

**Monthly Performance Report
(HWT-NG100-MPR-37-R0)**

**August 2019
(From 01/08/2019 to 31/08/2019)**

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

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

Submitted To
**Department of Science & Technology (DS&T)
Goa State Infrastructural Development
Corporation Limited (GSIDC)
Goa Waste Management Corporation (GWMC)**

Table – 1
Summary of Overall Average Results for August 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 119.24 TPD . Quantum of Inert is 1.33 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 0.53 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 0.09 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>70 mg/l</td> </tr> <tr> <td>TSS</td> <td>8 mg/l</td> </tr> <tr> <td>TDS</td> <td>1,638 mg/l</td> </tr> </tbody> </table>	pH	6.96	BOD	7 mg/l	COD	70 mg/l	TSS	8 mg/l	TDS	1,638 mg/l
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COD	70 mg/l												
TSS	8 mg/l												
TDS	1,638 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: August 2019		
Sr. No.	Content	Month	Signature
1	Input Waste Composition	From 01.08.2019 To 31.08.2019	
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

1 WASTE:																									
Sr. No.	Description	Unit	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	Weekly Average	8-Aug	9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	Weekly Average	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug		
1.1 Input Waste:																									
1	Type 1: Dry Waste	TPD	70.26	72.89	68.22	63.36	65.82	54.80	70.37	66.53	59.25%	62.950	64.900	60.000	49.600	66.240	74.660	64.370	63.25	54.67%	56.90	69.12	55.86	57.68	77.05
2	Type 2: Wet Waste	TPD	41.87	33.55	40.26	38.66	46.45	33.88	50.73	40.77	36.31%	42.550	40.800	42.690	48.170	50.920	49.360	41.810	45.19	39.06%	41.81	49.13	58.94	48.95	47.72
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	0.00	0.00	0.00
4	Type 4: Tree Waste	TPD	8.10	7.19	5.60	4.83	2.31	3.49	3.41	4.99	4.44%	6.360	7.080	5.690	9.400	6.090	7.190	8.980	7.26	6.27%	4.05	4.50	3.07	10.59	4.80
5	Total.....(1)+(2)+(3)+(4)	TPD	120.23	113.63	114.08	106.85	114.58	92.17	124.51	112.29	100.00%	111.86	112.78	108.38	107.17	123.25	131.21	115.16	115.69	100.00%	102.76	122.75	117.87	117.22	129.57

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

Sr. No.	Description	Unit	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	Weekly Average	8-Aug	9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	Weekly Average	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug		
1.2 Output Products:																									
1	Organic Fraction	TPD	46.71	42.44	47.13	43.48	47.81	40.05	53.39	45.86	40.84%	48.19	47.18	43.93	45.87	52.22	53.36	46.59	48.19	41.66%	45.52	49.83	55.58	50.25	56.11
2 Inorganic Fraction:																									
	Recyclables	TPD	8.19	7.56	7.94	7.62	8.35	6.58	8.94	7.88	7.02%	7.42	8.08	7.85	7.19	8.86	8.62	8.14	8.02	6.93%	7.37	8.80	8.12	7.39	9.03
	RDF	TPD	55.71	54.98	50.57	48.36	53.14	40.93	55.66	51.34	45.72%	47.76	47.68	49.77	43.33	54.18	60.16	49.77	50.38	43.55%	42.18	56.79	48.06	46.55	57.00
	Bulking Material	TPD	1.52	1.46	1.77	1.39	1.76	1.12	2.02	1.58	1.40%	1.20	1.63	1.14	1.39	1.90	1.89	1.68	1.55	1.34%	1.39	1.60	1.83	1.49	1.78
	Inert	TPD	0.00	0.00	1.07	1.17	1.20	0.00	1.09	0.65	0.58%	0.93	1.14	0.00	0.00	0.00	0.00	0.00	0.30	0.26%	2.24	1.24	1.22	0.95	0.84
3	Tree Waste	TPD	8.10	7.19	5.60	4.83	2.31	3.49	3.41	4.99	4.44%	6.36	7.08	5.69	9.40	6.09	7.19	8.98	7.26	6.27%	4.05	4.50	3.07	10.59	4.80
	Total.....(1)+(2)+(3)	TPD	120.23	113.63	114.08	106.85	114.58	92.17	124.51	112.29	100.00%	111.86	112.78	108.38	107.17	123.25	131.21	115.16	115.69	100.00%	102.76	122.75	117.87	117.22	129.57

