

**Monthly Performance Report
(HWT-NG100-MPR-41-R0)**

**December 2019
(From 01/12/2019 to 31/12/2019)**

**100 TPD Municipal Solid Waste (MSW) Facility
Calangute, North Goa**

Prepared By
**Hindustan Waste Treatment Pvt. Ltd.
(HWT)**

Submitted To
**Goa Waste Management Corporation (GWMC)
Department of Science & Technology (DS&T)**

Table – 1
Summary of Overall Average Results for December 2019
(As compared to Schedule – 7: Performance Standards, Volume – I of RFP)

Sr. No.	Parameter	Performance Standard As per Schedule – 7	Actual Performance at Plant (Monthly Average)
1.	Number of fractions of recyclables sorted per day from the input mixed waste	Minimum 10 numbers of fractions shall be sorted daily from the input dry waste as received in the facility. The list of fractions are as follows: 1. PET Bottles 2. Mixed Plastic Articles 3. Newspapers / other Paper Material 4. Cardboard 5. Styrofoam & Thermocol 6. Coconut Shells 7. Clothes 8. Rubber Articles 9. Metal Articles & Cans 10. E-waste Articles and any Hazardous Waste	13 numbers of fractions are being sorted daily from the input dry waste as received in the facility. The list of fractions are as follows: 1. Glass 2. Aluminium 3. Metal 4. Paper + Cardboard 5. Tetra Pack 6. Hard Plastic 7. PET 8. Mixed Plastic 9. Styrofoam + Thermocol 10. Cloth + Rags + Textile 11. Leather + Rexine + Rubber 12. Coconut Shells 13. E-waste Articles and any Hazardous Waste
2.	Quantum of reject/residues to be sent to the landfill after processing. No organic fraction shall be disposed in the landfill.	Maximum 10% of inert of the total input waste as received in the facility (in TPD).	Input waste to the Plant is 158.25 TPD . Quantum of Inert is 1.03 TPD which is < 10% of the Total Input Waste as received in the Facility. No Organic Waste has been disposed in the Sanitary Landfill Facility.
3.	Electricity generation in the Plant	Minimum electricity to be generated in the plant shall be 0.40 MW per 100 tons of input wet biodegradable waste as received in the Facility (in TPD).	Electricity generation is 0.51 MW/100 MT of Input Biodegradable Waste as received in the Facility (in TPD).
4.	Biogas Flaring System	The Biogas Flaring System shall strictly be used only in case of	Biogas is being flared strictly, only under emergency and not as a

Sr. No.	Parameter	Performance Standard As per Schedule – 7	Actual Performance at Plant (Monthly Average)										
		emergency and not as a routine practice.	routine practice. The average running time of Biogas Flaring System is 3.82 hours/day .										
5.	Discharge of treated effluent conforming to regulatory norms	Effluent Treatment Plant shall be operated under all conditions.	Effluent Treatment Plant is being operated continuously and is meeting all statutory conditions. The Treated Effluent Characteristics are as follows: <table border="1" data-bbox="1032 646 1403 856"> <tbody> <tr> <td>pH</td> <td>6.96</td> </tr> <tr> <td>BOD</td> <td>7 mg/l</td> </tr> <tr> <td>COD</td> <td>67 mg/l</td> </tr> <tr> <td>TSS</td> <td>8 mg/l</td> </tr> <tr> <td>TDS</td> <td>1,622 mg/l</td> </tr> </tbody> </table>	pH	6.96	BOD	7 mg/l	COD	67 mg/l	TSS	8 mg/l	TDS	1,622 mg/l
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COD	67 mg/l												
TSS	8 mg/l												
TDS	1,622 mg/l												
6.	General Housekeeping, hygienic conditions, cleanliness, safety norms, adequate manpower, treatment methodology for plant operation & maintenance and storage conditions in the plant.	Minimum housekeeping, safety norms and cleanliness conditions shall be maintained at all times as per the Bid Document requirement.	<ul style="list-style-type: none"> • High standard of Housekeeping, Cleanliness and Safety are being maintained at all times at the Plant. • Adequate manpower has been deployed in all shifts. • Also, the treatment methodology is being followed properly and proper storage conditions have been maintained in the Plant. 										

