company	M/s. Mother Earth Environ Tech Pvt Ltd.,
Address	Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli, Kanakpura taluk, Ramnagara. Karnataka-562112
Sample Collected By	Lab Representative
Date of Sampling	16/06/2020
Report Number	SLNTL20060137 F
Report Date	22/06/2020
Page Number	1 of 1

Method: IS 9989: 1981(RA - 2008)

Sl. No.	Sample Location	Results	KSPCB Standard in Day Time
		L_{EQ} dB(A)	
01	Near Security Main Gate	69.4	75 dB(A)
02	Near Office	64.0	
03	Near Landfill Cell 2	68.7	
04	Near Leachate Storage Tank	70.1	

Report Status: Tested parameters are within the KSPCB Standards.

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Authorised Signatory

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TEST REPORT

Report No : SLNTL20060137 M	Report **Date** : 22/06/2020
Issued To:M/s. Mother Earth Environ Tech Pvt. Ltd. Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli , Kanakpura taluk, Ramnagara. Karnataka-562112.	Customer Reference :Verbal
	Date of Receipt : 16/06/2020
	Date of test start : 16/06/2020
	Date of Completion Of test : 22/06/2020
Sample Location : Near Weight Bridge	Sample Particulars : Soil Sample

Sl. No	Parameters	Units	Results
01	pH Value	--	7.64
02	Electrical Conductivity	µs/cm	243
03	Colour	---	Light Red
04	Lead as Pb	mg/kg	Not Detected
05	Cadmium as Cd	mg/kg	Not Detected
06	Copper as Cu	mg/kg	<1.0
07	Zinc as Zn	mg/kg	<1.0
08	Chromium as Cr	mg/kg	Not Detected
09	Mercury as Hg	mg/kg	Not Detected
10	Nickel as Ni	mg/kg	Not Detected
11	Cyanide as CN	mg/kg	Not Detected
12	Arsenic as As	mg/kg	Not Detected
13	Manganese as Mn	mg/kg	<0.1
14	Fluoride as F	mg/kg	<0.1
15	TOC	%	<1.0
16	PAH	mg/kg	Not Detected

******End of the Report******

Authorised Signatory

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TEST REPORT

Report No : SLNTL20060137 M	Report **Date** : 22/06/2020
Issued To:M/s. Mother Earth Environ Tech Pvt. Ltd. Plot No.: 217, KIADB Industrial area, 2nd Phase, Harohalli , Kanakpura taluk, Ramnagara. Karnataka-562112.	Customer Reference :Verbal
	Date of Receipt : 16/06/2020
	Date of test start : 16/06/2020
	Date of Completion **Of test** : 22/06/2020
Sample Location : Near Borewell -5	Sample Particulars : Soil Sample

Sl. No	Parameters	Units	Results
01	pH Value	--	7.61
02	Electrical Conductivity	µs/cm	187
03	Colour	---	Light Red
04	Lead as Pb	mg/kg	Not Detected
05	Cadmium as Cd	mg/kg	Not Detected
06	Copper as Cu	mg/kg	<1.0
07	Zinc as Zn	mg/kg	<1.0
08	Chromium as Cr	mg/kg	Not Detected
09	Mercury as Hg	mg/kg	Not Detected
10	Nickel as Ni	mg/kg	Not Detected
11	Cyanide as CN	mg/kg	Not Detected
12	Arsenic as As	mg/kg	Not Detected
13	Manganese as Mn	mg/kg	<0.1
14	Fluoride as F	mg/kg	<0.1
15	TOC	%	<1.0
16	PAH	mg/kg	Not Detected

******End of the Report******

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TEST REPORT

Report No : SLNTL20060137 L	Report **Date** : 22/06/2020
Issued To:M/s. Mother Earth Environ Tech Pvt. Ltd. Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli , Kanakpura taluk, Ramnagara. Karnataka-562112.	Customer Reference :Verbal
	Date of Receipt : 16/06/2020
	Date of test start : 16/06/2020
	Date of Completion **Of test** : 22/06/2020
Sample Location : Near Tank	Sample Particulars : Soil Sample

Sl. No	Parameters	Units	Results
01	pH Value	--	7.43
02	Electrical Conductivity	µs/cm	209
03	Colour	---	Light Red
04	Lead as Pb	mg/kg	Not Detected
05	Cadmium as Cd	mg/kg	Not Detected
06	Copper as Cu	mg/kg	<1.0
07	Zinc as Zn	mg/kg	<1.0
08	Chromium as Cr	mg/kg	Not Detected
09	Mercury as Hg	mg/kg	Not Detected
10	Nickel as Ni	mg/kg	Not Detected
11	Cyanide as CN	mg/kg	Not Detected
12	Arsenic as As	mg/kg	Not Detected
13	Manganese as Mn	mg/kg	<0.1
14	Fluoride as F	mg/kg	<0.1
15	TOC	%	<1.0
16	PAH	mg/kg	Not Detected

******End of the Report******

Authorised Signatory

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TEST REPORT

Report No : SLNTL20060137 L	**Report Date** : 22/06/2020
Issued To: M/s. Mother Earth Environ Tech Pvt. Ltd. Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli , Kanakpura taluk, Ramnagara. Karnataka-562112.	**Customer Reference** :Verbal
	Date of Receipt : 16/06/2020
	Date of test start : 16/06/2020
	Date of Completion Of test : 22/06/2020
Sample Location : Near Office Gardening Area	**Sample Particulars :** Soil Sample

Sl. No	Parameters	Units	Results
01	pH Value	--	7.37
02	Electrical Conductivity	µs/cm	183
03	Colour	---	Light Red
04	Lead as Pb	mg/kg	Not Detected
05	Cadmium as Cd	mg/kg	Not Detected
06	Copper as Cu	mg/kg	<1.0
07	Zinc as Zn	mg/kg	<1.0
08	Chromium as Cr	mg/kg	Not Detected
09	Mercury as Hg	mg/kg	Not Detected
10	Nickel as Ni	mg/kg	Not Detected
11	Cyanide as CN	mg/kg	Not Detected
12	Arsenic as As	mg/kg	Not Detected
13	Manganese as Mn	mg/kg	<0.1
14	Fluoride as F	mg/kg	<0.1
15	TOC	%	<1.0
16	PAH	mg/kg	Not Detected

******End of the Report******

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TEST REPORT

Report No : SLNTL20060137 G	Report **Date** : 22/06/2020
Issued To:M/s. Mother Earth Environ Tech Pvt. Ltd. Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli , Kanakpura taluk, Ramnagara. Karnataka-562112.	**Customer Reference** :Verbal
	Date of Receipt : 16/06/2020
	Date of test start : 16/06/2020
	Date of Completion Of test : 22/06/2020
Sample Received By: Customer	**Sample Particulars :** Borewell Water - 1

Parameters	Results	Maximum Acceptable Limits (in mg/L)	Maximum Permissible Limits (in mg/L)	Test Method
		(As per IS 10500:2012)		
pH Value	6.64	6.5 – 8.5	No Relaxation	IS:3025/Part-11
Colour, Hazen Units	<5	5	15	IS:3025/Part-4
Electrical Conductivity, µs /cm	904	-----		IS:3025/Part-14
Turbidity, NTU	1.5	1	5	IS:3025/Part-10
Total Dissolved Solids, mg/L	576.0	500	2000	IS:3025/Part-16
Total Suspended Solids, mg/L	<1.0	-----		IS:3025/Part-17
Total Organic Carbon, µg/L	<0.1	-----		APHA 23rd Edition
Dissolved Oxygen, mg/L	6.0	-----		IS:3025/Part-38
Biochemical Oxygen Demand (3days @27°C), mg/L	<1.0	-----		IS:3025/Part-44
Chemical Oxygen Demand, mg/L	<2.0			IS:3025/Part-58
Chloride as Cl, mg/L	100.0	250	1000	IS:3025/Part-32
Copper as Cu, mg/L	<0.01	0.05	1.5	IS:3025/Part-42
Fluoride as F, mg/L	0.3	1.0	1.5	IS:3025/Part-60
Iron as Fe, mg/L	<0.1	0.3	No Relaxation	IS:3025/Part-53
Manganese as Mn, mg/L	<0.1	0.1	0.3	IS:3025/Part-59
Nitrate as NO_3, mg/L	4.9	45	No Relaxation	IS:3025/Part-34
Sulphate as SO_4, mg/L	22.6	200	400	IS:3025/Part-24
Total Kjeldhal Nitrogen, mg/L	<0.1	0.05	No Relaxation	IS:3025/Part-34
Zinc as Zn, mg/L	<0.5	5	15	IS:3025/Part-49
Total Alkalinity as $CaCO_3$, mg/L	310.0	200	600	IS:3025/Part-23
Total Hardness as $CaCO_3$, mg/L	300.0	200	600	IS:3025/Part-21

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TEST REPORT

Report No : SLNTL20060137 G	Report Date : 22/06/2020
Issued To:M/s. Mother Earth Environ Tech Pvt. Ltd. Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli , Kanakpura taluk, Ramnagara. Karnataka-562112.	**Customer Reference** :Verbal
	Date of Receipt : 16/06/2020
	Date of test start : 16/06/2020
	Date of Completion Of test : 22/06/2020
Sample Received By: Customer	Sample Particulars : Borewell Water - 1

Parameters	Results	Maximum Acceptable Limits (in mg/L)	Maximum Permissible Limits (in mg/L)	Test Method
		(As per IS 10500:2012)		
Cadmium as Cd, mg/L	Not Detected	0.03	No Relaxation	IS:3025/Part-41
Lead as Pb, mg/L	Not Detected	0.01	No Relaxation	IS:3025/Part-47
Chromium as Cr^{6+}, mg/L	Not Detected	0.05	No Relaxation	IS:3025/Part-52
Cyanide as CN, mg/L	Not Detected	0.05	No Relaxation	IS:3025/Part-27
Mercury as Hg, mg/L	Not Detected	0.001	No Relaxation	IS:3025/Part-48
Nickel as Ni, mg/L	Not Detected	0.02	No Relaxation	IS:3025/Part-54
Arsenic as As, mg/L	Not Detected	0.02	No Relaxation	IS:3025/Part-37
Total Pesticide, µg/L	Absent	Absent		APHA 23rd Edition

Remarks: The given water sample meets to maximum permissible limits as per **IS 10500:2012** for above physical and chemical testing.

******End of the Report******

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TEST REPORT

Report No : SLNTL20060137 H	Report **Date** : 22/06/2020
Issued To:M/s. Mother Earth Environ Tech Pvt. Ltd. Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli , Kanakpura taluk, Ramnagara. Karnataka-562112.	**Customer Reference** :Verbal
	Date **of** Receipt : 16/06/2020
	Date of test start : 16/06/2020
	Date of Completion **Of test** : 22/06/2020
Sample Received By: Customer	Sample Particulars : Borewell Water - 2

Parameters	Results	Maximum Acceptable Limits (in mg/L) (As per IS 10500:2012)	Maximum Permissible Limits (in mg/L) (As per IS 10500:2012)	Test Method
pH Value	6.81	6.5 – 8.5	No Relaxation	IS:3025/Part-11
Colour, Hazen Units	<5	5	15	IS:3025/Part-4
Electrical Conductivity, µs /cm	1050	-----		IS:3025/Part-14
Turbidity, NTU	1.9	1	5	IS:3025/Part-10
Total Dissolved Solids, mg/L	689.0	500	2000	IS:3025/Part-16
Total Suspended Solids, mg/L	<1.0	-----		IS:3025/Part-17
Total Organic Carbon, µg/L	<0.1	-----		APHA 23rd Edition
Dissolved Oxygen, mg/L	5.8	------		IS:3025/Part-38
Biochemical Oxygen Demand (3days @27°C), mg/L	<1.0	------		IS:3025/Part-44
Chemical Oxygen Demand, mg/L	<4.0			IS:3025/Part-58
Chloride as Cl, mg/L	120.0	250	1000	IS:3025/Part-32
Copper as Cu, mg/L	<0.01	0.05	1.5	IS:3025/Part-42
Fluoride as F, mg/L	0.4	1.0	1.5	IS:3025/Part-60
Iron as Fe, mg/L	<0.1	0.3	No Relaxation	IS:3025/Part-53
Manganese as Mn, mg/L	<0.1	0.1	0.3	IS:3025/Part-59
Nitrate as NO_3, mg/L	6.2	45	No Relaxation	IS:3025/Part-34
Sulphate as SO_4, mg/L	21.3	200	400	IS:3025/Part-24
Total Kjeldhal Nitrogen, mg/L	<0.1	0.05	No Relaxation	IS:3025/Part-34
Zinc as Zn, mg/L	<0.5	5	15	IS:3025/Part-49
Total Alkalinity as $CaCO_3$, mg/L	350.0	200	600	IS:3025/Part-23
Total Hardness as $CaCO_3$, mg/L	320.0	200	600	IS:3025/Part-21

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TEST REPORT

Report No : SLNTL20060137 H	Report **Date** : 22/06/2020
Issued To:M/s. Mother Earth Environ Tech Pvt. Ltd. Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli , Kanakpura taluk, Ramnagara. Karnataka-562112.	**Customer Reference** :Verbal
	Date of Receipt : 16/06/2020
	Date of test start : 16/06/2020
Sample Received By: Customer	**Date of Completion Of test** : 22/06/2020
	Sample Particulars : Borewell Water - 2

Parameters	Results	Maximum Acceptable Limits (in mg/L)	Maximum Permissible Limits (in mg/L)	Test Method
		(As per IS 10500:2012)		
Cadmium as Cd, mg/L	Not Detected	0.03	No Relaxation	IS:3025/Part-41
Lead as Pb, mg/L	Not Detected	0.01	No Relaxation	IS:3025/Part-47
Chromium as Cr^{6+}, mg/L	Not Detected	0.05	No Relaxation	IS:3025/Part-52
Cyanide as CN, mg/L	Not Detected	0.05	No Relaxation	IS:3025/Part-27
Mercury as Hg, mg/L	Not Detected	0.001	No Relaxation	IS:3025/Part-48
Nickel as Ni, mg/L	Not Detected	0.02	No Relaxation	IS:3025/Part-54
Arsenic as As, mg/L	Not Detected	0.02	No Relaxation	IS:3025/Part-37
Total Pesticide, µg/L	Absent	Absent		APHA 23rd Edition

Remarks: The given water sample meets to maximum permissible limits as per **IS 10500:2012** for above physical and chemical testing.

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TEST REPORT

Report No : SLNTL20060137 I	Report Date : 22/06/2020
Issued To:M/s. Mother Earth Environ Tech Pvt. Ltd. Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli , Kanakpura taluk, Ramnagara. Karnataka-562112.	Customer Reference :Verbal
	Date of Receipt : 16/06/2020
	Date of test start : 16/06/2020
	Date of Completion Of test : 22/06/2020
Sample Received By: Customer	Sample Particulars : Borewell Water - 3

Parameters	Results	Maximum Acceptable Limits (in mg/L) (As per IS 10500:2012)	Maximum Permissible Limits (in mg/L)	Test Method
pH Value	6.73	6.5 – 8.5	No Relaxation	IS:3025/Part-11
Colour, Hazen Units	55	5	15	IS:3025/Part-4
Electrical Conductivity, µs /cm	1089	------		IS:3025/Part-14
Turbidity, NTU	108.3	1	5	IS:3025/Part-10
Total Dissolved Solids, mg/L	699.0	500	2000	IS:3025/Part-16
Total Suspended Solids, mg/L	96.0	------		IS:3025/Part-17
Total Organic Carbon, µg/L	<0.1	------		APHA 23rd Edition
Dissolved Oxygen	5.5	------		IS:3025/Part-38
Biochemical Oxygen Demand (3days @27^{0}C)	<1.0	------		IS:3025/Part-44
Chemical Oxygen Demand	<4.0			IS:3025/Part-58
Chloride as Cl, mg/L	120.0	250	1000	IS:3025/Part-32
Copper as Cu, mg/L	<0.01	0.05	1.5	IS:3025/Part-42
Fluoride as F, mg/L	0.5	1.0	1.5	IS:3025/Part-60
Iron as Fe, mg/L	<0.1	0.3	No Relaxation	IS:3025/Part-53
Manganese as Mn, mg/L	<0.1	0.1	0.3	IS:3025/Part-59
Nitrate as NO_3, mg/L	7.5	45	No Relaxation	IS:3025/Part-34
Sulphate as SO_4, mg/L	26.8	200	400	IS:3025/Part-24
Total Kjeldhal Nitrogen, mg/L	<0.1	0.05	No Relaxation	IS:3025/Part-34
Zinc as Zn, mg/L	<0.5	5	15	IS:3025/Part-49
Total Alkalinity as $CaCO_3$, mg/L	340.0	200	600	IS:3025/Part-23
Total Hardness as $CaCO_3$, mg/L	310.0	200	600	IS:3025/Part-21

Authorised Signatory

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15, 1st Floor, Premnagar, Pipeline Road, Laggere, Bangalore - 560 058.

Mob. : 9844086162, 9538888098, E-mail : slntestinglaboratory@gmail.com, Web : www.slnlabs.com

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TEST REPORT

Report No : SLNTL20060137 I	**Report Date** : 22/06/2020
Issued To:M/s. Mother Earth Environ Tech Pvt. Ltd. Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli , Kanakpura taluk, Ramnagara. Karnataka-562112.	**Customer Reference** :Verbal
	Date of Receipt : 16/06/2020
	Date of test start : 16/06/2020
	Date of Completion Of test : 22/06/2020
Sample Received By: Customer	**Sample Particulars** :Borewell Water - 3

Parameters	Results	Maximum Acceptable Limits (in mg/L)	Maximum Permissible Limits (in mg/L)	Test Method
		(As per IS 10500:2012)		
Cadmium as Cd, mg/L	Not Detected	0.03	No Relaxation	IS:3025/Part-41
Lead as Pb, mg/L	Not Detected	0.01	No Relaxation	IS:3025/Part-47
Chromium as Cr^{6+}, mg/L	Not Detected	0.05	No Relaxation	IS:3025/Part-52
Cyanide as CN, mg/L	Not Detected	0.05	No Relaxation	IS:3025/Part-27
Mercury as Hg, mg/L	Not Detected	0.001	No Relaxation	IS:3025/Part-48
Nickel as Ni, mg/L	Not Detected	0.02	No Relaxation	IS:3025/Part-54
Arsenic as As, mg/L	Not Detected	0.02	No Relaxation	IS:3025/Part-37
Total Pesticide, µg/L	Absent	Absent		APHA 23rd Edition

Remarks: The given water sample does not meets to limits as per **IS 10500:2012** for above physical and chemical testing.

******End of the Report******

Authorised Signatory

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Mob. : 9844086162, 9538888098, E-mail : slntestinglaboratory@gmail.com, Web : www.slnlabs.com

TEST REPORT

Report No : SLNTL20060137 J	Report Date : 22/06/2020
Issued To: M/s. Mother Earth Environ Tech Pvt. Ltd. Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli , Kanakpura taluk, Ramnagara. Karnataka-562112.	**Customer Reference** :Verbal
	Date of Receipt : 16/06/2020
	Date of test start : 16/06/2020
	Date of Completion **Of test** : 22/06/2020
Sample Received By: Customer	Sample Particulars : Borewell Water - 4

Parameters	Results	Maximum Acceptable Limits (in mg/L) (As per IS 10500:2012)	Maximum Permissible Limits (in mg/L) (As per IS 10500:2012)	Test Method
pH Value	6.65	6.5 – 8.5	No Relaxation	IS:3025/Part-11
Colour, Hazen Units	95	5	15	IS:3025/Part-4
Electrical Conductivity, µs /cm	916	------		IS:3025/Part-14
Turbidity, NTU	89.4	1	5	IS:3025/Part-10
Total Dissolved Solids, mg/L	585.0	500	2000	IS:3025/Part-16
Total Suspended Solids, mg/L	64.7	------		IS:3025/Part-17
Total Organic Carbon, µg/L	<0.1	------		APHA 23rd Edition
Dissolved Oxygen	5.6	------		IS:3025/Part-38
Biochemical Oxygen Demand (3days @27°C)	<1.0	------		IS:3025/Part-44
Chemical Oxygen Demand	10.0			IS:3025/Part-58
Chloride as Cl, mg/L	100.0	250	1000	IS:3025/Part-32
Copper as Cu, mg/L	<0.01	0.05	1.5	IS:3025/Part-42
Fluoride as F, mg/L	0.4	1.0	1.5	IS:3025/Part-60
Iron as Fe, mg/L	0.3	0.3	No Relaxation	IS:3025/Part-53
Manganese as Mn, mg/L	0.1	0.1	0.3	IS:3025/Part-59
Nitrate as NO_3, mg/L	15.0	45	No Relaxation	IS:3025/Part-34
Sulphate as SO_4, mg/L	46.2	200	400	IS:3025/Part-24
Total Kjeldhal Nitrogen, mg/L	1.8	0.05	No Relaxation	IS:3025/Part-34
Zinc as Zn, mg/L	<0.5	5	15	IS:3025/Part-49
Total Alkalinity as $CaCO_3$, mg/L	320.0	200	600	IS:3025/Part-23
Total Hardness as $CaCO_3$, mg/L	300.0	200	600	IS:3025/Part-21

Authorised Signatory

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TEST REPORT

Report No : SLNTL20060137 J	Report **Date** : 22/06/2020
Issued To:M/s. Mother Earth Environ Tech Pvt. Ltd. Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli , Kanakpura taluk, Ramnagara. Karnataka-562112.	**Customer Reference** :Verbal
	Date of Receipt : 16/06/2020
	Date of test start : 16/06/2020
	Date of Completion Of test : 22/06/2020
Sample Received By: Customer	Sample Particulars : Borewell Water - 4

Parameters	Results	Maximum Acceptable Limits (in mg/L)	Maximum Permissible Limits (in mg/L)	Test Method
		(As per IS 10500:2012)		
Cadmium as Cd, mg/L	Not Detected	0.03	No Relaxation	IS:3025/Part-41
Lead as Pb, mg/L	Not Detected	0.01	No Relaxation	IS:3025/Part-47
Chromium as Cr^{6+}, mg/L	Not Detected	0.05	No Relaxation	IS:3025/Part-52
Cyanide as CN, mg/L	Not Detected	0.05	No Relaxation	IS:3025/Part-27
Mercury as Hg, mg/L	Not Detected	0.001	No Relaxation	IS:3025/Part-48
Nickel as Ni, mg/L	Not Detected	0.02	No Relaxation	IS:3025/Part-54
Arsenic as As, mg/L	Not Detected	0.02	No Relaxation	IS:3025/Part-37
Total Pesticide, µg/L	Absent	Absent		APHA 23rd Edition

Remarks: The given water sample does not meets to limits as per IS 10500:2012 for above physical and chemical testing.

******End of the Report******

Authorised Signatory

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TEST REPORT

Report No : SLNTL20060137 K	Report **Date** : 22/06/2020
Issued To:M/s. Mother Earth Environ Tech Pvt. Ltd. Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli , Kanakpura taluk, Ramnagara. Karnataka-562112.	**Customer Reference** :Verbal
	Date of Receipt : 16/06/2020
	Date of test start : 16/06/2020
	Date of Completion **Of test** : 22/06/2020
Sample **Received** By: Customer	**Sample** Particulars : Borewell Water - 5

Parameters	Results	Maximum Acceptable Limits (In mg/L) (As per IS 10500:2012)	Maximum Permissible Limits (In mg/L) (As per IS 10500:2012)	Test Method
pH Value	7.61	6.5 – 8.5	No Relaxation	IS:3025/Part-11
Colour, Hazen Units	85	5	15	IS:3025/Part-4
Electrical Conductivity, µs /cm	749	------		IS:3025/Part-14
Turbidity, NTU	90.5	1	5	IS:3025/Part-10
Total Dissolved Solids, mg/L	479.0	500	2000	IS:3025/Part-16
Total Suspended Solids, mg/L	61.7	------		IS:3025/Part-17
Total Organic Carbon, µg/L	<0.1	------		APHA 23rd Edition
Dissolved Oxygen	5.6	------		IS:3025/Part-38
Biochemical Oxygen Demand (3days @27°C)	<1.0	------		IS:3025/Part-44
Chemical Oxygen Demand	10.0			IS:3025/Part-58
Chloride as Cl, mg/L	90.0	250	1000	IS:3025/Part-32
Copper as Cu, mg/L	<0.01	0.05	1.5	IS:3025/Part-42
Fluoride as F, mg/L	0.3	1.0	1.5	IS:3025/Part-60
Iron as Fe, mg/L	0.2	0.3	No Relaxation	IS:3025/Part-53
Manganese as Mn, mg/L	0.1	0.1	0.3	IS:3025/Part-59
Nitrate as NO_3, mg/L	7.8	45	No Relaxation	IS:3025/Part-34
Sulphate as SO_4, mg/L	15.6	200	400	IS:3025/Part-24
Total Kjeldhal Nitrogen, mg/L	<1.0	0.05	No Relaxation	IS:3025/Part-34
Zinc as Zn, mg/L	<0.5	5	15	IS:3025/Part-49
Total Alkalinity as $CaCO_3$, mg/L	200.0	200	600	IS:3025/Part-23
Total Hardness as $CaCO_3$, mg/L	110.0	200	600	IS:3025/Part-21

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TEST REPORT

Report No : SLNTL20060137 K	Report Date : 22/06/2020
Issued To: M/s. Mother Earth Environ Tech Pvt. Ltd. Plot No.: 217, KIADB industrial area, 2nd Phase, Harohalli , Kanakpura taluk, Ramnagara. Karnataka-562112.	**Customer Reference** :Verbal
	Date of Receipt : 16/06/2020
	Date of test start : 16/06/2020
Sample Received By: Customer	**Date of Completion Of test** : 22/06/2020
	Sample Particulars : Borewell Water - 5

Parameters	Results	Maximum Acceptable Limits (in mg/L)	Maximum Permissible Limits (in mg/L)	Test Method
		(As per IS 10500:2012)		
Cadmium as Cd, mg/L	Not Detected	0.03	No Relaxation	IS:3025/Part-41
Lead as Pb, mg/L	Not Detected	0.01	No Relaxation	IS:3025/Part-47
Chromium as Cr^{6+}, mg/L	Not Detected	0.05	No Relaxation	IS:3025/Part-52
Cyanide as CN, mg/L	Not Detected	0.05	No Relaxation	IS:3025/Part-27
Mercury as Hg, mg/L	Not Detected	0.001	No Relaxation	IS:3025/Part-48
Nickel as Ni, mg/L	Not Detected	0.02	No Relaxation	IS:3025/Part-54
Arsenic as As, mg/L	Not Detected	0.02	No Relaxation	IS:3025/Part-37
Total Pesticide, µg/L	Absent	Absent		APHA 23rd Edition

Remarks: The given water sample does not meets to limits as per **IS 10500:2012** for above physical and chemical testing.

******End of the Report******

Authorised Signatory

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Environmental Management System - ISO 14001:2015
Occupational Health and Safety Management System- ISO 45001:2018
Reg No : RI91 10468
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Site:Plot No.217, , 2nd Phase KIADB Industrial Area, Harohalli, Kanakapura Tq, Ramanagara Dist, Karanataka-562112
Head Office: No 2542,17th Main Road,28th Cross, Banashankari 2nd Stage, Bangalore, Karnataka -560070
Ph. No.: 7338464597, +91 80 26712303, Fax: 080-26712305
: https://motherearthenviron.com, : lab@motherearthenviron.com, motherearthenvirontech@gmail.com

LABORATORY
TEST REPORT

Date: 21.03.2020

Report No:MEEPL/LAB/19-20/AAQM/R-013

Name Of The Company : Mother Earth Environ Tech Pvt Ltd
Plot No. 217, 2nd Phase, KIADB Industrial Area,
Harohalli, Kanakapura Taluk,
Ramnagar District, Karnataka - 562112.

Sample ID : MEEPL/LAB/19-20/AAQM-013
Sample Description : Near Land fill Cell - 02
Sampling Date : 20.03.2020 & 21.03.2020
Sampling Done By : Mr. Shankar
Analysis Start Date : 20.03.2020
Analysis End Date : 21.03.2020

S.No.	Parameter	Method	Units	Result	NAAQM Standard Limits
1	Particulate Matter – PM-10	IS 5182 (Part-23) 2006 (RA 2017)	µg/ m^3	74.5	100
2	Particulate Matter – PM-2.5	CPCB Manual	µg/ m^3	30.40	60
3	Sulphur Dioxide	IS 5182 (Part-2) 2001 (RA 2017)	µg/ m^3	6.1	80
4	Oxides of Nitrogen	IS 5182 (Part-6) 2006 (RA 2017)	µg/ m^3	18.1	80
5	Ammonia	CPCB Manual	µg/ m^3	46.5	400
6	Ozone	IS 5182 (Part-9) 1974 (RA 2017)	µg/ m^3	32.5	180
7	Lead	IS 5182 (Part-22)2004 (RA 2014)	µg/ m^3	BDL	1.0
8	Nickel	CPCB Manual	ng/ m^3	BDL	20

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: https://motherearthenviron.com, : lab@motherearthenviron.com, motherearthenvirontech@gmail.com

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LABORATORY
TEST REPORT

Date: 21.03.2020

Report No:MEEPL/LAB/19-20/AAQM/R-013

Name Of The Company	: Mother Earth Environ Tech Pvt Ltd Plot No. 217, 2nd Phase, KIADB Industrial Area, Harohalli, Kanakapura Taluk, Ramnagar District, Karnataka - 562112.
Sample ID	: MEEPL/LAB/19-20/AAQM-013
Sample Description	: Near Land fill Cell - 02
Sampling Date	: 20.03.2020 & 21.03.2020
Sampling Done By	: Mr. Shankar
Analysis Start Date	: 20.03.2020
Analysis End Date	: 21.03.2020

S.No.	Parameter	Method	Units	Result	NAAQM Standard Limits
9	Benzene	IS 5182 (Part-11)2006 (RA 2017)	µg/ m^3	BDL	5.0
10	Benzo (a) Pyrene	IS 5182 (Part-12)2004 (RA 2014)	ng/ m^3	BDL	1.0

BDL - Below Detection Limit,
IS - Indian Standard
CPCB -Central Pollution Control Board,

Note:

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21/03/2020

*****End of Report*****

Assistant Manager
(Laboratory)

21/03/2020
Authorized Signatory
(Laboratory Head)

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Occupational Health and Safety Management System- ISO 45001:2018
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LABORATORY
TEST REPORT

Date: 21.03.2020

Report No:MEEPL/LAB/19-20/AAQM/R-014

Name Of The Company : Mother Earth Environ Tech Pvt Ltd
Plot No. 217, 2nd Phase, KIADB Industrial Area,
Harohalli, Kanakapura Taluk,
Ramnagar District, Karnataka - 562112.

Sample ID : MEEPL/LAB/19-20/AAQM-014

Sample Description : Near Leachate Storage Tank

Sampling Date : 20.03.2020 & 21.03.2020

Sampling Done By : Mr. Shankar

Analysis Start Date : 20.03.2020

Analysis End Date : 21.03.2020

S.No.	Parameter	Method	Units	Result	NAAQM Standard Limits
1	Particulate Matter – PM-10	IS 5182 (Part-23) 2006 (RA 2017)	µg/ m^3	70.3	100
2	Particulate Matter – PM-2.5	CPCB Manual	µg/ m^3	27.5	60
3	Sulphur Dioxide	IS 5182 (Part-2) 2001 (RA 2017)	µg/ m^3	4.9	80
4	Oxides of Nitrogen	IS 5182 (Part-6) 2006 (RA 2017)	µg/ m^3	14.2	80
5	Ammonia	CPCB Manual	µg/ m^3	58.2	400
6	Ozone	IS 5182 (Part-9) 1974 (RA 2017)	µg/ m^3	26.9	180
7	Lead	IS 5182 (Part-22)2004 (RA 2014)	µg/ m^3	BDL	1.0
8	Nickel	CPCB Manual	ng/ m^3	BDL	20

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: https://motherearthenviron.com, : lab@motherearthenviron.com, motherearthenvirontech@gmail.com

LABORATORY
TEST REPORT

Date: 21.03.2020

Report No:MEEPL/LAB/19-20/AAQM/R-014

Name Of The Company : Mother Earth Environ Tech Pvt Ltd
Plot No. 217, 2nd Phase, KIADB Industrial Area,
Harohalli, Kanakapura Taluk,
Ramnagar District, Karnataka - 562112.

Sample ID : MEEPL/LAB/19-20/AAQM-014

Sample Description : Near Leachate Storage Tank

Sampling Date : 20.03.2020 & 21.03.2020

Sampling Done By : Mr. Shankar

Analysis Start Date : 20.03.2020

Analysis End Date : 21.03.2020

S.No.	Parameter	Method	Units	Result	NAAQM Standard Limits
9	Benzene	IS 5182 (Part-11)2006 (RA 2017)	µg/ m^3	BDL	5.0
10	Benzo (a) Pyrene	IS 5182 (Part-12)2004 (RA 2014)	ng/ m^3	BDL	1.0

BDL - Below Detection Limit,
IS - Indian Standard
CPCB -Central Pollution Control Board,

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End of Report

21/03/2020
Assistant Manager
(Laboratory)

21/03/2020
Authorized Signatory
(Laboratory Head)

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LABORATORY
TEST REPORT

Date: 24.03.2020

Report No:MEEPL/LAB/19-20/AAQM/R-015

Name Of The Company : Mother Earth Environ Tech Pvt Ltd
Plot No. 217, 2nd Phase, KIADB Industrial Area,
Harohalli, Kanakapura Taluk,
Ramnagar District, Karnataka - 562112.

Sample ID : MEEPL/LAB/19-20/AAQM-015

Sample Description : Near Office

Sampling Date : 23.03.2020 & 24.03.2020

Sampling Done By : Mr. Shankar

Analysis Start Date : 23.03.2020

Analysis End Date : 24.03.2020

S.No.	Parameter	Method	Units	Result	NAAQM Standard Limits
1	Particulate Matter – PM-10	IS 5182 (Part-23) 2006 (RA 2017)	µg/ m^3	80.15	100
2	Particulate Matter – PM-2.5	CPCB Manual	µg/ m^3	38.50	60
3	Sulphur Dioxide	IS 5182 (Part-2) 2001 (RA 2017)	µg/ m^3	3.23	80
4	Oxides of Nitrogen	IS 5182 (Part-6) 2006 (RA 2017)	µg/ m^3	9.53	80
5	Ammonia	CPCB Manual	µg/ m^3	68.6	400
6	Ozone	IS 5182 (Part-9) 1974 (RA 2017)	µg/ m^3	43.3	180
7	Lead	IS 5182 (Part-22)2004 (RA 2014)	µg/ m^3	BDL	1.0
8	Nickel	CPCB Manual	ng/ m^3	BDL	20

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Reg. No : RI91 10468
MEEPL
Site:Plot No.217, . 2nd Phase KIADB Industrial Area, Harohalli, Kanakapura Tq, Ramanagara Dist, Karnataka-562112.
Head Office: No.2542,17th Main Road,28th Cross, Banashankari 2nd Stage, Bangalore, Karnataka -560070.
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LABORATORY
TEST REPORT

Date: 24.03.2020

Report No:MEEPL/LAB/19-20/AAQM/R-015

Name Of The Company : Mother Earth Environ Tech Pvt Ltd
Plot No. 217, 2nd Phase, KIADB Industrial Area,
Harohalli, Kanakapura Taluk,
Ramnagar District, Karnataka - 562112.

Sample ID : MEEPL/LAB/19-20/AAQM-015
Sample Description : Near Office
Sampling Date : 23.03.2020 & 24.03.2020
Sampling Done By : Mr. Shankar
Analysis Start Date : 23.03.2020
Analysis End Date : 24.03.2020

S.No.	Parameter	Method	Units	Result	NAAQM Standard Limits
9	Benzene	IS 5182 (Part-11)2006 (RA 2017)	µg/ m^3	BDL	5.0
10	Benzo (a) Pyrene	IS 5182 (Part-12)2004 (RA 2014)	ng/ m^3	BDL	1.0

BDL - Below Detection Limit,
IS - Indian Standard
CPCB -Central Pollution Control Board,

Note:
- Reports pertained only to the submitted sample
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End of Report

24/03/2020
Assistant Manager
(Laboratory)

24/03/2020
Authorized Signatory
(Laboratory Head)

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MEEPL
Site:Plot No.217, , 2nd Phase KIADB Industrial Area, Harohalli, Kanakapura Tq, Ramanagara Dist, Karnataka-562112.
Head Office: No.2542,17th Main Road,28th Cross, Banashankari 2nd Stage, Bangalore, Karnataka -560070.
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LABORATORY
TEST REPORT

Date: 24.03.2020

Report No:MEEPL/LAB/19-20/AAQM/R-016

Name Of The Company : Mother Earth Environ Tech Pvt Ltd
Plot No. 217, 2nd Phase, KIADB Industrial Area,
Harohalli, Kanakapura Taluk,
Ramnagar District, Karnataka - 562112.

Sample ID : MEEPL/LAB/19-20/AAQM-016
Sample Description : Near Security Gate
Sampling Date : 23.03.2020 & 24.03.2020
Sampling Done By : Mr. Shankar
Analysis Start Date : 23.03.2020
Analysis End Date : 24.03.2020

S.No.	Parameter	Method	Units	Result	NAAQM Standard Limits
1	Particulate Matter – PM-10	IS 5182 (Part-23) 2006 (RA 2017)	µg/ m^3	77.5	100
2	Particulate Matter – PM-2.5	CPCB Manual	µg/ m^3	42.3	60
3	Sulphur Dioxide	IS 5182 (Part-2) 2001 (RA 2017)	µg/ m^3	5.6	80
4	Oxides of Nitrogen	IS 5182 (Part-6) 2006 (RA 2017)	µg/ m^3	13.5	80
5	Ammonia	CPCB Manual	µg/ m^3	53.6	400
6	Ozone	IS 5182 (Part-9) 1974 (RA 2017)	µg/ m^3	29.8	180
7	Lead	IS 5182 (Part-22)2004 (RA 2014)	µg/ m^3	BDL	1.0
8	Nickel	CPCB Manual	ng/ m^3	BDL	20

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LABORATORY
TEST REPORT

Report No:MEEPL/LAB/19-20/AAQM/R-016

Date: 24.03.2020

Name Of The Company : Mother Earth Environ Tech Pvt Ltd
Plot No. 217, 2nd Phase, KIADB Industrial Area,
Harohalli, Kanakapura Taluk,
Ramnagar District, Karnataka - 562112.