2 RECYCLABLES:																							
Sr. No.	Description	Unit	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	Weekly Average	8-Aug	9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	Weekly Average	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug
1	Glass	Kg	112	138	130	133	157	133	145	135		148	159	154	147	152	174	156	148	177	172	160	137
2	Aluminum	Kg	112	106	98	92	112	80	97	100		84	63	103	68	59	124	85	49	59	69	64	75
3	Metal	Kg	224	202	195	153	180	177	230	194		200	190	175	186	199	211	196	158	201	184	181	187
4	Tetra Pack	Kg	78	75	65	92	67	71	109	80		53	63	103	78	94	99	82	79	106	115	75	125
5	Hard Plastic	Kg	191	138	163	184	112	133	157	154		190	180	195	186	187	136	181	148	166	184	107	237
6	PET	Kg	213	192	152	184	168	124	194	175		127	190	164	98	129	186	150	128	201	126	139	137
7	Mixed Plastic	Kg	7,154	6,621	7,062	6,693	7,444	5,773	7,908	6,951		6,530	7,135	6,890	6,326	7,979	7,627	7,090	6,574	7,828	7,164	6,611	8,073
8	Thermocol + Styrofoam	Kg	101	85	76	92	112	89	97	93		84	95	62	98	59	62	79	89	59	103	53	62
9	Cloth + Rags + Textiles	Kg	908	607	987	704	595	452	775	718		559	951	832	704	668	1,191	834	879	922	643	736	1,135
10	Leather + Rexine + Rubber	Kg	830	1,054	586	724	730	656	957	791		601	560	996	518	633	794	730	879	863	907	597	1,085
11	Paper + Cardboard	Kg	785	724	749	622	786	594	848	730		633	698	616	665	820	806	712	661	721	735	725	774
12	Coconut	Kg	740	734	1,020	765	977	523	1,175	848		570	930	524	723	1,078	1,079	834	730	875	1,091	768	1,011