100 TPD Municipal Solid Waste (MSW) Facility at Calangute, North Goa

#	Plant Performance Data: December 2019		
Sr. No.	Content	Month	Signature
1	Input Waste Composition	From 01.12.2019 To 31.12.2019	
2	Recyclables		
3	Electricity Generation		
4	Biogas Flare		
5	Effluent Treatment Plant		
6	Inert		
7	Housekeeping		

100 TPD Municipal Solid Waste (MSW) Facility at Calangute, North Goa

Sr. No.	Description	Unit	1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec	7-Dec	Weekly Average	8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	Weekly Average	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec
6.2 Treated Effluent Quality:																							
1	pH	---	7.09	7.20	6.53	7.20	7.48	6.73	6.96	7.03	6.69	7.16	7.43	6.75	7.03	6.55	7.40	7.00	7.01	6.56	6.62	7.08	7.10
2	Biochemical Oxygen Demand (BOD5)	mg/l	6	8	8	5	6	8	5	7	7	9	6	9	9	9	9	8	7	9	6	8	8
3	Chemical Oxygen Demand (COD)	mg/l	61	55	51	64	50	57	64	57	69	60	61	70	61	90	63	68	62	54	70	56	73
4	Total Suspended Solids (TSS)	mg/l	7	9	9	6	7	9	6	8	8	10	7	10	10	10	10	9	8	10	7	9	9
5	Total Dissolve Solids (TDS)	mg/l	1,420	1,747	1,613	1,896	1,410	1,841	1,435	1,623	1,771	1,464	1,579	1,830	1,581	1,643	1,569	1,634	1,571	1,549	1,458	1,873	1,540

8 HOUSEKEEPING:																							
Sr. No.	Description	Unit	1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec	7-Dec	Weekly Average	8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	Weekly Average	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec
1	Hygienic Conditions	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
2	Cleanliness	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
3	Manpower Deployed	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
4	Safety Norms	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
5	Treatment Methodology	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
6	Storage Conditions	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted

100 TPD Municipal Solid Waste (MSW) Facility at Calangute, North Goa

1 WASTE:																						
Sr. No.	Description	Unit	20-Dec	21-Dec	Weekly Average	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec	Weekly Average	29-Dec	30-Dec	31-Dec	Weekly Average	Monthly Average				
1.1 Input Waste:																						
1	Type 1: Dry Waste	TPD	86.83	81.20	80.49	53.79%	77.08	97.65	78.97	86.19	86.63	89.40	82.62	85.51	51.56%	90.87	99.06	82.82	90.92	50.06%	81.05	51.11%
2	Type 2: Wet Waste	TPD	63.66	70.67	66.35	44.34%	64.70	66.17	75.56	78.42	92.67	77.83	90.86	78.03	47.05%	72.86	94.48	99.79	89.04	49.03%	74.54	47.28%
3	Type 3: Mixed Waste	TPD	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%
4	Type 4: Tree Waste	TPD	0.96	2.31	2.79	1.87%	5.04	3.36	1.27	1.68	0.67	0.86	3.20	2.30	1.39%	2.12	1.33	1.47	1.64	0.90%	2.65	1.61%
5	Total.....(1)+(2)+(3)+(4)	TPD	151.45	154.18	149.63	100.00%	146.82	167.18	155.80	166.29	179.97	168.09	176.68	165.83	100.00%	165.85	194.87	184.08	181.60	100.00%	158.25	100.00%

- # **Note:**
- Type-I: Dry Waste:** This has 25-30% Organic and 70-75% Inorganic.
 - Type-II: Wet Waste:** This has 65-70% Organic and 30-35%
 - Type-I: Mixed Waste:** This has 45-50% Organic and 50-55% Inorganic.