Sample ID : MEEPL/LAB/19-20/AAQM-016
Sample Description : Near Security Gate
Sampling Date : 23.03.2020 & 24.03.2020
Sampling Done By : Mr. Shankar
Analysis Start Date : 23.03.2020
Analysis End Date : 24.03.2020

S.No.	Parameter	Method	Units	Result	NAAQM Standard Limits
9	Benzene	IS 5182 (Part-11)2006 (RA 2017)	µg/ m^3	BDL	5.0
10	Benzo (a) Pyrene	IS 5182 (Part-12)2004 (RA 2014)	ng/ m^3	BDL	1.0

BDL - Below Detection Limit,
IS - Indian Standard
CPCB -Central Pollution Control Board,

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24/03/2020

*****End of Report*****

Assistant Manager
(Laboratory)

24/03/2020
Authorized Signatory
(Laboratory Head)

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LABORATORY
TEST REPORT

Date: 11.03.2020

Report No:MEEPL/LAB/19-20/SM/R-010

Name Of The Company : Mother Earth Environ Tech Pvt Ltd
Plot No. 217, 2nd Phase, KIADB Industrial Area,
Harohalli, Kanakapura Taluk,
Ramnagar District, Karnataka - 562112.

Sample ID : MEEPL/LAB/19-20/SM-010

Sampling Date : 11.03.2020.

Sampling Particulars : 25 KVA DG Set

Sampling Done By : Mr. Shankar

S.No.	Parameter	Units	Results	Test Method
1	Particulate Matter (PM)	mg/Nm^3	58.51	IS 11255 (Part 1) : 1985 (RA 2014)
2	Sulphur Dioxide (SO_2)	mg/Nm^3	30.41	IS 11255 (Part 2) : 1985 (RA 2014)
3	Oxides of Nitrogen (NOx)	mg/Nm^3	13.39	IS 11255 (Part 7) : 2005 (RA 2012)

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*****End of Report*****

11/03/2020
Assistant Manager
(Laboratory)

11/3/2020
Authorized Signatory
(Laboratory Head)

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Reg No: RI91 10468

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LABORATORY
TEST REPORT

Date: 19.03.2020

Report No:MEEPL/LAB/19-20/NM/R-003

Sampe Received From : Mother Earth Environ Tech Pvt Ltd
Plot No. 217, 2nd Phase, KIADB Industrial Area,
Harohalli, Kanakapura Taluk,
Ramnagar District, Karnataka - 562112.

Sample ID : MEEPL/LAB/19-20/NM-009 to 012

Sampling Date : 16.03.2020 to 19.03.2020

Sampling Done By : Mr. Shankar

S. No.	Sample Location	Measured Noise level in dB (A) (Day time)	Method	CPCB Prescribed Standard Limits
1	Near Security Gate	66.4	IS-9989: 1981	Day Time 75 dB (A) Night Time 70 dB (A)
2	Near Office	59.2		
3	Near Landfill Cell-02	67.4		
4	Near Leachate Storage Tank	60.1		

dB(A) – Decibels in Scale (A)

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19/03/2020

Assistant Manager
(Laboratory)

19/03/2020

Authorized Signatory
(Laboratory Head)

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MEEPL/GF/LAB-022

LABORATORY
TEST REPORT

Date: 20.03.2020

Report No:MEEPL/LAB/19-20/W/GW/R-033

Sampe Received From : Mother Earth Environ Tech Pvt Ltd
Sample ID : MEEPL/LAB/19-20/W/GW-033
Sample Description : Monitoring Borewell-01
Received Date : 14.03.2020
Received By : Mr. Siva Sankar
Analysis Start Date : 14.03.2020
Analysis End Date : 20.03.2020

S.No.	Test	Method	Units	Result
1	pH	APHA 23rd Ed., 4500 H+ B (2017)	--	6.82
2	Electrical Conductivity	APHA 23rd Ed.; 2510 B (2017)	µmho/cm	968
3	Turbidity	APHA 23rd Ed.; 2130 B (2017)	NTU	0.9
4	Total Dissolved Solids	APHA 23rd Ed.; 2540 C (2017)	mg/L	628
5	Total Suspended Solids	APHA 23rd Ed.; 2540 D (2017)	mg/L	BDL
6	Chlorides as Cl-	APHA 23rd Ed.; 4500 Cl- C (2017)	mg/L	101.2
7	Sulphates as SO4--	APHA 23rd Ed.4500 SO4-2 D (2017)	mg/L	15.9
8	Nitrates as NO3-N	APHA 23rd Ed.; 4500 NO3-E (2017)	mg/L	19.2
9	T. Alkalinity as CaCO3	APHA 23rd Ed.; 2320 B (2017)	mg/L	270.6
10	T. Hardness as CaCO3	APHA 23rd Ed.; 2340 C (2017)	mg/L	333
11	Calcium as Ca	APHA 23rd Ed.; 3500 Ca B (2017)	mg/L	72.9
12	Magnesium as Mg	APHA 23rd Ed.; 3500 Mg B (2017)	mg/L	36.8
13	Sodium as Na	APHA 23rd Ed.3500 Na B, (2017)	mg/L	71.5
14	Potassium as K	APHA 23rd Ed.; 3500 K B, (2017)	mg/L	6.49
15	Ammonical Nitrogen	APHA 23rd Ed.; 4500 NH3 B, C,(2017)	mg/L	BDL

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LABORATORY
TEST REPORT

Report No:MEEPL/LAB/19-20/W/GW/R-033

Date: 20.03.2020

Sampe Received From	: Mother Earth Environ Tech Pvt Ltd
Sample ID	: MEEPL/LAB/19-20/W/GW-033
Sample Description	: Monitoring Borewell-01
Received Date	: 14.03.2020
Received By	: Mr. Siva Sankar
Analysis Start Date	: 14.03.2020
Analysis End Date	: 20.03.2020

S.No.	Test	Method	Units	Result
16	Biochemical Oxygen Demand 3 Days at 27°C	IS : 3025 (Part 44), (1993)	mg/L	BDL
17	Chemical Oxygen Demand	APHA 23rd Ed.5220 B, (2017)	mg/L	BDL
18	Oil & Grease	APHA 23rd Ed. 5520 B, (2017)	mg/L	BDL
19	Lead as Pb	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
20	Cadmium Cd	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
21	Total Chromium as Cr	APHA 23rd Ed. 3111 B (2017)	mg/L	BDL
22	Copper as Cu	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
23	Nickel as Ni	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
24	Zinc as Zn	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
25	Iron as Fe	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
26	Cyanidesas CN–	APHA 23rd Ed. 4500 CN– C, E (2017)	mg/L	BDL
27	Fluoride as F-	APHA 23rd Ed; 4500 F- D (2017)	mg/L	0.68

Analysed by 20/03/2020

Authorised by 20/03/2020

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MEEPL/GF/LAB-022

LABORATORY
TEST REPORT

Date: 20.03.2020

Report No:MEEPL/LAB/19-20/W/GW/R-034

Sampe Received From : Mother Earth Environ Tech Pvt Ltd
Sample ID : MEEPL/LAB/19-20/W/GW-034
Sample Description : Monitoring Borewell-02
Received Date : 14.03.2020
Received By : Mr. Siva Sankar
Analysis Start Date : 14.03.2020
Analysis End Date : 20.03.2020

S.No.	Test	Method	Units	Result
1	pH	APHA 23rd Ed., 4500 H+ B (2017)	–	6.79
2	Electrical Conductivity	APHA 23rd Ed.; 2510 B (2017)	µmho/cm	869
3	Turbidity	APHA 23rd Ed.; 2130 B (2017)	NTU	4.2
4	Total Dissolved Solids	APHA 23rd Ed.; 2540 C (2017)	mg/L	576
5	Total Suspended Solids	APHA 23rd Ed.; 2540 D (2017)	mg/L	BDL
6	Chlorides as Cl-	APHA 23rd Ed.; 4500 Cl- C (2017)	mg/L	88.6
7	Sulphates as SO4--	APHA 23rd Ed.4500 SO4-2 D (2017)	mg/L	16.5
8	Nitrates as NO3-N	APHA 23rd Ed.; 4500 NO3-E (2017)	mg/L	26.7
9	T. Alkalinity as CaCO3	APHA 23rd Ed.; 2320 B (2017)	mg/L	258.3
10	T. Hardness as CaCO3	APHA 23rd Ed.; 2340 C (2017)	mg/L	313
11	Calcium as Ca	APHA 23rd Ed.; 3500 Ca B (2017)	mg/L	64.8
12	Magnesium as Mg	APHA 23rd Ed.; 3500 Mg B (2017)	mg/L	36.6
13	Sodium as Na	APHA 23rd Ed.3500 Na B, (2017)	mg/L	64.9
14	Potassium as K	APHA 23rd Ed.; 3500 K B, (2017)	mg/L	6.77
15	Ammonical Nitrogen	APHA 23rd Ed.; 4500 NH3 B, C,(2017)	mg/L	BDL

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LABORATORY
TEST REPORT

Report No:MEEPL/LAB/19-20/W/GW/R-034 **Date: 20.03.2020**

Sampe Received From	: Mother Earth Environ Tech Pvt Ltd
Sample ID	: MEEPL/LAB/19-20/W/GW-034
Sample Description	: Monitoring Borewell-02
Received Date	: 14.03.2020
Received By	: Mr. Siva Sankar
Analysis Start Date	: 14.03.2020
Analysis End Date	: 20.03.2020

S.No.	Test	Method	Units	Result
16	Biochemical Oxygen Demand 3 Days at 27°C	IS : 3025 (Part 44), (1993)	mg/L	BDL
17	Chemical Oxygen Demand	APHA 23rd Ed.5220 B, (2017)	mg/L	BDL
18	Oil & Grease	APHA 23rd Ed. 5520 B, (2017)	mg/L	BDL
19	Lead as Pb	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
20	Cadmium Cd	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
21	Total Chromium as Cr	APHA 23rd Ed. 3111 B (2017)	mg/L	BDL
22	Copper as Cu	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
23	Nickel as Ni	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
24	Zinc as Zn	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
25	Iron as Fe	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
26	Cyanidesas CN–	APHA 23rd Ed. 4500 CN– C, E (2017)	mg/L	BDL
27	Fluoride as F-	APHA 23rd Ed; 4500 F- D (2017)	mg/L	0.51

Analysed by 20/03/2020

Authorised by 20/03/2020

MOTHER EARTH ENVIRON TECH PRIVATE LIMITED
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MEEPL/GF/LAB-022

LABORATORY
TEST REPORT

Date: 20.03.2020

Report No:MEEPL/LAB/19-20/W/GW/R-035

Sampe Received From : Mother Earth Environ Tech Pvt Ltd
Sample ID : MEEPL/LAB/19-20/W/GW-035
Sample Description : Monitoring Borewell-03
Received Date : 14.03.2020
Received By : Mr. Siva Sankar
Analysis Start Date : 14.03.2020
Analysis End Date : 20.03.2020

S.No.	Test	Method	Units	Result
1	pH	APHA 23rd Ed., 4500 H+ B (2017)	–	6.73
2	Electrical Conductivity	APHA 23rd Ed.; 2510 B (2017)	µmho/cm	987
3	Turbidity	APHA 23rd Ed.; 2130 B (2017)	NTU	5.7
4	Total Dissolved Solids	APHA 23rd Ed.; 2540 C (2017)	mg/L	642
5	Total Suspended Solids	APHA 23rd Ed.; 2540 D (2017)	mg/L	12.0
6	Chlorides as Cl-	APHA 23rd Ed.; 4500 Cl- C (2017)	mg/L	181.4
7	Sulphates as SO4–	APHA 23rd Ed.4500 SO4-2 D (2017)	mg/L	27.3
8	Nitrates as NO3-N	APHA 23rd Ed.; 4500 NO3-E (2017)	mg/L	5.9
9	T. Alkalinity as CaCO3	APHA 23rd Ed.; 2320 B (2017)	mg/L	172.2
10	T. Hardness as CaCO3	APHA 23rd Ed.; 2340 C (2017)	mg/L	343
11	Calcium as Ca	APHA 23rd Ed.; 3500 Ca B (2017)	mg/L	64.8
12	Magnesium as Mg	APHA 23rd Ed.; 3500 Mg B (2017)	mg/L	44.1
13	Sodium as Na	APHA 23rd Ed.3500 Na B, (2017)	mg/L	59.8
14	Potassium as K	APHA 23rd Ed.; 3500 K B, (2017)	mg/L	5.32
15	Ammonical Nitrogen	APHA 23rd Ed.; 4500 NH3 B, C,(2017)	mg/L	BDL

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LABORATORY
TEST REPORT

Report No:MEEPL/LAB/19-20/W/GW/R-035

Date: 20.03.2020

Sampe Received From : Mother Earth Environ Tech Pvt Ltd
Sample ID : MEEPL/LAB/19-20/W/GW-035
Sample Description : Monitoring Borewell-03
Received Date : 14.03.2020
Received By : Mr. Siva Sankar
Analysis Start Date : 14.03.2020
Analysis End Date : 20.03.2020

S.No.	Test	Method	Units	Result
16	Biochemical Oxygen Demand 3 Days at 27°C	IS : 3025 (Part 44), (1993)	mg/L	BDL
17	Chemical Oxygen Demand	APHA 23rd Ed.5220 B, (2017)	mg/L	BDL
18	Oil & Grease	APHA 23rd Ed. 5520 B, (2017)	mg/L	BDL
19	Lead as Pb	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
20	Cadmium Cd	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
21	Total Chromium as Cr	APHA 23rd Ed. 3111 B (2017)	mg/L	BDL
22	Copper as Cu	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
23	Nickel as Ni	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
24	Zinc as Zn	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
25	Iron as Fe	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
26	Cyanidesas CN–	APHA 23rd Ed. 4500 CN– C, E (2017)	mg/L	BDL
27	Fluoride as F-	APHA 23rd Ed; 4500 F- D (2017)	mg/L	0.63

Analysed by

Authorised by 20/03/2020

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MEEPL/GF/LAB-022

LABORATORY
TEST REPORT

Date: 20.03.2020

Report No:MEEPL/LAB/19-20/W/GW/R-036

Sampe Received From : Mother Earth Environ Tech Pvt Ltd
Sample ID : MEEPL/LAB/19-20/W/GW-036
Sample Description : Monitoring Borewell-04
Received Date : 14.03.2020
Received By : Mr. Siva Sankar
Analysis Start Date : 14.03.2020
Analysis End Date : 20.03.2020

S.No.	Test	Method	Units	Result
1	pH	APHA 23rd Ed., 4500 H+ B (2017)	--	6.58
2	Electrical Conductivity	APHA 23rd Ed.; 2510 B (2017)	µmho/cm	1047
3	Turbidity	APHA 23rd Ed.; 2130 B (2017)	NTU	72.9
4	Total Dissolved Solids	APHA 23rd Ed.; 2540 C (2017)	mg/L	659
5	Total Suspended Solids	APHA 23rd Ed.; 2540 D (2017)	mg/L	36
6	Chlorides as Cl-	APHA 23rd Ed.; 4500 Cl- C (2017)	mg/L	92.8
7	Sulphates as SO4--	APHA 23rd Ed.4500 SO4-2 D (2017)	mg/L	28.2
8	Nitrates as NO3-N	APHA 23rd Ed.; 4500 NO3-E (2017)	mg/L	28.9
9	T. Alkalinity as CaCO3	APHA 23rd Ed.; 2320 B (2017)	mg/L	369
10	T. Hardness as CaCO3	APHA 23rd Ed.; 2340 C (2017)	mg/L	434.3
11	Calcium as Ca	APHA 23rd Ed.; 3500 Ca B (2017)	mg/L	72.9
12	Magnesium as Mg	APHA 23rd Ed.; 3500 Mg B (2017)	mg/L	61.35
13	Sodium as Na	APHA 23rd Ed.3500 Na B, (2017)	mg/L	72.3
14	Potassium as K	APHA 23rd Ed.; 3500 K B, (2017)	mg/L	8.81
15	Ammonical Nitrogen	APHA 23rd Ed.; 4500 NH3 B, C,(2017)	mg/L	BDL

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LABORATORY
TEST REPORT

Report No:MEEPL/LAB/19-20/W/GW/R-036 **Date: 20.03.2020**

Sampe Received From	: Mother Earth Environ Tech Pvt Ltd
Sample ID	: MEEPL/LAB/19-20/W/GW-036
Sample Description	: Monitoring Borewell-04
Received Date	: 14.03.2020
Received By	: Mr. Siva Sankar
Analysis Start Date	: 14.03.2020
Analysis End Date	: 20.03.2020

S.No.	Test	Method	Units	Result
16	Biochemical Oxygen Demand 3 Days at 27°C	IS : 3025 (Part 44), (1993)	mg/L	BDL
17	Chemical Oxygen Demand	APHA 23rd Ed.5220 B, (2017)	mg/L	BDL
18	Oil & Grease	APHA 23rd Ed. 5520 B, (2017)	mg/L	BDL
19	Lead as Pb	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
20	Cadmium Cd	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
21	Total Chromium as Cr	APHA 23rd Ed. 3111 B (2017)	mg/L	BDL
22	Copper as Cu	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
23	Nickel as Ni	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
24	Zinc as Zn	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
25	Iron as Fe	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
26	Cyanidesas CN–	APHA 23rd Ed. 4500 CN– C, E (2017)	mg/L	BDL
27	Fluoride as F-	APHA 23rd Ed; 4500 F- D (2017)	mg/L	0.79

20/03/2020

Analysed by

20/03/2020

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MEEPL/GF/LAB-022

LABORATORY
TEST REPORT

Date: 20.03.2020

Report No:MEEPL/LAB/19-20/W/GW/R-037

Sampe Received From : Mother Earth Environ Tech Pvt Ltd
Sample ID : MEEPL/LAB/19-20/W/GW-037
Sample Description : Monitoring Borewell-05
Received Date : 14.03.2020
Received By : Mr. Siva Sankar
Analysis Start Date : 14.03.2020
Analysis End Date : 20.03.2020

S.No.	Test	Method	Units	Result
1	pH	APHA 23rd Ed., 4500 H+ B (2017)	–	8.14
2	Electrical Conductivity	APHA 23rd Ed.; 2510 B (2017)	µmho/cm	625
3	Turbidity	APHA 23rd Ed.; 2130 B (2017)	NTU	75.7
4	Total Dissolved Solids	APHA 23rd Ed.; 2540 C (2017)	mg/L	363
5	Total Suspended Solids	APHA 23rd Ed.; 2540 D (2017)	mg/L	21
6	Chlorides as Cl-	APHA 23rd Ed.; 4500 Cl- C (2017)	mg/L	80.15
7	Sulphates as SO4--	APHA 23rd Ed.4500 SO4-2 D (2017)	mg/L	23.9
8	Nitrates as NO3-N	APHA 23rd Ed.; 4500 NO3-E (2017)	mg/L	5.20
9	T. Alkalinity as CaCO3	APHA 23rd Ed.; 2320 B (2017)	mg/L	197.8
10	T. Hardness as CaCO3	APHA 23rd Ed.; 2340 C (2017)	mg/L	161.6
11	Calcium as Ca	APHA 23rd Ed.; 3500 Ca B (2017)	mg/L	48.6
12	Magnesium as Mg	APHA 23rd Ed.; 3500 Mg B (2017)	mg/L	9.8
13	Sodium as Na	APHA 23rd Ed.3500 Na B, (2017)	mg/L	73.1
14	Potassium as K	APHA 23rd Ed.; 3500 K B, (2017)	mg/L	8.67
15	Ammonical Nitrogen	APHA 23rd Ed.; 4500 NH3 B, C,(2017)	mg/L	BDL

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LABORATORY
TEST REPORT

Report No:MEEPL/LAB/19-20/W/GW/R-037

Date: 20.03.2020

Sampe Received From	: Mother Earth Environ Tech Pvt Ltd
Sample ID	: MEEPL/LAB/19-20/W/GW-037
Sample Description	: Monitoring Borewell-05
Received Date	: 14.03.2020
Received By	: Mr. Siva Sankar
Analysis Start Date	: 14.03.2020
Analysis End Date	: 20.03.2020

S.No.	Test	Method	Units	Result
16	Biochemical Oxygen Demand 3 Days at 27°C	IS : 3025 (Part 44), (1993)	mg/L	BDL
17	Chemical Oxygen Demand	APHA 23rd Ed.5220 B, (2017)	mg/L	BDL
18	Oil & Grease	APHA 23rd Ed. 5520 B, (2017)	mg/L	BDL
19	Lead as Pb	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
20	Cadmium Cd	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
21	Total Chromium as Cr	APHA 23rd Ed. 3111 B (2017)	mg/L	BDL
22	Copper as Cu	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
23	Nickel as Ni	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
24	Zinc as Zn	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
25	Iron as Fe	APHA 23rd Ed.3111 B (2017)	mg/L	BDL
26	Cyanidesas CN–	APHA 23rd Ed. 4500 CN– C, E (2017)	mg/L	BDL
27	Fluoride as F-	APHA 23rd Ed; 4500 F- D (2017)	mg/L	0.72

20/03/2020

Analysed by

Authorised by 20/03/2020

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MEEPL/GF/LAB-023

LABORATORY
TEST REPORT

Date: 20.03.2020

Report No:MEEPL/LAB/19-20/Soil/R-021

Sampe Received From	**: Mother Earth Environ Tech Pvt Ltd**
Sample ID	**: MEEPL/LAB/19-20/Soil-021**
Sample Description	**: Soil Sample-01 (Near Office garden)**
Received Date	**: 17.03.2020**
Received By	**: Mr. Siva Sankar**
Analysis Start Date	**: 17.03.2020**
Analysis End Date	**: 20.03.2020**

S.No.	Test	Units	Result
1	pH	--	7.49
2	Electrical Conductivity	µmho/cm	161
3	Colour	NTU	Light Red
4	Lead as Pb	mg/L	BDL
6	Cadmium as Cd	mg/L	BDL
7	Copper as Cu	mg/L	BDL
8	Zinc as Zn	mg/L	BDL
9	Chromium as Cr	mg/L	BDL
10	Nickel as Ni	mg/L	BDL
11	Cyanide as CN	mg/L	BDL
12	Flouride as F	mg/L	BDL

Analysed by

20/03/2020

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MEEPL/GF/LAB-023

LABORATORY
TEST REPORT

Date: 20.03.2020

Report No:MEEPL/LAB/19-20/Soil/R-022

Sampe Received From	: Mother Earth Environ Tech Pvt Ltd
Sample ID	: MEEPL/LAB/19-20/Soil-022
Sample Description	: Soil Sample-02 (Near Security garden)
Received Date	: 14.03.2020
Received By	: Mr. Siva Sankar
Analysis Start Date	: 14.03.2020
Analysis End Date	: 20.03.2020

S.No.	Test	Units	Result
1	pH	–	7.53
2	Electrical Conductivity	µmho/cm	245
3	Colour	NTU	Light Red
4	Lead as Pb	mg/L	BDL
6	Cadmium as Cd	mg/L	BDL
7	Copper as Cu	mg/L	BDL
8	Zinc as Zn	mg/L	BDL
9	Chromium as Cr	mg/L	BDL
10	Nickel as Ni	mg/L	BDL
11	Cyanide as CN	mg/L	BDL
12	Flouride as F	mg/L	BDL

Analysed by

20/03/2020

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MEEPL/GF/LAB-023

LABORATORY
TEST REPORT

Date: 20.03.2020

Report No:MEEPL/LAB/19-20/Soil/R-023

Sampe Received From	: Mother Earth Environ Tech Pvt Ltd
Sample ID	: MEEPL/LAB/19-20/Soil-023
Sample Description	: Soil Sample-03 (Near Leachate Tank Garden)
Received Date	: 14.03.2020
Received By	: Mr. Siva Sankar
Analysis Start Date	: 14.03.2020
Analysis End Date	: 20.03.2020

S.No.	Test	Units	Result
1	pH	–	7.62
2	Electrical Conductivity	µmho/cm	159
3	Colour	NTU	Light Red
4	Lead as Pb	mg/L	BDL
6	Cadmium as Cd	mg/L	BDL
7	Copper as Cu	mg/L	BDL
8	Zinc as Zn	mg/L	BDL
9	Chromium as Cr	mg/L	BDL
10	Nickel as Ni	mg/L	BDL
11	Cyanide as CN	mg/L	BDL
12	Flouride as F	mg/L	BDL

Analysed by

20/03/2020

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MEEPL/GF/LAB-023

LABORATORY
TEST REPORT

Date: 20.03.2020

Report No:MEEPL/LAB/19-20/Soil/R-024

Sampe Received From	: Mother Earth Environ Tech Pvt Ltd
Sample ID	: MEEPL/LAB/19-20/Soil-024
Sample Description	: Soil Sample-04 (Near Tyre Wash Garden)
Received Date	: 14.03.2020
Received By	: Mr. Siva Sankar
Analysis Start Date	: 14.03.2020
Analysis End Date	: 20.03.2020

S.No.	Test	Units	Result
1	pH	—	7.81
2	Electrical Conductivity	µmho/cm	236
3	Colour	NTU	Light Red
4	Lead as Pb	mg/L	BDL
6	Cadmium as Cd	mg/L	BDL
7	Copper as Cu	mg/L	BDL
8	Zinc as Zn	mg/L	BDL
9	Chromium as Cr	mg/L	BDL
10	Nickel as Ni	mg/L	BDL
11	Cyanide as CN	mg/L	BDL
12	Flouride as F	mg/L	BDL

Analysed by

20/03/2020
Authorised by

A-24 EMP DMP Plan

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Emergency Response Process

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Document Name	Emergency Response Process
Document Name	MEEPL/ERP/P-01
Revision Number	00
Prepared by	Mr. Siva Sankar Ollipilli
Reviewed by	Mr. Vinod Kumar Yeleti
Date of Review	01/08/2019
Approved by	Mr. Sekar.M
Date of Approval	01/08/2019
Issue Date	01/08/2019

< Waste Management & Disposal Process > Revision History

Issue No./ Revision No.	Date	Prepared by / Modified by	Overview of Changes
01/00	01/08/2019	Mr. Siva Sankar O	Initial Release

NOTES

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- If you receive a hard copy of this document, please write your name on the front cover, for document control purposes.

Emergency Response Plan

For

Mother Earth Environ Tech Pvt Ltd

Sheilding Earth from Hazard

A Common Hazardous Waste Treatment Storage and Disposal Facility

at KIADB Industrial Estate at Harohalli.

M/s Mother Earth Environ Tech Private Limited,

Regd Office: # 2542, 28th Cross, 17th Main,

Banashankari 2nd Stage, Bengaluru - 560070

Site: Plot no.217, KIADB Industrial area,

2nd phase, Harohalli, Kanakapura,

Ramnagara – 562112

S3A

Emergency Response Plan

1. INTRODUCTION

Hazard analysis involves the identification and quantification of the various hazards (unsafe conditions). On the other hand, risk analysis deals with identification and computation of risks. The equipment in the plant and personnel are prone to accidents resulting from the hazards present in the plant.

2. APPROACH TO THE STUDY

Risk involves the occurrence or potential occurrence of some accidents consisting of an event or sequence of events. The risk assessment study covers the following:

- Identification of potential hazard area;
- Identification of representative failure cases;
- Visualization of the resulting scenarios in terms of fire and explosion;
- Assess the overall damage potential of the identified hazardous events and the impact zones form the accidental scenarios;
- Furnish the recommendations on the minimization of the worst accident possibilities
- Preparation of Disaster Management Plan;
- Emergency Plan, which includes Occupational and Health Safety Plan;

Environmental risk analysis deals with the identification and quantification of risks, the equipment and personnel are exposed to, from the hazards present in the area.

Risk analysis follows hazard analysis (Risk = Hazard x Probability of occurrence). It involves identification and assessment of risks to the plant personnel and neighboring populations. This requires a thorough knowledge of failure probability, credible accident scenario, vulnerability of population etc. Much of this information is difficult to procure. Consequently, the risk analysis is confined to maximum credible accident studies. The subsequent sections shall address the identification of various hazards and risks in the operations, which will give a broad identification of risks involved.

3. OBJECTIVE & SCOPE

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The objective of the study is to carry out risk analysis and prepare disaster management plan/emergency preparedness plans.

The risk analysis/assessment study covers the following:

(a) Identification of potential hazard due fuel storage.

(b) Assess the overall damage potential of the identified hazardous events and impact zones from the accident scenarios.

(c) Suggestions and recommendations on the minimization of the accident possibilities.

4. RISK ASSESSMENT & MANAGEMENT PLAN

A. CONSTRUCTION PHASE

Sl. No.	Potential	Mitigation
1	Accidental fire	Fire safety gadgets
2	Fall of objects	Use of personal protection devices-helmets
3	Working at great heights	Protection to prevent fall with life safety belts and nets.
4	Accidents from machinery	Personal protection gadgets
5	Electrical mishap	Adopting safety measures to prevent any act of negligence and providing electrical safety measures like fire extinguishers.

B. OCCUPANCY PHASE

Precautions for risk and disaster management plan:

- Once the likelihood of the disaster is suspected, preventive actions should be undertaken by the project in-charge.
- Conditional maintenance of Equipments, materials and expertise for use during emergency.
- The electrical systems should be provided with automatic circuit breakers activated by over-current.
- Fire extinguishers will be provided at pre-notified locations inside the building.
- Proper escape routes will be planned and displayed in the public domain.
- Selected representatives will be given proper training to guide other inhabitants during fire accidents.

- Periodic awareness program will be conducted for the occupants on their roles during emergency situations.

Important telephone numbers like police authorities, fire department and hospitals etc. of use during emergency situations should be made available.

5. DISASTER MANAGEMENT

Disaster is an unexpected event due to sudden failure of the system, external threats, internal disturbances, earthquakes, fire and accidents. Following subsection describes the measures to be undertaken by the project proponent to prevent / minimize risk of unexpected event.

The details of disaster management system are discussed in the following section.

5.1. DEFINING THE NATURE OF EMERGENCY

5.1.1 INTRODUCTION

An Emergency can be defined as an "Occurrence of such magnitude so as to create a situation in which normal pattern of life within a facility is suddenly disrupted, adversely affecting not only the personnel and property within the facility, but also in its vicinity". Such an occurrence may result in On Site implication like:

5.1.2 POTENTIAL / ACTUAL EMERGENCY

1. The following maximum credible accident scenarios may occur in a hazardous waste landfill (TSDF)

I. Slop Failure of landfill

II. Water accumulation at landfill due to heavy rain

III. Road accident during transportation of Hazardous waste

Precaution is always better than cure. To mitigate the slope failure during designing and operation of landfill the Stability analysis criteria are considered and are as follow.

The capping activity will be also carried out immediate once the waste filling is completed in Particular cell. After completion of capping of landfill site there should not be chances of increase moisture content of filled waste, so there should not be any chances of failure of top slop. Only present active cells are only under operation so failure of slop is also minimize. To prevent the failure of slop during the operation we will be compacting it with

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dozer and roller. We will also making temporary bund wall to prevent any sliding of waste during operation.

5.1.3 WATER ACCUMULATION IN LANDFILL DUE TO HEAVY RAIN:

Diesel pumps and Electric pumps capacity to pump out the accumulated water due to heavy rain. In the event of a landfill instability such as a slop failure the first concern is always safety, safety of site personal, safety of site entrance, and safety of general public. The situation will need to be assessed concisely and necessary emergency procedures and precautions implemented as quickly as possible.

Following steps to be carried out;

- Implementation of onsite emergency plan.
- Incoming waste to be stopped.
- Slop failure may increase exposure risk to personnel and public so necessary PPEs to be provided.
- Relocation and covering of waste to be performed quickly and safely.
- Perform mitigating activity to limit further contamination or damage
- Work to be done round the clock
- Primary report to be prepared and make ready for proper interval

– How much Moved?

– Has it stopped moving completely?

5.1.4 TO PREVENT ROAD ACCIDENT FOLLOWING PRECAUTIONS TO BE TAKEN

- Transportation of waste by only authorized vehicles.
- Regular training to drivers.
- Organize awareness program.
- Implementation of MSDS and TREM (Transport Emergency Card) card.

The overall objective of a disaster management plan is to make use of the combined resources at the site and outside services to achieve the following:

a) To localize the emergency and if possible eliminate it;

b) To minimize the effects of the accident on people and property;

c) Effect the rescue and medical treatment of casualties;

d) Safeguard other people;

e) Evacuate people to safe areas;

f) Informing and collaboration with statutory authorities.

g) Provide authoritative information to news media;

h) Initially contain and ultimately bring the incident under control;

i) Preserve relevant records and equipment for the subsequent enquiry into the cause and circumstances of the emergency;

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j) Investigating and taking steps to prevent reoccurrence

The DMP is therefore relates to the identification of sources, from which hazards can arise and the maximum credible loss scenario that can take place in the concerned area.

5.2 ACTUATION OF THE PLAN

Any emergency starts as a small incident that may become a major accident, if not controlled in time. At the initial stage, a fire organization chart (would be prepared separately for each facility) needs to be put into action. If the incident goes beyond control, the Main Incident Controller will need to actuate the on-site plan at the appropriate stage as considered necessary. During idle shift/ holidays, the security personnel will combat the incident as per the fire organization chart below and at the same time inform various emergency controllers for guidance and control the situation. An organization needs to be set up once the site is operational by appointing key personnel and defining their specific duties that will be handy in emergency.

5.3 EMERGENCY EQUIPMENT

The site controller will maintain a list of emergency handling equipment including details of fire extinguishers, protective clothing, and personal protective equipment for emergency handlers etc. Details of fire management services of Bangalore city and neighboring hospitals will be available with site controller in his operating checklist.

5.4 EMERGENCY RESPONSE

I. DANGEROUS SITUATIONS:

These are defined as the following:

- Any fire or explosion in the facility
- Any fire in the service buildings
- Exercise fire drill.

II. ACTIONS IN THE EVENT OF FIRE:

Basic actions are detailed above.

- Extinguishing fires: A small fire at a point of leakage should be extinguished by enveloping with a water spray or a suitable smothering agent such as CO_2. Firefighting personnel working in or close to un-ignited vapor clouds or close to fire, must be protected

continuously by water sprays. Fire fighters should advance towards the fire downwind if possible - BE CAREFUL TO AVOID H_2S EXPOSURE.

• In case the only valve that can be used to stop the leakage is surrounded by fire, it may be possible to close it manually. The person attempting the closure should be continuously protected by water sprays, fire entry suit, water jet blanket etc. The person must be equipped with a safety belt and a manned lifeline. In case of rapid increase in decibel level, evacuate the area, as there would have been over pressurization.

III. RESPONSE SEQUENCE FOR DANGEROUS SITUATIONS:

Person noticing the fire should attempt to isolate and extinguish the fire with the available equipment and inform or arrange to inform the leader/ senior representative regarding the

- Location of the fire
- What is burning?
- The extent of fire
- Callers name and number
- Do not disconnect unless the person on the other side repeats the message or acknowledges it.

A.SECURITY ON DUTY COORDINATORS WILL:

- Respond to the scene of the incident
- Arrange to send the necessary firefighting equipment to the scene of the incident
- Extinguish the fire with the available equipment.

B.SECURITY OFFICER WILL:

- Sound the Siren as per the Siren Code
- Inform the Site Main / Incident Controller and act as per his instructions.
- To ensure gates are open to regulate traffic in such a way that free movement of outside assistance like fire tenders, ambulance etc., is available.

A. Security should cordon off the area and local city firefighting staff should be notified. The facility will have the firefighting water system but may not be equipped with staff to operate it. Local fire fighters may need to be notified.

B. All Other Management /Ass/Labors Staff on hearing the siren, should STOP their operations/ work, switch off lights, fans, engines, air conditioners etc., close pipeline valves and line up in front of their working places and meet at a pre-arranged location. These people will assist in evacuating the residents if necessary.

IV. POST EMERGENCY FOLLOW UP:

- All cases of fire occurrence, no matter how small, must be reported promptly to the Coordinator for follow up.
- Under no circumstances should fire extinguishing equipment once used be returned to its fixed location before it is recharged/ certified fit by the Fire chief/ Safety Manager.
- Used fire extinguishers must be laid horizontally to indicate that they have been expended.

V. EARLY WARNING / ALARM SYSTEM:

An audible electric alarm (siren) should be located in the main gate. The different sounds that should be generated by the alarm are:

SMALL FIRE : No Siren

MAJOR FIRE : A wailing Siren for two minutes.

Sirens will be sounded three times for thirty seconds with an interval of 15 seconds in between

EMERGENCY : Same type of Siren as in case of major fire but the same will be sounded for three times at the interval of two minutes.

ALL CLEAR (For Fire) : Straight Run Siren for two minutes.

TEST : Straight run Siren for two minutes.

5.5 EMERGENCY CONTROL CENTRE (ECC)

The Control Room will be nominated as the ECC. At the time of the emergency On-site Controller assisted by other designated coordinators shall take position to perform their duties. This will be located outside the area of potential hazards and easily approachable.

The Emergency Control Center should have the following resources available:

- Copies of the DMP
- Layout Plan of the complex.
- Information regarding Safety Equipment, Fire Fighting material
- A list of telephones of key and essential staff of the company along with their residential numbers.
- Copies of the local Telephone Directories.
- A list of important telephone numbers like those of neighboring industries, Fire Brigade, Hospitals etc.,
- Personal Protective Equipment.
- First – Aid Kit.

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- Communication equipment – Internal and External telephones and other communication equipment.
- Requisite stationary items.
- Personnel to act as messengers.

The communication equipment is checked periodically to ensure that they are functional.

The ECC is capable of being activated within a few minutes upon declaration of an emergency.

5.6 MEDICAL RESOURCES:

The medical management for the possible emergency situations essentially consists of treatment for burns and maybe some asphyxiation cases. They could cause burns injuries. Material Safety Data Sheets and other relevant information would also be available at the facility to enable ready treatment of any casualty, should the unfortunate need arise. It is also proposed to circulate any important Health and Toxicology material available through the latest research to all Doctors.

5.7 RESPONSE EVALUATION, TESTING AND UPDATING OF THE PLAN:

Formulation of a Disaster Management Plan cannot possibly be an end by itself. It needs to be tested by holding of periodical mock emergency simulations and drill. Any shortcomings revealed during such exercise should thereafter be corrected by amending the plan. The plan should be for times to come; hence, it must be reviewed at periodic intervals. The plan should also be reviewed and updated when:

- Important telephone numbers used are altered, facilities are changed.

Mock drills activating the Disaster Preparedness Plan will be conducted periodically for ensuring its efficiency during emergency as well as for refinement and updating.

5.8 PREVENTIVE ACTION

Once the likelihood of a disaster is suspected, action has to be initiated to prevent a failure. Engineers responsible for preventive action should identify sources of repair Equipments, materials, labor and expertise for use during emergency.

5.9 REPORTING PROCEDURES

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The level at which a situation will be termed a disaster shall be specified. This shall include the stage at which the surveillance requirements should be increased both in frequency and details. The project in-charge should notify the officer for the following information

- Exit points for the public,
- Safety areas at the site,
- Nearest medical facilities.

5.10 EMERGENCY MEASURES

The proposed project is designed as per the NBC norms and occurrence of accidents is not envisaged. The emergency measures are adopted to avoid any failure in the system such as lights, fire, means of escape, ventilation shafts etc. The aim of Emergency Action Plan is to identify areas, population and structures likely to be affected due to a catastrophic event of accident. The action plan should also include preventive action, notification, warning procedures and co-ordination among various relief authorities.

5.11 EMERGENCY LIGHTING

Emergency lights operated on battery power should be provided at appropriate locations. The system should supply power to at least 25 % of the lights at those locations for a period of 2 hours.

5.12 FIRE PROTECTION

Fire protection is one of the most essential services to be provided. In design component of the project adequate measures have to be undertaken as per the provisions of the National Building Code (SP 7: 1983 Part IV Amendment No. 3 of January 1997).

The building materials should be of appropriate fire resistance standard. The materials which have zero surface burning characteristics need to be used. The electrical systems shall be provided with automatic circuit breakers activated by the rise of current and by over-current. The design will include provision for the following:

- Fire prevention measures,
- Fire control measures,
- Fire detection systems,
- Means of escape,
- Access for fireman &
- Means of firefighting.
- Smoking should be strictly prohibited at all public locations.

All aspects of fire prevention and control will be dealt in close collaboration with the city firefighting authority. Smoke control will be achieved by the following means.

5.13 FIRE FIGHTING FACILITY:

FIRE FIGHTING, GAS LEAK CONTROL AND RESCUE OPERATION

A) Role of Manager (Fire and Safety) / Shift In-Charge (Fire & Safety)

1. Incident Controller will be the only person to direct the firefighting and Emergency operation.
2. Keep the constant touch with the SMC / Incharge - EHS.
3. Direct the crew members to the scene of emergency and arrange replenishment of Manpower / equipment / extinguishing media etc.,

B) Role of EHS Representative:

1. On being notified about the location of fire/ gas leakage/ other emergency immediately proceed to the help.
2. Decide his line of action in consultation with Incident controller and take appropriate measures to handle the emergency.
3. Assessing the severity of the incident immediately report to emergency controller about the gravity of the situation.
4. He will assess the extra requirement required if any from the neighboring industry.

C) Fire crew members

1. On hearing emergency alarm, emergency siren they shall immediately report to operation in charge and proceed to the scene of emergency and work under the direction of IC/ Dy. IC.
2. The personal availability at the scene of incident to be made optimize.

5.14 ON SITE EMERGENCY PLAN

5.14.1 PRE-EMERGENCY ACTIVITIES

5.14.1.1 FIRE SYSTEM TESTING

- To prepare list of various fire-fighting equipment (Fire Extinguishers, etc.,) installed at various locations in the unit along with detailed specifications.
- To prepare schedule for testing of all these equipment and check operability.
- To maintain record of testing and mark dates of testing on the equipment.
- To carry out repairs/replacement of defective equipment Frequency: Once in a month.

5.14.1.2 MUTUAL AID SCHEME

•To prepare Mutual Aid Scheme and enter into agreement with the neighboring units for getting or extending help during emergency.
• To appoint coordinator for follow-up under mutual Aid Scheme.
• To review the scheme once in a year with coordinators of neighboring units w.r.t scope of help, type of aid, contact persons, etc.
• To include the scheme in mock drills.

5.14.1.3 MOCK-DRILLS

• To conduct minor mock drills to train employees about their role / duties during Emergency.
• To refresh training to the employees for firefighting, spill control, use of personal protective equipments etc.,
• To check whether various members of emergency control committee, remember their role / duties properly and to find out the faults and points of improvement in their performance.
• To check whether the various equipment for emergency control are operating satisfactorily and find and rectify the draw-backs if any.
• To conduct major mock-drills with permission from the authorities. Mock drills will be regularly conducted in our unit by our Emergency Control Organization and the findings are compiled to analyze whether employees are familiarized with the emergency control procedures and what sort of training is required to be given.

5.14.2 SAFETY TRAINING

To organize regular training for the employees for handling of safety equipment, use of personal protective equipment, first-aid, etc. by internal/external faculty, as well as by sending persons outside to attend safety programs etc. The topics covered in safety training will be –

• Training on fire fighting
• Training on spill control
• Training on toxic release control
• Training on good housekeeping
• Training on use of PPE

The records of the training programs will be maintained by the Safety Committee.
Frequency: Once in a year

5.14.3 PERSONAL PROTECTIVE EQUIPMENT

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• To procure adequate number of personal protective equipment (aprons, hand gloves, safety goggles, helmets, nose masks, safety belts, gas cartridges, self-breathing apparatus, safety shoes etc.,) suitable for landfill operations and maintain records of use.

5.14.4 COMMUNICATION

• To maintain internal/external telephones in working order.
• To check alarms / siren / loudspeakers for workability
• To provide manual emergency bells at various location for use during power failure
• To periodically check wind cock for wind direction
• To check lightning arrestors installed at different locations for physical condition and proper earthing connection.

5.14.5 EMERGENCY LIGHTS

• To keep sufficient number of emergency torch/ batteries in ECC as well as at the production site
• To maintain the one DG sets available in the site as stand-by for power failure. The D.G. sets are set to start functioning within two minutes of failure of electricity.

5.14.6 EMERGENCY CONTROL ROOM

It is necessary to maintain the Emergency Control Room and keep it equipped with all necessary items, documents, telecommunication systems, PPE etc. required in case of an emergency.

5.14.7 ASSEMBLY POINTS

• To fix assembly points on the site for non-essential workers.
• To fix assembly points for plant emergency staff and coordinators.
• To maintain record of no. of workers gathered at the assembly points at the time of emergency. The Safety Committee shall nominate a person for this duty.

5.14.8 LIAISON WITH STATE AUTHORITIES

• To liaison with civil authorities, local hospitals, Fire-Brigade, Collector, factories Inspector, Police, etc regarding emergency activities and need for external aid.
• To keep the details regarding name, address & telephone numbers of various govt. authorities and neighboring units available and update the details from time to time.
• To inform about Mock-drill in advance and if required conduct mock-drill in presence of any of these authorities.

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5.14.9 HOSPITAL FACILITIES

- To equip Occupational Health Centre with First-Aid and medicines
- To keep Health records (esp. blood-group records) of all employees
- To liaison with hospitals in the area of the unit
- To update arrangements with neighboring units for emergency first aid.

5.14.10 OUTSIDE SHELTER

- To reserve space in nearby schools/hospitals/buildings for temporary shelter during emergency.
- To arrange for clothing, food, medicine in temporary shelter.

5.14.11 STATUTORY INFORMATION

Statutory Information about chemicals handled in the unit, methods of prevention and control, first aid measures etc., shall be given to

- Workers
- Public and Neighboring units
- Government authorities & outside emergency services.

5.14.12 LIST OF SUPPLIERS OF SAFETY EQUIPMENT

- To prepare and preserve list of suppliers of safety equipment e.g first aid box, medicines, fire extinguishers, PPE, communication, self breathing apparatus, chlorine kit, etc.,
- To check all supplies every three months.
- To update the list and keep it ready-to-refer location in the plant as well as at ECC.

5.14.13 FIRE PREVENTION PLAN

- List of major work-place fire hazards.
- Potential ignition sources.
  - ✓ Sparks from electrical fitting / motors
  - ✓ Sparks from welding operations
  - ✓ Sparks from static electricity
- Fire prevention & control measures.
- Use of flameproof electrical fittings and electric motors wherever necessary
- No welding shall be done anywhere in the plant without prior permission from safety officer and necessary precautions from in charge of the area.
- Ignition system of boiler should be provided with guard.
- All vessels and pipeline should be properly earthed to prevent static electricity.

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- The vent lines of all vessels and tanks holding flammable materials should be provided with flame arrestors.
- Fire extinguishers shall be provided at all critical locations in the unit.

5.15 POST EMERGENCY ACTIVITIES

These activities are to be carried out after an emergency is over so as to establish the cause of the emergency and decide the measures to be taken to prevent its re-occurrence. These activities are –

1. Collection of records of accident, injury, damage to property, buildings, equipment, material and loss of production.
2. Collection of contaminated fire water and send for treatment and final disposal.
2. Conducting enquiries and concluding preventive measures.
3. Making insurance claim for the materialistic loss / damage.
4. Implementation of enquiry report's recommendations.
5. Rehabilitation of affected persons within and outside the plant.
6. Restarting the plant and normalizing the operations.

5.16 ACTIONS TO BE TAKEN IN CASE OF VARIOUS SCENARIOS

5.16.1 ACTION PLAN FOR ELECTRICAL FIRE

a) Disconnection of the electric supply of the affected area.
b) Attempt to extinguish the fire with the help of CO_2 fire extinguishers.
c) If the fire still persists, ensure complete isolation of electric supply of that area and use water.

5.16.2 ACTION PLAN FOR OFFICE FIRE

a) Disconnection the electric supply of the affected area.
b) Attempt to extinguish the fire with the help of DCP/CO2 fire extinguishers.
c) Save all records from fire.

5.16.3 ACTION PLAN FOR PERSON FLAME

a) Bring the water gel blanket.
b) Open the bag inside the container to remove blanket. If the bag is already open, such blanket should not be used for burn victims.
c) The blanket can be held as a screen between the victim and the fire.
d) If possible lay down the victim and wrap the blanket around the victim. Leave the victim wrapped in blanket and seek medical help.

5.16.4 ACTION PLAN FOR FOOD/WATER POISONING

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a) Persons observing the symptom should inform the location in change for assessing the situation.
b) Safety Officer should announce instructions of the location in charge to all employees.
c) Shift in charge should call the doctor and ambulances and also alert all hospitals to meet any exigencies.
d) To render first aid and induce vomiting to the affected persons.
e) The ambulances and vehicles available should be mobilized to be in readiness to transport large number of people if required.
f) Safety Officer to report to location in charge for required sanitation and medical assistance.

5.16.5 ACTION PLAN FOR ELECTRIC SHOCK CASUALTIES

- Electric shock results in irreversible damage to brain cells followed by deterioration of other organs.
- Rescue and first aid – Do first thing first, quickly and without fuss or panic.
- Switch off the supply if this can be done at once. If not possible, use a dry stick, dry cloth or other nonconductor to separate the victim of electrical contact. The rescuer must avoid receiving shock himself by wearing gloves or using a jacket to pull the victim.
- Artificial respiration - Give artificial respiration, if breathing has stopped.

5.16.6 EVACUATION & TRANSPORTATION

All non-essential workers shall be evacuated from incident area and adjacent areas to safe assembly points. The assembly point in-charge will be a well-trained supervisor who shall keep record of persons arriving at the assembly point and direct them for proper gathering. He shall also inform the ECC about the persons gathered at the assembly point. Those in need of medical treatment shall be transported to first-aid center / hospital as the case may be.

5.16.7 SAFE CLOSE-DOWN

As per the instructions from IC or SMC, some parts or full of the plant shall be closed down by the essential workers. The procedure for safe shut-down and start-up will be given in safety manual given to all workers.

5.16.8 USE OF MUTUAL AID

Mutual aid from neighboring units shall be called up as and when required. The aid shall be taken under the supervision of SMC.

5.16.9 USE OF EXTERNAL AUTHORIES

Outside authorities such as Police, District Emergency Authority (DEA), Factory Inspector, Disaster Management Centre, GIDC officer, Industries Association, Regional Pollution Control Board, nearby hospitals etc. shall be informed of the on-site and off-site emergency plans and called in as per need.

5.16.10 MEDICAL TREATMENT

Injured workers shall be located and given prompt first-aid by essential workers and key personnel. Those requiring medical treatment shall be taken to the hospital / outside medical center.

5.16.11 ACCOUNTING FOR PERSONNEL

Through daily muster rolls and with the help of shift-in-charge the head count shall be undertaken to find out whether persons are missing and if so immediate search shall be carried out to locate them. The list shall include company employees, contract workers as well as visitors. This list shall be kept with time keeper / security officer at any time and shall be used to account for personnel.

5.16.12 ACCESS TO RECORDS

In order to inform families/relatives of injured/dead, an up-to-date list of names and addresses of all the workers is maintained in addition to the muster roll where shift-wise attendance is marked. Such list includes health records.

5.16.13 PUBLIC RELATIONS

Our General Manager shall be the only nominated person to issue administrative statement about the accident or emergency to news/media.

5.16.14 REHABILITATION

In case of Toxic release, Senior Officers would ensure that the incident area shall be safe and cleaned up of all mess. Then only, he would allow people to re-enter the location. In case of fire, the Senior Officers shall ensure that the area is cooled down and there are no chances of re-ignition.

Even when all clear has been given, great care shall be taken when re-entering affected areas and no work in connection with the salvage, collection of evidence or start up shall be taken up until a thorough examination of the area has been carried out. The statutory powers of the Factory Inspector shall be kept in mind before any evidence is disturbed.

6. OFF-SITE EMERGENCY PLAN

An offsite emergency arises only if there is a failure or delay in implementation of an onsite emergency plan or due to a road accident to a vehicle carrying the hazardous waste material outside the activity site. Since the quantity of the material and the hazardous nature of the material transported is not very high the chances of a huge spread of toxic gas or other losses is expected to be very low and is well within the control limits of the driver and the cleaner of the truck carrying the material. Even the estimated loss is low the preparedness and the knowledge to implement the control measures in the event of any accident happening will further minimize the probable losses. Some of the onsite emergencies such as an explosion or a major fire in storage site can also turn as offsite emergency if there is failure of tackling such emergency.

6.1 NEED OF THE OFF – SITE EMERGENCY PLAN

An offsite emergency arises only if there is a failure or delay in implementation of an onsite emergency plan or due to a road accident to a vehicle carrying the hazardous waste material outside the activity site. An off-site emergency plan is prepared to deal with those incidents which have the potential to harm persons or the environment outside the boundary of the factory premises. A major accident, major emergency and disaster may affect areas outside the plant. An explosion can scatter debris over wide areas and its effects of blasts can cover considerable distances. Wind can spread burning fumes of toxic gases. Thus the events like these described above can affect outside areas and combating them needs an Off-site Emergency plan.

Envisaging such a rare incident, an off-site emergency plan should be drawn up for the following purpose.

1. To provide basic information about the risk and environmental impact assessment related to the unit to local / district authorities, police, fire-brigade, surrounding units, and the general public. To appraise them of consequences and the protection / prevention measures and control actions and to seek their help to communicate with public in case of a major emergency.

The information from all industries shall enable district authorities to educate public about what could go wrong, and to train them of measures to be taken as an individual.

2. To enable district authorities to prepare the off-site emergency plan (contingency) for the district or particular area and to organize rehearsals and initiate actions learnt from these incidents.

Our Emergency Plan shall be made after considering the all possible effects of incidents on the neighboring population and the remedial measures will be devised in consultation with the local authorities and emergency services.

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6.2 STRUCTURE OF THE OFF-SITE EMERGENCY PLAN

IC District Authorities Mutual Aid teams, outside SMC (Collector, Factory services, voluntary Essential Workers Inspector, Police) organizations (Implementing Information, Evacuation (Fire-fighting, action plan, First-aid, Shelter, informing nearby Hospitalization, public) Transportation)

6.3 ROLE OF SITE MANAGEMENT

The Off-Site emergency Plans are dovetail so that the emergency services shall be summoned at the appropriate time and shall be provided with accurate information and a correct assessment of the situation. The responsibility for this is with the Site Main Controller. The Site Main Controller shall provide a copy of our On-Site and Off-Site Emergency Plan to the District authorities, the Factories Inspectorate and the Emergency Services, so that on the basis of information and such authorities can make their emergency preparedness plan to formulate and execute the District / Area off Site Emergency Plan. Further on the advice of the authorities we can also modify our plan to make our plan more effective and perfect.

6.4 ROLE OF EMERGENCY CO-ORDINATION OFFICER (ECO)

The various emergency services will be coordinated by the Emergency Co-ordination officer (ECO), who will likely to be a Collector. The ECO will liaise closely with the Site Main Controller. The Emergency Control Centre of the factory can be utilized by the ECO to keep liaison with the Site Main Controller.

6.5 ROLE OF THE FIRE AUTHORITIES

The control of fire is normally the responsibility of the senior fire officer who would take over the handling of fire from the IC on arrival at the site.

- The senior fire officer may also have similar responsibility for other events such as explosion and toxic releases. Fire authority having major hazard units in the area shall- Familiarize themselves with the location and site of all stages of flammable materials, water and foam supply points, firefighting equipment.
- Act as observer of an on-site exercise involving only site personnel.

6.6 ROLE OF THE HEALTH AUTHORITIES

Health authorities, including Doctors, Surgeons, Hospitals, and Ambulances so on, have a vital part to play following a Major Accident and they should form an integral part of any emergency plan. In case of major fires, injuries will be the result of the effects of thermal

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radiation to a varying degree, and the knowledge and experience to handle this type of injuries cases may be generally available in most of the hospitals. But in case of major toxic releases, the effects vary according to the chemical, which has leaked, and it is important for health authorities that might be involved in dealing with the aftermath of a toxic release to be familiar with the treatment appropriate to such casualties.

Major Off-Site incidents are likely to require medical equipment and facilities additional to those available locally and a Medical 'Mutual Aid' scheme should exist to enable the assistance of neighboring authorities to be obtained in the event of an emergency.

6.7 ROLE OF TELEPHONE DEPARTMENT

The communication system between the factory and the various above role-playing authorities must be effective. The ineffective public telephone system will not be useful in emergency. Therefore, telephone department should maintain the phones and if required temporary telephone connection may be provided to various above authorities to deal the emergency.

6.8 ROLE OF POLICE AND EVACUATION AUTHORITIES

- To protect life and property
- To control traffic movement
- To inform people to remain indoors or evacuate
- To carry-out evacuation
- To identify dead, deal with casualties and inform relatives of dead or injured.

For evacuation, the following criteria are useful:

a) In case of major fire, only houses close to fire and in the direction of smoke need evacuation

b) If fire is escalating and in turn threatening a store of hazardous material, it is necessary to evacuate people nearby if time is available; otherwise they should be informed to keep themselves indoor and shield from the fire.

c) For release of toxic gases, limited evacuation may be appropriate in downwind direction with windows closed and provides good protection. Toxic gases which are hazardous down to much lower concentration cover a long distance. This factor must be considered while deciding upon the need and extent of evacuation.

6.9 ROLE OF THE MUTUAL-AID AGENCIES

Mutual-aid arrangements shall be made in areas of fire & toxicity control, medical and transport &evacuation. All partners of mutual-aid shall extend all possible help in these areas

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7. SOCIAL IMPACT ASSESSMENT R&R ACTION PLANS

The proposed project in a vacant plot which does not have any habitation and therefore no re-settlement & re-habilitation is envisaged.

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ENVIRONMENTAL MANAGEMENT PLAN (EMP)

10.1 INTRODUCTION

The Environment Management Plan (EMP) is required to ensure sustainable development in the area of the proposed project. Hence it needs to be an all encompassive plan for which the industry, Government, Regulating agencies like Pollution Control Board working in the region and more importantly the population of the area need to extend their co-operation and contribution.

It has been evaluated that the project area will not be affected significantly with proposed project. Mitigation measures at the source level and an overall Management Plan at the site level are elicited so as to improve the surrounding environment.

The following mitigation measures are recommended in order to synchronize the economic development of the project area with the environmental protection of the region. The construction phase impacts are mostly short term, restricted to the plot area and not envisaged on the larger scale. Also since it is coming in an existing industry major impacts are not anticipated. In the operational phase the environmental impacts are due to continuous operation of the project, hence, the emphasis in the Environment Management Plan (EMP) is to minimize such impacts.

The emphasis on the EMP development is on the following:

- Mitigation measures for each of the activities causing the environmental impact;
- Monitoring plans for checking activities and environmental parameters and monitoring responsibilities;
- Role responsibilities and resource allocation for monitoring.

Following sections describes in brief the environment management plan proposed for construction and operation phases.

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10.2 MITIGATION MEASURES

Each of the activities during production phase is critically reviewed for suggestion of mitigation measures. Based on this, the table 10.1 gives the mitigation measures for the activities considered to be causing significant environmental impacts during operation phase.

In general the best housekeeping practices are incorporated in the design as well as in production phase to reduce the short term impacts due to the proposed activities.

Environmental Management Plan (EMP) is required to operate the site as per the Environmental Regulations and to achieve sustainable development of the region. Considering the nature of industries in the region, waste generated, TSDF Facility will be developed and operated. As the TSDF Site is in the KIADB, all the infrastructure facilities are available.

The EMP are prepared considering the following aspects of TSDF operation;

- Construction of the landfill and other facilities
- Operation of the landfill
- Transportation
- Leachate management
- Monitoring and control
- Closure of the landfill
- Post closure maintenance

10.2.1 OBJECTIVES OF ENVIRONMENTAL MANAGEMENT PLAN

The main objectives in formulating the environment management plan are,

- To handle hazardous waste as per Hazardous Waste (Management, Handling and Transboundary Movement) Third Amendment Rules, 2010.
- Construction, operation and post closure maintenance of the site without any environmental impact to the surroundings
- Collection, transportation, treatment and disposal of hazardous waste generated by member industries in environmentally sound manner.
- Monitoring and control of the facility operations.
- To create good working conditions (devoid of air & noise pollution) for employees.

- To reduce fire and accidental hazards.
- Perspective budgeting and allocation of funds for environment management expenditure.
- Continuous development in the area of hazardous waste management.

10.3 ENVIRONMENT MANAGEMENT PLAN AND MITIGATION MEASURES

10.3.2 OPERATIONAL PHASE MANAGEMENT

Detailed study was carried out for operational phase aspect, impact and their mitigation measure. Control measures have been incorporated in the process system to minimize impact on environment and smooth operation of the site.

10.3.2.1 SECURED LANDFILL

For Management of hazardous wastes generated from industries and to avoid damage to the environment and health of the people in general, Hazardous Waste Management Scheme (HWMS) has been designed in accordance with requirement and provisions of Hazardous Waste (Management, Handling and Transboundary Movement) Third Amendment Rules, 2010.

The different components of HWMS are given below.

1. Collection
2. Transportation
3. Analysis of Hazardous waste
4. Storage and Handling
5. Treatment
6. Disposal
7. Leachate collection, treatment and disposal.

A brief emergency plan for collection, transportation, treatment, storage, handling and disposal of hazardous waste has been prepared in order to minimize impact.

10.3.2.1.1 COLLECTION SYSTEM

Hazardous waste from members industries will be collected by dedicated vehicles. The transportation vehicles for waste will be hook loaders or hydraulic dumpers so that manual exposure will be avoided. Manifest will be used for collection and transportation of wastes.

10.3.2.1.2 TRANSPORTATION

Transportation of hazardous waste will be done as per CPCB Guidelines. The dumpers will be covered to prevent spillage or dusting. The drivers will be imparted training. The containers / dumpers will be marked with the name of TSDF, contact details and the other details required.

10.3.2.1.3 ANALYSIS OF HAZARDOUS WASTE

As the industry approaches MEETPL for membership, samples will be collected and comprehensive analysis will be carried out. Each type of waste will be analyzed. This will help the facility to decide on the treatment required, if any.

As the waste dumper reaches MEETPL site, samples are taken and finger-print analysis is carried out. If the waste passes the quick test, then it is sent for disposal at the landfill. If the waste needs any treatment, it will be given and then only will be disposed off.

10.3.2.1.4 STORAGE

Temporary storage facility with impermeable flooring shall be made particularly for monsoon.

The waste received shall be stored in intermediate hazardous waste storage facility.

10.3.2.1.5 HANDLING

Handling of Hazardous Waste is to be carried out with utmost care. As the waste is transported through hydraulic dumpers, manual handling is avoided. Moreover, the persons employed at the site will be using Personal Protective Equipments like Gum Boots, Gloves, Goggles, Dust Mask, Helmet etc. All the waste handling like spreading, compaction, coverage will be carried out with the help of machinery like JCB / Bulldozer.

10.3.2.1.6 DISPOSAL

The site operations will be carried out in a phased manner. Operating area of the landfill will be clearly earmarked and the wastes cleared by Quality Control Department will be only

disposed off at this area. The hydraulic dumpers will be dumping waste mechanically. Once sufficient waste is disposed in the operational area, JCB or Bull Dozer will be used for spreading and compaction of the waste. The waste which are not meeting the quick tests, are subjected to appropriate treatment before disposal.

The operation of the site will be carried out only during day time.

10.3.2.1.7 LEACHATE COLLECTION SYSTEM, TREATMENT AND DISPOSAL

One of the important areas of landfill management is leachate collection, treatment and disposal. MEETPL have waste acceptance criteria which specify the limit for moisture content. As per this criteria, the waste should pass the PFLT (Paint Filter Liquid Test). This will ensure that the free moisture from the solid waste will be minimum. However, the water content in the waste will be coming out during compaction.

A well designed leachate collection system is the main component of the landfill. Proper slopes are provided at the bottom of the cells for easy movement of the leachate to the leachate collection wells provided. Sufficient number of leachate collection wells are considered in the design. The collected leachate will be pumped out using submerged pumps.

The collected leachate will be sent for CETP for final treatment and disposal.

All efforts will be taken to minimize leachate generation. To prevent water entry to the operation area of the landfill, temporary coverage with tarpaulin will be provided during monsoon season. During heavy rains, the waste will be temporarily stored.

10.4 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

a. OPERATION OF THE FACILITIES/UTILITIES

Table 10.1: Environmental management plan during operation of the facilities/utilities

Activity	Environmental impacts	Management action to Be taken	Remarks
Secured Landfill Facility			
Temporary storage of Hazardous waste	Leachate generation	Collection of leachate and treatment	Implemented
Loading the hazardous waste	Fugitive emission	Coverage of the dumper to prevent dusting	

in dumper	Spillage of waste on the floor	- Avoid spillages by careful handling of the solid waste - Clean the floor regularly and collect the waste & dispose in landfill	
	Leakages / spillages during transportation	inspection of the dumpers and ensuring that there is no leakage / spillage	
	health impacts on the workers.	Usage of Hydraulic dumpers / hook loaders to prevent manual handling Usage of PPEs by all employees Medical check up – pre employment and routine	
Transportation			
Transportation of waste	Littering the waste on the road	Inspect the dumpers and ensure that there is no leakage / spillage from the vehicle. - Loaded dumpers / trucks with waste should be fully covered. -Impart training to the drivers.- Dumpers/ trucks should be leak proof.	
	Disposal of waste at non designated place.	- Develop strict tracking system (manifest system).	
	Contamination of the tyres of vehicles entering landfill area.	After loading/ unloading the waste, tyres should be washed and washed water shall be sent to treatment.	
Final Disposal			
Final disposal of the hazardous waste into secured landfill facility.	Violent reaction / fire	Strictly follow the Acceptance criteria. Check the reactivity of the wastes prior to disposal	
	Excessive	Cover the sub-cells of the	

	leachate generation in monsoon season	facility with tarpaulin to prevent entry of rain water Closing monitoring of the site round-the-clock during monsoon	
	Blowing away of the waste dust with the wind	- Spray water during summer season - Cover the waste layer with fresh soil and compact it.	
	Disposal of waste at the wrong place in the premises Leachate handling	Provide indicators and sign boards for systematic operation. Properly designed leachate collection wells. Daily monitoring of levels in the wells. Transfer of leachate from the wells to storage for Treatment.	
Sanitary facilities for the staff	Generation of the waste water.	Sewage water to be taken to Septic Tank for disposal	
Monitoring activity (Monitoring activity should continue even after closure of the facility)	Groundwater pollution	Monitoring groundwater at upstream and downstream of the site Groundwater monitoring surrounding the site as per predesigned plan	
	Air pollution	Ambient Air Monitoring for various parameters at the site and surroundings for NOX / SOx / SPM	
	Soil Pollution	Soil sampling from various locations and analysis	
Operation, maintenance and closure of the facility	Contamination of environment	As a compensatory measure, green belt shall be developed in the minimum 15 meter strip of land encircling the site.	
Post closure phase	Ambient air quality	Monitoring of ambient air quality for various parameters, monthly	
	Emission from	Monitoring of vents for HCs /	

	landfill vents	VOCs, monthly	
	Leachate generation	Sampling and analysis of leachate for various parameters.	
	Groundwater monitoring	Monitoring of groundwater, once in a week, upstream and downstream	
	Soil contamination	Monitoring of soil samples, once in a month.	
	Stability of the landfill	Regular inspection and maintenance of the coverage system	

10.5 AIR ENVIRONMENT

Emission at M/s. MEETPL in the form of the particulate matter and gases from stack attached to D.G. Set. Moreover, regular monitoring of stacks is carried out to check the emissions. In case emission exceeds, the corrective measures is immediately taken and records of the same will also be maintained.

- Regular ambient air quality monitoring is carried out within premises and nearby area for PM_{10}, $PM_{2.5}$, SO_X and NO_X.
- A greenbelt around the site is developed for reducing the air pollution and attenuation of noise.

Ambient air quality monitoring at and around the TSDF site will be carried out as per CPCB Guidelines.

10.6 NOISE ENVIRONMENT

Noise level monitoring is essential to assess efficiency of maintenance schedules undertaken to reduce noise levels.

- There may be small addition to the ambient noise level, due to the increased transportation activities. This creates a slight adverse impact over the sound Environment.
- Regular oiling, lubrication and maintenance of the equipment is carried out to minimise noise generation.

The company has developed a green belt within the factory premises, which acts as a barrier to the propagation of noise from the TSDF Site.

- It is recommended to measure and maintain records of noise level at various places within and outside factory premises.
- Manufacturers/ suppliers of major noise generating equipment/ machines like compressors, generators should be asked to take required measures for minimizing the noise levels generated by machines by using noise absorbing material for various enclosures or using appropriate design/ technology for fabricating/ assembling the machines.
- Audiometric tests should be conducted periodically for the employees working close to the high noise sources.

10.7 GREEN BELT DEVELOPMENT

Tree plantation is one of the effective remedial measures to control the air pollution and noise pollution. It also improves aesthetics. It is an established fact that trees and vegetation act as a vast natural sink for the gaseous as well as particulate air pollutants due to enormous surface area of leaves. It also helps to attenuate the ambient noise level. Plantation around the pollution sources control the air pollution by filtering the air particulates and interacting with gaseous pollutant before it reaches to the ground. Tree plantation also acts as buffer and absorber against accidental release of pollutants.

In Green belt area about 200 tree is planted. M/s. MEETPL has is developed 4,978.70 sq m area as greenbelt and other forms of greenery.

The selection of tree species suitable for plantation at the TSDF site shall be governed by guiding factors as stated below.

- The trees should be tolerant to air pollutants present in the area
- The trees should be able to grow and thrive on soil of the area, be evergreen, Inhabitant, having minimum of leaf fall.
- The trees should be tall in peripheral curtain plantation and with large and spreading canopy in primary and secondary attenuation zone.
- The trees should possess extensive foliar area to provide maximum impinging surface for continued efficient adsorption and absorption of pollutants.
- The trees should be fast growing and indigenous and should maintain ecological, land and hydrological balance of the region.

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• It is also recommended to plant few trees, which are sensitive to air pollution, as air pollution indicator.
• It is also recommended to carry out extensive plantation within premises.

10.8 ODOR MANAGEMENT PLAN

MEETPL is adopted the plan to control odour in TSDF.

• Adopt odour control practices to prevent Odour problem.
• Covering the waste with soil periodically shall help reduce odour from newly deposited wastes.
• MEETPL should accept odour-free materials for landfilling. In case of odorous material, treatment to be done at the industry level to resolve the problem.
• Odour suppression chemicals may be used as spray as and when required.

10.9 HAZARDOUS WASTE MINIMIZATION

MEETPL will adopt waste minimization practices to conserve resources and energy. One of the major aspects in the hazardous waste minimization is that it should be tackled at the generators end. Once waste is generated, it is to be either recovered and reused or treated and disposed off. MEETPL will work out recycling options of various hazardous wastes generated by the industries, so that some of the wastes can be utilized for various purposes like cement kilns.

• Planning and Organization

1. Get Management commitment
2. Set overall assessment program goals
3. Organize assessment program task force

• Assessment phase

1. Collect process and facility data
2. Prioritize and select assessment target
3. Select People for assessment teams
4. Review data and inspect site
5. Generate options
6. Screen and select options for further study

• Feasibility analysis phase

1. Technical Evaluation
2. Economic Evaluation
3. Select options for implementation

• Implementation phase

1. Justify projects and obtain funding
2. Install facilities
3. Implement procedures for operation and maintenance
4. Evaluate performance

10.10 SOCIO ECONOMIC ACTIVITIES

The TSDF Facility will improve overall environmental conditions in the industrial estate as the hazardous wastes generated by the industries will be disposed of in an environmentally acceptable manner. The facility also will help development of the region and up liftment of the community.

Some social contributions of the facility will be;

1. Support to the school students / community in environmental awareness.
2. Employment to the local persons.
3. Tree plantation in and around TSDF Site.

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10.11 ENVIRONMENTAL POLICY

ENVIRONMENTAL POLICY

M/s. Mother Earth Environ Tech Private Limited, Bangalore, having its registered office at # 2542, 28th Cross,17th Main Road, Banashankari 2nd Stage, Bangalore - 560 070. , is proposes establishing "Hazardous Waste Landfill" Project at Survey no.217, Harohalli Industrial Area, 2nd phase, Kanakapura Taluk, Ramanagara.

The Board of Directors of M/s. Mother Earth Environ Tech Private Limited recognize the important responsibility it has towards the environment, and is committed to:

- Complying with all applicable environmental legislation.
- Planned evaluation of compliance by external auditors and the implementation of improvement programmes.
- Continuous improvement by following best practice guidance produced by appropriate regulatory and advisory organizations and aim to get certified to ISO14001, the internationally recognized Environmental Management System standard.
- Ensuring that all employees are aware of their duty to fellow employees, customers and those who live in the surrounding community, to act in an environmentally responsible and safe manner.
- Collecting, analyzing and publishing key environmental performance metrics to enable the group to continually review assess and improve its environmental performance.

The Board delegates responsibility for oversight of environmental policy and performance to all to the Director, Management and employees for local implementation of this policy. This policy and its implementation will be reviewed on a regular basis by the Board to ensure that it remains appropriate and relevant to the organization. The Group is committed to providing the necessary support in order to ensure that all sites can fulfill the requirements outlined in this policy.

This policy will be communicated to everyone working for or on behalf of the Group. The noncompliance will be communicated and will be brought to the notice of all the board of directors during the board meeting.

10.12 DESCRIPTION OF THE ADMINISTRATIVE ASPECTS OF ENSURING THAT MITIGATIVE MEASURES ARE IMPLEMENTED & THEIR EFFECTIVENESS MONITORED, AFTER APPROVAL, IMPLEMENTATION AND DURING OPERATION

In order to maintain the environmental quality within the standards, regular monitoring network to maintain environmental quality will be implemented.

10.12.1 ENVIRONMENT MANAGEMENT CELL

A separate Environment Management Cell is established to monitor and control the environmental quality. Members of the Environmental Cell would be well qualified and experienced in the concerned field. Some experienced people & few new people will be appointed to take care of the requirement.

Services of reputed laboratories as well as that of a consultant of repute would be engaged for various monitoring & other environmental management needs of the plant from time to time.

10.12.2 Organizational Structure of Environmental Management

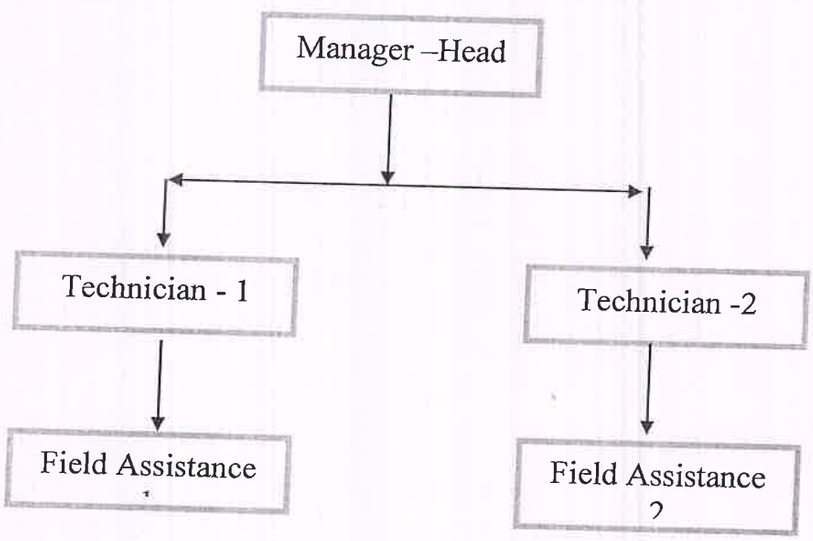


Fig. 10.1: Schematic Representation of organizational structure of environment management

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Chapter-8

Disaster Management Plan

8.1 Introduction

EPP is a self-explanatory statement, rather a vast topic, which depicts about how much watchful we are in this accident prone premises. Besides this it also describe the general procedures & guidelines to be followed at the time of industrial emergency.

8.2 List of Emergency Control Team Members

Asst. Emergency Controller:	Vinod Kumar HOD (Operations)
Incident Controller:	1) Siva Shankar (Lab Head)
	2) Landfill supervisor
Operation Co-Ordinator	Mr. Pavan D
Emergency Officer	Mr. Sanjay S L
Emergency Admin Co-Ordinator	Mr. Brammananda Rao
Security Co-Ordinator	Mr. Vinod Kumar Yeleti

8.3 Emergency

An Emergency will be declared if an untoward event, i.e., fire, major fuel / inflammable material spillage or a major injury / accident occurs and requires the mobilization of all possible resources to handle the same...

8.4 Siren Details

(a) ONE LONG SIREN – Declaration of Emergency.

(b) THREE INTERMITTENT SIRENS – Indicates Termination of Emergency.

On hearing the emergency sire, all the people will immediately stop their works and come to assembly point. HOD P&A or his nominee will go upstairs of the Administration Building, and locate the emergency site and inform the same to the Emergency Administrator & Incident Controller.

8.5 How to Reach the Emergency Site Incase of an Emergency Siren

The incident Controller and Emergency Control Team will move to the incident site. The HOD P&A will select people gathered at the assembly point and direct them to the incident side depending on the necessity. Emergency Administrator will go to Emergency Control Centre and activates the emergency plan.

In addition:

- The In-charge of work shop will search for the emergency, at workshop surroundings, starting from fuel stage, Open Stores, Temporary Stores etc.
- The Landfill supervisor/in-charge will look for emergency around landfill.

8.6 Key Role of Managers

The following are the general attributes, the managers need to posses at the time of emergency in the site premises.

- To be vigil at the time of dispensing duties to avoid work place emergency.
- To own the confidence of the employee reporting to him, at the time of emergency by being strict information centric.
- To role like the owner of that area and the machineries working in that area by avoiding haphazard situations.

8.7 Local Actions to be Taken up During an Emergency

8.7.1 Work Site(s)

- Evacuate the area immediately.
- Inform to all nearby colleagues.
- Try to control locally. In case not possible inform to responsible people at Administration Buildings.
- Stay at the site until Incident Controller reaches there.

8.7.2 Waste Storage Shed(s):

- In case of fire in or adjacent to Waste Storage sheds area try to prevent spreading of fire and try to control locally using the fire extinguisher provided there.
- Shout and inform all to get assistance and support.

8.7.3 Landfill

- People as well as earth moving machinery to be shifted / diverted in the up wind direction.
- Use the soil readily available to spread on the fire / smoke / fumes to suppress / control.
- Use the DCP / Foam fighting equipment in case of requirement to control locally.
- Use abundant water to control the fire.

8.7.4 General

- The Emergency handling team should immediately proceed to the designated job.

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- Visitors and outside people should be retained / sent at the Main gate.
- All other employees should suspend their work(s) temporarily and proceed to the Assembly point and act as per the directions given.
- Panic people should be retained and directed to the Main Gate

8.8 Identified Potential Emergencies in Operations Department

S.No.	Potential Emergency	Risk	Preparedness	Contingency plan in case of occurrence
1	Fire in landfill	Fatal to human health. Damage to landfill liner. Air pollution. Damage to property.	Not depositing potential flammable substances. Restricted depositing organic matter.	Trained staff for fire fighting and first aid. Arranged fire extinguishers near by. Water tanker made available.
2	Fire in waste storage areas	Fatal to human health Air pollution Damage to property	Kept the waste fully covered	Trained staff for fire fighting and first aid. Arranged fire extinguishers near by. Water tanker made available.
3	Sudden rain on operating landfill	Leachate/contaminated water runoff from landfill	Un-operated landfill is kept covered always. HDPE/Tarpaulins are kept ready to cover the operating landfill. A team is identified to mitigate the emergency of unexpected rain in day as well at nights.	A lined drain is provided all around the landfill and is connected to a lined pond. All the water fell on landfill gets collected in the lined pond and will be disposed only after checking the quality of it.
4	Fall of personnel in the SEPs	Fatal to human health.	Kept the safety ladder ready. Fenced all-around SEPs. Placed the Life buoy flouts in the ponds.	Trained staff for first aid. Ambulance/ Vehicle always kept ready in site for shifting of injured to the hospital.
5	Fall of personnel in the stabilization bins/ leachate collection sumps.	Fatal to human health.	Kept the safety ladder ready. Covered all sumps with caps.	Trained staff for first aid. Ambulance/ Vehicle always kept ready in site for shifting of injured to the hospital.

8.9 Identified Potential Emergencies in P &A Department

S.No	Potential Emergencies	Risk	Preparedness	Contingency plan in case of Occurrence
1	Fire under green belt plantation	Damage to the plantation Spreading the fire surrounding area also	Cutting and removing the dry grass/weed continuously. Spraying of the glycil to stop the growth of the weed.	Arranged sufficient nos. of fire extinguishers. Trolley mounted water tanker arranged.
2	Snake & Poisonous Insects Bite(for gardeners)	Loss of Life	Arranged the gumboots up to the knee and hand gloves up to elbow	Arranged the snake bite kit for first aid
3	Accidents to the vehicles	Injuries to the driver and helpers Waste spillages on the road/ ground Damage to the vehicles May catch fire to the vehicles	Drivers are being trained on safe driving by the reputed organization	Arranged fire extinguishers in the vehicles. Displayed the emergency phone numbers. Drivers and Helpers are Trained how to act in case of emergency.
4	Pesticides spillage on face/body	Injuries to eyes/ health problems	Provided PPE(Goggles, Helmets, Aprons etc)	Safety showers arranged
5	Fire due to electrical sparks from 11KVA line passing inside our premises	Fire catching to the dry grass	Ensuring no dry weed under the HT line. Keeping of required nos. of fire fighting equipment near by areas.	Arranged sufficient nos. of fire extinguishers.
6	Electrical shocks	Loss of life Burns and Injuries	Rubber mats near panel boards arranged. All the cable joints insulated Rubber gloves, stick, shock proof shoes provided	Immediately we will switch off the power. First aid facility provided. If needed will take the person to the hospital.

8.10 Identified Potential Emergencies in Services Department

S.No	Potential Emergency	Risk	Preparedness	Contingency plan incase of Occurrence
1	Vehicle accident - inside & outside site	Loss of Life; Damage to vehicle	Continuous training/awareness programs to drivers & helpers for safe driving	Emergency contact phone numbers are given to all the drivers; Insurance coverage to all workmen
2	Accident to workmen in workshop area during drilling machine operation/welding	Injuries to workmen	Training to operate the machine safely	First aid box with required medicine is available at workshop ;First aid training is given to workmen
3	Fire accident in Diesel storage area	Damage to property and injuries to people	Fire buckets & extinguishers are available	Fire buckets & extinguishers are available. Fire fighting training is given.
4	Spillage of waste from vehicles	Environmental damage	Drivers & helpers has been educated to bring the waste without any spillages	The services/operations department heads to be informed by the driver about the spillage & it has to be removed completely in the spillage area
5	Electrical shocks during handling of live electrical equipments/power cables/power points	Loss of Life	Continuous awareness regarding safe operation	First aid to be given to the affected person and to be taken to hospital in case of serious accident.

8.11 Identified Potential Emergencies in Laboratory Department

S.No	Potential Emergency	Risk	Preparedness	Contingency plan incase of Occurrence
1	Releasing of gases while opening bottles like Ammonia, Nitric acid	Eye injuries and suffocation	Using safety glasses, gloves & nose masks while opening bottles and it is restricted to open the bottle in fume cupboard.	First aid box and safety shower is provided by the side of fume cupboard. A vehicle is always there take the person to hospital.

S.No	Potential Emergency	Risk	Preparedness	Contingency plan incase of Occurrence
2	Chances of fire at the time of solvent recovery.	Fire accident		Fire extinguishes are provided to deal with any emergency.
3	Accidents due to gas leakage from gas cylinders	Five accidents and suffocation	All the cylinders are kept in open place out side of the laboratory, so that any gas leaked goes to atmosphere without damaging the person.	Soap water is provided at the storage area to test the leakage before opening the valves & cylinders.
4	Burns due to corrosive acids/alkalizes	Human Health	Using an safety items fine gloves, safety showers to avoid contact with skin.	First aid facilities is available and trainee person in available in the lab to give fir staid. Safety shower and eye wash is provided.
5	Inter reaction between retained samples in thje sampling area	Toxic fumes may evolve and damage to human health	All the samples are stored in sealed bags and stored in a separate room, with an exhaust fan.	Persons are warned not to enter the area without eye protection and nose masks. In an emergency first aid is give and then consult a doctor.
6	Acid Fumes during digestions sample	Health	Digestion is carried out strictly in fume cupboard.	Eyewash and safety shower is provided by the side of fume cupboard.

8.12 Security Office (Main Gate)

The Main gate / Security serve as the Emergency Control Centre.

8.13 Facilities at Emergency Control Centre

Equipment

- Internal, External, Extension telephone lines directory.
- First Aid equipment / stretcher / Oxygen cylinder / blankets / torches / Batteries.

Site Plans Showing

- All the units.
- Fire Water system / Alternative water source.
- Location of all safety equipment
- First Aid & Fire fighting appliances.

Telephone nos and address list

- Emergency Service Number.
- Organizations / persons to be informed incase of emergency including factories Inspectorate, District emergency authority, fire Brigade, Police Station etc.
- List of Employees Home address and Telephone Numbers.
- Internal Telephone List.

8.14 Security

Security Guard

- Close Main Gate.
- Proceed to Pump House and Start the fire water diesel pump.
- On arrival of Pump House Engineering / Plant team, return to gate.

Security Incharge

- Ensure Main Gate is closed.
- Proceed to emergency spot and help the emergency Task Force.

After Working Hours

- Close Gate.
- Proceed to Pump House and ensure that the Diesel Pump (F.H) has started.
- Put Off diesel pump (F.H) on instructions from the incident controller

8.15 Role of Site Supervisor/Security Incharge as Emergency Officer

In Working Hours

- On hearing Siren shout for help, visit spot immediately and take charge till arrival of the incident controller.
- Stop all Operations / Vehicles movements.
- Arrange help for first Aid equipment like blanket, Oxygen cylinder, first aid kit, stretcher etc. as per requirement.
- Ensure that all non-essential personnel proceed to the Main gate and assemble there.
- Join Emergency handling team in fighting emergency till under control.

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After Working Hours

- On knowing an emergency, shout for help, instruct the Security guards to call the staff residing in the quarters
- Proceed to the site immediately take charge till the other people arrive.
- Assess situation and inform at Main gate to inform to Project Manager, HOD (P&A), HOD (Operations) and Fire Brigade.
- Activate the emergency plan as per the necessity.
- Depute a person who can
- Start the Diesel Pump (F.H).
- Depute another person (preferably the authorized Electrician) to electrical control / DG Room soon to put off power supply, in case of requirement only.

8.16 Role of Emergency Control Team Member

On hearing the Emergency Siren the Emergency Control Team should immediately proceed to the emergency Site and carry out Emergency operations safely without harming themselves and directed by the Incident Controller.

During Working Hours

Emergency Control Team-I

SECURITY INCHARGE: Mr. Vinod Kumar Y

SECURITY GUARDS: Mr. Rakesh

Mr. Suresh

After Working Hours

Emergency Control Team-II

SECURITY SUPERVISOR: Mr. Kiran

8.17 Role of Project Manager as Emergency Controller

On being aware of the emergency, the Project Manager will proceed to the Emergency Control Centre Project Manager Room will serve as EMERGENCY CONTROL CENTRE. He will remain at the Emergency Control Centre till cessation of Emergency.

- Assess and evaluate the scale of emergency and activate the emergency plan accordingly.
- Ensure that the emergency services have been called in and where required that nearby firms have been informed. Relevant authorities for public facilities must also be contacted as appropriate.

- Ensure that all key personnel have been called in.
- Inform the necessary External agencies including Senior Management (Executive Director MD/VC/Chairman) on the emergency.
- Exercise direct operational control of those parts of site outside the affected area.
- Liaison with meteorological offices where weather conditions could have a strong influence on the development of the incident.
- Maintain continuous review of possible developments and direct shut down of operations and evacuation of plant in consultation with the incident controller.
- Ensure that casualties are receiving adequate attention. Arrange for additional help if required. Ensure that relatives are advised.
- Liaise with chief officers of fire and Police services, health and safety authorities.
- Provide advice of possible effects on areas outside the works.
- Ensure that personnel are accounted for.
- Liaison with media spokes person in consultation with MD.
- Arrange for chronological record of the emergency to be maintained and ensure that evidence is preserved for enquires conducted by statutory authorities.
- Where the emergency is prolonged, arrange for relief of personnel and the provision of catering facility.
- Control rehabilitation of affected area on cessation of emergency.

8.18 Role of Respective HOD As Incident Controller

It is the duty of the Incident Controller to reach the site of the incident as quickly as possible and assess the situation. He will remain at the incident site till cessation of emergency.

On arrival He will:

- Assess the scale of emergency and send information to the emergency controller.
- Direct to shut down of operations and try to minimize further aggravation of the incident.
- Ensure that all key personnel and help from fire brigade is called for.
- Get the help form other HODs in action at the site.
- Assume duties of Emergency controller until he is in position. In particular ensuring that emergency services and key personnel on site are informed of the situation. Communicate continually with emergency controller and inform all developments as appropriate.
- Conduct search for causalities.
- Liaison with emergency Control Team during the incident and guide the Emergency Officer as required.
- Ensure that any evidence which may be required for further investigations is preserved.

8.19 Role of HOD (SER) as Engineering Co-Ordinator

It is the duty of the engineering Co-ordinator to reach the site of the incident as quickly as possible and assess the situation. He will inform all other HODs to activate them to involve themselves as well as people working under them to reach the site and help the emergency handling team in controlling the emergency. On arrival of incident controller, he will discuss the situation and send information to the emergency controller. He will remain at the incident site till cessation of emergency.

On arrival He will:

- Co-ordinate closes down of operations as requested by the incident controller.
- Arrange for Fire Brigade help.
- Ensure Electrical Team has assumed position at the Electrical control room with his emergency team.
- Ensure workshop Team has assumed position at the pump house with his emergency team.
- Arrange for additional extinguishers, fire hoses, nozzles etc. from time to time.
- Take charge as Incident Controller in his absence.

8.20 ROLE OF SERVICES TEAM

On hearing the emergency siren:

- The following persons should proceed to the Pump House and start the diesel pump if not started by the Security.
- After ensuring, that the Diesel pump has been put on line shall proceed to the Emergency site.
- The following persons shall proceed to Electrical control room &transformer.
- Asst. Manager (Services)
- Electrician & Helper.

They will switch off the power switches.

Upon reaching the Electrical control room and after ensuring that at least one of the above three is available at the Transformer Asst. Manager (Services) along with one of the other two should immediately proceed to the Emergency site at the earliest.

The team should be minimum one, EVEN IF THERE IS A EMERGENCY AT WORKSHOP. The teams as above shall remain in their respective locations till the termination of emergency.

8.21 Role of HOD (P&A) as Emergency Administration Co-ordinator

On becoming aware of the emergency, the AM (P&A) shall proceed to the main gate Security office. He will remain there till cessation of emergency. He will be assisted by the Senior Assistant (P&A) On reaching there he will:

- Obtain the number of people at site.
- Arrange head count of personnel at assembly point, main gate, as well as the personnel at Emergency site. He should inform the Emergency Controller of discrepancy if any.
- Assist Emergency Controller in communicating about nature of assistance required from civic Authorities (District Magistrate's Office)
- Assist emergency Controller in declaring Major Emergency to the Civic authorities like Dist. Emergency Authority.
- Keep necessary transport at the Main gate.
- Direct relief team (selected by him at spot) to proceed to the Emergency site along with first Aid Kits, Stretches, Oxygen etc. under advise of the emergency controller.
- Receive instruction form the Emergency Controller for any assistance from the following authorities.

8.22 Emergency Telephone Nos

Mr. Vinod Kumar Yeleti (PM-MEEPL) ---------- 7338464597

Mr. B.Rao (GM-MEEPL) ---------- 9901991662

Secuirty (MEEPL) ---------- 7338464592

Doctor ---------- 9008582999

Fire ---------- 101

Police ---------- 100

Ambulance---------- 102

8.23 Role of Other Staff

Role of Lab Incharge as Asst. Emergency Controller

On becoming aware of the emergency, the Lab Incharge shall proceed to the emergency control centre. He shall assist the emergency controller in execution of his responsibilities.

Role of Incharge (Accounts & Stores) as Asst Emergency Admin Co-Ordinator

On becoming aware of the emergency, the Incharge Accounts & Stores will proceed to the Main gate. He shall assist the Emergency administration co-ordinator in execution of his responsibility.

Role of Security Incharge

On hearing the Alarm, the Security co-ordinator will rush to the Main Gate. He shall remain there till cessation of Emergency.

- Close Main gate and stop entry / exit of all vehicles other than fire Brigade. Send personnel to the pump house ensure that the diesel pump has started this should be put off on instruction of emergency controller only or cessation of emergency.
- Arrange to park all loaded / partly loaded trucks in a safe place.
  Keep control over the employees assembled near the gate and not allow them to go near the scene of incident

General for All

On hearing the fire alarm, the Supervisor / Assistants / Technicians / Associates in the plant should carry out the following operations immediately as is applicable to them.

- Stop all operations to safe condition.
- Put out all electrical except lighting.
- release employees for emergency jobs
- Ensure that plant operation is started only on cessation of emergency.

8.24 Emergency Control Plan During After Office Hours and Holidays

- Security In-charge is responsible for emergency control till the Works incident controller or emergency Controller has arrived at site.
- Security guard on hearing the fire alarm, will take duties and responsibility of the fire Fighting.
- Asst security Supervisor will act as communication co-ordinator.

8.25 Internal, Official and Residential Telephone Numbers

DEPT.	Contact No	DEPT.	
Project head	7338464597	Civil engineer	9900578339
In-charge (OPR)	7338464594		
In-charge (Security)	7338464592		
Weighbridge	7338464596		
Stores	7338464596		
Landfill	7338464594		
Lab Incharge	7338464597		

8.26 List of First Aid Providers

- Y.Vinod Kumar
- Shiva Shankar
- Pavan

ಈಮೇಲ್ / E-mail : ho@kspcb.gov.in
ವೆಬ್‌ಸೈಟ್ / Website : http://kspcb.gov.in
25581383, 255
25588151, 255
25588142, 255

A – 22

579

Karnataka State Pollution Control Board

"ಪರಿಸರಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ.49, ಚರ್ಚ್‌ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ, ಭಾರತ
"Parisara Bhavana", 1st to 5th Floor, # 49, Church Street, Bengaluru - 560 001, Karnataka, INDIA

No.PCB/WMC/2800/HWM/2018/ 3580 Date: 18 SEP 2019

SANCTION ORDER

Sub:- Evaluation of Design and Layout of Hazardous Waste Landfill Facility of M/s. Mother Earth Environ Tech Pvt. Ltd., Plot No. 217, 2nd Phase, KIADB Indl. Area Harohalli, KanakapuraTaluk, Ramanagara District –reg.

Ref:-
1. KSPCB letter No. PCB/WMC/2800/HWM/2018/1094, dated: 15.05.2019
2. Your letter No. CP 8286/0505/19, dated: 13.06.2019.

****

With reference to the above, it is to be informed that M/s. Mother Earth Environ Tech Private Limited (MEETPL), Plot No. 217, 2nd Phase, KIADB Indl. Area Harohalli, KanakapuraTaluk, Ramanagara District is an existing Common Hazardous Waste - Treatment, Storage & Disposal Facility (CHW-TSDF). The said TSDF has obtained Environmental Clearance as per the EIA Notification, 2006 from SEIAA, Karnataka and consent and authorization under the Water (Prevention & Control Of Pollution Act, 1974, the Air (Prevention & Control Of Pollution Act, 1981 and the Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016 from Karnataka State Pollution Control Board.

The CPCB vide letter dated 22.02.2019 and 07.06.2019 has informed the KSPCB to re-examine the design and layout approved by KSPCB through reputed institute i.e. IISc, Bangalore.

The Karnataka State Pollution Control Board vide ref. (1) has requested the IISc, Bangalore to inform willingness to take up the above work. The IISc vide ref. (2) has submitted the willingness to take up the work at a cost of Rs.1,00,000/- + GST of Rs. 18,000/- = 1,18,000/- (Rupees One Lakh Eighteen Thousand Only).

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Hence, the order

ORDER

The Karnataka State Pollution Control Board hereby releases Rs.1,00,000/- + GST of Rs. 18,000/- = 1,18,000/- (Rupees One Lakh Eighteen Thousand Only) to the Indian Institute of Science, Bangalore to carryout Evaluation of Design and Layout of Hazardous Waste Landfill Facility of M/s. Mother Earth Environ Tech Pvt. Ltd., Plot No. 217, 2nd Phase, KIADB Indl. AreaHarohalli, KanakapuraTaluk, Ramanagara District with the following conditions.

1. The Indian Institute of Science, Bangalore to Evaluate Design and Layout of Hazardous Waste Landfill Facility of M/s. Mother Earth Environ Tech Pvt. Ltd., Plot No. 217, 2nd Phase, KIADB Indl. Area Harohalli. KanakapuraTaluk, Ramanagara District including garland drain along the cells of TSDF, maintenance of 33% green belt and required Infrastructure as per CPCB guidelines.

2. The scope of work also included
   i. Additional design measures requirement for the TSDF siting in the restricted area.
   ii. Adequacy of the sizes / capacity of various required infrastructure.

3. The Indian Institute of Science, Bangalore shall submit the report to the KSPCB within one month.

Sd/-
MEMBER SECRETARY

To,
The Chairman
The Indian Institute of Science,
Centre for Scientific and Industrial Consultancy
Bangalore -560 012

Copy to:
1) The Chief Finance Officer, KSPCB Bangalore for information and to take necessary action to release of Rs.1,18,000/- (RupeesOne Lakh Eighteen Thousand only) to IISc, Bangaore.
2) The Member Secretary, Central Pollution Control Board, Parivesh Bhavan, East Arjun Nagar,New Delhi -110 032 for information.
3) The Regional Director, Central Pollution Control Board, South Zone Office, Nisarga Bhavan, Thimmaiah Main Road, Bangalore -10

581

4) The Regional Senior Environmental Officer, **Bengaluru South** for information.

5) The Regional Officer, **Ramanagar** for information.

6) The Occupier, M/s. Mother Earth Environ Tech Pvt. Ltd., Plot No. 217, 2nd Phase, KIADB Indl. Area Harohalli, Kanakapura Taluk, Ramanagara District. Further, the project proponent shall pay to the Board Rs.1,00,000/- + GST of Rs. 18,000/- = 1,18,000/- (Rupees One Lakh Eighteen Thousand Only) within 15 days.

7) Case file.

Senior Environmental Officer

MEEPL

MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

CIN : U93000KA2011PTC059184 +91 80 26712303, Fax : 080-26712305

CHAITRA GROUPS # 2542, 28th Cross, 17th Main, Banashankari 2nd Stage, Bengaluru - 560 070

A-23

Date: - 27.11.2019 582

To

The Additional Director & Head

Waste Management II Division

Central Pollution Control Board

Parivesh Bhawan, East Arjun Nagar,

Delhi-110032.

Kind attention of : Shri Abhey Singh Soni

Sub: - Reply for Directions under Section 5 of the Environment (Protection) Act,1986 issued by Central pollution Control Board, Delhi- reg

Ref: CPCB direction no. F.NO.B-29016(SC)/1(52-II)/18/HWMD/2786-92 dated 13th June 2018.

We acknowledge receipt of E-Mail message dated 22nd November 2019 from your good office along with communication No F No. B-29016 (69-9 to 30) /19 WM-II/ dated 21.11.2019 on the captioned subject.

We acknowledge receipt of the aforesaid communication through the said E-mail message.

In this respect your letter No. F No. B-29016 (69-9 to 30) /19 WM-II dated 28th November 2019 calling hearing of M/s Mother Earth Environ Tech Private limited based on the directions issued by Central pollution Control Board(CPCB) Delhi. we requested good self to CPCB through telephonic discussion and obtained approval for postpone the date to 29th November 2019.

We M/s Mother Earth Environ Tech Private Limited developed TSDF in the designated industrial area and obtained Environmental clearance (EC) as required under Environmental Impact Assessment Notification, from State Level Environment Impact Assessment Authority(SEIAA),Karnataka and consent under Water (Prevention and control) Act, 1974 and the Air (Prevention and control) Act, 1981 and also Authorization under Hazardous Waste (Management ,Handling & Trans boundary Movement)rules,2016 and we obtained Consent to Establishment and Consent to operate.

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली-32
29 NOV 2019
Central Pollution Control Board

info@motherearthenviron.com, motherearthenvirontech@gmail.com
http : www.motherearthenviron.com
SITE : Plot No. 217, 2nd Phase, KIADB Industrial Area, Harohalli, Kanakapura (Tq), Ramanagara District, Karnataka - 562 112.

MEEPL

MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

CIN : U93000KA2011PTC059184 (+91 80 26712303, Fax : 080-26712305
CHAITRA GROUPS # 2542, 28th Cross, 17th Main, Banashankari 2nd Stage, Bengaluru - 560 070

563

As above reference letter

Point b. For Management of leachate generated from secured landfill the fallowing options were decided:1) Solar Evaporation pond 2) Multiple Effect Evaporator(MEE) 3) Spray Dryer of common hazardous waste incinerator 4) Effluent treatment Plant

Status :- Mother Earth Environ Tech Private Limited has a system for the pre-treatment of the Leachate and then sent to the Common Effluent Treatment Plant (CETP) for further treatment and disposal as per the condition given to us in the Consent to Operate issued by the KSPCB under the Water (Prevention & Control of Pollution) Act 1974.Moreover we would like apprise the CETPS receiving effluent from us having sufficient capacity of MEE and spray dryer of Common Hazardous Waste Incinerator Facility.

As above reference letter

Point a. For Stabilization of hazardous waste for secured landfilling

i) **Installation of mechanized cover system having arrangement of waste conveyor system,mixing unit with mechanized mixing arrangement, suction duct/hood,Scrubber system and stack (or)**

ii) **Stabilization in pit by mixing with excavator/backhoe loader having hood over the pit with adequate suction arrangement (to arrest dust /fumes)followed by scrubber and stack.**

Status:-Mother Earth Environ Tech Private Limited has adequately sized pit with excavator/ backhoe loader in place. The mixing is done in the pit with adequate moisture content in the mixture to avoid emissions. We have sent request letters to CPCB vide letters dated 25.06.2018, 20.07.2018, 14.09.2018, 21.09.2018, 05.10.2018, 12.11.2018, 06.12.2018 and 11.12.2018 enclosing our design to advice on the type of extraction system to be implemented for that we are not received any response from CPCB. However with best of our knowledge decided to go with the extraction system followed by the scrubber and stack arrangement supplied by M/S Yansons Engineering Pvt Ltd from Pune and have procured the same and completed the installation.

We are operating MSME unit and have been doing our best in field of environmental protection. Accordingly we would request your good self to acknowledge our replay and do the need full.

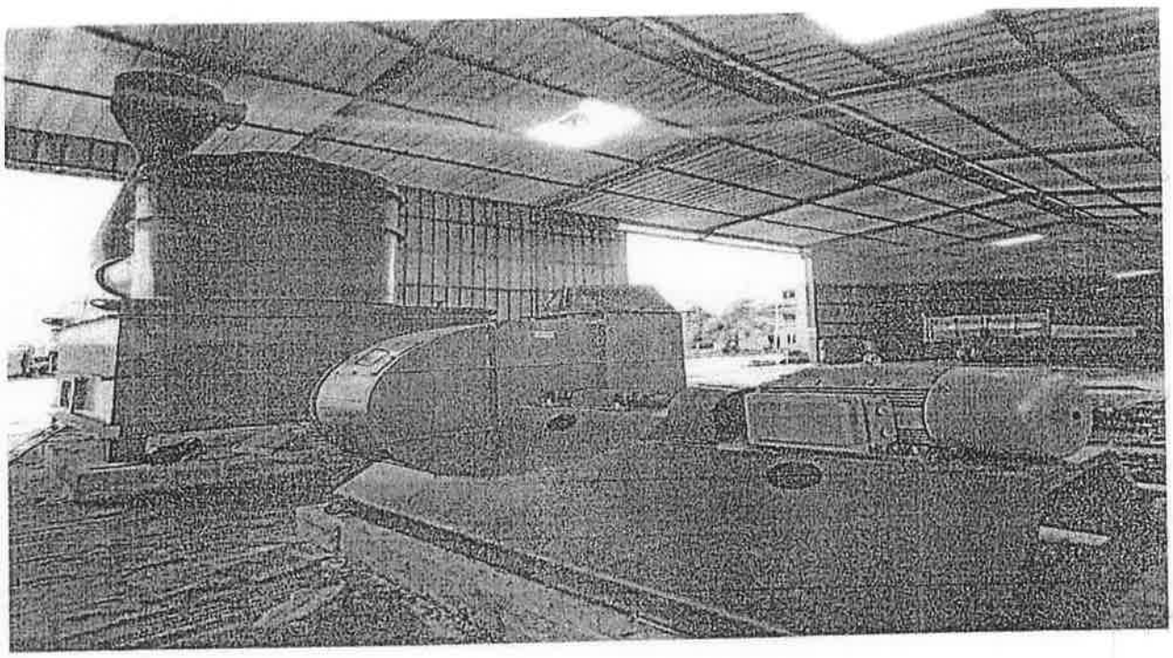
Thanking you,

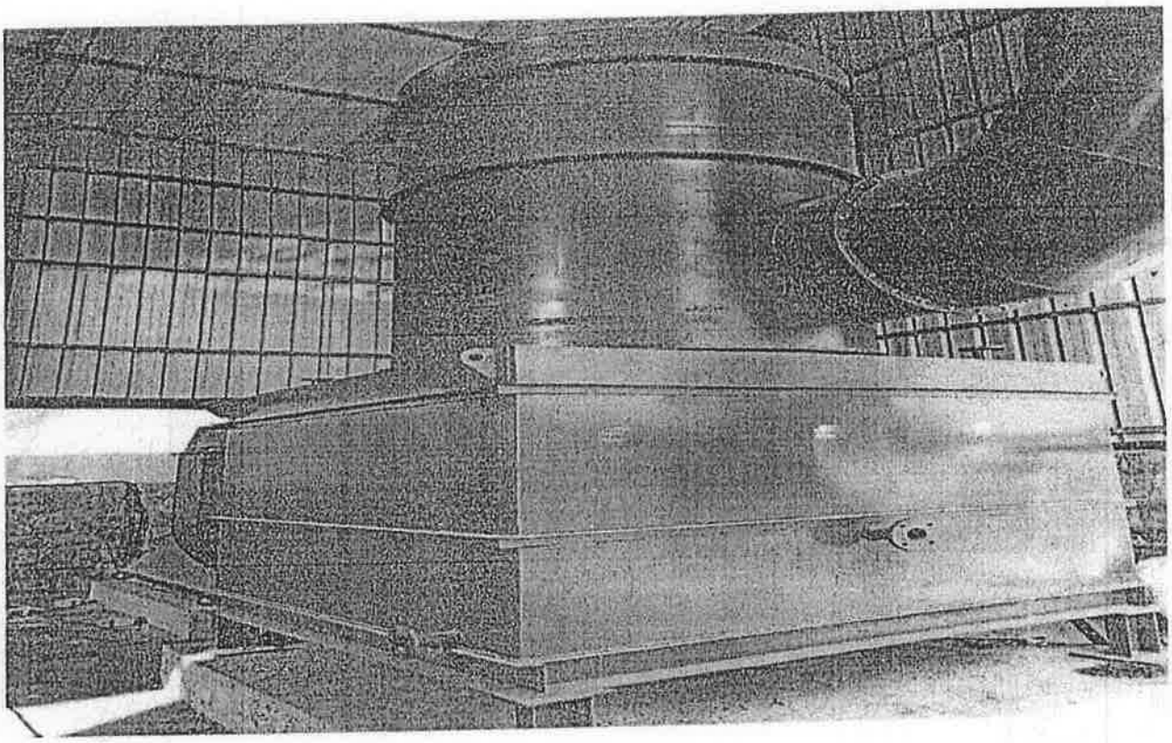
Yours faithfully,

For Mother Environ Tech Private Limited

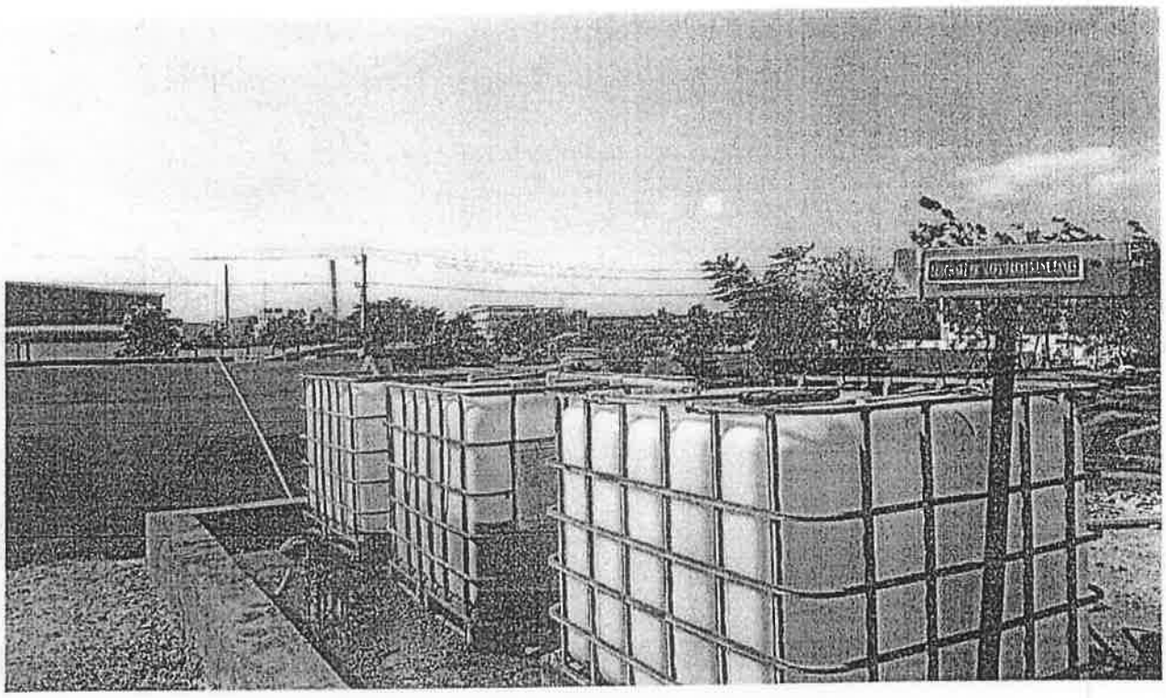
info@motherearthenviron.com, motherearthenvirontech@gmail.com
http://www.motherearthenviron.com
SITE : Plot No. 217, 2nd Phase, KIADB Industrial Area, Harohalli, Kanakapura (Tq), Ramanagara District, Karnataka - 562 112.

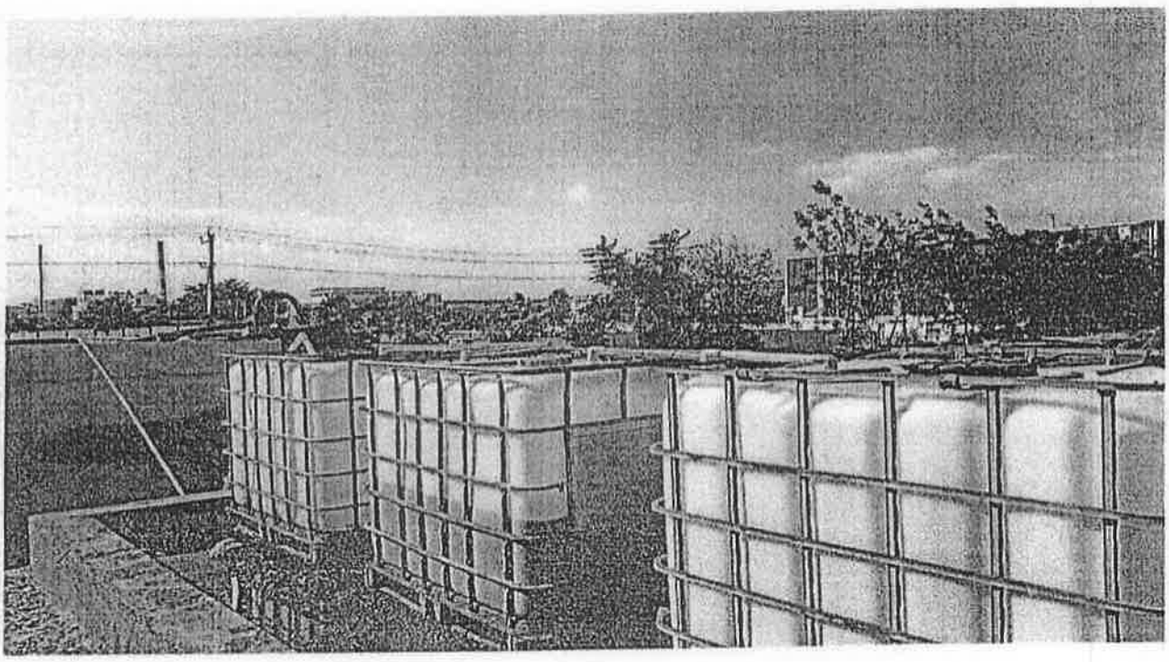
Scrubber Installation Photos :-





Primary Treatment Photos :-





MEEPL

MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

CIN : U93000KA2011PTC059184 +91 80 26712303, Fax : 080-26712305

CHAITRA GROUPS # 2542, 28th Cross, 17th Main, Banashankari 2nd Stage, Bengaluru - 560 070

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A-24

MEEPL/LAB/19-20/058
Date: 27th January, 2020

To

The Additional Director & Head

Waste Management II Division

Central Pollution Control Board

Parvesh Bhawan, East Arjun Nagar,

Delhi- 110032.

Kind attention of: Shri Abhay Singh Soni

Sub: - Submission Report for Directions under Section 5 of the Environment (Protection) Act, 1986 issued by Central pollution Control Board, Delhi- reg

Ref: CPCB direction no. F.NO. B-29016(SC)/1(52-II)/18/HWMD/2786-92 dated 13th June 2018.

We M/s Mother Earth Environ Tech Private Limited Developed Treatment Storage Disposal Facility (TSDF) in the designated industrial area and obtained Environmental clearance (EC) as required under Environmental Impact Assessment Notification, from State Level Environment Impact Assessment Authority (SEIAA), Karnataka.

We obtained consent under Water (Prevention and control) Act, 1974 and the Air (Prevention and control) Act, 1981 and also Authorization under Hazardous Waste (Management, Handling & Trans boundary Movement) rules, 2016 and we obtained Consent to Establishment and Consent to operate.

In this respect, we submit our clarifications along with point wise action taken report in respect of the Observations/ Directions issued as under:

CC TO : ADDITIONAL DIRECTOR , REGIONAL DIRECTOR

REGIONAL DIRECTORATE,CPCB , BANGALORE-79

31/1/2020

CENTRAL POLLUTION CONTROL BOARD
MINISTRY OF ENVIRONMENT FORESTS &
CLIMATE CHANGE, GOVT OF INDIA
REGIONAL DIRECTORATE (SOUTH)
1ST & 2ND FLOOR, 'NISARGA BHAVAN'
7TH 'D' MAIN, THIMMAIAH ROAD,
SHIVANAGAR BENGALURU

info@motherearthenviron.com, motherearthenvirontech@gmail.com
http://www.motherearthenviron.com
SITE : Plot No. 217, 2nd Phase, KIADB Industrial Area
Harohalli, Kanakapura (Tq.), Ramanagara District,
Karnataka - 562 112.

MEEPL

MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

CIN : U93000KA2011PTC059184 ✆ +91 80 26712303, Fax : 080-26712305

CHAITRA GROUPS # 2542, 28th Cross, 17th Main, Banashankari 2nd Stage, Bengaluru - 560 070

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As above reference letter

SN	Directions Issued	Our Compliance
1	Point a. For Stabilization of hazardous waste for secured landfilling i) Installation of mechanized cover system having arrangement of waste conveyor system, mixing unit with mechanized mixing arrangement, suction duct/hood, Scrubber system and stack (or) ii) Stabilization in pit by mixing with excavator/backhoe loader having hood over the pit with adequate suction arrangement (to arrest dust /fumes) followed by scrubber and stack.	Done. Scrubber & Stack System Installation completed. Mother Earth Environ Tech Private Limited has adequate size of stabilization pit with excavator/ backhoe loader in place. The mixing is done in the pit with adequate moisture content in the mixture to avoid emissions and gases Passes through scrubber and stack Emissions. (Photos are attached)
2.	Point b. For Management of leachate generated from secured landfill the fallowing options were decided:1) Solar Evaporation pond 2) Multiple Effect Evaporator (MEE) 3) Spray Dryer of common hazardous waste incinerator 4) Effluent treatment Plant	Done. Primary Treatment Plant has been installed. Mother Earth Environ Tech Private Limited has a system for the pre-treatment of the Leachate and then sent to the Common Effluent Treatment Plant (CETP) for further treatment and disposal as per the condition given to us in the Consent to Operate issued by the KSPCB under the Water (Prevention & Control of Pollution) Act 1974. (Photos are attached)

We have operating MSME unit and followed the Directions Issued by CPCB are clarified from our end.

Thanking you,

Yours faithfully,

For Mother Environ Tech Private Limited

Director

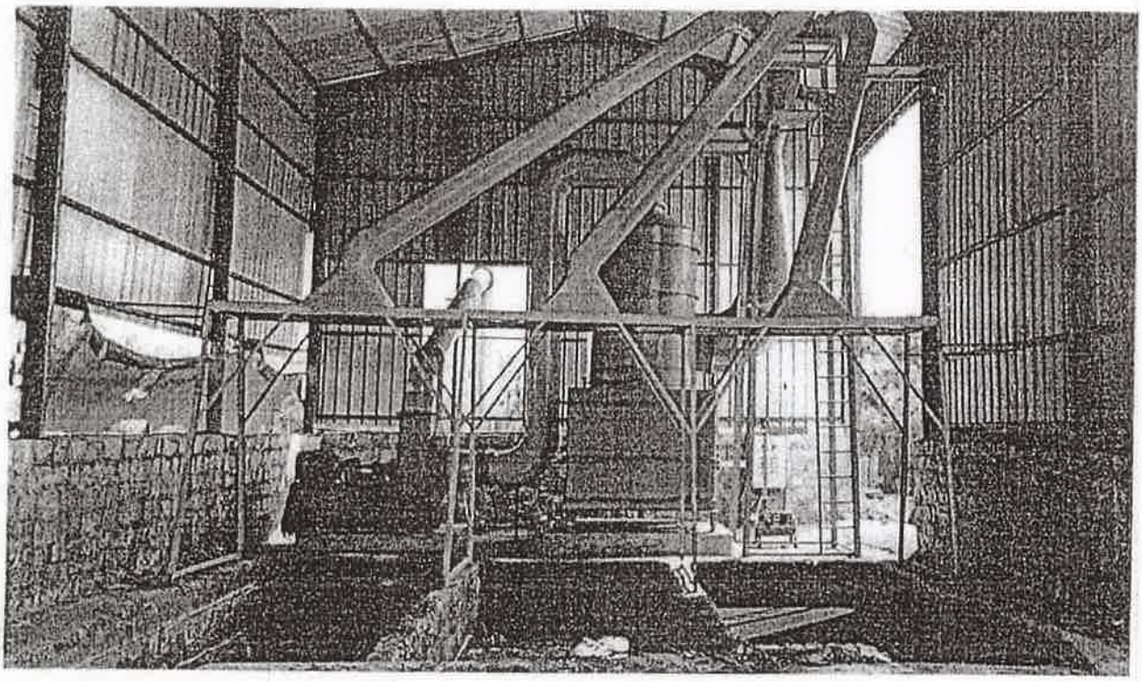
Mother Earth Environ Tech Pvt. Ltd. Harohalli

CC TO : ADDITIONAL DIRECTOR , REGIONAL DIRECTOR

REGIONAL DIRECTORATE,CPCB , BANGALORE-79

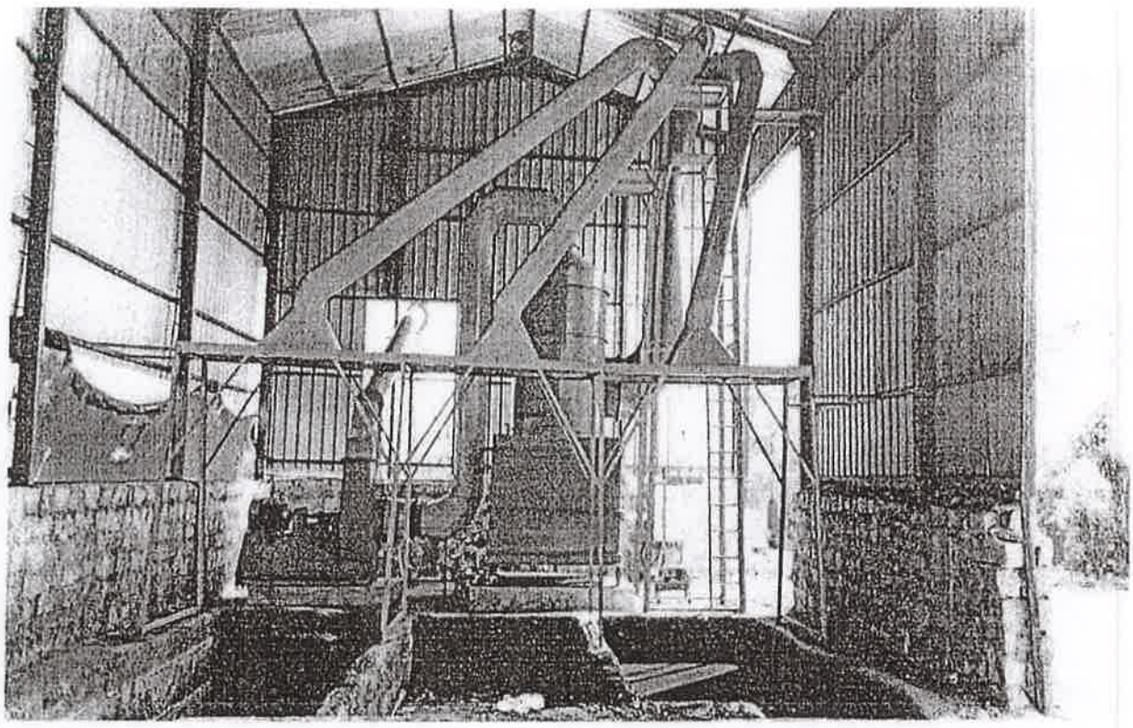
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Scrubber Photos :-

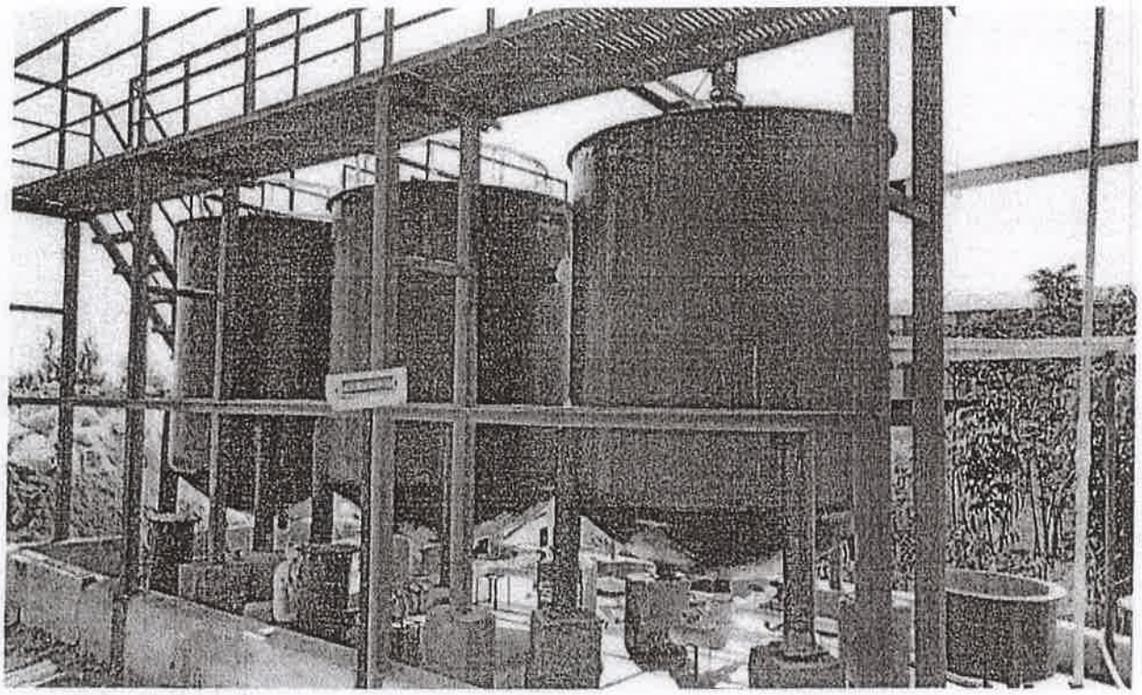


CC TO : ADDITIONAL DIRECTOR , REGIONAL DIRECTOR

REGIONAL DIRECTORATE,CPCB , BANGALORE-79

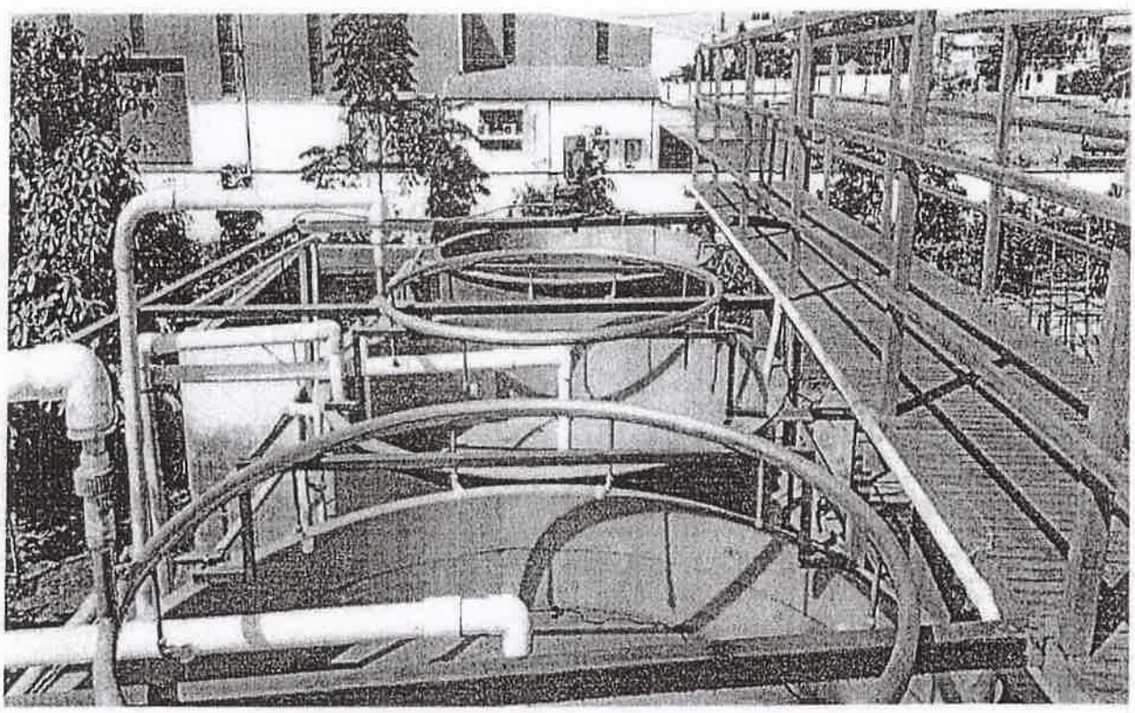


Primary Treatment Plant Photos :-



CC TO : ADDITIONAL DIRECTOR , REGIONAL DIRECTOR

REGIONAL DIRECTORATE,CPCB , BANGALORE-79



CC TO : ADDITIONAL DIRECTOR , REGIONAL DIRECTOR

REGIONAL DIRECTORATE,CPCB , BANGALORE-79

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MEEPL	MOTHEREARTHENVIRONTECHPRIVATE LIMITED OPERATIONS WORK INSTRUCTION		Doc No.	MEEPL/SOP/OPR-005
	OPERATING OF PRIMARY TREATMENT PLANT		Issue / Rev	00/00
	Effective Date	05.03.2020	Page No.	1 of 2

1. **Purpose:** The purpose of this standard operating procedure is to describe the procedure for Operating of Leachate Primary Treatment Plant.
2. **Principle:** Tank-1=Fenton reaction; Tank-2=Coagulation; Tank-3=Settling.
3. **Safe handling instructions:** Use hand gloves, Nose masks, Goggles & Helmet.
4. **Procedure:**

Step-1: Fill Tank 1 with 5KL of Leachate and start Air blower to give aeration to Tank-1&2.

Step-2:

Chemical dosing process to Fenton treatment in Tank-1: Add HCL and adjust the pH (near 3-4), Add 250 g of FeSo4 by mixing with 10L to 20L of Water, Add 120 kg of H_2O_2 using dosing pump and use antifoam to arrest foaming.

Step-3:

Fenton Reaction process for COD reduction in Tank-1: Keep the recirculation and aeration for 4 Hours.

Step-4:

Coagulation Process in Tank-1: Add Lime by mixing with water to adjust the pH 8-9, Add alum by mixing with water. Then slowly Transfer effluent to Tank-2; record the effluent quantity using flow meter.

Step-5:

Aeration in Tank-2: Feed the effluent to Tank-2 from Tank-1 slowly and allow it for aeration

Step-6:

Settling in Tank-3: Sludge will settle in bottom of tank-3. Transfer the settled sludge to Stabilization bin. Supernatant will be collected to 40KL Temporary Leachate Storage Tank by gravity flow.

Name			
Signature			
Date			
Authorization	**Prepared by**	**Approved by**	**Issued by**

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A-26

Reference Document

on

Identification, Inspection and Assessment of Contaminated Sites

[Based on Guidance document for assessment and remediation of contaminated sites in India, Issued by MoEF&CC]

(June, 2020)

Central Pollution Control Board
(Ministry of Environment, Forest & Climate Change)
Parivesh Bhawan, East Arjun Nagar
Delhi – 110032

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Table-2: Key Icons as per Typology of Contaminated Sites

Table 4.1: Preliminary site investigation survey techniques for quick screening of sites: Basic characteristics and typical application

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Figure 1.1: Flowchart for evaluation of probably contaminated site

Figure-3.1: Flowchart for Identification & Assessment of site investigation

Figure-4.1: Layout of sampling plots for landfill/dumpsites

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Chapter-1

1.1 Introduction

There are several contaminated dumpsites in various parts of country where hazardous and other wastes were dumped historically, which has most likely resulted in contamination of soil, groundwater and surface water thereby posing health and environmental risks. Most of the contaminated sites were created when industrial hazardous wastes were disposed by occupiers in unscientific manner or in violation of the rules prescribed. Some of the sites were developed when there was no regulation on management of hazardous wastes. In some instances, polluters responsible for contamination have either closed down their operations or the cost of remediation is beyond their capacity, thus the sites remains a threat to the environment. These contaminated sites need to be investigated in detailed and remediated on priority, to levels that are acceptable considering the human health risks and environment by adopting appropriate remediation technologies.

Contaminated sites may include production areas, landfills, dumps, waste storage and treatment sites, mine tailings sites, spill sites, chemical waste handler and storage sites. These sites may be located in residential, commercial, agricultural, recreational, industrial, rural, urban, or wilderness areas. This document deals with different types of contaminated sites in India. Various elements of the assessment process as described in this guideline can be used for remediation of different types of contamination.

Remediation of contaminated sites involves cleaning of contaminated media i.e. soils, groundwater, surface water and sediments by adopting various in-situ or ex-situ clean-up technologies up to a predefined remediation target levels for each identified constituent. Site specific target levels (SSTLs) for remediation are calculated for each site separately adopting either the risk based assessment approach or standard based approach. Risk based SSTLs for remediation can be derived from either quantitative or qualitative human health risk / ecological risk caused by a particular constituent of concern based on source-pathway-receptor scenario of contaminated site.

Various factors influence the selection of remediation technology, such as cost of remediation, type of intended future land use, feasibility of a remediation technology, etc. Technology for remediation is decided after considering all factors. While the legal aspects of the origin of a contaminated site may or may not be clear, the technical issues concerning disposal or dumping remain same for legal or illegal contamination.

1.2 Waste Vs Soil contamination

Uncontrolled dumping of waste and absence of remedial measures leads to soil contamination when it leaches and negatively affects soil or groundwater or other environmental features. Not all wastes automatically lead to soil contamination.
"Soil" is the upper layer of earth comprising of black or dark brown material typically consisting of a mixture of organic remains, clay, and rock particles. In the context of understanding soil contamination, soil is considered to comprise three phases, including the organisms living in these phases:

- *Solid phase, consisting of the sand, loam, and clay particles, but also including the organic solid elements, like decomposing leaves;*
- *Liquid phase, consisting of the groundwater; and*
- *Gaseous phase, consisting of the air trapped among the soil particles.*

Underwater soil is usually referred as 'sediment'.

Soil contamination can occur in any of these three phases or in any combination thereof. Contamination of the solid phase may be visible; e.g. when hazardous waste has been dumped on top of the soil; or not visible, e.g. when dumped waste was covered. However, contamination of the liquid and gaseous phase is often not clearly visible, and almost always entails specific, sometimes far greater, risks. Factors such as surface run-off, usage, movement, etc. over the contaminated soil often spread the contamination relatively fast, thereby it may contaminate larger volumes of soil, groundwater or air.

1.3 Typology of Contaminated Sites

The following main types of contaminated sites are distinguished based on causing activity and pathway of spreading of contamination:

Source related;

- **Type S-1** : Land bound solid phase contamination
- **Type S-2** : Water bound sediments solid phase contamination
- **Type L-1** : Land bound liquid phase contamination

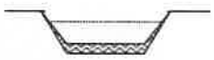
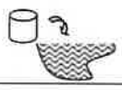
Pathway related;

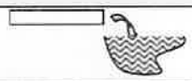
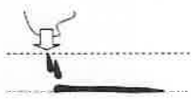
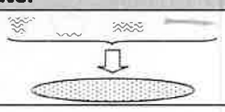
- **Type P-1** : NAPL contaminants in soil (Non Aqueous Phase Liquids)
- **Type P-2** : Groundwater contamination

The sites can be further classified as per the **Table-1** below:

Table-1: Typology of Contaminated Sites

Type	Description or activity along with typical field characteristics of the site / example	Symbol
S-1	**Land bound Solid phase contamination (land bound site)**	
S1-a	Mixing the soil with wastes or materials containing constituents	

Type	Description or activity along with typical field characteristics of the site / example	Symbol
	of contamination*, not including agricultural activities. Well defined body below surface level defined by boundaries of soil where soil is mixed with contaminants. E.g. This may occur when material containing contaminants are spread over soil and ploughed to mix with soil.	
S1-b	Dumping of wastes or materials containing constituents of contamination over the soil into embankment, filling of pits or depressions or surface waters. Well defined body of non-mixed contaminants. E.g. storage of mine tailings, illegal dumping of hazardous wastes.	
S1-c	Bulk storage of wastes or materials containing constituents of contamination. Industrial activities in which contaminated solids are used. Leftovers of incineration and burning of waste material. Irregular shaped layer of contaminated material, recognizable as such. The shape of the contaminated site is related to the activity leading to the contamination	
S1-d	Adding material containing contamination through agricultural activities (e.g. pesticides, fertilizers or additives to animal feed). Agricultural site bound contaminations found up to a depth to which the soil is treated by ploughs and other agricultural tools.	
S1-e	Atmospheric deposition of emissions or windblown dust including fugitive dust from industries/roads/railways. Thin layered contaminations found over large areas with the highest concentrations close to the source following the prevailing wind direction.	
S1-f	Deposition by flooding or washing. Contaminations found in areas flooded by water systems or in downstream areas of flooding areas. The shape of the contaminated site is determined by the flooding of flow of a water system	
S-2	**Contaminated open water sediments**	
S2	Solid phase contaminants settled from surface water. The shape of the contaminates site corresponds to the shape of the water system itself. Constituents of contamination may be bound to silt, clay or organic compounds of sediments.	
L-1	**Liquid phase contamination* (land bound site)**	
L1-a	Industrial or commercial activities involving handling of fluids such as solvents, lubricants, paint, etc. Liquid contamination in soil situated near a potential source of the contamination.	
L1-b	Storage of liquids that contain contaminants in tanks or barrels (either storage on surface or subsurface). Liquid contamination in soil situated at any place at a liquids storage site.	
L1-c	Transfer and transport of fluids through linear infrastructure such as pipelines, channels. Weak points are couplings, pressure regulators, valves, breakpoints and leakage through foundations / buildings. Liquid contamination in soil situated at any place along a transport piping system or drains.	
L1-d	Spills or leaks of liquids either on surface or in rivers/lakes. This	

Type	Description or activity along with typical field characteristics of the site / example	Symbol
	may possibly lead to type S2 or P2. Liquid contamination in soil situated at the end of a transport piping or drain system	
P-1	**NAPL contaminants in soil**	
P1-a	Dense Non-Aqueous Phase Liquid (DNAPL) in permeable soil where bulk density is more than that of water; Spreading of liquids due to gravity flow resulting in a characteristic spreading pattern. It should be noted that DNAPL's laying of the bottom of an aquifer can result in a secondary source of spreading of type P-2	
P1-b	Light Non-Aqueous Phase Liquid (LNAPL) in permeable soil. (bulk density < water); Spreading of liquids in a characteristic spreading pattern of floating layers. It should be noted LNAPL's laying at the top of a water table can result in a secondary source of spreading of type P-2	
P-2	**Leached or dissolved contaminants in groundwater**	
P2	Groundwater contamination. Due to spreading of leachate or mobile dissolved contaminants in a permeable soil	

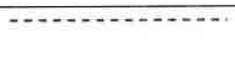
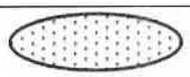
* *Contaminated material may include wastes in Schedule I or the constituents listed in Schedule II of HOWM Rules, 2016. It shall also include constituents listed for screening of contaminated soils as per the guidance document or notification issued by MoEF&CC.*

[a] *A dense non-aqueous phase liquid or DNAPL is a liquid that is both denser than water and is immiscible in or does not dissolve in water. The term DNAPL is used primarily by environmental engineers and hydro geologists to describe contaminants in groundwater, surface water and sediments. DNAPLs tend to sink below the water table when spilled in significant quantities and only stop when they reach impermeable bedrock. Their penetration into an aquifer makes them difficult to locate and remediate. Examples of materials that are DNAPLs when spilled include chlorinated solvents or creosote.*

[b] *Light Non-Aqueous Phase Liquid (LNAPL) is a groundwater contaminant that is not soluble and has a lower bulk density than water, which is the opposite of DNAPL. Once LNAPL infiltrates through the soil, it will stop at the water table. The effort to locate and remove LNAPL is relatively cheaper and easier than DNAPL because LNAPL will float on top of the water in the underground water table. Examples of LNAPLs are gasoline and other hydrocarbons.*

Depending on a specific situation, a contaminated site may have combination of above mentioned types as possible. Example: a land bound storage of chromium containing hazardous waste (type S1), causing leachate of chromium to groundwater and leading to a contaminated groundwater plume (type P2).

Table-2: Key Icons as per Typology of Contaminated Sites

Symbol	Description
	Solid waste or solid waste mixed with soil (all in solid phase). Varying in shape, thickness and extent, depending on local conditions.
	Dashed line: Groundwater table Dotted line: Base of aquifer / top of impermeable layer.
	Liquid waste. Pure or mixed with soil.
	Leaching / spreading of contaminants to soil / groundwater. Depending on permeability of the soil.
	Contaminated groundwater plume. Depending on permeability of the soil.
	DNAPL or LNAPL.
	Spill / leakage of material containing constituents of contamination.
	Related to industrial or commercial process outlets, storage facilities and bulk transfers. (Not soil related human activity / construction)

***

Chapter-2

Identification & Verification of Probable Contaminated Sites

2.1 Introduction

Probable contaminated site is defined as "*Sites with alleged (apparent, purported) but not scientifically proven presence of constituents of contaminants or substances caused by humans at concentrations and characteristics which can either pose a significant risk to human health or the environment with regard to present or future land use plan [pattern] or exceeding specific concentrations or guidelines values prescribed for human health and or the environment*"

A probable contaminated may be identified upon collection of information based on any site investigation reports, regulatory records, petitions, public complaints, new reports, etc. A site inspection would be necessary for verification and evaluation of the obtained information.

2.2 Verification Activities

The process of identifying and verifying a probable contaminated site often necessitates the involvement/interaction with local residents & officials, workers, local complainants, stakeholders, and local environmental NGOs including environment and health experts, who may have detailed knowledge of the history of a site and waste dumped at the site or transported to other locations that also may have become contaminated.

Verification of data can be done by collecting information independently from the person or organization responsible for submitting the original petition, report or complaint. Often, a brief site visit may be beneficial to enable a visual verification of the situation by the reviewing team. Interviewing relevant stakeholders usually yields information that will supplement previously collected data.

Probable contaminated sites may be identified without specialized technical equipment by the following means:

- Visual observation of the site conditions or attendant contaminant sources;
- Visual observation of manufacturing or other operations known to have used or emitted a particularly hazardous contaminant;
- Observed adverse effects in humans, flora & fauna presumably caused by the proximity to the site;

Once the appropriate data has been obtained and verified, an evaluation assessment of whether or not the site qualifies as a '*Probable Contaminated Site*' may be undertaken.

The evaluation is visualized in the flowchart below:

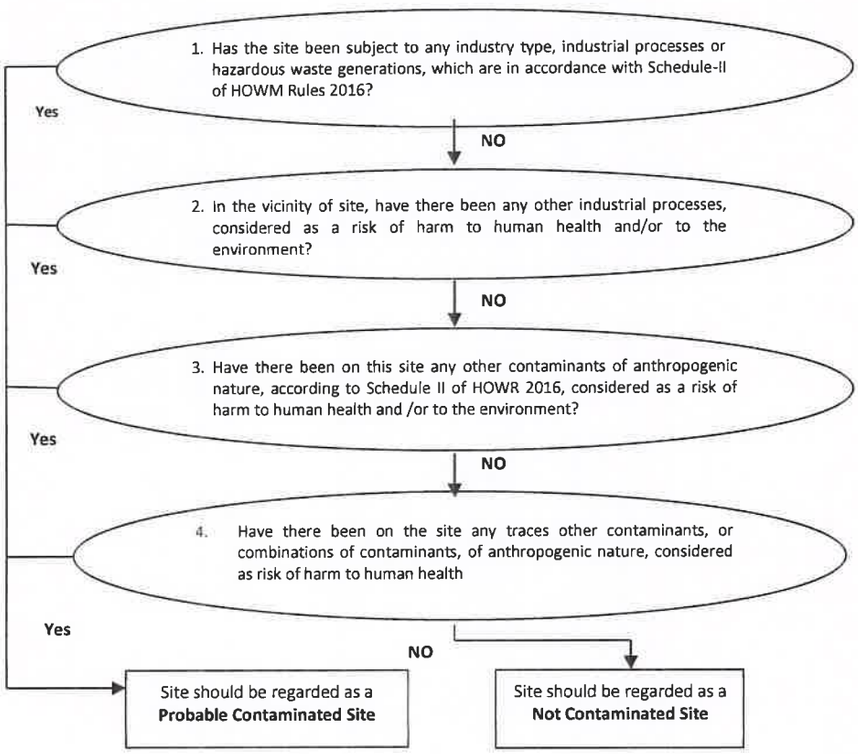


Figure-1.1: Flowchart for evaluation of probably contaminated site

2.3 Outcome

Outcome of the assessment, i.e. identification & verification of the site is to record the conclusion as to whether or not the site is regarded as a probably contaminated site. If so, a preliminary site investigation would be required. If the site does not qualify as a probable contaminated site, it is not necessary to continue Preliminary investigation.

***

Chapter-3

Preliminary Site Investigation

3.1 Introduction

The purpose of preliminary site investigation is to establish whether or not a site should be regarded as a contaminated site as defined below:

"Contaminated sites are delineated areas in which the constituents and characteristics of the toxic and hazardous substances, caused by humans, exist at levels and in conditions which pose existing or imminent threats to human health and/or the environment".

3.2 Objectives

(i) To identify the potential for past or current uses & activities at the site and in the immediate vicinity of the unit to have caused contamination of land and groundwater at the site.

(ii) To identify all sources of contamination and the relevant pathways linking them to the receptors of concern.

3.3 Activities during Preliminary Site Investigation

i) Desk study

Desk study shall be carried out on the available information of the site. Information in reports and petitions is assessed and new information shall be inventoried. It is required to have as much information as possible concerning the history and land use both on-site and off-site. The data review may identify gaps in the available data. Additional information can be obtained from maps, data bases or governmental information. The available reviewed information and the newly collected information can be summarized in a table and information gaps should be indicated before the site inspection is carried out.

Based on all the compiled information a work plan should be devised prior to site inspection. The work plan should include all reconnaissance activities and identify the specific information to be collected.

ii) Site inspection

Site inspection is to be carried out to verify the information of desk study and to prepare a plan for sampling and testing. During site inspection information is obtained to fill the gaps and existing available information is to be verified (refer ***Section-3.4***). If possible photographs should be taken. The site inspection needs to be prepared by arranging access to the site and in consultation with important stakeholders. Furthermore, equipment, e.g. for sampling, needs to be prepared. The information gathered during the site inspection should be summarized in tables and a sketch map should be drawn showing the principal recorded occurrences and expected sources of contamination the main exposure and migration pathways of pollutants and the locations of receptors.

iii) Investigation strategy

The potential sources, pathways and receptors of concern should be established based on previous reports or petitions, maps, records, aerial photographs and interviews with owners or other informed parties. At the locations where main sources of contamination and relevant pathways to possible affected receptors are expected limited sampling and testing is to be carried out. During activities of the fieldwork, focus on locations where the highest contaminant concentrations have been expected and the locations of the most sensitive land use. Need to also understand the lateral vertical extent of impact to soil and groundwater.

If additional site specific information is available, the general type can be made more site-specific by developing a Conceptual Site Model (CSM). The CSM supports the investigator to visualize the possible sources, pathways and receptors relevant at the site.

Based on the investigation strategy an investigation work plan shall be prepared, regarding assessment of the contamination levels of the source and identification of the major pathways and receptors of concern. This work plan should pay attention to the following elements:

a) Sampling pattern

Knowledge of the possible location of contamination sources is important for defining the sampling pattern. Small areas where contaminated material is concentrated in one place (point source contamination) can be investigated during the preliminary site investigation by a few representative samples collected from one or two exploratory excavations.

In case contaminated material is spread over a large area it is necessary to use a pattern of samples to collect representative information of the contaminated site.

b) Sampling protocol as well as screening and response level for contaminants with respect to contaminated site

- **Determination of background levels:**

  Soil samples for determining background level should be collected from 2 different locations (separated by minimum distance of 500 m) each at 3 orthogonal directions (excluding downstream direction) at a distance beyond 2 km from the contaminated site boundary. If the contamination is observed at the investigation background site during, or prior to determination of background levels, then sampling location should be selected beyond 5 km distance. Depth of the sampling (Background levels) should be at the same intervals as adopted for the contaminated site.

- **Determination of contamination levels:**

  A minimum of 5 locations in plan (4 near the corners/perimeter), and one at the centre of the probable contaminated area in plan would be taken up. For large areas (e.g. 500 m x 500 m or more) where spacing between sampling locations would exceed 150 m, intermediate locations would be also identified (preferably in a square grid of 150 m X 150 m). For diffused contaminated area, number of samples should be proportional to

the area of contaminating activity and sampling points should be spread enough to represent the area.

Sampling will be done at each location at the depths of 0.5, 1.5 and 3.0 m respectively in boreholes or pits (dry drilling methods). If probable contamination is deeper or has reached ground water, sampling will be done in boreholes after 3.0 m depth at every additional 1.5 m depth. Sampling below water table will be done by dry drilling methods followed by undisturbed soil sampling. When boreholes are being advanced, a trained geologist should be present on-site to prevent vertical or lateral cross contamination.

Undisturbed soil samples (whole samples) will be collected in stainless steel sampling tubes (or sampling tubes with inner liner) with a diameter between 25 to 100 mm (or equivalent), which are pushed or driven into the soil. Sampling tubes will be sealed at both ends (with the caps) at the field when tubes are withdrawn from the soil. These sealed tubes wili be de-sealed for testing in the laboratory.

If probable source of contamination is observed on site, or nearby area such as accumulation of solid waste or effluent discharge point atleast 3 samples will be collected and analyzed.

- **Groundwater sampling and analysis:**

Groundwater sampling and analysis shall be done at the site if water table is encountered within depth of 25 m; 3 samples will be taken after successive purging. If groundwater table is deeper more than 25 m, then groundwater sampling should be done by collecting samples at each nearby existing borewell/monitoring well within a radius of 2 km. Installation of groundwater monitoring wells is necessary to establish groundwater flow direction and gradient.

- **Surface water analysis:**

Surface water quality should be examined by collecting and analyzing at least 3 samples each from water bodies (such as stagnant, flowing/drain/pond etc.) located within the range of 1 km from the contaminated site.

- **Sediment sampling:**

(i) To collect a sediment sample from a water body or other surface water conveyance, following methods can be used:
  - Scoops and spoons
  - Dredges (Ponar, Young)

(ii) Samples will keep in several pp-zipped packs/ wide mouth glass bottles.

(iii) If the total VOC concentration in the sediment is expected to be less than 200 µg/kg, the samples may be collected directly with the sampler and the sample must be placed in the sample container (40 ml pre-prepared vial*) immediately to reduce volatilization losses.

*[*The pre-prepared 40 ml vials should contain 10 ml of organic-free water for an un-preserved sample. It is recommended that the 40 ml vials be prepared and weighed by the laboratory.*

- **Quality assurance/Quality control:**

  Collect duplicate and split samples along with a field blank sample. For the quality assurance, Certified Reference Materials (CRM) for the analysis of soil parameters should be used, wherever these are required and available.

There are some additional aspects that should be taken into account when developing a sampling strategy for a specific site:

- Restrictions for investigation such as buildings, subsurface infrastructure and site boundaries;
- If possible some samples should be obtained for identification of background quality of soil, groundwater, sediment or surface water which has not been influenced by this particular contamination;
- Samples of groundwater may be obtained from selected existing observation wells in the aquifer beneath the surface of the site, for monitoring water level elevation and water quality at appropriate locations. The depth of the well and the filter (if any) should be known. If there is data from previous sampling or level measurements it is important to know the frequency and period relating to the hydrological environs (influence of monsoon).

c) Parameters for laboratory testing

The parameters significant for the investigation can be selected based on:

- Previous industrial operation processes or waste generation, discharges or disposal activities.
- Specific observations during site inspection and field work of signs which indicate contamination not related to the above mentioned activities.
- It is always recommended to test some samples for a broad spectrum of parameters (refer ***section-3.5***). As it is possible that there may have polluting activities at the site those are either unknown or not documented. Such activities may possibly cause contamination with different characteristics compared to the known activities.

iv) Fieldwork, sampling and testing

An initial assessment of contamination present at the site may be ascertained from samples taken during the site inspection. These samples should be obtained from locations where the main sources of pollution are expected, and at locations within migration pathways. Because only a limited number of samples are obtained, the sample locations should be well chosen, and guidance for possible locations for sampling of sources and pathways:

- Visual indication of cause of pollution such as the presence of (former) industrial process equipment, storage tanks, broken pipelines, etc;
- Visual evidence of hazardous material by means of colour or odour or the composition of material, or uneven ground surface;
- Reported location with confirmed high concentration levels in previous sampling results;

- Where an incident (spill / uncontrolled release) has occurred identified by a former employee of a company;
- Areas which can easily be accessed by humans and areas of sensitive use (residential, playground, agriculture);
- Drinking water wells downstream of the site (to collect groundwater samples to assess if this pathway is contaminated);
- Surface water at or near the site if expected to be contaminated by hazardous waste material;
- At discharge points with noticeable contamination an effluent sample should be taken;
- In cases of sites with effluent discharges a 'source sample' should also include a sample of the sediment.

The samples should be tested in a laboratory to assess the levels of contamination in the sample. Laboratories should operate in accordance with specific accreditation criteria.

The parameters for determination within each sample scheduled for analysis will depend on the hazardous waste material potentially present. For the various activities representative tracer components have been described. The tracer components can be seen as components of concern. If there is existing information about contaminants from previous investigations, this information should be used to select tracers. It has to be stated that not all the listed tracers necessarily have to be analysed at a site, but the list can be used as a starting point for the assessing analysis program at a specific site.

The descriptions should be accompanied by sketches of the site (location of sources, dimensions, distances to receptors, significant site features, with marking of north and scale. The locations of exploratory holes should preferably be indicated by XYZ- coordinates, using GPS.

v) Comparing testing results with levels/standards

The laboratory test results should be tabulated and recorded in terms of concentration levels for each parameter / substance per sample. Analysis results to be compared with the Screening & Response levels/standards, (if applicable) and a conclusion are drawn as to whether or not the site should be regarded as a contaminated site.