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

3 ELECTRICITY GENERATION:																							
Sr. No.	Description	Unit	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	Weekly Average	8-Aug	9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	Weekly Average	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug
3.1 Biogas Gensets:																							
1	Biogas Genset-I: Running Time	hr/day	18.95	20.30	16.78	16.78	15.95	15.35	10.10	16.32		16.50	9.40	13.00	10.90	13.65	19.00	13.51	18.40	14.35	12.95	13.95	17.05
2	Biogas Genset-I: Biogas Consumption	Nm ³ /day	1,539	1,590	1,627	1,627	1,572	1,417	920	1,470		1,466	854	1,189	805	1,130	1,679	1,183	1,816	1,325	1,231	1,369	1,581
3	Biogas Genset-I: Energy Generation	kW.hr/day	2,250	2,250	2,620	2,620	2,590	2,280	1,380	2,284		2,120	1,340	1,810	1,100	1,540	2,210	1,696	2,800	1,850	1,900	2,050	2,500
4	Biogas Genset-II: Running Time	hr/day	24.00	23.80	22.13	22.13	22.50	22.85	24.00	23.06		21.90	23.95	24.00	23.95	23.00	21.10	21.76	23.45	23.80	23.90	23.60	21.55
5	Biogas Genset-II: Biogas Consumption	Nm ³ /day	2,211	2,075	1,947	1,947	1,925	2,059	2,223	2,055		1,990	2,200	2,213	2,184	2,133	1,976	2,001	2,225	2,167	2,240	2,185	1,941
6	Biogas Genset-II: Energy Generation	kW.hr/day	3,960	3,570	3,330	3,330	3,300	3,680	3,830	3,571		3,310	3,790	3,840	4,040	3,610	3,120	3,411	3,730	3,380	3,800	3,670	3,350
7	Total Biogas Consumption = (2)+(5)	Nm ³ /day	3,750	3,665	3,575	3,575	3,497	3,476	3,143	3,526		3,455	3,055	3,402	2,990	3,263	3,655	3,183	4,041	3,493	3,472	3,555	3,522
8	Total Energy Generation = (3)+(6)	kW.hr/day	6,210	5,820	5,950	5,950	5,890	5,960	5,210	5,856		5,430	5,130	5,650	5,140	5,150	5,330	5,107	6,530	5,230	5,700	5,720	5,850
3.2 Electricity Generation:																							
1	As per Tender: Minimum electricity to be generated in the plant shall be 0.4 MW per 100 tons of Input Biodegradable Waste as received in the Facility.	MW/100 MT	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40		0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
2	Biodegradable Waste = 1.2.2	TPD	41.87	33.55	40.26	38.66	46.45	33.88	50.73	40.77		42.55	40.80	42.69	48.17	50.92	49.36	45.19	41.81	49.13	58.94	48.95	47.72
3	Guaranteed Electricity Generation = (3.2.2 x 3.2.1) ÷ 100	kW	0.17	0.13	0.16	0.15	0.19	0.14	0.20	0.16		0.17	0.16	0.17	0.19	0.20	0.20	0.18	0.17	0.20	0.24	0.20	0.19
4	Guaranteed Electricity Generation = 3.2.3 x 24 x 1000	kW.hr/day	4,020	3,221	3,865	3,711	4,459	3,252	4,870	3,914		4,085	3,917	4,098	4,624	4,888	4,739	4,338	4,014	4,716	5,658	4,699	4,581
5	Available Electricity Generation = (A2 ÷ 24) + (A4 ÷ 24)	kW	259	243	248	248	245	248	217	244		226	214	235	214	215	222	213	272	218	238	238	244
6	Available Electricity Generation = 3.2.5 ÷ 100	MW/100 MT	0.62	0.72	0.62	0.64	0.53	0.73	0.43	0.61		0.53	0.52	0.55	0.44	0.42	0.45	0.47	0.65	0.44	0.40	0.49	0.51

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

4 BIOGAS FLARE:																							
Sr. No.	Description	Unit	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	Weekly Average	8-Aug	9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	Weekly Average	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug
1	Operation Time	hr/day	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	1.05	0.15	0.00	0.00	0.00	0.00	0.00
2	Biogas Flared	Nm ³ /day	0	0	0	0	71	0	0	10	0	0	0	0	0	0	236	34	0	0	0	0	0

5 DIGESTERS:																							
Sr. No.	Description	Unit	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	Weekly Average	8-Aug	9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	Weekly Average	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug
5.1 Digester-I:																							
1	pH	---								7.50								7.35					
2	Total Alkalinity	ppm as CaCO ₃								6,687								6,187					
3	VFA	ppm as HAc								3,895								3,848					
5.2 Buffer Tank:																							
1	pH	---								NA								NA					
2	Total Alkalinity	ppm as CaCO ₃								NA								NA					
3	VFA	ppm as HAc								NA								NA					
5.3 Digester-II:																							
1	pH	---								7.95								7.86					
2	Total Alkalinity	ppm as CaCO ₃								9,220								8,779					
3	VFA	ppm as HAc								1,861								1,834					

Note:
 1 Since Buffer Tank was under maintenance, it's data are Not Available.

6 EFFLUENT TREATMENT PLANT:																							
Sr. No.	Description	Unit	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	Weekly Average	8-Aug	9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	Weekly Average	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug
6.1 Raw Effluent Quality:																							
1	Flow	m ³ /day	84.27	80.70	49.71	55.49	44.22	67.49	82.69	66.37	57.69	69.17	61.48	76.95	75.00	73.58	49.08	66.14	68.92	86.27	83.65	78.50	76.08
2	pH	---	7.29	7.19	7.15	7.61	6.98	7.95	6.68	7.26	6.50	6.15	7.55	6.63	6.14	6.30	6.55	6.55	7.74	6.06	6.16	6.16	6.30
3	Biochemical Oxygen Demand (BOD ₅)	mg/l	1,796	1,542	1,739	2,267	2,152	2,316	2,484	2,042	2,425	2,348	1,978	2,306	2,482	1,814	1,663	2,145	1,780	1,930	2,446	2,249	1,935
4	Chemical Oxygen Demand (COD)	mg/l	5,550	4,040	5,252	5,191	7,080	6,161	5,614	5,555	7,275	7,443	5,064	7,910	6,652	4,608	5,471	6,346	4,397	4,999	6,360	7,669	5,805
5	Total Suspended Solids (TSS)	mg/l	4,400	3,608	4,174	5,373	4,089	4,447	5,539	4,519	4,365	5,659	3,402	4,589	4,145	2,939	2,711	3,973	2,973	3,455	5,112	4,700	4,818
6	Total Dissolve Solids (TDS)	mg/l	1,434	1,603	1,514	1,668	1,358	1,651	1,780	1,573	1,523	1,671	1,597	1,485	1,579	1,458	1,405	1,531	1,697	1,412	1,368	1,625	1,535
6.2 Treated Effluent Quality:																							
1	pH	---	7.43	6.55	6.98	6.70	6.92	6.79	6.83	6.89	6.77	7.50	6.57	6.59	6.52	7.31	7.09	6.91	6.52	6.77	6.83	7.17	6.98
2	Biochemical Oxygen Demand (BOD ₅)	mg/l	8	7	9	8	7	7	6	7	6	6	5	9	5	9	9	7	7	6	9	5	6
3	Chemical Oxygen Demand (COD)	mg/l	90	57	81	70	70	59	87	73	63	59	64	86	70	53	77	67	78	52	85	63	60
4	Total Suspended Solids (TSS)	mg/l	9	8	10	9	8	8	7	8	7	7	6	10	6	10	10	8	8	7	10	6	7
5	Total Dissolve Solids (TDS)	mg/l	1,520	1,603	1,650	1,835	1,358	1,701	1,869	1,648	1,675	1,704	1,645	1,530	1,705	1,545	1,489	1,613	1,850	1,553	1,464	1,658	1,581

7 DISPOSAL OF INERT:																							
Sr. No.	Description	Unit	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	Weekly Average	8-Aug	9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	Weekly Average	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug
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	112.13	106.44	108.48	102.02	112.27	88.68	121.10	107.30	105.50	105.70	102.69	97.77	117.16	124.02	106.18	108.43	98.71	118.25	114.80	106.63	124.77
3	Inert Fraction	TPD	0.00	0.00	1.07	1.17	1.20	0.00	1.09	0.65	0.93	1.14	0.00	0.00	0.00	0.00	0.00	0.30	2.24	1.24	1.22	0.95	0.84
4	% of Total Input Waste.....(3) ÷ (2)	%	0.00%	0.00%	0.99%	1.15%	1.07%	0.00%	0.90%	0.59%	0.88%	1.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.28%	2.27%	1.05%	1.06%	0.89%	0.67%

8 HOUSEKEEPING:																							
Sr. No.	Description	Unit	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	Weekly Average	8-Aug	9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	Weekly Average	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug
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-Aug	21-Aug	Weekly Average	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	Weekly Average	29-Aug	30-Aug	31-Aug	Weekly Average	Monthly Average				
1.1 Input Waste:																						
1	Type 1: Dry Waste	TPD	82.04	79.00	68.24	56.56%	69.31	62.44	70.30	54.29	81.99	70.65	65.26	67.75	55.58%	73.76	67.75	68.15	69.89	55.60%	67.13	56.33%
2	Type 2: Wet Waste	TPD	38.69	41.95	46.74	38.75%	49.54	45.03	46.16	46.15	49.51	52.03	43.21	47.38	38.86%	45.07	46.50	42.90	44.82	35.66%	44.98	37.73%
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	4.58	8.01	5.66	4.69%	6.58	9.23	12.71	4.87	1.96	3.69	8.38	6.77	5.56%	15.42	9.60	7.94	10.99	8.74%	7.13	5.94%
5	Total.....(1)+(2)+(3)+(4)	TPD	125.31	128.96	120.63	100.00%	125.43	116.70	129.17	105.31	133.46	126.37	116.85	121.90	100.00%	134.25	123.85	118.99	125.70	100.00%	119.24	100.00%

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

Sr. No.	Description	Unit	20-Aug	21-Aug	Weekly Average	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	Weekly Average	29-Aug	30-Aug	31-Aug	Weekly Average	Monthly Average				
1.2 Output Products:																						
1	Organic Fraction	TPD	47.28	48.01	50.37	41.75%	54.45	48.77	50.27	45.90	55.87	55.04	47.66	51.14	41.95%	49.74	51.13	46.53	49.13	39.09%	48.94	41.06%
2 Inorganic Fraction:																						
Recyclables																						
	RDF	TPD	9.10	8.93	8.39	6.96%	8.87	7.99	8.91	7.82	9.23	9.31	7.56	8.53	7.00%	8.27	8.89	8.52	8.56	6.81%	8.28	6.94%
	Bulking Material	TPD	62.39	62.50	53.64	44.46%	51.89	48.08	53.80	44.35	64.37	54.76	51.67	52.70	43.24%	56.78	50.97	47.30	51.69	41.12%	51.95	43.62%
	Inert	TPD	1.96	1.51	1.65	1.37%	1.43	1.68	1.54	1.47	2.03	1.44	1.58	1.59	1.31%	1.62	1.67	1.81	1.70	1.35%	1.61	1.35%
		TPD	0.00	0.00	0.93	0.77%	2.22	0.96	1.94	0.90	0.00	2.13	0.00	1.16	0.96%	2.42	1.59	6.90	3.64	2.89%	1.33	1.09%
3	Tree Waste	TPD	4.58	8.01	5.66	4.69%	6.58	9.23	12.71	4.87	1.96	3.69	8.38	6.77	5.56%	15.42	9.60	7.94	10.99	8.74%	7.13	5.94%
	Total.....(1)+(2)+(3)	TPD	125.31	128.96	120.63	100.00%	125.43	116.70	129.17	105.31	133.46	126.37	116.85	121.90	100.00%	134.25	123.85	119.00	125.70	100.00%	119.24	100.00%

2 RECYCLABLES:																			
Sr. No.	Description	Unit	20-Aug	21-Aug	Weekly Average	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	Weekly Average	29-Aug	30-Aug	31-Aug	Weekly Average	Monthly Average	
1	Glass	Kg	121	145	151	178	118	116	121	184	184	119	146	143	114	133	130	144	
2	Aluminum	Kg	72	73	66	107	86	93	50	132	86	87	92	119	103	56	93	87	
3	Metal	Kg	181	206	185	214	193	198	181	237	245	206	211	226	229	178	211	200	
4	Tetra Pack	Kg	85	85	96	71	64	105	60	92	61	54	72	95	91	78	88	84	
5	Hard Plastic	Kg	157	218	174	155	129	116	141	210	147	206	158	119	194	167	160	165	
6	PET	Kg	157	133	146	131	129	233	161	197	147	163	166	154	206	167	176	163	
7	Mixed Plastic	Kg	8,258	7,983	7,499	7,951	7,168	7,989	7,031	8,048	8,342	6,628	7,594	7,344	7,872	7,662	7,626	7,352	
8	Thermocol + Styrofoam	Kg	72	85	75	59	97	58	80	132	98	98	89	71	80	78	76	82	
9	Cloth + Rags + Textiles	Kg	809	1,040	881	713	871	1,083	743	1,197	638	911	879	974	811	811	865	836	
10	Leather + Rexine + Rubber	Kg	1,062	1,161	936	832	967	652	623	736	613	1,030	779	630	594	744	656	778	
11	Paper + Cardboard	Kg	821	786	746	820	742	815	613	789	748	683	744	725	743	766	745	735	
12	Coconut	Kg	1,135	726	905	606	935	722	854	1,236	687	900	849	891	925	1,044	953	878	

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

3 ELECTRICITY GENERATION:																			
Sr. No.	Description	Unit	20-Aug	21-Aug	Weekly Average	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	Weekly Average	29-Aug	30-Aug	31-Aug	Weekly Average	Monthly Average	
3.1 Biogas Gensets:																			
1	Biogas Genset-I: Running Time	hr/day	22.40	22.04	17.31	18.00	22.85	17.60	20.10	23.60	23.50	23.10	21.25	20.10	13.90	22.55	18.85	17.45	
2	Biogas Genset-I: Biogas Consumption	Nm ³ /day	2,010	1,937	1,610	1,461	2,034	1,517	1,662	1,884	2,094	2,107	1,823	1,774	1,254	2,102	1,710	1,559	
3	Biogas Genset-I: Energy Generation	kW.hr/day	3,000	2,850	2,421	2,160	2,810	2,310	2,550	2,520	2,820	3,040	2,601.43	2,920	2,050	3,450	2,807	2,362	
4	Biogas Genset-II: Running Time	hr/day	22.50	22.20	23.00	16.40	23.75	22.60	22.10	23.95	23.30	20.40	21.79	20.10	19.60	22.05	20.58	22.04	
5	Biogas Genset-II: Biogas Consumption	Nm ³ /day	2,027	1,980	2,109	1,428	2,203	1,925	1,775	1,901	1,999	1,773	1,858	1,727	1,472	1,911	1,703	1,945	
6	Biogas Genset-II: Energy Generation	kW.hr/day	3,390	3,320	3,520	2,450	3,630	3,150	2,980	2,860	2,870	2,690	2,947	3,110	2,540	3,330	2,993	3,289	
7	Total Biogas Consumption = (2)+(5)	Nm³/day	4,037	3,917	3,719	2,889	4,236	3,443	3,437	3,785	4,093	3,880	3,680	3,500	2,725	4,013	3,413	3,504	
8	Total Energy Generation = (3)+(6)	kW.hr/day	6,390	6,170	5,941	4,610	6,440	5,460	5,530	5,380	5,690	5,730	5,549	6,030	4,590	6,780	5,800	5,651	
3.2 Electricity Generation:																			
1	As per Tender: Minimum electricity to be generated in the plant shall be 0.4 MW per 100 tons of Input Biodegradable Waste as received in the Facility.	MW/100 MT	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	
2	Biodegradable Waste = 1.2.2	TPD	38.69	41.95	46.74	49.54	45.03	46.16	46.15	49.51	52.03	43.21	47.38	45.07	46.50	42.90	44.82	44.98	
3	Guaranteed Electricity Generation = (3.2.2 x 3.2.1) ÷ 100	kW	0.15	0.17	0.19	0.20	0.18	0.18	0.18	0.20	0.21	0.17	0.19	0.18	0.19	0.17	0.18	0.18	
4	Guaranteed Electricity Generation = 3.2.3 x 24 x 1000	kW.hr/day	3,714	4,027	4,487	4,756	4,323	4,431	4,430	4,753	4,995	4,148	4,548	4,327	4,464	4,118	4,303	4,318	
5	Available Electricity Generation = (A2 ÷ 24) + (A4 ÷ 24)	kW	266	257	248	192	268	228	230	224	237	239	231	251	191	283	242	235	
6	Available Electricity Generation = 3.2.5 ÷ 100	MW/100 MT	0.69	0.61	0.54	0.39	0.60	0.49	0.50	0.45	0.46	0.55	0.49	0.56	0.41	0.66	0.52	0.53	

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

4 BIOGAS FLARE:																		
Sr. No.	Description	Unit	20-Aug	21-Aug	Weekly Average	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	Weekly Average	29-Aug	30-Aug	31-Aug	Weekly Average	Monthly Average
1	Operation Time	hr/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.45	0.00	0.25	0.09
2	Biogas Flared	Nm ³ /day	0	0	0	0	0	0	0	0	0	0	0	68	101	0	56.25	20.04

5 DIGESTERS:																		
Sr. No.	Description	Unit	20-Aug	21-Aug	Weekly Average	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	Weekly Average	29-Aug	30-Aug	31-Aug	Weekly Average	Monthly Average
5.1 Digester-I:																		
1	pH	---			7.36								7.50				7.37	7.42
2	Total Alkalinity	ppm as CaCO ₃			5,862								5,907				5,616	6,052
3	VFA	ppm as HAc			4,158								3,992				4,158	4,010
5.2 Buffer Tank:																		
1	pH	---			NA								NA				NA	NA
2	Total Alkalinity	ppm as CaCO ₃			NA								NA				NA	NA
3	VFA	ppm as HAc			NA								NA				NA	NA
5.3 Digester-II:																		
1	pH	---			7.88								7.92				7.90	7.90
2	Total Alkalinity	ppm as CaCO ₃			8,904								8,539				8,500	8,788
3	VFA	ppm as HAc			2,041								2,047				2,193	1,995

Note:
 1 Since Buffer Tank was under maintenance, it's data are Not Available.

6 EFFLUENT TREATMENT PLANT:																		
Sr. No.	Description	Unit	20-Aug	21-Aug	Weekly Average	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	Weekly Average	29-Aug	30-Aug	31-Aug	Weekly Average	Monthly Average
6.1 Raw Effluent Quality:																		
1	Flow	m ³ /day	78.78	72.62	77.83	71.14	69.57	53.31	71.18	67.77	57.74	54.70	63.63	23.36	64.38	56.89	48.21	64.43
2	pH	---	6.55	6.69	6.52	6.82	6.19	6.59	6.33	7.98	7.92	6.72	6.94	7.11	6.15	7.84	7.03	6.86
3	Biochemical Oxygen Demand (BOD ₅)	mg/l	2,298	2,278	2,131	2,133	1,953	1,917	1,602	1,691	1,588	1,505	1,770	2,008	1,995	2,032	2,012	2,020
4	Chemical Oxygen Demand (COD)	mg/l	5,125	5,627	5,712	6,250	5,839	5,233	5,110	4,532	5,113	5,222	5,328	5,944	5,167	5,974	5,695	5,727
5	Total Suspended Solids (TSS)	mg/l	3,562	4,488	4,158	5,055	3,437	3,240	2,980	4,211	3,795	3,296	3,716	4,157	4,269	4,003	4,143	4,102
6	Total Dissolve Solids (TDS)	mg/l	1,562	1,605	1,543	1,638	1,749	1,560	1,687	1,436	1,653	1,702	1,632	1,310	1,421	1,795	1,509	1,558
6.2 Treated Effluent Quality:																		
1	pH	---	6.61	7.33	6.89	7.35	6.93	7.41	6.92	7.21	7.49	7.12	7.20	6.65	7.32	6.82	6.93	6.96
2	Biochemical Oxygen Demand (BOD ₅)	mg/l	7	8	7	7	5	7	7	9	9	7	7	5	6	5	5	7
3	Chemical Oxygen Demand (COD)	mg/l	66	70	68	57	53	76	65	90	64	90	71	90	70	53	71	70
4	Total Suspended Solids (TSS)	mg/l	8	9	8	8	6	8	8	10	10	8	8	6	7	6	6	8
5	Total Dissolve Solids (TDS)	mg/l	1,671	1,605	1,626	1,671	1,801	1,591	1,788	1,436	1,653	1,838	1,683	1,415	1,549	1,903	1,622	1,638

7 DISPOSAL OF INERT:																		
Sr. No.	Description	Unit	20-Aug	21-Aug	Weekly Average	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	Weekly Average	29-Aug	30-Aug	31-Aug	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	120.73	120.95	114.98	118.85	107.47	116.46	100.44	131.50	122.68	108.47	115.12	118.83	114.25	111.05	114.71	112.11
3	Inert Fraction	TPD	0.00	0.00	0.93	2.22	0.96	1.94	0.90	2.42	2.13	0.00	1.16	2.42	1.59	6.90	3.64	1.33
4	% of Total Input Waste.....(3) ÷ (2)	%	0.00%	0.00%	0.85%	1.87%	0.89%	1.67%	0.90%	0.00%	1.74%	0.00%	1.01%	2.04%	1.39%	6.21%	3.21%	1.19%

8 HOUSEKEEPING:																		
Sr. No.	Description	Unit	20-Aug	21-Aug	Weekly Average	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	Weekly Average	29-Aug	30-Aug	31-Aug	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