Sr. No.	Description	Unit	20-Dec	21-Dec	Weekly Average	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec	Weekly Average	29-Dec	30-Dec	31-Dec	Weekly Average	Monthly Average				
1.2 Output Products:																						
1	Organic Fraction	TPD	64.77	71.96	66.68	44.56%	63.52	72.59	72.16	76.40	86.11	76.92	82.92	75.80	45.71%	72.94	91.64	90.46	85.01	46.81%	73.94	45.91%
2	Inorganic Fraction:																					
	Recyclables	TPD	11.69	11.38	10.97	7.33%	10.99	12.43	11.10	11.34	12.32	12.43	12.70	11.90	7.18%	11.51	14.40	14.21	13.37	7.36%	11.68	7.26%
	RDF	TPD	69.06	63.79	65.05	43.47%	63.20	73.62	69.02	71.86	78.02	75.61	71.23	71.79	43.29%	77.38	84.85	75.50	79.24	43.64%	69.60	43.24%
	Bulking Material	TPD	2.47	1.91	2.16	1.45%	1.77	2.54	2.26	2.21	2.85	2.27	2.85	2.39	1.44%	1.90	2.65	2.45	2.33	1.28%	2.23	1.40%
	Inert	TPD	2.50	2.83	1.97	1.32%	2.30	2.64	0.00	2.80	0.00	0.00	3.79	1.65	0.99%	0.00	0.00	0.00	0.00	0.00%	1.03	0.58%
3	Tree Waste	TPD	0.96	2.31	2.79	1.87%	5.04	3.36	1.27	1.68	0.67	0.86	3.20	2.30	1.39%	2.12	1.33	1.47	1.64	0.90%	2.65	1.61%
	Total.....(1)+(2)+(3)	TPD	151.45	154.18	149.63	100.00%	146.82	167.18	155.80	166.29	179.97	168.09	176.68	165.83	100.00%	165.85	194.87	184.08	181.60	100.00%	158.25	100.00%

2 RECYCLABLES:																			
Sr. No.	Description	Unit	20-Dec	21-Dec	Weekly Average	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec	Weekly Average	29-Dec	30-Dec	31-Dec	Weekly Average	Monthly Average	
1	Glass	Kg	211	152	196	198	164	232	181	269	234	243	217	229	271	256	252	207	
2	Aluminum	Kg	120	121	109	142	164	77	165	108	117	87	123	82	174	91	116	116	
3	Metal	Kg	271	228	262	227	328	247	313	305	251	278	278	311	387	274	324	276	
4	Tetra Pack	Kg	75	121	105	142	147	124	132	161	167	104	140	115	97	146	119	116	
5	Hard Plastic	Kg	226	213	241	255	328	294	230	197	234	278	259	246	271	347	288	237	
6	PET	Kg	241	197	222	142	180	201	214	287	268	347	234	213	348	292	284	229	
7	Mixed Plastic	Kg	10,429	10,221	9,726	9,769	11,025	9,766	9,942	10,866	11,037	11,189	10,513	10,200	12,658	12,710	11,856	10,165	
8	Thermocol + Styrofoam	Kg	120	121	113	113	98	155	165	126	117	173	135	115	194	91	133	119	
9	Cloth + Rags + Textiles	Kg	888	926	1,061	1,092	868	1,514	1,086	1,650	1,171	1,214	1,228	1,031	1,916	1,388	1,445	1,142	
10	Leather + Rexine + Rubber	Kg	1,053	1,033	1,049	865	1,081	865	1,267	1,703	1,605	1,717	1,300	1,359	1,916	1,771	1,682	1,189	
11	Paper + Cardboard	Kg	978	1,048	970	936	1,114	1,035	1,103	1,183	1,003	1,197	1,082	1,031	1,277	1,260	1,189	1,022	
12	Coconut	Kg	1,490	866	1,193	837	1,425	1,221	1,103	1,667	1,271	1,648	1,310	868	1,374	1,187	1,143	1,210	

- # **Note:**
- Item No. 9 (Cloth + Rags + Textiles) and 10 (Leather + Rexine + Rubber) are sent to Cement Plants as RDF.
 - Item No. 11 (Paper + Cardboard) and 12 (Coconut) are used as Bulking Material in Composting.