All the above activities are illustrated as flowchart at **Figure-3.1** for the comparison of concentration levels with Screening and Response levels. In some areas the natural background levels may be higher compared to the Screening levels, e.g. the natural background levels of metals and other inorganic chemicals can vary widely and this should be taken into account when applying the Screening levels. Where it can be demonstrated that natural background concentrations are elevated (e.g. heavy metal concentrations in mineralized areas), it would be appropriate to develop less stringent assessment criteria. However, care needs to be taken when historic mining and/or waste disposal activities may influence establishing the level of the natural background.

vi) Reporting and review

Details of all activities shall be carried out, the results of the preliminary site investigation should be included in the site investigation report. In the preliminary site investigation report all major sources, pathways and receptors of concern should be identified. It is significant to recognize if there are indications of on-going hazardous waste generation or fresh waste disposal or discharge on the site.

Furthermore, the initial Conceptual Site Model (CSM) should be reviewed and probably adjusted based on the results of the preliminary site investigation. If enough data is available groundwater level contour maps may be developed in order to indicate the groundwater flow direction. When interpreting the results of groundwater quality, the possible influence of seasons should be taken into account.

The investigating agency should ensure appropriate quality assurance protocols and systems have been adhered to including prescribed protocols, the calibration of field instruments, proper sampling and collection techniques and by providing records of responsibility, non-conformity events, corrective measures and data deficiencies.

3.4 Outcome

Output of preliminary investigation is the conclusion as to whether or not the site is qualified as a contaminated site. If so, detailed site investigation would be required. If the site does not qualify as a contaminated site, it is not necessary to continue detailed investigation of the site.

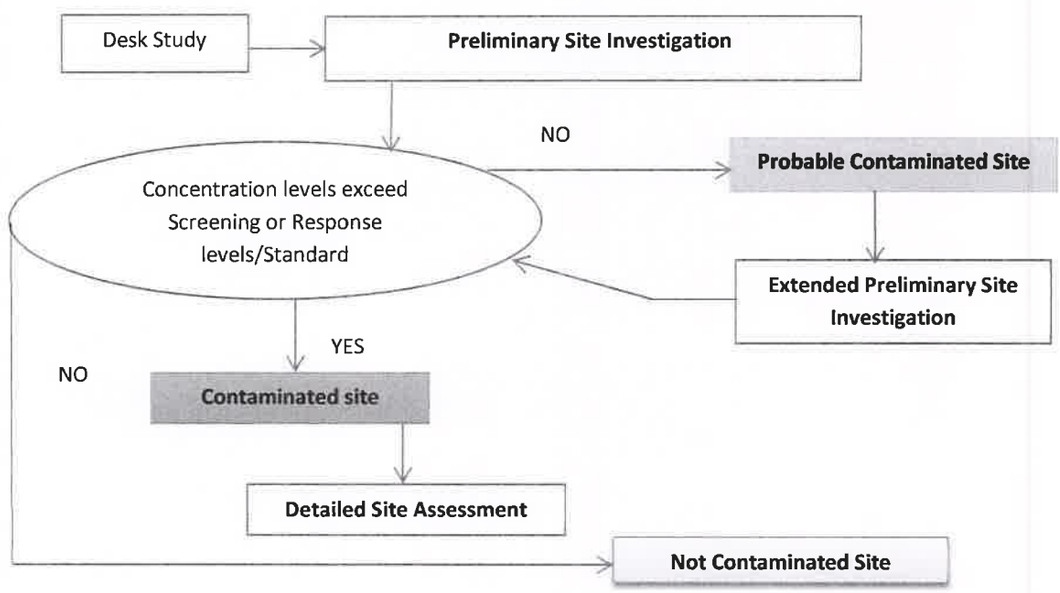


Figure-3.1: Flowchart for Identification & Assessment of site investigation

3.4 Format of Preliminary Investigation Report on Contaminated Sites (CS) / Probable Contaminated Sites (PCS)

1.	Name of the Site	:	
2.	GPS Co-ordinates	:	
3.	Nature of Sites: CS/PCS (as submitted before Hon'ble NGT)	:	
4.	Names of the Inspection Team members with Designations	:	
5.	Date of Inspection	:	
6.	Possible sources of contamination due to present/ past land-use or other activities at the site	:	
7.	Chemical of Concerns (CoCs) as per information provided by CPCB	:	
8.	Other possible chemicals of concerns (CoCs) other than specified at **S. No. 7**.	:	
9.	Name of the Polluter(s) (if identified) and detail address with contact number and e-mail address / Orphan Site	:	
10.	Present land use (Agricultural/ Residential/Commercial/Industrial) or other activity at the site	:	
11.	Present use / activities in the immediate vicinities of the site.		
12.	Present ownership of the site (detailed address with contact number and e-mail id)	:	
13.	Distance of important features around **0.5 km** radius of the site	:	Details with distance from the site

	- Habitation		
	- Industry / Mine		
	- Land use		
	- Surface water bodies		
	- River / Streams, etc.		
	- National/State Hihways/ Ports / Railways		
	- Educational Institutions		
	- Places of worship		
	- Ground water withdrawal		
	- Others (please specify)		
14.	In case of sources contamination is not known, extend the study area to at least **0.5 km** radius with collection of more numbers of samples		
15.	Soil samples collected with their locations from the site and land use	:	
16.	Surface water and sediment samples collected with their locations from the site and present usages of surface water	:	
17.	Ground water samples collected with their locations from the site and present usages of ground water.	:	
18.	Possible migration of contaminants from source of contamination at the site (such as legal or illegal dumping of wastes, spillage during transportation, carry over with surface water and/ rain water, abandoned industrial activity,	:	

	etc.), as specified at **S. No. 6**		
19.	In case of sources contamination is not known, extend the study area to at least 0.5 km radius with collection of more numbers of samples	:	
20.	Comment if the site poses existing/imminent threat to human health and the environment or to property with regard to present or future land use and site activity	:	
21.	Comment if immediate removal of waste (optional contaminated soils/ sediment) is warranted for disposal in the CHWTSDF or safe storage and approximate quantum of such wastes.	:	
22.	Enclose the followings along with the Preliminary Investigation Report; 1. Samples collected, analysis of the same shall be done for chemicals of concern (CoCs) along with necessary general parameters and heavy metals. The analysis results shall be compared with screening/response levels. 2. Soil samples may be collected at different possible depths i.e. at surface (0-15 cm), (15-30 cm). 3. Analysis of soil samples shall be done in total concentration (not in TCLP/WET extraction methods). Correctly indicate the units (mg/kg) in analysis report. 4. Few colour photographs of the site with surrounding features	:	

Signature of the Inspecting Officer(s)

3.5 Parameters for Analysis of Soil/Sediment/Groundwater/Surface water samples

General Parameters		Heavy Metals (HMs)*	Organic Pollutants#
Groundwater/ Surface water	**Soil/Sediment**	**Soil/ Sediment/ Groundwater/ Surface water**	
- pH - DO (mg/L) - TDS (mg/L) - Conductivity (µmho/cm) - Colour (Hazen) - Temperature (°C) - Fluoride (mg/L) - Chloride (mg/L) - Nitrate (mg/L) - Sulphate (mg/L) - Phosphate (mg/L) - Hardness (mg/L) - **COD (mg/L) - **BOD (mg/L) - **Total coliform - O&G (mg/L)# - Cyanide (mg/L)#	- pH - Moisture Content (%) - Organic Matter (%) - Sodium (mg/Kg) - Potassium (mg/Kg) - Calcium (mg/Kg) - Cation Exchange Capacity (meq/100g)	- Arsenic - Antimony - Chromium [Total + (VI)] - Copper - Cobalt - Cobalt - Cadmium - Iron - Lead - Manganese - Molybdenum - Mercury - Nickel - Zinc	- TOC - α-BHC - β-BHC - γ-BHC - Aldrin - Dieldrin - α-Endosulfan - β- Endosulfan - DDT/DDE/DDD - Chloroform - TCE - Chlorobenzene - BTEX

Note:

- Samples collected, analysis shall be done for chemicals of concern (CoCs) along with necessary general parameters and HMs (Further, OCPs for site specific).
- Analysis of heavy metals for soil/sediment samples shall be done in total concentration (*not in TCLP/WET extraction methods for soil/sediment samples**).
- **Only for surface water samples.
- #*Source of contamination specific parameters*: plastic-zipped packs for soil/sediment samples & wide mouth dark colour glass bottles for water samples.
- Unit for Water samples: (mg/L) & Soil/Sediment samples: (mg/kg).
- The analysis results shall be compared with screening/response levels for Soil/sediment samples and standards for water samples.
- Analysis of the soil/waste/sediment/groundwater/ surface water samples will be followed by standard methods of APHA and USEPA and the said samples shall be analyzed in NABL accredited and E(P)A, 1986 recognized labs.
- Analysis results shall be compared with available screening & response levels or standard for soil/ sediment/ groundwater/ surface water, so as to ascertain the level and extent of contamination at the site.
- In case of *Hazardous waste*, the samples shall be compared with Schedule-II of Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016 and amended thereof.

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Chapter-4

Sampling Tools and Techniques for site investigation

4.1 Introduction

This Section provides an overview of techniques, which are widely used for screening as well as sampling collection techniques. Depending on the situation the field investigation team must use personnel protection equipment. The basic PPEs include boots, protective clothing, dust masks, goggles or safety glasses and hard gloves. This Section is relevant for both preliminary and detailed site investigations.

4.2 Screening Equipment

An overview of technical screening equipment for preliminary site investigation is shown in **Table 4.1**. In cases where the location of the source or the pathway or both is not known, screenings techniques in **Table 4.1** can be used as first step in a Preliminary site investigation. These techniques provide a 'quick and short-cut' approach to assess approximate delineation of the source or pathway or both, which is required for sampling and testing. This table only shows generic techniques. The selection of techniques should be well considered to avoid inefficiency. Table shows only generic categories of techniques.

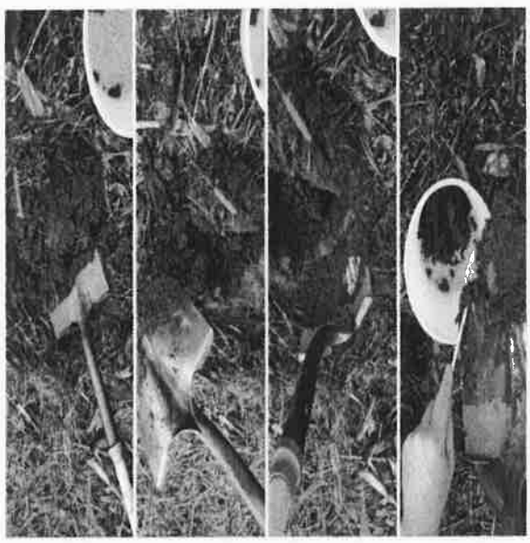
4.3 Soil, Sediment and Ground Water Sample Collection Tools

For the sampling of soil material different types of drills can be used depending on the soil type and level of contaminating substances. Some widely used types of drills are described below:

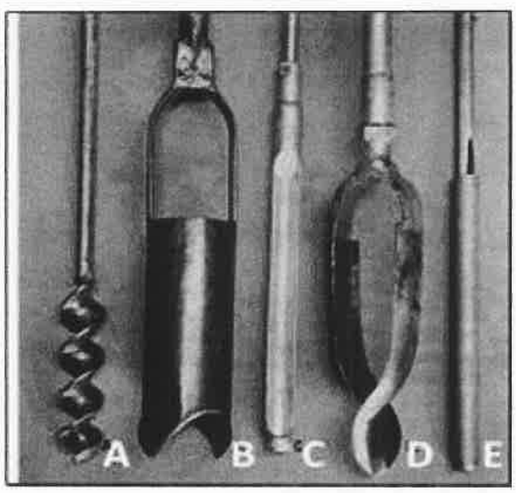
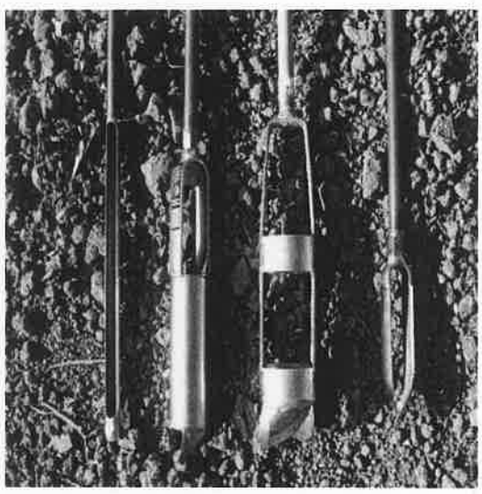
- Hand held techniques
  - Scoops, spoons, and shovels
  - Augers (including split auger)
  - Tube
  - Gouge
  - Thin-walled core samplers
- Power driven drill techniques
  - Screw drilling system: hollow auger drill
  - Screw drilling system: auger drill
  - Displacement drilling system
  - Cased auger/pulse drill

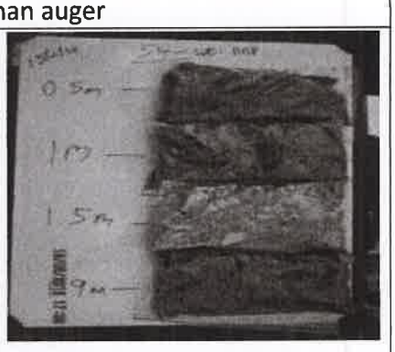
(a) Manual techniques for soil sampling

Hand-held scoops (for 10 to 100g capacity), spoons (typically for 300gm to 2kg capacity), and shovels are used for exploratory holes, test pits and sampling near surface soils. Accurate, representative samples can be collected depending on the care and precision demonstrated by the sample team member. Use of a flat, pointed mason trowel to cut a block of the desired soil can be helpful when undisturbed profiles are required. Care should be exercised to avoid use of devices plated with chrome or other materials. Volatiles may be lost during sample collection.

Example of soil sampling with shovel	*Example of trial pit excavated with shovel*
	

- **Augers** are commonly used to collect near surface samples and, in combination with tube samplers, to collect undisturbed samples. Examples of augers: Edelman-drill, "riverside" drill, gravel drill. This auger is used for drilling up boreholes to the groundwater level. It can also be used in cohesive soils. Smearing can be prevented by using an increasingly smaller diameter or by using a (lost) casing. The "riverside" and gravel drill have more disturbed samples than the Edelman-drill, but samples never cover more than 10 to 15 cm in height.

Example of augers with handle	Example of augers
	

Examples of soil sampling with Edelman auger		
		

Example of Ground Penetrating Radar	PID Ionization detector	*XRF X-Ray Fluorescence*
		

Table 4.1 *Preliminary site investigation survey techniques for quick screening of sites: Basic characteristics and typical application*

	Electro-magnetic methods	Geo-electric and Self-Potential methods	Magnetic field measurement	Ground Penetrating Radar (GPR)	Radio-metric measurement	Seismic (sonar)	Penetration test cones	XRF X-Ray Fluorescence	NIR Near IR luminescence	PID Photo- Ionization Detector	Gas detection tubes
Basic characteristics											
Parameter	Electrical soil resistivity	Electrical soil resistivity	Magnetic susceptibility	Dielectric constant	Gamma-Ray radiation	Acoustic impedance	Various	Concentration (heavy metals)	Concentration (heavy metals/ some organic compound)	Concentration of contaminations in the air	Concentration (parameter sensitive reagent)
Unit	Ω/m	Ω/m	Gauss	F/m	Bequerel	ms or kgm2	Various	ppm	ppm	ppm	ppm
Property of investigation	Electro-magnetic induction	Galvanic resistivity	Magnetic field	Reflection/ refraction electro-magnetic field	Radioactive radiation	Reflection/ refraction of sound waves	Various	Wave-lengths of the emitted X-Rays	Near IR luminescence	Ionization of charged molecules	Speed of chemical reaction
Typical field specification											
Range of depth	0 – 25 m	0 – 100 m	0 – 10	0 – 25	0.1 m (in situ) > 0.1 m (samples)	1 – 100 m	0 – 50 m	0.1 m (in situ) > 0.1 m (samples)	0.1 m (in situ) > 0.1 m (samples)	NA > 0.1 m (samples)	NA > 0.1 m (samples)
Soil/ water/air/ sediment	Soil/ sediment	Soil	Soil/ sediment	Soil	Soil/ water/ air/ sediment	Soil/ sediment	Soil/ sediment	Soil/ water/ air/ sediment	Soil/ sediment	Air (sample)	Air (sample)
Resolution	1 – 25 m	1 – 100 m	1 – 5 m	0.5 – 2.5m	0.1 m	0.5 – 5m	0.1 m	0.1 m	0.1 m	1 m	1 m
Point/line/3D	point	point	point	line	Point	line/3D	line (vertical)	point	point	point	point
Survey type (Survey technique is (+) highly suitable; (0) suitable with restrictions; (-) not suitable)											
Stratigraphy	+	+	0	+	0	+	+	-	-	-	-
Contamination	+	+	0	0	+	-	+	+	+	+	+
Objects	0	-	+	+	-	0	0	-	-	-	-
Ground-water level	0	0	-	+	-	+	+	-	-	-	-

	Electro-magnetic methods	Geo-electric and Self-Potential methods	Magnetic field measurement	Ground Penetrating Radar (GPR)	Radio-metric measurement	Seismic (sonar)	Penetration test cones	XRF X-Ray Fluorescence	NIR Near IR luminescence	PID Photo- Ionization Detector	Gas detection tubes
Practical aspects											
Field personnel (# of field operators)											
	1-2	1-2	1	1	1	>2	1	1	1	1	1
Investigation time needed ((+) quick survey technique; (0) moderate time consuming technique; (-) time consuming survey technique)											
	+	0	+	+	+	-	0	+	0	+	+
Costs (Survey technique is (+) expensive; (0) moderately expensive; (-) low cost)											
	+	0	+	+	+	-	0	+	+	+	+
Much used (Survey technique is (+) used on daily basis; (0) now and then used; (-) seldom used)											
	+	+	0	+	+	-	+	+	-	+	+
Typical type of field survey	Ground-water plume and source recon-naissance / delineation	Groundwater plume and source recon-naissance / delineation	Source and object (drums) recon-naissance / delineation	Stratigraphy, source and object recon-naissance / de-lineation	Source recon-naissance / delineation	Stratigraphy	Stratigraphy and plume Recon-naissance / de-lineation	Source recon-naissance / de-lineation	Source and pathway recon-naissance / de-lineation	Source and pathway recon-naissance / delineation	Source and pathway recon-naissance / de-lineation

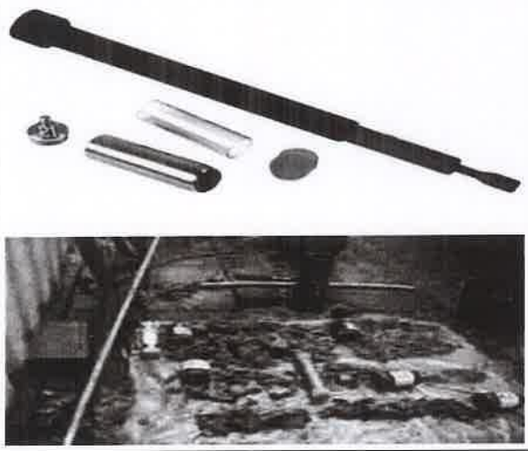
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- **Tube sampler -** drills are used in (relatively) cohesive soils to obtain almost undisturbed samples. They provide fast and simple information on the (shallow) soil structure. Samples have a small volume but are useful for profile descriptions. The maximum reach depth is between 5 and 10 m below ground surface level. Like augers, tubes can utilize a variety of tips depending on soil type. Tubes are considered better than augers for sampling VOCs. Tubes are similar to augers except that a tube with a cutting tip is attached to the drill rod. Instead of being rotated, the tube is pushed into the soil. Often augers are used to drill the hole and tubes are used to collect the sample. Tubes are not suitable for rocky, dry, loose, or granular material or very wet soil. A variety of tube samplers are available. Some tubes can be driven into the soil by a demolition hammer. This system is often used when debris in the subsurface occurs. There are also fully closed tubes/gouges with liner or with a foil in which the sample is entered.

Example of soil sampling with tube	Example of soil sampling using gouge
	

- **Gouge** - similar to tubes, gouge drills are used to collect undisturbed samples, generally from soft and wet soils. Gouges are long, semi cylindrical chambers made of tapered stainless steel that are pushed into the soil, twisted and recovered to display a full profile of the soil. Gouges are usually used to collect small samples, e.g. to determine soil water content by mass.

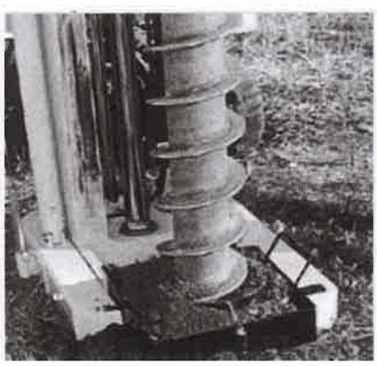
- **Thin-walled core samplers** - are most commonly used for collection of undisturbed core samples in cohesive soils, silt, and sand above the water table. Sample collection procedures are similar to split-spoon sampling except that the tube is pushed into the soil, using the weight of the drill rig, rather than driven like Shelby-tube or Continuous-tube.

Typical drop hammer core samplers	Sampling with thin-walled core samplers
	

- **Drill-techniques for soil sampling**

A metal detector may be used to detect the presence of hidden objects of metallic origin below the surface, such as tanks, barrels and cables. In case such objects are expected at a site it should be considered to excavate a hole by hand before performing mechanical drilling.

Hollow stem auger drill consists of a hollow central shaft with a removable sheet or valve structure at the bottom end. There are two types of hollow auger drills, in simple system the soil is sampled without disturbing operation, and in the more complex system a non-rotating sampling tube is pressed down and collects the sample in the hollow central part, while the surrounding soil is being drilled up through the space surrounding the central part.

Hollow auger drill	Machine driven auger drill
	 

Auger drill can be drilled up to 30 m below ground surface level above the water table in cohesive soils. The jacked ground is mixed, which increases with depth. *Indicative sampling or profile description is only possible when the drill is screwed into the soil like a corkscrew (lowering speed is equal to the rate of the windings) and then not turned when it is pulled up.*

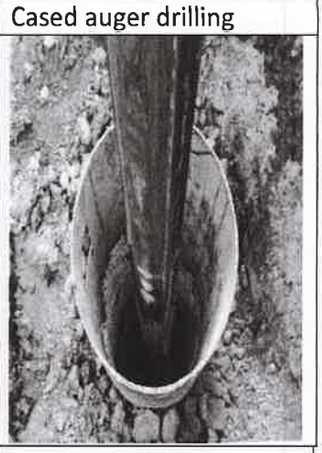
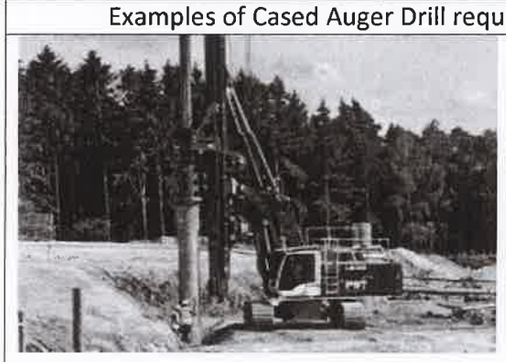
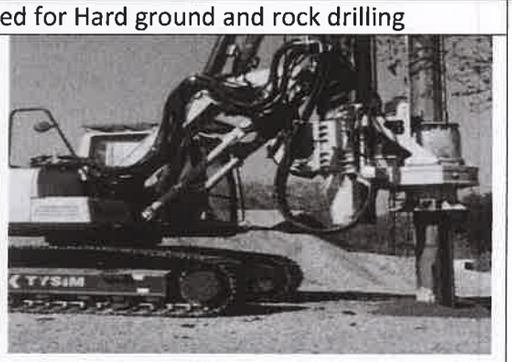
Displacement drilling system is based on the principle of borehole drilling without soil excavation with compaction of borehole walls using special displacement tool. There are two ways to take water samples with this method. In first method relatively thin tube provided at a last point that is pressed into the soil to the desired depth, inside this tube a very thin monitoring well is lowered, then casing is pulled up after which the filter remains. Second method is a sounding tube with an integrated filter that is pressed down until the desired depth is reached, then groundwater samples are taken immediately.

Examples of Power Driven Displacement Drilling System





Cased auger drill is used to drill to the wet sand layer. In case of contaminated soil, casing can be inserted through rotation to limit smearing when it is pulled up. Sample may be taken within or below the casing. In cased auger method, there is a minimum of smearing and wells with a large diameter are constructed. In case of rock or paving, special drill bit has to be used to cut material, such as: drilling of bore holes.

Examples of Auger Drill		
Manual auger drilling	Machine auger drilling	Cased auger drilling
		
Examples of Cased Auger Drill required for Hard ground and rock drilling		
		

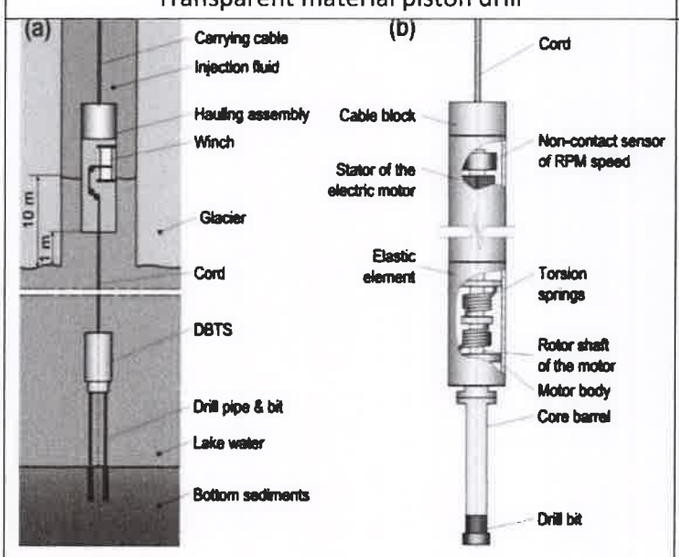
(b) Sediment sampling collection tools

For the sampling of sediment material different types of drills can be used. Some widely used types of drills are described below:

- Piston drill
- Sediment core-sampler
- Grabbers

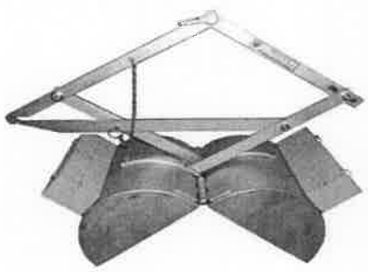
Piston drill consists of drilling a through tube, normally made of stainless steel, to which extension rods can be attached. The insert tube is pressed into the sediment with the rod system, while the piston is kept at a constant depth with respect to the sediment. This piston maintains a negative pressure, causing the sample over the full cutting depth to be recorded into the penetration tube. The maximum cutting depth of the piston sampler is 2 m. There is no visual inspection if the sample also includes the upper surface. Coarse sand or very watery material drops during the acceleration of the piston bore. There is no provision, other than the vacuum of the piston, to keep it down in the tube.

Sediment core sampler (Beaker type) consists of a cutting head with an attached transparent penetration tube of polyvinyl chloride. Sampler presses or hammers the extension rods into the soil. A piston down tube creates a vacuum, which enables sampling of the best stretch length along with tube (sample tube). Once the penetration tube arrives at the correct depth, a rubber bellow can be inflated in the cutting head so that the bottom of the sample tube can be closed. The sampling unit can then be retrieved. In stagnant water it can be applied to 10 m depth.

Transparent material piston drill	Sediment core sampler
	

Grabbers –Van-Veen grabber is a typical grabber with a cable or rope lowered to the bottom. When hitting the bottom of the suspension cable an unlocking mechanism is set into motion. By subsequently pulling up the cable the sample is snapped out of the sediment. The device collapses weak sludge, and collects, depending on the size, only a shallow sample. It can be applied in non or hardly flowing water to all depths.

Examples of grabbers

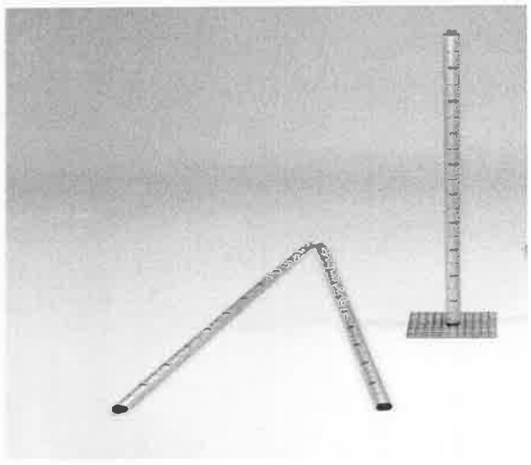




Sediment level measuring device: A method to roughly assess the thickness of a sediment layer is to use a hand held tool, as given below:

Example of tool to detect sediment level





(c) Groundwater sampling collection tools

Groundwater samples can be collected using several types of pumps depending on the groundwater depth, sampling of volatile compounds, etc. The following are widely used types of pumps:

i. Suction lift pump
ii. Pressure pump
iii. Bailer sampler
iv. Ball valve pump

Suction lift pump – these are peristaltic pumps, frequently used for shallow ground water sampling. Suction lift pumps apply a vacuum to either the well casing or to tubing that runs from the pump to the desired sampling depth. Most are easily controlled to provide continuous and variable flow rate. Peristaltic pumps utilize a self-priming or power operated vacuum pump. This pump can be used to a maximum groundwater level of 9.5 m below ground level (bgl). It can be used for the sampling of groundwater for testing of volatile compounds, provided the suction height is not over 6 m. For each sample a disposable filter should be used. Filtering the water before bringing it into the sampling bottle is required.

Suction lift pump	Submersible Pump	Bailer sampler
		

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Pressure pump - This pump is also known as submersible centrifugal pump, is used for well purging and ground water sample collection. This pump is universally applicable for sampling for chemical testing of volatile compounds, provided the speed of the pump is variable to sampling rate. Submersible centrifugal pumps use an electrically-driven rotating impeller that accelerates inside the pump body, building up pressure and forcing the sample up the discharge line. Commonly constructed of stainless steel, teflon, rubber, and brass, most can also provide a continuous and variable flow rate. Small diameter submersible centrifugal pumps are available that can be used in 2-inch diameter wells and can be operated at both high flow rates for purging and low flow rates for sampling. These pumps can be used for sampling up to 70 m below ground surface level. The risk of contamination is very large; so much attention should be paid to the materials and the cleaning of the pump.

Bailer sampler - Bailer samplers are the most widely used sampling method, due to their low cost. However, other devices like bladder, helical-rotor, and gear pumps generally provide better results when sensitive constituents such as VOCs are present. A bailer is a hollow tube with a check valve at the base (open bailer) or a double valve (point source bailer). The bailer is attached to a line (generally either a polypropylene or nylon rope, or stainless steel or Teflon coated wire) and lowered into the water. The bailer is pulled up when the desired depth is reached, with the weight of the water closing the check valve. Open bailers provide an integrated sample of the water column. Point source bailers use: (1) balls or (2) valves (operated by cables from the surface) to prevent additional water from entering the bailer so that a sample can be collected at a specific point. Maximum depth for sampling is about 70 m below ground surface level.

Ball valve pump - The ball valve pump is used to push water upward. The pump is connected to the end of a sampling hose or tube. By moving the tube and pump down, the ball is moving up and it will let water enter into the tube. By pushing the tube and pump up, the ball is closing, so the water goes up with the tube and pump. The moving can be done by hand or by a machine. The ball valve pump is available in different diameters for different tube sizes. The pump is small, relatively cheap and it can be used to clean a monitoring well by pumping water and sediment after placement, as well as for sampling monitoring wells.

Filtering of groundwater samples

Filtering of sample to reduce turbidity in sample is necessary for testing of a groundwater sample for heavy metals. The sampled groundwater needs to be filtered through a 0.45 µm filter to remove the sediment that causes the turbidity. In line filter can be placed at the end of the discharge of pump. The materials that have contact with the sample should be made from physically and chemically inert material. For every well a new filter must be used.

(d) Construction of Monitoring Wells

For groundwater sampling, existing groundwater wells (well/bore-well/hand-pump) can be used; however, sometimes it is not clear how the installations have been designed, and which stratum the groundwater is derived from. Hence to obtain accurate information for a specific level of contaminants, new dedicated monitoring wells should be installed. Monitoring well is also known as Piezometer that may be constructed for short term or long term depending on monitoring requirement. These wells may be installed at different depths to determine the vertical profile of contamination. Monitoring wells have typically less in diameter up to 5cm and are typically screened less than 5 feet (1.5m). These wells can be used for both measuring level and sampling of groundwater.

These wells can be constructed by drilling bore-holes and using pipes, which are normally made of inert plastic material that does not influence the quality of the groundwater. The pipes have slits through which the groundwater can flow into the pipe where it is extracted for sampling. After installing the pipe, a cap with lock should be applied to be able to prevent disturbance of the wells.

Monitoring Wells





Particular method of constructing monitoring well depends on the purpose of the well, the quantity of water required, depth to groundwater, geologic conditions, and other factors. The optimum length for a specific well is based on aquifer thickness, available drawdown, stratification within the aquifer, and if the aquifer is unconfined or confined.

(A) Key principles of constructing monitoring well are;

- The purpose of monitoring well;
- Evaluate site-specific hydrogeological information from all available sources, including the physical and chemical properties of the groundwater and any contaminants known or suspected to be present in the groundwater.
- Develop a conceptual hydrogeological model of the site.
- Determine screened interval.
- Select method of monitoring well installation.
- Determine the diameter of the well.

(B) Construction, specifications and precautions:

(i) Properly decontaminate well construction materials prior to installation

(ii) Prevent contamination when joining casings and attaching the screen.

(iii) For long-term monitoring wells, place the filter pack into the annulus to a minimum of two feet above the top of the screen and one foot beneath the well end cap.

(iv) Use bottom caps or end plugs

(v) Use permanent or temporary surface casing if contamination or sloughing is a potential issue (drill augers should never be removed from the hole without concurrently filling borehole voids with appropriate sealant media).

(vi) For long-term monitoring wells, reduce the required filter pack height to allow for annular space sealant. Accurately assess depth of filter pack and apply grout or bentonite chips to seal the annular space.

(vii) If the borehole or monitoring well is advanced through an aquitard, the penetration through the aquitard must be sealed at the same interval using grout or bentonite chips.

(viii) Pour grouts or slurries freely with or without the use of a termite pipe.

(ix) Take appropriate precautions during drilling to avoid introducing contaminants into the well. Prevent vertical movement of water or contaminants between water bearing zones in either the boring or the well annulus.

(x) Avoid using drilling mud, synthetic drilling fluids, or petroleum- or metal-based pipe joint compounds and other potential contaminants unless necessary.

(xi) If it is necessary to add water during drilling, use only clean or potable water and identify the water source.

(xii) Add drilling mud to stabilize the hole or control down-hole fluid losses, use only high yield sodium bentonite clay free of all organic polymer additives.

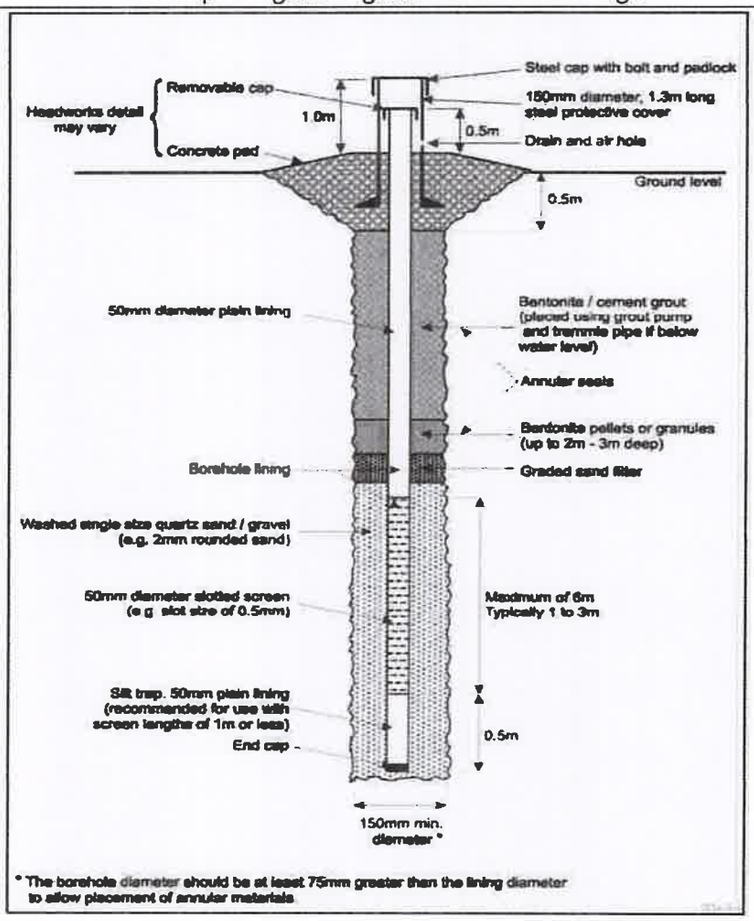
(xiii) Properly decontaminate all equipment placed into the well by steam cleaning, high-pressure hot water, or similar methods between well installations.

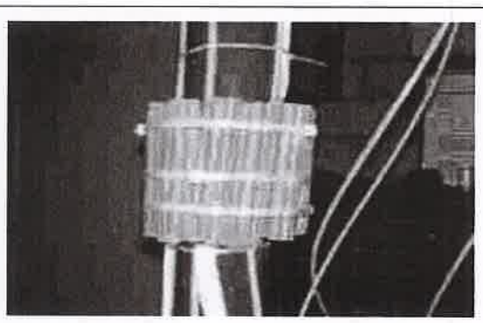
(xiv) Dispose contaminated cuttings in any SLF in consultation with SPCBs/PCCs.

(xv) Complete an "as built" drawing/schematic for each constructed monitoring well.

(xvi) Install a cement surface seal, where appropriate.

Example of generic groundwater well design

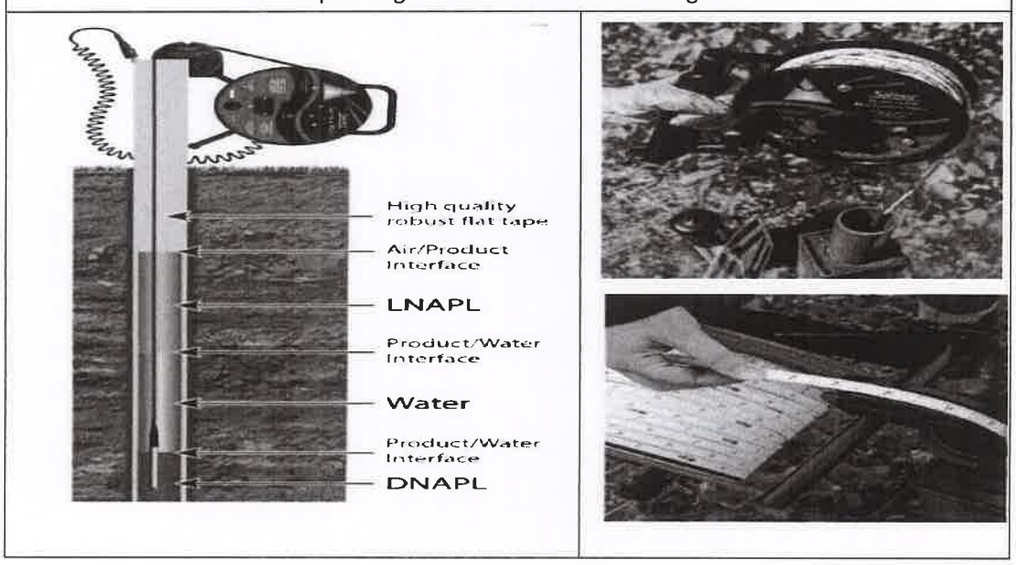


Bentonite pellets	Bentonite plug
	

(e) Groundwater level measuring device

Many tools are available to detect the groundwater level in a monitoring well. Groundwater level measurement is commonly measured by a submersible pressure transmitter. These hydrostatic level transmitters are small in diameter and directly suspended by a cable into the well, borehole, deep bore well or monitoring well. One such measuring device is illustrated in figures below.

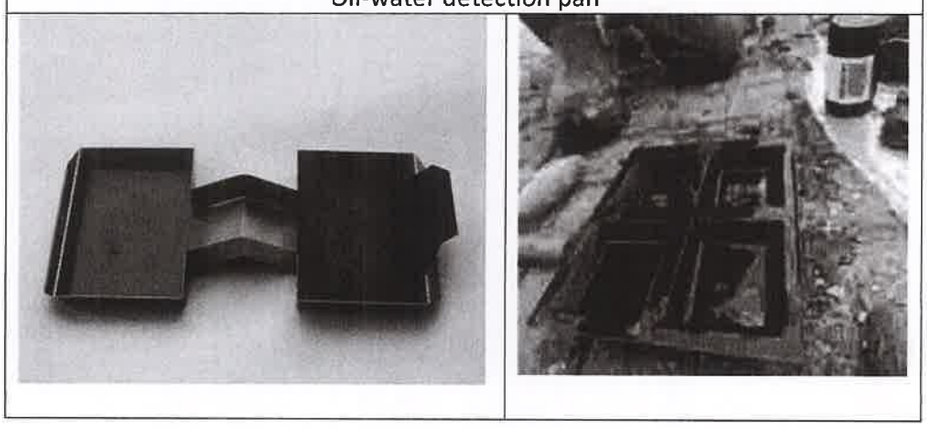
Examples of groundwater level measuring tools



(f) Oil water observation tool

Oil detection pan can be used to rapid on-site analysis of soil and groundwater for detecting floating contaminants like oil derivate such as tar, lubricating oil, kerosene and petrol. This tool however does not provide information on the exact substances and concentrations.

Oil-water detection pan



(g) Samples preservation

Laboratories provide information about maximum holding time for samples before analysis of soil or water is carried out. Samples of contaminated material should, as much as possible, be kept under conditions which will not influence the contaminants before arriving at the testing laboratory. Preservation often involves cooling, especially when samples are to be tested for volatile compounds.

Sample cooling methods	
	Cooling gel packs 

4.2 Outcome

The output of sampling tools and techniques for site investigation help in use of appropriate tools for field assessment and sampling required for both preliminary and detailed site investigation studies.

***

MEEPL

MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

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CHAITRA GROUPS # 2542, 28th Cross, 17th Main, Banashankari 2nd Stage, Bengaluru - 560 070

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MEEPL/LAB/20-21/030

Date: 28.07.2020

To

The Regional Officer

Karnataka State Pollution Control Board

Regional Office- Ramanagara

Parisara Bhavana, Near DC Office

Bangalore- Mysore Road,

. Ramanagara- 562159

Sub: Evaluation of Design and Layout of Common Hazardous Waste TSDF site located at Plot No.217, 2nd phase KIADB Industrial Area, Harohalli, Kanakapura Taluk, Ramanagara District, and Karnataka -562112 through Indian institute of Science, Bangalore .

Ref :- No. PCB/WMC/2800/HWM/2018/3580 on dated 18.09.2019.

28/07/2020

info@motherearthenviron.com, motherearthenvirontech@gmail.com http : www.motherearthenviron.com

SITE : Plot No. 217, 2nd Phase, KIADB Industrial Area, Harohalli, Kanakapura (Tq.), Ramanagara District, Karnataka - 562 112.

MEEPL

MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

CIN : U93000KA2011PTC059184 +91 80 26712303, Fax : 080-26712305
CHAITRA GROUPS # 2542, 28th Cross, 17th Main, Banashankari 2nd Stage, Bengaluru - 560 070

629

Dear Sir,

With reference No. PCB/WMC/2800/HWM/2018/3580 on dated 18.09.2019 from your good office. We refer our communication dated 30.06.2020 in respect of the captioned subject.

In this respect we paid to the Board Rs.1,18,000 /- on dated 15.06.2020 for Re-examine the design and layout approved by KSPCB through reputed Indian Institute of Science, Bangalore.

The same is very important for us, In view of the above we humbly request your good self to arrange the team at earliest.

Looking forward for a favourable consideration of our request and early response.

Thanking You,

28/07/2020

For Mother Earth Environ Tech Pvt Ltd.

Authorized Signatory

info@motherearthenviron.com, motherearthenvirontech@gmail.com
http : www.motherearthenviron.com
SITE : Plot No. 217, 2nd Phase, KIADB Industrial Area, Harohalli, Kanakapura (Tq.), Ramanagara District, Karnataka - 562 112.

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CHAITRA GROUPS # 2542, 28th Cross, 17th Main, Banashankari 2nd Stage, Bengaluru - 560 070

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MEEPL/LAB/20-21/039 Date: 05.08.2020

To

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Karnataka State Pollution Control Board

Regional Office- Ramanagara

Parisara Bhavana, Near DC Office

Bangalore- Mysore Road,

Ramanagara- 562159

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ಕ.ರಾ.ಮಾ.ನಿ.ಮಂ ಸಂ. ದಿ. 06/08/2020 ಪ್ರಾ.ಕ.ರಾ.ಮಾ.ನಿ.ಮಂ.ರಾಮನಗರ

info@motherearthenviron.com, motherearthenvirontech@gmail.com
http : www.motherearthenviron.com
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CHAITRA GROUPS # 2542, 28th Cross, 17th Main, Banashankari 2nd Stage, Bengaluru - 560 070

631

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05/08/2020

Mother Earth Environ Tech Pvt. Ltd. Harohalli

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GOVERNAMENT OF KARNATAKA

ಸಂಖ್ಯೆ:- ಯುಪಿಪ್ರೆ/ ಪಶಾಪಾ/ ಆಕ್ಷೇ(ಪ)/2020-21/15ಎ-25 8 2020

OFFICE OF THE CHIEF VETERINARY OFFICER,

ANIMAL HUSBANDRY AND VETY.SERVICES,
VETERINARY HOSPITAL. ,HAROHALLI.,
KANAKAPURA (TQ).

TO:

M/S Mother Earth Environ Tech Private Ltd ,

No.2542,17th Main Road ,28th Cross ,Banashankari 2nd Stage ,Bangalore -560070.

Karnataka .

Dear Sir ,

Sub; Right To Information of any damages to cow and other domestic animals in surrounding area of M/S Mother earth Environ tech Pvt Ltd ,Facility located at plot no.217,2nd phase KIADB Industria l area ,Harohalli, Kanakapura Tq, Ramanagara dist ,Karnataka -562112

Ref ;Your RTI application and requisition letter MEEPL/20-21/33 Dated 28-07-2020.and 29th July 2020.

With reference to above cited subject and reference cited above ,the information sought by regarding detailed report of any damages to cow and other domestic animals in surrounding area of M/S Mother earth Environ tech Pvt Ltd ,Facility located at plot no.217,2nd phase KIADB Industrial area, Harohalli,Kanakapura Tq,Ramanagara dist ,Karanataka -562112. **I wish to state that as per the available records in this office or to the best of my knowledge and belief ,No such detailed Survey /Investigations were carried out to asses or find damages to cows and other domestic animals in surrounding area of M/S Mother earth Environ tech Pvt Ltd ,Facility located at plot no.217,2nd phase KIADB Industria l area ,Harohalli, Kanakapura Tq, Ramanagara dist ,Karanataka -562112.**

Thanking you Sir ,

Yours Faithfully

Place- Harohalli
Date-25/08/2020

Chief veterinary officer .,
Veterin ary Hospital.,
Harohalli., Kanakapura (tq)

ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ಹಿರಿಯ ಭೂವಿಜ್ಞಾನಿ, ಜಿಲ್ಲಾ ಅಂತರ್ಜಲ ಕಛೇರಿ, ಅಂತರ್ಜಲ ನಿರ್ದೇಶನಾಲಯ,
ನಂ.102, 3ನೇ ಕ್ರಾಸ್, 1ನೇ ಬ್ಲಾಕ್, ಉತ್ತರ ಬಡಾವಣೆ, 1ನೇ ಫೇಸ್, ರತ್ನಾಕರ ಬ್ಯಾಂಕ್ ಪಕ್ಕ, ಬಿ.ಎಂ.ರಸ್ತೆ,
ಎರಡನೇ ಮಹಡಿ, (ರಾಯಲ್ ಎನ್‌ಫೀಲ್ಡ್ ಶೋರೂಂ ಮೇಲ್ಭಾಗದಲ್ಲಿ), ರಾಮನಗರ ಟೌನ್.
ದೂರವಾಣಿ ಸಂಖ್ಯೆ:– 080–27273397, E mail ID: sgdgwramnagar@gmail.com

ಸಂ:ಹಿಭೂವಿ/ಜಿಅಂಕ/ಅಂನಿರಾ/ಮಾ.ಹ.ಅ/2020–21/163 ದಿನಾಂಕ: 10.08.2020

ಇವರಿಗೆ,

MOTHER EARTH ENVIORN TECH PRIVATE LIMITED
KIADB Industrial Area, Harohalli, Kanakapura tauk
Ramanagara Dist.

ಮಾನ್ಯರೆ,

ವಿಷಯ: ಮಾಹಿತಿ ಹಕ್ಕು ಅಧಿನಿಯಮದ ಅಡಿ ಮಾಹಿತಿಯನ್ನು ಸಲ್ಲಿಸುವ ಬಗ್ಗೆ
ಉಲ್ಲೇಖ: ತಮ್ಮ ಪತ್ರ ಸಂಖ್ಯೆ: MEEPL/2020–21/36 ದಿ: 29.07.2020.

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ಉಲ್ಲೇಖಿತ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ದಿ: 06/08/2020ರಂದು ಮಾಹಿತಿ ಹಕ್ಕು ಅಧಿನಿಯಮದ ಅಡಿ ಅರ್ಜಿ ಸಲ್ಲಿಸಿ ಮದರ್ ಅರ್ಥ್ ಎನ್‌ವಿರಾನ್‌ಟೆಕ್ ಪ್ರೈ.ಲಿ. ಕೆ.ಐ.ಎ.ಡಿ.ಬಿ ಹಾರೋಹಳ್ಳಿ ಪ್ರದೇಶದಲ್ಲಿ ಬಾವಿ/ಕೊಳವೆ ಬಾವಿಗಳಲ್ಲಿ ಅಂತರ್ಜಲ ಮಾಲಿನ್ಯದ ಬಗ್ಗೆ ವರದಿಯನ್ನು ಹಾಗೂ ಮಾಲಿನ್ಯದ ಬಗ್ಗೆ ಯಾವುದಾದರು ದೂರುಗಳು ಸ್ವೀಕೃತಗೊಂಡಿರುವ ಬಗ್ಗೆ ತಾವು ಕೋರಿರುತ್ತಿರಿ ಕಛೇರಿಯ ಕಡತಗಳನ್ನು ಪರಿಶೀಲಿಸಲಾಗಿ ಈ ಕಚೇರಿಯು ದಿ:27–04–2017 ರಿಂದ ಜಿಲ್ಲೆಯಲ್ಲಿ ಪ್ರಾರಂಭವಾಗಿದ್ದು, ಇಲಾಖಾವತಿಯಿಂದ ಪ್ರತಿ ಸಾಲಿನಲ್ಲಿ ಋತುಮಾನದನ್ವಯ ಅಧ್ಯಯನ ಕೊಳವೆ ಬಾವಿಗಳ ಹತ್ತಿರವಿರುವ ಕುಡಿಯುವ ನೀರಿನ ಕೊಳವೆ ಬಾವಿಗಳಲ್ಲಿ ನೀರಿನ ಮಾದರಿಗಳನ್ನು ಸಂಗ್ರಹಿಸಿ ಅಂತರ್ಜಲ ಗುಣಮಟ್ಟ ಅಧ್ಯಯನ ಮಾಡಲಾಗುವುದು. ತತ್ಸಂಬಂಧ ವಿಶ್ಲೇಷಣಾ ವರದಿಯು ಈ ಕೆಳಕಂಡಂತೆ ಇರುತ್ತದೆ.

Water Quality Report 2017-2020

District	Taluku	Village		Sampling Date	SO4	Fe	EC	pH	TDS	Na	CO3	Alk	HCO3	NO3	Ca	Mg	K	Si	Cl	F	TH
Ramanagara	Kanakapura	Harohalli	Base	22-05-2017	240	0.15	2600	7.75	1770	414	0	0	321	202	173	112	8	0	442	0.36	850
			Trend	30-10-2017	0	0.19	2500	7.48	0	0	0	0	0	190	0	0	0	0	264	0.35	0
			Base	25-05-2018	410	0.06	3110	7.1	1990	420	0	0	212	251	229	14	6	0	529	0.39	628
			Trend	18-11-2018	0	0	1080	7.72	0	0.07	0	0	0	7	0	0	0	0	0	0.88	0
			Base	14-05-2019	130	0.1	1575	7.63	900	142	0	0	392	29	104	48	17	0	218	0.37	452
			Base	22-05-2020	130	0.04	760	8.14	456	75	0	0	213	5	38	29	2	0	48	0.31	212

ಮತ್ತು ಸದರಿ ಪ್ರದೇಶದಲ್ಲಿ ಅಂತರ್ಜಲ ಮಾಲಿನ್ಯ ಆಗಿರುವ ಬಗ್ಗೆ ಯಾವುದೇ ದೂರುಗಳು ಸ್ವೀಕೃತವಾಗಿರುವುದಿಲ್ಲ.

ತಮ್ಮ ವಿಶ್ವಾಸಿ,

ಹಿರಿಯ ಭೂ ವಿಜ್ಞಾನಿ,
ಜಿಲ್ಲಾ ಅಂತರ್ಜಲ ಕಛೇರಿ
ರಾಮನಗರ

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ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ಹಿರಿಯ ಭೂವಿಜ್ಞಾನಿ, ಜಿಲ್ಲಾ ಅಂತರ್ಜಲ ಕಛೇರಿ, ಅಂತರ್ಜಲ ನಿರ್ದೇಶನಾಲಯ,

ನಂ.102, 3ನೇ ಕ್ರಾಸ್, 1ನೇ ಬ್ಲಾಕ್, ಉತ್ತರ ಬಡಾವಣೆ, 1ನೇ ಫೇಸ್, ರತ್ನಾಕರ ಬ್ಯಾಂಕ್ ಪಕ್ಕ, ಬಿ.ಎಂ.ರಸ್ತೆ,
ಎರಡನೇ ಮಹಡಿ, (ರಾಯಲ್ ಎನ್‌ಫೀಲ್ಡ್ ಶೋರೂಂ ಮೇಲ್ಭಾಗದಲ್ಲಿ), ರಾಮನಗರ ಟೌನ್.

ದೂರವಾಣಿ ಸಂಖ್ಯೆ:- 080-27273397, E mail ID: sgdgwramnagar@gmail.com

ಸಂಖ್ಯೆ:ಹಿಭೂವಿ/ಅಂಜನಿರಾ/ವಾಣಿಜ್ಯ/2020-21/164 ದಿನಾಂಕ:10.08.2020

ತಿಳುವಳಿಕೆ ಪತ್ರ

ವಿಷಯ: ಕೈಗಾರಿಕೆ/ವಾಣಿಜ್ಯ/ಮನರಂಜನೆ ಬಳಕೆಗಾಗಿ ಬಾವಿ/ಕೊಳವೆ ಬಾವಿಯಿಂದ ಅಂತರ್ಜಲ ಹೊರತೆಗೆದು ಉಪಯೋಗಿಸುತ್ತಿರುವ ಬಗ್ಗೆ.

ಉಲ್ಲೇಖ: (1) ಕರ್ನಾಟಕ ಅಂತರ್ಜಲ (ಅಭಿವೃದ್ಧಿ ಮತ್ತು ನಿರ್ವಹಣೆ ವಿನಿಯಮನ ಹಾಗೂ ನಿಯಂತ್ರಣ) ಅಧಿನಿಯಮ 2011 ಮತ್ತು ನಿಯಮಾವಳಿ 2012.

(2) ನಿರ್ದೇಶಕರು, ಅಂತರ್ಜಲ ನಿರ್ದೇಶನಾಲಯ ಹಾಗೂ ಸದಸ್ಯ ಕಾರ್ಯದರ್ಶಿಗಳು ಕರ್ನಾಟಕ ಅಂತರ್ಜಲ ಪ್ರಾಧಿಕಾರ, ಬೆಂಗಳೂರು ರವರ ಪತ್ರ ಸಂಖ್ಯೆ:ಕಅಂಪ್ರಾ/ಸಭೆ/02/2017-18 ದಿ:22.08.2017.

(3) ಸರ್ಕಾರದ ಅಧಿಸೂಚನೆ ಸಂಖ್ಯೆ: ಸನೀಇ 09 CdC 2015, ಬೆಂಗಳೂರು ದಿ:22.09.2017.

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ಮೇಲ್ಕಂಡ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ರಾಜ್ಯದಲ್ಲಿ ಅಂತರ್ಜಲ ಬಳಕೆ ಆಧಾರಿತ ಕೈಗಾರಿಕೆ/ವಾಣಿಜ್ಯ/ಮನರಂಜನೆ ಚಟುವಟಿಕೆಗಳು ನಡೆಯುತ್ತಿದ್ದು, ಉಲ್ಲೇಖ(1) ರ ಕರ್ನಾಟಕ ಅಂತರ್ಜಲ (ಅಭಿವೃದ್ಧಿ ಮತ್ತು ನಿರ್ವಹಣೆ ವಿನಿಯಮನ ಹಾಗೂ ನಿಯಂತ್ರಣ) ಅಧಿನಿಯಮ 2011 ಹಾಗೂ ನಿಯಮಾವಳಿ 2012 ರಂತೆ ಅಧಿಸೂಚಿತ ಪ್ರದೇಶಗಳಲ್ಲಿ ಅಂತರ್ಜಲ ಬಳಕೆದಾರರು ಕರ್ನಾಟಕ ಅಂತರ್ಜಲ ಪ್ರಾಧಿಕಾರದಲ್ಲಿ ಕಡ್ಡಾಯವಾಗಿ ನೋಂದಾಯಿಸಿಕೊಂಡು ಅಂತರ್ಜಲ ಬಳಸಲು ಅನುಮತಿ ಪತ್ರ ಪಡೆಯಬೇಕಾಗಿರುತ್ತದೆ. ಉಲ್ಲೇಖ (2) ರಲ್ಲಿ ತಿಳಿಸಿರುವಂತೆ ಅಂತರ್ಜಲ ಬಳಸಬಹುದಾದ ಪ್ರಮಾಣವು 25000 ltr/day ವರೆಗೆ ಇದ್ದಲ್ಲಿ ಜಿಲ್ಲಾ ಅಂತರ್ಜಲ ಸಮಿತಿಯಿಂದ ಅನುಮತಿ ಪಡೆಯಬಹುದಾಗಿರುತ್ತದೆ. ಒಂದು ವೇಳೆ ಅಂತರ್ಜಲ ಬಳಕೆ ಪ್ರಮಾಣವು 25000 ltr/day ಮೇಲ್ಪಟ್ಟಿದ್ದರೆ ಕರ್ನಾಟಕ ಅಂತರ್ಜಲ ಪ್ರಾಧಿಕಾರ ಬೆಂಗಳೂರಿನಲ್ಲಿ ಅನುಮತಿ ಪಡೆಯಬೇಕಾಗಿರುತ್ತದೆ.

ಉಲ್ಲೇಖ(3) ರಂತೆ ಜಿಲ್ಲೆಯ ರಾಮನಗರ & ಕನಕಪುರ ತಾಲ್ಲೂಕು ಅಂತರ್ಜಲ 'ಅತಿಬಳಕೆ' ತಾಲ್ಲೂಕು ಎಂದು ಅಧಿಸೂಚಿಸಲಾಗಿರುತ್ತದೆ. ಈ ಸಂಬಂಧ ಜಿಲ್ಲೆಯ ಅಧಿಸೂಚಿತ ಪ್ರದೇಶವಾದ ರಾಮನಗರ ತಾಲ್ಲೂಕಿನಲ್ಲಿ ತಮ್ಮ ಕೈಗಾರಿಕೆ/ಕಾರ್ಖಾನೆಯು ಅಂತರ್ಜಲ ಬಳಸಿ ಪ್ರಸ್ತುತ ಕಾರ್ಯನಿರ್ವಹಿಸುತ್ತಿದ್ದಲ್ಲಿ ಕಡ್ಡಾಯವಾಗಿ ಅನುಮತಿ ಪಡೆಯಬೇಕಾಗಿರುತ್ತದೆ. ತತ್ಸಂಬಂಧ ಅನುಮತಿ ಪಡೆಯಲು ನಿಗಧಿತ ನಮೂನೆಯಲ್ಲಿ ಲಗತ್ತಿಸಿರುವ ಚೆಕ್‌ಲಿಸ್ಟ್‌ನಲ್ಲಿರುವ ಪ್ರಕಾರ ಕೂಡಲೇ ಮಾಹಿತಿಯನ್ನು ಭರ್ತಿ ಮಾಡಿ, ಒಂದು ಕೊಳವೆಬಾವಿಗೆ ರೂ.500/- ರಂತೆ ನಿಗಧಿತ ಶುಲ್ಕವನ್ನು ಹಾಗೂ ಹಂಡದ ಮೊತ್ತ ಒಂದು ಕೊಳವೆ ಬಾವಿಗೆ ರೂ.5000/- ದಂತೆ Chairman, Karnataka Groundwater Authority, Bangalore ರವರ ಹೆಸರಿನಲ್ಲಿ ಪಡೆದು ನಿಯೋಜಿತ ಸಮಿತಿಗೆ ಸಲ್ಲಿಸಲು ಸೂಚಿಸಿದೆ.

ಗೆ,

MOTHER EARTH ENVIORN TECH PRIVATE LIMITED
Plot No.217, 2nd Phase KIADB Industrial Area,
Harohalli, Kanakapura tauk
Ramanagara Dist-562112

Rajashree
ಹಿರಿಯ ಭೂವಿಜ್ಞಾನಿ
ಜಿಲ್ಲಾ ಅಂತರ್ಜಲ ಕಛೇರಿ
ರಾಮನಗರ.

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ಸಂಖ್ಯೆ:ಕಾ.ಅ/ಗ್ರಾ.ಕು.ನೀ.&ನೈ.ವಿ/ರಾ/2020-21 / 6೮೦-೦1

ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರವರ ಕಛೇರಿ,
ಗ್ರಾಮೀಣ ಕುಡಿಯುವ ನೀರು & ನೈರ್ಮಲ್ಯ ವಿಭಾಗ,
ರಾಮನಗರ
ದಿ: 4/08/2020

ಗೆ,

ಸಾರ್ವಜನಿಕ ಮಾಹಿತಿ ಅಧಿಕಾರಿ
ಹಾಗೂ ಉಪಕಾರ್ಯದರ್ಶಿ,
ರಾಮನಗರ ಜಿಲ್ಲಾ ಪಂಚಾಯತ್,
ರಾಮನಗರ.

ಮಾನ್ಯರೇ,

ವಿಷಯ: ಮಾಹಿತಿ ಹಕ್ಕು ಅಧಿನಿಯಮ-2005ರನ್ವಯ ಅರ್ಜಿಯನ್ನು ವರ್ಗಾಯಿಸಿರುವ ಬಗ್ಗೆ.

ಉಲ್ಲೇಖ: M/s Mother Earth Environ Tech Private Limited, Chaitra Groups, # 2542, 28th Cross, 17th Main, Banashankari 2nd Stage, Bangalore-560070 ರವರ ಮಾಹಿತಿ ಹಕ್ಕು ಅರ್ಜಿ ಸಂಖ್ಯೆ:MEEPL/20-21/38 ದಿನಾಂಕ:30-07-2020.

<><><>

ಮೇಲ್ಕಂಡ ಉಲ್ಲೇಖಿತ ಪತ್ರದಲ್ಲಿ M/s Mother Earth Environ Tech Private Limited, Chaitra Groups, # 2542, 28th Cross, 17th Main, Banashankari 2nd Stage, Bangalore ರವರು ಮಾಹಿತಿ ಹಕ್ಕು ಅಧಿನಿಯದಡಿ ತಮ್ಮ ಸಂಸ್ಥೆಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ಸುತ್ತಮುತ್ತಲಿನ ಹಳ್ಳಿಗಳಿಂದ ಯಾವುದಾದರು ದೂರುಗಳಿದ್ದಲ್ಲಿ ತಿಳಿಯಪಡಿಸಬೇಕಾಗಿ ಕೋರಿರುತ್ತಾರೆ. ಸದರಿ ಅರ್ಜಿದಾರರು ನೋರಿದಾಣಿ ಶುಲ್ಕ ರೂ.10/- ಗಳನ್ನು ಪೋಸ್ಟಲ್ ಆರ್ಡರ್ ಸಂಖ್ಯೆ:50 F 382854 ರಲ್ಲಿ ಪಾವತಿಸಿರುತ್ತಾರೆ. ಅದರಂತೆ ಅರ್ಜಿದಾರರು ಕೋರಿರುವ ಮಾಹಿತಿಯನ್ನು ಮಾಹಿತಿ ಹಕ್ಕು ಅಧಿನಿಯಮ ಕಾಲಂ 6 (3)ರ ಅಡಿಯಲ್ಲಿ ವರ್ಗಾಯಿಸಲಾಗಿದೆ.

ತಮ್ಮ ವಿಶ್ವಾಸಿ,
ಸಹಿ/-
ಸಾರ್ವಜನಿಕ ಮಾಹಿತಿ ಅಧಿಕಾರಿ,
ಹಾಗೂ ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್,
ಗ್ರಾಮೀಣ ಕುಡಿಯುವ ನೀರು ಮತ್ತು ನೈರ್ಮಲ್ಯ ವಿಭಾಗ,
ರಾಮನಗರ

ಪ್ರತಿಯನ್ನು M/s Mother Earth Environ Tech Private Limited, Chaitra Groups, # 2542, 28th Cross, 17th Main, Banashankari 2nd Stage, Bangalore-560070 ರವರ ಮಾಹಿತಿಗಾಗಿ ಕಳುಹಿಸಿದೆ.

ಸಾರ್ವಜನಿಕ ಮಾಹಿತಿ ಅಧಿಕಾರಿ,
ಹಾಗೂ ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್,
ಗ್ರಾಮೀಣ ಕುಡಿಯುವ ನೀರು ಮತ್ತು ನೈರ್ಮಲ್ಯ ವಿಭಾಗ,
ರಾಮನಗರ

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APPLICATION UNDER THE RIGHT TO INFORMATION ACT 2005

FORM-A (section 6(1) and 7(1) of the RTI Act, 2005)

1. Full Name of the Applicant	M/s Mother Earth Environ Tech Pvt Limited
2. Address	No.2542, 17th Main, 28th Cross, Banashankari 2nd Stage, Near BDA complex Bengaluru -560070. Ph. No. 7338464597,9845919905.
3. Details of the document/Inspection/Samples required	As per Annexure – 1
4. Year to which the above pertains	16-05-2016 to 28-07-2020
5. Designation and Address of the Public Information Officer from whom the information is required.	The Executive Officer, Zilla Panchayat Ramanagar.

Enclose of Annexure – 1 and Rs.10/-I.P.O/ D.D. / Cash with the application.

Place: Harohalli
Date: 30/07/2020

Authorised Signature of the Applicant

30/07/2020

(Mother Earth Environ Tech Pvt limited)

Mother Earth Environ Tech Pvt. Ltd. Harohalli

ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ಹಾರೋಹಳ್ಳಿ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ ಕಾರ್ಯಾಲಯ

ಹಾರೋಹಳ್ಳಿ ಹೋಬಳಿ, ಕನಕಪುರ ತಾಲ್ಲೂಕು, ರಾಮನಗರ ಜಿಲ್ಲೆ.

ಸಂಖ್ಯೆ: ಹಾ.ಗ್ರಾ.ಪಂ/ಜಸಂ/2020-21 ದಿನಾಂಕ : 06-08-2020

ರವರಿಗೆ,
ಮದರ್ ಅರ್ಥ್ ಎನ್‌ವಿರನ್ ಟೆಕ್ ಪ್ರೈ.ಲಿ
ಪ್ಲಾಟ್ ನಂ.217, 2ನೇ ಹಂತ, ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ
ಹಾರೋಹಳ್ಳಿ.

ಮಾನ್ಯರೇ,

ವಿಷಯ:- ಮದರ್ ಅರ್ಥ್ ಎನ್‌ವಿರನ್ ಟೆಕ್ ಪ್ರೈ.ಲಿ ಪ್ಲಾಟ್ ನಂ.217, 2ನೇ ಹಂತ, ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ ಹಾರೋಹಳ್ಳಿ ಹತ್ತಿರದ ಗ್ರಾಮಗಳ ಜನಸಂಖ್ಯೆ ಹಾಗೂ ಕುಟುಂಬ ಸಂಖ್ಯೆ ನೀಡುವ ಬಗ್ಗೆ.

ಮೇಲ್ಕಂಡ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ರಾಮನಗರ ಜಿಲ್ಲೆ, ಕನಕಪುರ ತಾಲ್ಲೂಕು, ಹಾರೋಹಳ್ಳಿ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ ವ್ಯಾಪ್ತಿಯಲ್ಲಿರುವ ಮದರ್ ಅರ್ಥ್ ಎನ್‌ವಿರನ್ ಟೆಕ್ ಪ್ರೈ.ಲಿ ಪ್ಲಾಟ್ ನಂ.217, 2ನೇ ಹಂತ, ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ ಹಾರೋಹಳ್ಳಿ ಹತ್ತಿರದ ಗ್ರಾಮಗಳ ಜನಸಂಖ್ಯೆ ಹಾಗೂ ಕುಟುಂಬ ಸಂಖ್ಯೆ ಈ ಕೆಳಕಂಡಂತೆ ಇದೆ.

ಕ್ರ.ಸಂ	ಗ್ರಾಮದ ಹೆಸರು	ಒಟ್ಟು ಕುಟುಂಬಗಳ ಸಂಖ್ಯೆ	ಒಟ್ಟು ಜನಸಂಖ್ಯೆ
1	ಗಿರೇನಹಳ್ಳಿ	87	348
2	ಗಾಣಾಳುದೊಡ್ಡಿ	140	520

ತಮ್ಮ ವಿಶ್ವಾಸಿ,

ಪಂಚಾಯಿತಿ ಅಭಿವೃದ್ಧಿ ಅಧಿಕಾರಿ
ಹಾರೋಹಳ್ಳಿ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ
ಕನಕಪುರ ತಾಲ್ಲೂಕು

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ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ಹಾರೋಹಳ್ಳಿ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ ಕಾರ್ಯಾಲಯ

ಹಾರೋಹಳ್ಳಿ ಹೋಬಳಿ, ಕನಕಪುರ ತಾಲ್ಲೂಕು, ರಾಮನಗರ ಜಿಲ್ಲೆ.

ಸಂಖ್ಯೆ :ಹಾ.ಗ್ರಾ.ಪಂ/ಜಸಂ/2020-21 ದಿನಾಂಕ : 06-08-2020

ರವರಿಗೆ,
ಮದರ್ ಅರ್ಥ್ ಎನ್‌ವಿರನ್ ಟೆಕ್ ಪ್ರೈ.ಲಿ
ಪ್ಲಾಟ್ ನಂ.217, 2ನೇ ಹಂತ, ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ
ಹಾರೋಹಳ್ಳಿ.

ಮಾನ್ಯರೇ,

ವಿಷಯ:- ಮದರ್ ಅರ್ಥ್ ಎನ್‌ವಿರನ್ ಟೆಕ್ ಪ್ರೈ.ಲಿ ಪ್ಲಾಟ್ ನಂ.217, 2ನೇ ಹಂತ, ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ ಹಾರೋಹಳ್ಳಿ ಹತ್ತಿರದ ಗ್ರಾಮಗಳ ಜನಸಂಖ್ಯೆ ಹಾಗೂ ಕುಟುಂಬ ಸಂಖ್ಯೆ ನೀಡುವ ಬಗ್ಗೆ.

ಮೇಲ್ಕಂಡ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ರಾಮನಗರ ಜಿಲ್ಲೆ, ಕನಕಪುರ ತಾಲ್ಲೂಕು, ಹಾರೋಹಳ್ಳಿ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ ವ್ಯಾಪ್ತಿಯಲ್ಲಿರುವ ಮದರ್ ಅರ್ಥ್ ಎನ್‌ವಿರನ್ ಟೆಕ್ ಪ್ರೈ.ಲಿ ಪ್ಲಾಟ್ ನಂ.217, 2ನೇ ಹಂತ, ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ ಹಾರೋಹಳ್ಳಿ ಹತ್ತಿರದ ಗ್ರಾಮಗಳ ಜನಸಂಖ್ಯೆ ಹಾಗೂ ಕುಟುಂಬ ಸಂಖ್ಯೆ ಈ ಕೆಳಕಂಡಂತೆ ಇದೆ.

ಕ್ರ.ಸಂ	ಗ್ರಾಮದ ಹೆಸರು	ಒಟ್ಟು ಕುಟುಂಬಗಳ ಸಂಖ್ಯೆ	ಒಟ್ಟು ಜನಸಂಖ್ಯೆ
1	ಗಿರೇನಹಳ್ಳಿ	97	376
2	ಗಾಣಾಳುದೊಡ್ಡಿ	300	1200

ತಮ್ಮ ವಿಶ್ವಾಸಿ,

ಪಂಚಾಯಿತಿ ಅಭಿವೃದ್ಧಿ ಅಧಿಕಾರಿ
ಹಾರೋಹಳ್ಳಿ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ
ಕನಕಪುರ ತಾಲ್ಲೂಕು

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ಹಾರೋಹಳ್ಳಿ ಗ್ರಾಮ ಪಂಚಾಯತಿ ಕಾರ್ಯಾಲಯ

ಹಾರೋಹಳ್ಳಿ, ಹಾರೋಹಳ್ಳಿ ಹೋಬಳಿ, ಕನಕಪುರ ತಾಲ್ಲೂಕು, ರಾಮನಗರ ಜಿಲ್ಲೆ.

ಕ್ರ.ಸಂಖ್ಯೆ: TO

ದಿನಾಂಕ : 6/8/2020

Mother Earth Environ Tech pvt. Ltd.
No. 2542, 17th Main, 28th cross
Banashankari, 2nd Stage
Near BDA Complex
Bangalore-560070.

Subject: - Harohalli Grama Panchayath : Furnishing Information under RTI Act-2005.

Ref: - RTI Petition appeal of M/S Mother Earth Environ Tech Pvt. Ltd. Dated: - 30/07/2020

With reference to the above cited, the information sought by the applicant under RTI act 2005, Is informed here with,

Sr. No.	QUESTION	ANSWER
1	Provide detail report of any complaints received From Surrounding villagers living in the vicinity of M/s Mother Earth Environ Tech Pvt. Ltd. KIADB Industrial Area Harohalli 2nd Phase.	From 16-05-2016 to 28-07-2020, No Complaints received from Surrounding Villagers living in the vicinity of M/s Mother Earth Environ Tech Pvt. Ltd. KIADB Industrial Area Harohalli 2nd Phase.

This is for your information.

ಪಂಚಾಯತಿ ಅಭಿವೃದ್ಧಿ ಅಧಿಕಾರಿ
ಹಾರೋಹಳ್ಳಿ ಗ್ರಾಮ ಪಂಚಾಯತಿ
ಕನಕಪುರ ತಾಲ್ಲೂಕು

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ಹಾರೋಹಳ್ಳಿ ಗ್ರಾಮ ಪಂಚಾಯತಿ ಕಾರ್ಯಾಲಯ

ಹಾರೋಹಳ್ಳಿ, ಹಾರೋಹಳ್ಳಿ ಹೋಬಳಿ, ಕನಕಪುರ ತಾಲ್ಲೂಕು, ರಾಮನಗರ ಜಿಲ್ಲೆ.

ಕ್ರ.ಸಂಖ್ಯೆ.

ದಿನಾಂಕ : 6/8/2020

TO

Mother Earth Environ Tech pvt. Ltd.
No. 2542, 17th Main, 28th cross
Banashankari, 2nd Stage
Near BDA Complex
Bangalore-560070.

Subject: - Harohalli Grama Panchayath : Furnishing Information under RTI Act-2005.

Ref: - RTI Petition appeal of M/S Mother Earth Environ Tech Pvt. Ltd. Dated: - 30/07/2020

With reference to the above cited, the information sought by the applicant under RTI act 2005, is informed here with,

Sr. No.	QUESTION	ANSWER
1	Provide detail report of any complaints received From Surrounding villagers living in the vicinity of M/s Mother Earth Environ Tech Pvt. Ltd. KIADB Industrial Area Harohalli 2nd Phase.	From 16-05-2016 to 28-07-2020, No Complaints received from Surrounding Villagers living in the vicinity of M/s Mother Earth Environ Tech Pvt. Ltd. KIADB Industrial Area Harohalli 2nd Phase.

This is for your information.

ಪಂಚಾಯಿತಿ ಅಭಿವೃದ್ಧಿ ಅಧಿಕಾರಿ
ಹಾರೋಹಳ್ಳಿ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ
ಕನಕಪುರ ತಾಲ್ಲೂಕು

MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

CIN : U93000KA2011PTC059184 ✆ +91 80 26712303, Fax : 080-26712305

CHAITRA GROUPS # 2542, 28th Cross, 17th Main, Banashankari 2nd Stage, Bengaluru - 560 070

MEEPL/20-21/37

Date: 30th July 2020

To

The Executive Officer,
Harohalli Panchayat,
Kanakapura Taluk,
Ramanagar District,
Karnataka.

Sub: **Right to Information of any Complaints received from surrounding villagers living in the vicinity of M/s Mother.earth Environ tech Pvt Limited, Facility located at Plot No.217, 2nd phase KIADB Industrial Area, Harohalli, Kanakapura Taluk, Ramanagara District, Karanataka-562112.**

Dear Sir,

With reference to above subject , Please provide detail report of any Complaints received from surrounding villagers living in the vicinity of M/s Mother earth Environ tech Pvt Limited Facility located at Plot No.217, 2nd phase KIADB Industrial Area, Harohalli, Kanakapura Taluk, Ramanagara District,Karanataka-562112.

Thanking you,

Yours sincerely,

30/07/2020

(Authorized Signatory)

Mother Earth Environ Tech Pvt. Ltd. Harohalli

M/s. Mother Earth Environ Tech Private Limited.

ದಿ: 4/8/20

info@motherearthenviron.com, motherearthenvirontech@gmail.com

http : www.motherearthenviron.com

SITE : Plot No. 217, 2nd Phase, KIADB Industrial Area, Harohalli, Kanakapura (Tq.), Ramanagara District, Karnataka - 562 112.

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APPLICATION UNDER THE RIGHT TO INFORMATION ACT 2005

FORM-A (section 6(1) and 7(1) of the RTI Act, 2005)

1. Full Name of the Applicant	M/s Mother Earth Environ Tech Pvt Limited
2. Address	No.2542, 17th Main, 28th Cross, Banashankari 2nd Stage, Near BDA complex Bengaluru -560070. Ph. No. 7338464597,9845919905.
3. Details of the document/Inspection/Samples required	As per Annexure – 1
4. Year to which the above pertains	16-05-2016 to 28-07-2020
5. Designation and Address of the Public Information Officer from whom the information is required.	The Executive Officer Harohalli Panchayat Kanakapura taluk Ramanagar district.

Enclose of Annexure – 1 and Rs.10/-I.P.O/ D.D. / Cash with the application.

Place: Harohalli
Date: 30/07/2020

Authorised Signature of the Applicant

30/07/2020

(Mother Earth Environ Tech Pvt limited)

Mother Earth Environ Tech Pvt. Ltd. Harohalli

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Annexure - I

LIST OF DOCUMENTS DETAILS REQUIRED UNDER THE RIGHT TO INFORMATION ACT 2005

1. Provide detail report of any complaints received from surrounding villagers living in the vicinity of M/s Mother earth Environ tech Pvt Limited at KIADB Industrial Area, Harohalli phase-II.

Mother Earth Environ Tech Pvt. Ltd. Harohalli

31/02/2020

RPAD

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ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ರಾಮನಗರ ಜಿಲ್ಲಾ ಪಂಚಾಯತ್

ಮುಖ್ಯ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಧಿಕಾರಿಗಳ ಕಛೇರಿ, ಪಂಚಾಯತ್ ಭವನ, ಬಿ.ಎಂ.ರಸ್ತೆ, ರಾಮನಗರ–562159.

ಸಂಖ್ಯೆ:ರಾಜಿಪಂ/ಮಾಹಿತಿ/ಸಿಆರ್–90/2020–21 12639 ದಿನಾಂಕ:21.08.2020.

ಗೆ,
ಸಾರ್ವಜನಿಕ ಮಾಹಿತಿ ಅಧಿಕಾರಿ,
ಚೀಲೂರು ಗ್ರಾಮ ಪಂಚಾಯಿತಿ,
ಹಾರೋಹಳ್ಳಿ ಹೋಬಳಿ,
ಕನಕಪುರ ತಾಲ್ಲೂಕು–562112,

ಮಾನ್ಯರೆ,

ವಿಷಯ:– ಮಾಹಿತಿ ಹಕ್ಕು ಅಧಿನಿಯಮದಡಿ ಮಾಹಿತಿ ಕೋರಿರುವ ಬಗ್ಗೆ.

ಉಲ್ಲೇಖ:1), M/s Mother Earth Environ Tech Private Limited, Chaitra Groups, Banashankari 2nd Stage, Bangalore ರವರ ಮಾಹಿತಿಹಕ್ಕು ಅರ್ಜಿ ದಿ:30/07/2020.

2). ಸಾರ್ವಜನಿಕ ಮಾಹಿತಿ ಅಧಿಕಾರಿ ಹಾಗೂ ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್, ಗ್ರಾಮೀಣ ಕುಡಿಯುವ ನೀರು ಮತ್ತು ನೈರ್ಮಲ್ಯ ವಿಭಾಗ, ರಾಮನಗರ ರವರ ಪತ್ರ ಸಂಖ್ಯೆ:ಕಾ.ಅ/ಗ್ರಾ.ಕು.ನೀ.&ನೈ.ವಿ/2020–21 ದಿ:04/08/2020.

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ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಉಲ್ಲೇಖ(1)ರ ಅರ್ಜಿಯಲ್ಲಿ ಅರ್ಜಿದಾರರು ಮಾಹಿತಿ ಹಕ್ಕು ಅಧಿನಿಯಮ 2005ರ 6(1) ಮತ್ತು 7(1)ರಡಿ ಅರ್ಜಿ ಸಲ್ಲಿಸಿ Provide detail report of any complaints received from surrounding villagers living in the vicinity of M/s Mother earth Environ tech Pvt Limited at KIADB Industrial Area, Harohalli phase-II ಎಂಬ ಮಾಹಿತಿಯನ್ನು ಕೋರಿದ್ದು, ಉಲ್ಲೇಖ(2)ರಂತೆ ಸದರಿ ಅರ್ಜಿಯನ್ನು ಈ ಕಛೇರಿಗೆ ವರ್ಗಾಯಿಸಲಾಗಿರುತ್ತದೆ. ಪರಿಶೀಲಿಸಲಾಗಿ, ಸದರಿ ಅರ್ಜಿಯ ವಿಷಯವು ತಮ್ಮ ಕಛೇರಿ ವ್ಯಾಪ್ತಿಗೆ ಒಳಪಟ್ಟಿದ್ದು ಸದರಿ ಅರ್ಜಿಯನ್ನು ಮಾಹಿತಿ ಹಕ್ಕು ಅಧಿನಿಯಮ ಕಲಂ 6(3)ರ ಅಡಿಯಲ್ಲಿ ನಿಮಗೆ ವರ್ಗಾಯಿಸಲಾಗಿದೆ. ಅದರಂತೆ ಅರ್ಜಿದಾರರು ಕೋರಿರುವ ಅರ್ಜಿಯಲ್ಲಿನ ನಿಮ್ಮ ವ್ಯಾಪ್ತಿಗೆ ಸೇರಿದ ಮಾಹಿತಿಯನ್ನು ನಿಗದಿತ ಅವಧಿಯೊಳಗೆ ನೇರವಾಗಿ ಅರ್ಜಿದಾರರಿಗೆ ಸಂಪೂರ್ಣ ಮಾಹಿತಿ ನೀಡಲು ಹಾಗೂ ಯಥಾ ಪ್ರತಿಯನ್ನು ಈ ಕಛೇರಿಗೆ ಕಳುಹಿಸಲು ಸೂಚಿಸಿದೆ. ಅರ್ಜಿದಾರರು ನೊಂದಣಿ ಶುಲ್ಕ ಪಾವತಿಸಿದ್ದಾರೆ, ಉಳಿದಂತೆ ಮಾಹಿತಿ/ದಾಖಲಾತಿಗಳನ್ನು ಶುಲ್ಕ ಪಡೆದು ಒದಗಿಸಲು ಸೂಚಿಸಿದೆ.

ತಮ್ಮ ವಿಶ್ವಾಸಿ,

ಸಾರ್ವಜನಿಕ ಮಾಹಿತಿ ಅಧಿಕಾರಿ
ಹಾಗೂ ಉಪಕಾರ್ಯದರ್ಶಿ,
ರಾಮನಗರ ಜಿಲ್ಲಾ ಪಂಚಾಯತ್.

ಪ್ರತಿಯನ್ನು:

1. M/s Mother Earth Environ Tech Private Limited, Chaitra Groups, No.2542, 17th Main, 28th Cross, Banashankari 2nd Stage, Near BDA complex, Bengaluru-560070 ರವರ ಮಾಹಿತಿಗಾಗಿ.

Sy-S-Rafi-Mahithihakku-2020-21-150

A-30

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
KARNATAKA STATE POLLUTION CONTROL BOARD

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ಪ್ರಾದೇಶಿಕ ಕಛೇರಿ – ರಾಮನಗರ
ಪರಿಸರ ಭವನ, ಜಿಲ್ಲಾಧಿಕಾರಿಗಳ ಕಛೇರಿ ಹತ್ತಿರ,
ಬೆಂಗಳೂರು–ಮೈಸೂರು ರಸ್ತೆ, ರಾಮನಗರ–562159
ದೂರವಾಣಿ : 080–27275678

REGIONAL OFFICE - RAMANAGARA
Parisara Bhavana, Near DC Office,
Bangalore-Mysore Road, Ramanagara - 562159
Email : ramnagar@kspcb.gov.in

NO:KSPCB/RO-RMN/2020-21/ 382

DATE: 18-12-2020
ಧಾವಾನಿಸಲಾಗಿದೆ

To,
The Member Secretary
'Parisara Bhavana'
Karnataka State Pollution Control Board,
Bangalore.

Sir,

Sub: Utilization of Existing Hazardous waste storage area of M/s. Mother Earth Environ Tech Pvt. Ltd., Plot No. 217, II Phase, Harohalli Industrial Area, Kanakapura Taluk, Ramanagar District TSDF as a collection Center for small quantity Hazardous waste generators - Reg

Ref: M/s. Mother Earth Environ Tech Pvt. Ltd., letter dated 10.12.2020 received at this office on 17.12.2020.

*****

M/s. Mother Earth Environ Tech Pvt. Ltd., Plot No. 217, II Phase, KIADB Harohalli Industrial Area, Harohalli, Kanakapura Taluk, Ramanagar District is an existing Hazardous Waste TSDF landfill facility for which CFE has been issued for capacity 151000 Tons. The consent for operation under the Water Act and the Air Act is valid upto 30.06.2021.

Now, they have submitted a letter to this office stating that, the TSDF is receiving waste from industries for land filling as per its capacity and it is proposed for capping as per the Hazardous Waste and CPCB guidelines. The Cell –I of the TSDF land fill was already completed and has been temporarily capped with Gas Liner with HDPE sheets and Cell –II of the TSDF land fill is also under almost completion stage & is of about 49500 tons of waste has been already filled in Cell – II and only remaining 1500 tons of waste can be filled to complete the total capacity of the landfill site from both Cell I & II. They have proposed to take up capping of the TSDF once the capacity of the TSDF is completed

Once after the completion of TSDF capping they have proposed to utilize the exiting Hazardous Waste storage area of 535 Sq.ft capacity to collect the Hazardous Waste from small quantity generators. As the small scale generators will not have sufficient place to store the Hazardous Waste and it is also not economically viable to transport by individual industries. M/s. Mother Earth Environ Tech Pvt. Ltd., requested the Board to give permission to use the exiting

Scanned by CamScanner

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Hazardous Waste storage area vailable in the TSDF to utilize as a collection center (Bonded warehouse for Hazardous Waste for small scale industries) for small quantity generators. Once the quantity of waste collection comes to truck load, they have proposed to transport the waste to their new TSDF facility at Yadagiri for land filling.

Further, they have also stated that they will maintain all records regarding collection of Hazardous Waste, receiving, storage & transportation details in a respective manner to transport to the TSDF, Yadagiri in a scientific manner in a different compartment vehicle to maintain waste characteristic till reaches the TSDF.

The request letter of the industry is herewith enclosed to give permission to M/s. Mother Earth Environ Tech Pvt. Ltd., for utilization of exiting hazardous waste storage area in Harohalli plant TSDF as a collection center for small quantity hazardous waste generators with required terms and condition.

Yours faithfully,

Environmental Officer,
Ramanagar

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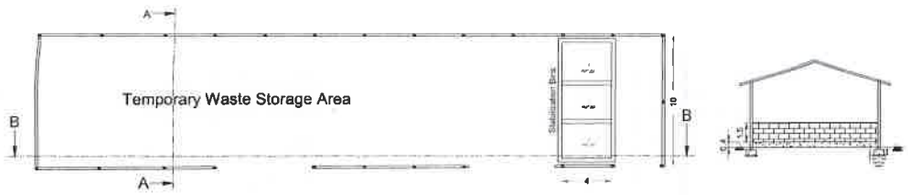
NOTICE

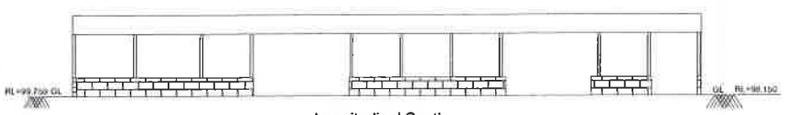
The State Level Environment Impact Assessment Authority, Karnataka (Constituted by Ministry of Environment & Forests, Government of India) has accorded the Environmental Clearance for Expansion of Hazardous Waste Landfill Facility (Total capacity to 1,51,000 MT) at Plot No. 217 of Harohalli Industrial Area, 2nd Phase, Kanakapura Taluk, Ramanagara District by M/s. Mother Earth Environ Tech Pvt. Ltd., #2542, 28th Cross, 17th Main Road, Banashankari 2nd Stage, Bengaluru – 70 vide letter No. SEIAA 18 IND 2017 dated 11th June 2018.

The said copy of Environmental Clearance is available with the KSPCB and in the website of the Environment and Ecology Department at http://seiaa.kar.nic.in.

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Longitudinal Section

Scale

3m 0 9m

All Dimensions are In metres

Key Map: 648



Mother Earth Enviro Tech Private Limited

Project

Common Hazardous Waste Treatment Storage Disposal Facility

At KIADB Harohalli Industrial Area Phase II Kanakapura Taluk, Ramanagara District, Karnataka

Drawing Title

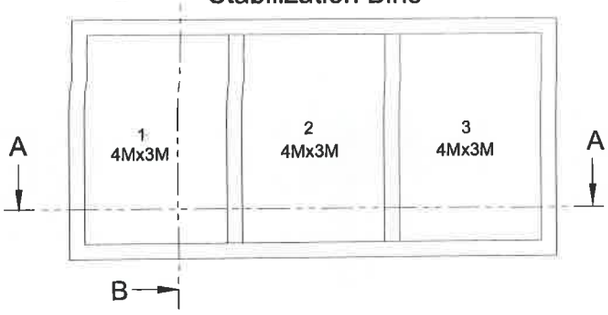
Industrial Storage Shed

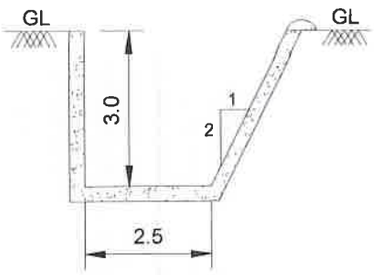
Drawing No:- MEEPL/Civil/006

Date: Jan-2017

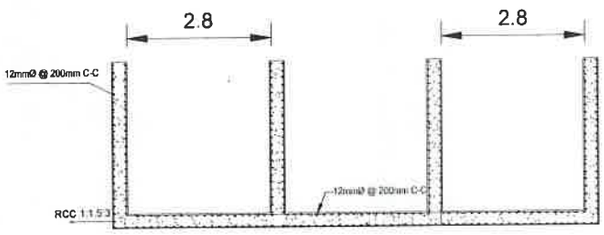
A-32

B → Stabilization Bins



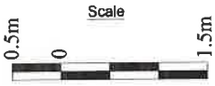


Cross Section@B-B



Cross Section@A-A

Scale



Note:-

All Dimensions are In metres

Key Map: 849



Mother Earth Environ Tech Private Limited

Project

Common Hazardous Waste Treatment Storage Disposal Facility

At KIADB Harohalli Industrial Area Phase II Kanakapura Taluk, Ramanagara District, Karnataka

Drawing Title

Stabilization Bins

Drawing No:- MEEPL/Civil/008	
Date:	Jan-2017

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ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ

KARNATAKA STATE POLLUTION CONTROL BOARD

ಪ್ರಾದೇಶಿಕ ಕಛೇರಿ – ರಾಮನಗರ
ಪರಿಸರ ಭವನ, ಜಿಲ್ಲಾಧಿಕಾರಿಗಳ ಕಛೇರಿ ಹತ್ತಿರ,
ಬೆಂಗಳೂರು–ಮೈಸೂರು ರಸ್ತೆ, ರಾಮನಗರ–562159
ದೂರವಾಣಿ : 080–27275678

REGIONAL OFFICE - RAMANAGARA
Parisara Bhavana, Near DC Office,
Bangalore-Mysore Road, Ramanagara - 562159
Email : ramnagar@kspcb.gov.in

Kind attn: SEO-Waste Management Cell

No: KSPCB/RO/RMN/F No. 1031/IR/2020-21/432 **Date:** 06/01/2021

ರವಾನಿಸಲಾಗಿದೆ

INSPECTION REPORT OF SRI VASUDEVA S.K, EO, KSPCB, REGIONAL OFFICE RAMANAGARA

Mother Earth Environ Tech Pvt Ltd is an existing Common Hazardous waste TSDF facility located at plot No. 217, Harohalli KIADB Indl Area, 2nd phase, Kanakapura Taluk, Ramanagara District having valid CFO up to 30.06.2021 and authorisation under HWM Rules valid up to 30.06.2021. The CFO and authorisation has been issued for the hazardous waste landfill with two cells of capacity of 1, 51,000 Tons.

The TSDF was inspected by the under signed on 04.01.2021 to verify the latest status of the TSDF and observed the followings.

1. The TSDF was under operation at the time of inspection. The Cell-I of the TSDF has been temporarily capped with Gas liner and HDPE Sheets of thickness 1.5 mm and they have filled1 lakh MT of hazardous waste in Cell-I and the landfillable capacity of Cell-I is 1,00 ,000 MT as informed by the TSDF Authorities.

2. The filling of Cell-II was almost under completion stage and about 49,897 MT of waste has been already filled in Cell-II so far as on 04.01.2021 and the total landfillable capacity of Cell-II is 51,000 MT. It was informed that, remaining 1103 Tons of waste can be filled in the Cell-II to complete the landfill facility and the same will be completed within 20th January 2021. On verification of record it was noticed that the TSDF has received.1262.78.ton of waste in the month of November-2020 and1.3.0.5.5. Ton of waste during the month of December 2020 for land filling from member industries

3. They have provided waste stabilization shed of 80 m x 10 m size, consisting of 3 numbers of concrete stabilization pits each of capacity 30MT along with wood and ducting followed by scrubber with chimney of height 15 m AGL as APC measures. The wastes were being stabilized with lime and fly ash and the scrubbed liquid is stabilized with lime and fly ash and further disposed in landfill site.

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4. The sewage generated from the facility is being disposed through septic tank and soak pit. The trade effluent (leachate & tyre wash effluent) is being collected separately and finally handed over to CETP after pre-treatment in the facility for further treatment and disposal. They have provided new leachate pre treatment unit of capacity 15KL above ground level consisting of 2 numbers of neutralization tank followed by settling tank and final collection tank. The pre treated leachate is sending to M/s. Bangalore Eco Park Pvt Ltd and submitting the monthly manifest copies regularly. The industry has maintained records regarding disposal of disposal of leachate to CETP.

5. It was informed that, the generation of leachate is about 2.5 KL to 3 KL/day on an average and sending about 90 KL/Month of leachate to CETP after pre treatment and excess if any is being spraying on the landfill waste for dust control purpose and for well compaction to roller on the waste. On verification of records the TSDF has disposed 128.62 KL and 55.34 KL of leachate to CETP in the Month of November-2020 and December 2020 respectively.

6. They have provided storm water drains (garland canals) on East, West & North side. They have constructed three collection tanks of capacity 30 KL, 15 KL & 50KL for collecting the storm water from the TSDF area.

7. The authorization obtained by TSDF Authorities under HWM Rules is valid up to 30.06.2021. They have maintained records in Form-10 regarding collection of landfillable waste from industries and submitted Annual returns in Form-4.

It was informed that, they will provide scientific capping of the TSDF as per HWM rules-2016, once the consented capacity of the TSDF reached.

This is for kind information and needful

O\C

Environmental Officer
RO-Ramanagara

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Parisara Bhavana,No.49, Church Street,Bengaluru-560001
Tele : 080-25589112/3, 25581383
Fax:080-25586321
email id: ho@kspcb.gov.in

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Authorization No: 322921 **PCB ID:** 27521 **Date:** 13/01/2021

FORM FOR GRANT OR RENEWAL OF AUTHORISATION BY STATE POLLUTION CONTROL BOARD TO THE OCCUPIERS, RECYCLERS, REPROCESSORS, REUSERS, USER AND OPERATORS OF DISPOSAL FACILITIES

Ref: 1. Authorization application submitted by the industry/organization on 23/11/2020 at Regional Office.

2. Inspection of the project site/organization by Regional Officer , Ramanagar on 18/11/2020
3. Proceedings of CCM dated: 09/12/2020 , held on: 02/12/2020

1. Number of authorization 322921 and date of issue 13/01/2021

2. Reference of application No. 71190 Inward Date 23/11/2020

3. Managing Director of Mother Earth Environ Tech Pvt. Ltd is hereby granted an authorization based on the enclosed signed inspection report for Generation,Collection,Reception,Storage,Transport,Treatment,Disposal or any other use of hazardous or other wastes or both on the premises situated at the location **Address**: Plot No.217 , 2nd Phase, KIADB Harohalli Indl. Area, Kanakapura Tq **Industrial Area** : Harohalli , **Taluk** : Kanakapura , **District** : Ramnagaram

Details of Authorization:

Category of Hazardous waste as per the Schedule I,II & IV of these rules	Description of Hazardous Waste	Quantity/Annum	Unit	Authorized Mode of Disposal or recycling or utilization or co-processing, etc.,
I	5.2~Wastes Residues Containing Oil	2.710	M.T	As Per Annexure
I	5.1~Used Spent Oil	0.050		As Per Annexure

1. The authorization shall be valid for a period upto 30/06/2021

A. General Conditions of authorization:

1. The authorized person shall comply with the provisions of the Environment (Protection) Act, 1986 and the Rules made there under.

2. The authorization or its renewal shall be produced for inspection at the request of an Officer authorized by the Karnataka State Pollution Control Board.

3. The person authorized shall not rent, lend, sell, transfer or otherwise transport the hazardous wastes and other wastes except what is permitted through this authorization and without obtaining prior permission of the KSPCB.

Karnataka State Pollution Control Board
Parisara Bhavana,No.49, Church Street,Bengaluru-560001
Tele : 080-25589112/3, 25581383
Fax:080-25586321
email id: ho@kspcb.gov.in

4. Any unauthorized change in personnel, equipment or working conditions as mentioned in the application by the person authorized shall constitute a breach of this authorization.

5. The person authorized shall implement Emergency Response Procedure (ERP) for which this authorization is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time.

6. The person authorized shall comply with the provisions outlined in the Central Pollution Control Board guidelines on "Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty".

7. It is the duty of the authorized person to take prior permission of the Karnataka State Pollution Control Board to close down the facility.

8. The imported hazardous and other wastes shall be fully insured for transit as well as for any accidental occurrence and its clean-up operation.

9. The importer or exporter shall bear the cost of import or export and mitigation of damages if any.

10. Any other conditions for compliance as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.

11. An application for the renewal of an authorization shall be made **'3' months** before the date of expiry.

12. The Person authorized shall bring to the notice of the Board, if any increase in quantity, change in category and handling operation. In such cases, the authorized Person has to obtain fresh authorization.

13. Karnataka State Pollution Control Board reserves the right to review, impose additional condition or conditions, revoke, change or alter the terms and conditions of this authorization or to suspend or cancel this authorization.

14. The Person authorized shall take steps for reduction and prevention of the waste generated or for recycling or reuse.

15. The authorized person shall maintain the records at site in Form-3 and shall submit the annual returns in Form-4 within 30th June every year for the Period April to March and manifest in Form-10.

16. The record of consumption and fate of the imported hazardous and other wastes shall be maintained.

17. The hazardous and other waste which gets generated during recycling or reuse or recovery or per-processing or utilization of imported hazardous or other wastes shall be treated and disposed of as per specific conditions of authorization.

18. The transportation of hazardous waste shall have to be carried out only through registered/authorized vehicles meant for transportation of hazardous waste.

Parisara Bhavana,No.49, Church Street,Bengaluru-560001
Tele : 080-25589112/3, 25581383
Fax:080-25586321
email id: ho@kspcb.gov.in

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19. The Person Authorized shall not store the Hazardous Waste more than ninety days as per Rule 8 (1).

20. The Person Authorized shall transport and store the raw materials in a manner so as not to cause any damage to environment, life and property. The applicant shall be solely responsible for any damages to environment.

21. Display Boards: The person authorized shall display sign boards at the storage site as "Hazardous Waste Storage Site" and "Danger" and the site shall be provided with accident preventive measures.

Additional Conditions:

The TSDF facility shall follow the uploaded additional conditions.

For and on behalf of the
Karnataka State Pollution Control Board

CHIEF/ SENIOR ENVIRONMENTAL OFFICER

COPY TO:
1. The Environmental Officer, KSPCB, Regional Office,for information and to inspect the industry during your next visit to the area.
2. Master copy (Dispatch).
3. Office copy.

O/C A-36

MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

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An Integrated Management System Certified Company
Quality Management System-ISO 9001:2015
Environmental Management System – ISO 14001:2015
Occupational Health and Safety Management System- ISO 45001:2018
JAS-ANZ
CIN : U93000KA2011PTC059184
MEEPL
Head Office : Survey No. 13, Challaghatta Village, Kengeri Hobli, Bengaluru South Taluk, Bengaluru-560074.

Ref: MEEPL/HO/20-21/ 02/17

Date: 19th February

To

The Member Secretary,
Karnataka State Pollution Control Board
"Parisara Bhavan", #49,4th & 5th Floor,
Church Street, Bangalore-560001.

KSPCB Bangalore

Sub: - Capping of TSDF by Mother Earth Environ Tech Private Limited, Plot No.217, 2nd phase KIADB Industrial Area, Harohalli, Kanakapura Taluk, Ramanagara District, Karnataka-562112.

References:

1) Letter No. MEEPL/LAB/20-21/73 dated 04-01-2021 to Member Secretary KSPCB Bangalore-1.

Sir,

M/s Mother Earth Environ Tech Private Limited are operating Common Hazardous Waste Treatment, Storage and Disposal Facility (CHWTSDF) in the designated industrial area and obtained Environmental clearance (EC) as required under Environmental Impact Assessment Notification, from State Level Environment Impact Assessment Authority (SEIAA), Karnataka.

We have obtained Consent for Establishment from the Karnataka State pollution Control Board and obtained Consent for Operation under the Water (Prevention & Control of Pollution) Act,1974 & the Air (Prevention & Control of Pollution) Act, 1981 from Karnataka State Pollution Control Board and also Authorization under Hazardous Waste (Management, Handling & Trans boundary Movement) Rules 2008 and subsequent amendments from Karnataka State Pollution Control Board.

Mother Earth Environ Tech Pvt. Ltd. Bengaluru

hro@motherearthenviron.com, motherearthenvirontech@gmail.com
http://www.motherearthenviron.com
+91-80-26742303, Fax : 080-26712305
Unit 1 - SITE : Plot No. 217, 2nd Phase, KIADB Industrial Area, Harohalli, Kanakapura (Tq.), Ramanagara District, Karnataka - 562 112.
Unit 2 - SITE : Plot No. 158 to 164, KIADB Kadechur Industrial Estate, Village Kadechur, Tehsil and Yadgir District, Karnataka-585224.

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MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

An Integrated Management System Certified Company
Quality Management System-ISO 9001:2015
Environmental Management System – ISO 14001:2015
Occupational Health and Safety Management System- ISO 45001:2018

CIN : U93000KA2011PTC059184

MEEPL

Head Office : Survey No. 13, Challaghatta Village, Kengeri Hobli, Bengaluru South Taluk, Bengaluru-560074.

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Based on the reference letter (1) we have submitted the status of TSDF at Harohalli II phase Industrial Area submitted.

Similarly, once again I am furnishing the details as per the below:

- In this respect, we have constructed TSDF of two cells having of capacity of cell - 1, 100000 MT and it is capped.

  Cell -2 having 51000 MT and it is filled completely as on 03-02-2021.

  We have not receiving any waste to the site from 03-02-2021, we have hired expert consultant for capping TSDF as per CPCB Guidlines. Accordingly, we are submitting the report, Closure drawings along with this covering letter

  please approve the same to proceed further.

Thanking you,

Authorized sign

Mother Earth Environ Tech Pvt. Ltd. Bengaluru

For Mother Earth Environ Tech Pvt Ltd.,

Enclosed: Description of Closing Report and related Drawings.

CC: ENVIRONMENTAL OFFICER, RAMANAGAR

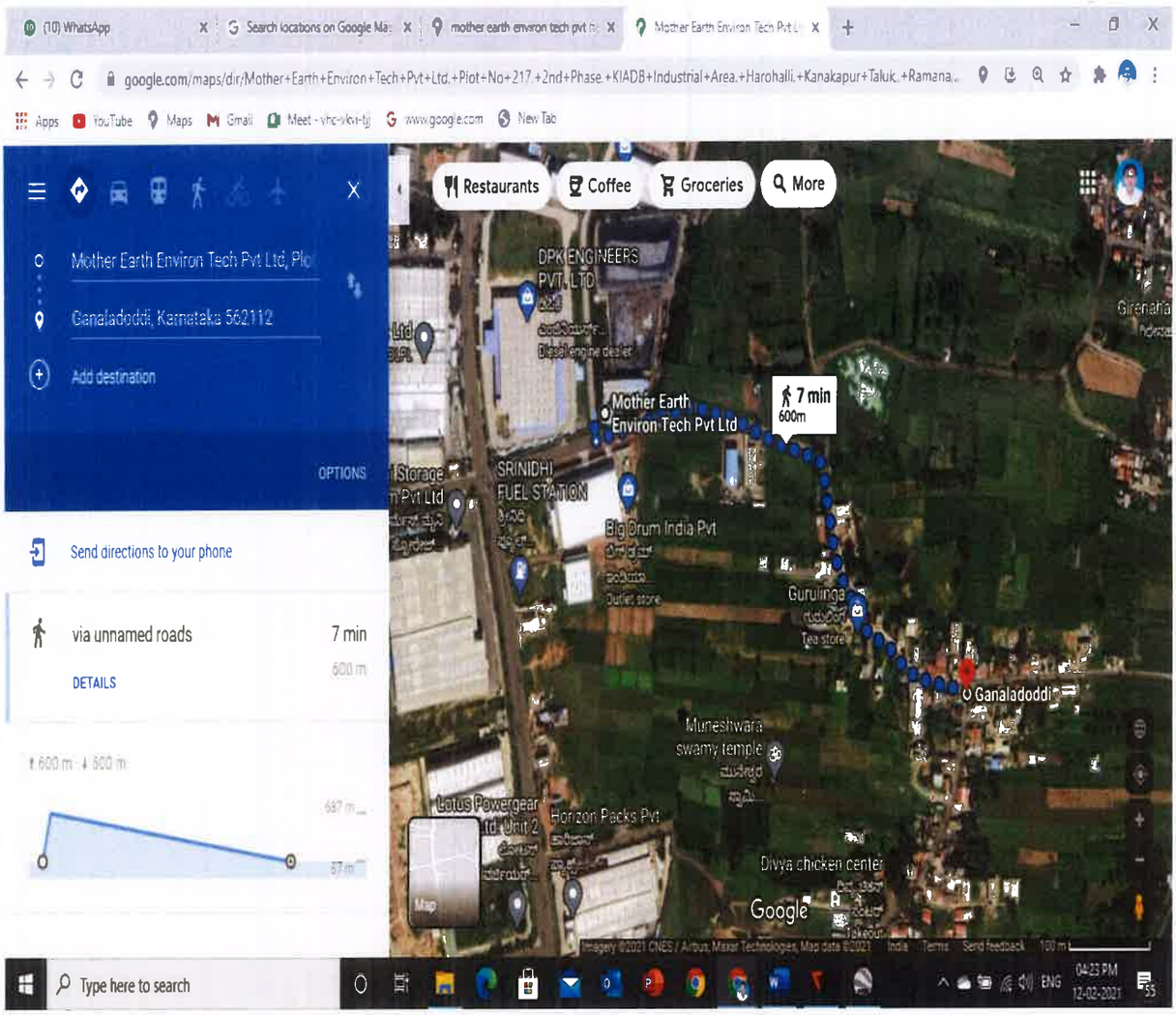
info@motherearthenviron.com, motherearthenvirontech@gmail.com
http : www.motherearthenviron.com
+91 80 26712303, Fax : 080-26712305.

Unit 1 - SITE : Plot No. 217, 2nd Phase, KIADB Industrial Area, Harohalli, Kanakapura (Tq.), Ramanagara District, Karnataka - 562 112.
Unit 2 - SITE : Plot No. 158 to 164, KIADB Kadechur Industrial Estate, Village Kadechur, Tehsil and Yadgir District

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Mother Earth Environ Tech Pvt Ltd, Plot
Ganaladoddi, Karnataka 562112
Add destination
OPTIONS
Send directions to your phone
via unnamed roads
7 min
600 m
DETAILS
Restaurants
Coffee
Groceries
More
DPK ENGINEERS PVT. LTD
Diesel engine dealer
Mother Earth Environ Tech Pvt Ltd
7 min
600m
SRINIDHI FUEL STATION
Big Drum India Pvt
Outlet store
Gurulinga
Tea store
Ganaladoddi
Muneshwara swamy temple
Lotus Powergear
Horizon Packs Pvt
Divya chicken center
Google
Map
Type here to search
ENG
04:23 PM
12-02-2021

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M/S MEEPL Site Photos:-



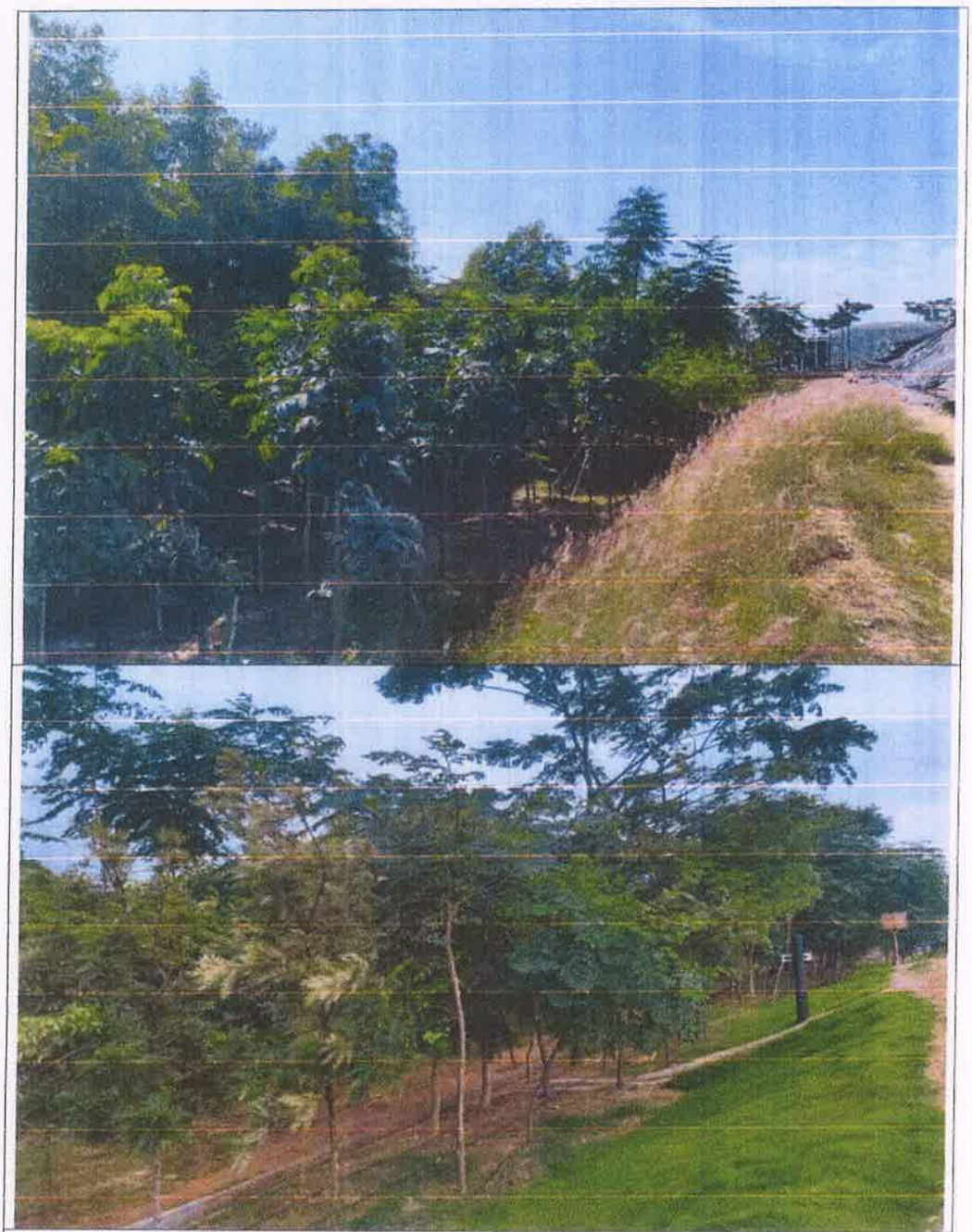


M/s **MEEPL Site- Green Belt**





M/s MEEPL Site- Green Belt



M/s MEEPL Site- Green Belt





Leachate Primary Treatment Plant



Stabilization unit :- Scrubber Dust Suppression System



Landfill Capping **Photos** During Rainy **season.**



Landfill Capping Photos During Rainy season.



Laboratory Photos


Wet Laboratory


Chemicals Storage Room