3 DISPOSAL OF INERT:																			
Sr. No.	Description	Unit	20-Dec	21-Dec	Weekly Average	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec	Weekly Average	29-Dec	30-Dec	31-Dec	Weekly Average	Monthly Average	
1	As per Tender: Maximum 10% of Inerts of the Total Input Waste (excluding Mulched Tree Waste) as received in the Facility.																		
2	Input Waste	TPD	151.45	154.18	149.63	146.82	167.18	155.80	166.29	179.97	168.09	176.68	165.83	165.85	194.87	184.08	181.60	158.25	
3	Inert Fraction	TPD	2.50	2.83	1.97	2.30	2.64	0.00	2.80	0.00	0.00	3.79	1.65	0.00	0.00	0.00	0.00	1.03	
4	% of Total Input Waste.....(3) ÷ (2)	%	1.65%	1.84%	1.34%	1.57%	1.58%	0.00%	1.68%	0.00%	0.00%	2.15%	1.00%	0.00%	0.00%	0.00%	0.00%	0.65%	

4 ELECTRICITY GENERATION:																			
Sr. No.	Description	Unit	20-Dec	21-Dec	Weekly Average	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec	Weekly Average	29-Dec	30-Dec	31-Dec	Weekly Average	Monthly Average	
3.1 Biogas Gensets:																			
1	Biogas Genset-I: Running Time	hr/day	23.90	23.95	23.86	23.95	22.25	23.45	23.20	23.70	23.65	23.80	23.43	24.00	24.00	22.85	23.62	23.64	
2	Biogas Genset-I: Biogas Consumption	Nm ³ /day	2,289	2,300	2,291	2,295	2,121	2,233	2,202	2,273	2,271	2,273	2,238	2,296	2,305	2,196	2,266	2,262	
3	Biogas Genset-I: Energy Generation	kW.hr/day	3,830	3,810	3,771	3,760	3,430	3,450	3,330	3,810	3,720	3,450	3,564.29	3,560	3,620	3,580	3,587	3,673	
4	Biogas Genset-II: Running Time	hr/day	23.90	23.95	23.86	23.90	22.20	23.35	23.10	23.65	23.55	23.80	23.36	23.95	23.95	22.80	23.57	23.66	
5	Biogas Genset-II: Biogas Consumption	Nm ³ /day	2,119	2,131	2,119	2,128	1,970	2,059	2,021	2,104	2,096	2,097	2,068	2,117	2,129	2,027	2,091	2,096	
6	Biogas Genset-II: Energy Generation	kW.hr/day	3,810	3,790	3,739	3,720	3,420	3,370	3,280	3,780	3,680	3,400	3,521	3,510	3,580	3,540	3,543	3,646	
7	Total Biogas Consumption = (2)+(5)	Nm ³ /day	4,409	4,432	4,410	4,422	4,091	4,292	4,223	4,376	4,367	4,370	4,306	4,414	4,434	4,223	4,357	4,358	
8	Total Energy Generation = (3)+(6)	kW.hr/day	7,640	7,600	7,510	7,480	6,850	6,820	6,610	7,590	7,400	6,850	7,086	7,070	7,200	7,120	7,130	7,319	

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Sr. No.	Description	Unit	20-Dec	21-Dec	Weekly Average	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec	Weekly Average	29-Dec	30-Dec	31-Dec	Weekly Average	Monthly Average
6.2 Treated Effluent Quality:																		
1	pH	---	6.53	7.08	6.85	6.93	6.70	6.73	6.56	6.75	7.17	7.38	6.89	7.25	7.32	6.80	7.12	6.96
2	Biochemical Oxygen Demand (BOD5)	mg/l	9	7	8	9	9	5	7	5	7	5	7	7	5	7	6	7
3	Chemical Oxygen Demand (COD)	mg/l	66	65	64	86	77	90	72	84	69	52	76	81	61	86	76	67
4	Total Suspended Solids (TSS)	mg/l	10	8	9	10	10	6	8	6	8	6	8	8	6	8	7	8
5	Total Dissolve Solids (TDS)	mg/l	1,847	1,860	1,671	1,564	1,737	1,698	1,477	1,696	1,770	1,645	1,655	1,409	1,449	1,351	1,403	1,622

8 HOUSEKEEPING:																		
Sr. No.	Description	Unit	20-Dec	21-Dec	Weekly Average	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec	Weekly Average	29-Dec	30-Dec	31-Dec	Weekly Average	Monthly Average
1	Hygienic Conditions	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
2	Cleanliness	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
3	Manpower Deployed	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
4	Safety Norms	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
5	Treatment Methodology	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
6	Storage Conditions	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted