

**Monthly Performance Report
(HWT-NG100-MPR-26-R0)**

**September 2018
(From 01/09/2018 to 30/09/2018)**

**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)**

Table – 1
Summary of Overall Average Results for September 2018
(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 140.13 TPD . Quantum of Inert is 1.10 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 0.48 MW/100 tons 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 0.97 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>6.92</td> </tr> <tr> <td>BOD</td> <td>7 mg/l</td> </tr> <tr> <td>COD</td> <td>68 mg/l</td> </tr> <tr> <td>TSS</td> <td>8 mg/l</td> </tr> <tr> <td>TDS</td> <td>1,687 mg/l</td> </tr> </tbody> </table>	pH	6.92	BOD	7 mg/l	COD	68 mg/l	TSS	8 mg/l	TDS	1,687 mg/l
pH	6.92												
BOD	7 mg/l												
COD	68 mg/l												
TSS	8 mg/l												
TDS	1,687 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: September 2018		
Sr. No.	Content	Month	Signature
1	Input Waste Composition	From 01.09.2018 To 30.09.2018	
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 INPUT WASTE COMPOSITION:

Sr. No.	Description	Unit	1-Sep	2-Sep	3-Sep	4-Sep	5-Sep	6-Sep	7-Sep	Weekly Average		8-Sep	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep	Weekly Average		
1A	Input Waste:																				
1	Type 1: Dry Waste	TPD	59.68	52.25	67.47	59.40	63.07	64.39	61.62	61.13	41.54%	73.22	62.08	91.51	71.23	65.41	63.90	54.68	68.86	44.88%	
2	Type 2: Wet Waste	TPD	74.24	67.97	74.71	78.77	82.33	66.29	79.24	74.79	50.82%	96.01	84.11	82.84	87.57	84.44	48.99	63.99	78.28	51.02%	
3	Type 3: Mixed Waste	TPD	6.76	2.96	6.14	6.16	9.16	4.08	5.36	5.80	3.94%	4.67	4.36	3.34	2.29	1.21	0.00	1.73	2.51	1.64%	
4	Type 4: Tree Waste	TPD	5.69	11.31	4.59	5.01	3.85	3.84	3.77	5.44	3.69%	13.41	1.30	1.97	1.36	2.30	3.63	2.47	3.78	2.46%	
5	Total.....(1)+(2)+(3)+(4)	TPD	146.37	134.49	152.91	149.34	158.41	138.60	149.99	147.16	100.00%	187.31	151.85	179.66	162.45	153.36	116.52	122.87	153.43	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% Inorganic.
 3 **Type-I: Mixed Waste:** This has 45-50% Organic and 50-55% Inorganic.

Sr. No.	Description	Unit	1-Sep	2-Sep	3-Sep	4-Sep	5-Sep	6-Sep	7-Sep	Weekly Average		8-Sep	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep	Weekly Average	
1B	Input Waste Composition:																			
1	Organic Fraction	TPD	68.17	63.83	71.93	74.54	79.20	62.56	71.66	70.27	47.75%	84.02	72.77	81.00	80.53	73.98	50.91	59.57	71.83	46.81%
2	Inorganic Fraction:																			
	Recyclables	TPD	10.76	9.41	10.66	11.13	11.14	10.03	10.28	10.49	7.13%	12.78	11.61	12.78	12.29	11.39	7.72	9.33	11.13	7.25%
	RDF	TPD	59.49	47.76	63.59	56.60	62.33	59.68	62.37	58.83	39.98%	75.01	64.05	81.12	66.21	33.71	52.68	50.09	60.41	39.37%
	Bulking Material	TPD	1.89	1.84	2.14	2.06	1.89	1.52	1.92	1.89	1.29%	2.09	2.12	2.79	2.06	2.31	1.58	1.41	2.05	1.34%
	Inert	TPD	0.37	0.34	0.00	0.00	0.00	0.97	0.00	0.24	0.16%	0.00	0.00	0.00	0.00	29.67	0.00	0.00	4.24	2.76%
3	Tree Waste	TPD	5.69	11.31	4.59	5.01	3.85	3.84	3.77	5.44	3.69%	13.41	1.30	1.97	1.36	2.30	3.63	2.47	3.78	2.46%
	Total.....(1)+(2)+(3)	TPD	146.37	134.49	152.91	149.34	158.41	138.60	149.99	147.16	100.00%	187.31	151.85	179.66	162.45	153.36	116.52	122.87	153.43	100.00%

2 RECYCLABLES:

Sr. No.	Description	Unit	1-Sep	2-Sep	3-Sep	4-Sep	5-Sep	6-Sep	7-Sep	Weekly Average		8-Sep	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep	Weekly Average	
1	Glass	Kg	197	148	178	159	170	202	219	182		243	226	213	177	196	147	144	192	
2	Aluminum	Kg	141	62	89	101	155	108	117	110		139	90	124	161	76	68	72	104	
3	Metal	Kg	253	234	237	289	309	270	278	267		278	256	355	322	257	169	217	265	
4	Paper + Cardboard	Kg	971	838	1,009	967	927	809	965	927		1,200	1,054	1,137	1,128	982	779	783	1,009	
5	Tetra Pack	Kg	84	74	89	144	155	67	102	102		139	75	160	161	121	68	84	115	
6	Hard Plastic	Kg	239	160	252	202	155	256	292	222		243	301	284	306	211	181	205	247	
7	PET	Kg	225	160	148	173	232	148	249	191		313	151	302	209	227	124	217	220	
8	Mixed Plastic	Kg	9,510	8,512	9,581	9,973	9,861	8,840	8,919	9,314		11,321	10,358	11,248	10,841	10,181	6,864	8,332	9,878	
9	Thermocol + Styrofoam	Kg	113	62	89	87	108	135	102	99		104	151	89	113	121	102	60	106	
10	Cloth + Rags + Textiles	Kg	732	1,219	742	1,111	1,066	1,172	921	995		1,148	1,235	1,137	1,418	1,314	1,061	963	1,182	
11	Leather + Rexine + Rubber	Kg	1,210	702	1,379	1,155	835	943	1,462	1,098		870	1,265	1,635	1,385	1,193	948	963	1,180	
12	Coconut	Kg	914	998	1,127	1,097	958	714	950	965		887	1,069	1,653	934	1,329	802	626	1,043	

- # **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-Sep	2-Sep	3-Sep	4-Sep	5-Sep	6-Sep	7-Sep	Weekly Average		8-Sep	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep	Weekly Average	
A	Biogas Gensets:																			
1	Biogas Genset-I: Running Time	hr	24.00	18.55	23.80	21.85	23.15	22.90	19.70	21.99		21.05	23.75	23.30	24.00	22.15	22.35	20.60	22.46	
2	Biogas Genset-I: Energy Generation	kW.hr	3,610	2,830	3,580	3,390	3,580	2,920	2,540	3,207		2,920	2,980	2,900	3,080	2,830	2,730	2,600	2,863	
3	Biogas Genset-II: Running Time	hr	24.00	18.60	23.90	21.85	23.15	23.00	20.00	22.07		22.10	23.90	23.60	24.00	22.05	22.25	20.55	22.64	
4	Biogas Genset-II: Energy Generation	kW.hr	3,780	2,960	3,770	3,550	3,700	3,200	2,740	3,386		3,200	3,300	3,280	3,410	3,150	3,030	2,890	3,180	
5	Total.....(2) + (4)	kW.hr	7,390	5,790	7,350	6,940	7,280	6,120	5,280	6,593		6,120	6,280	6,180	6,490	5,980	5,760	5,490	6,043	

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

Sr. No.	Description	Unit	1-Sep	2-Sep	3-Sep	4-Sep	5-Sep	6-Sep	7-Sep	Weekly Average	8-Sep	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep	Weekly Average	
B 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
2	Biodegradable Waste.....1B-1	TPD	68.17	63.83	71.93	74.54	79.20	62.56	71.66	70.27	84.02	72.77	81.00	80.53	73.98	50.91	59.57	71.83	
3	Electricity Generation = $100 * \{(A2 \div A1) + (A4 \div A3)\} \div 1000 \div 1B.1$	kW	308	312	308	318	314	267	266	299	284	264	263	270	271	258	267	268	
4	Electricity Generation	MW/100 MT	0.51	0.52	0.51	0.53	0.52	0.44	0.44	0.50	0.47	0.44	0.44	0.45	0.45	0.51	0.45	0.46	

4 BIOGAS FLARE:

Sr. No.	Description	Unit	1-Sep	2-Sep	3-Sep	4-Sep	5-Sep	6-Sep	7-Sep	Weekly Average	8-Sep	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep	Weekly Average
1	Operation Time	hr/day	0.00	3.28	3.42	1.92	2.30	0.98	0.02	1.70	0.12	0.00	0.05	0.12	0.00	0.00	0.12	0.06

5 EFFLUENT TREATMENT PLANT:

Sr. No.	Description	Unit	1-Sep	2-Sep	3-Sep	4-Sep	5-Sep	6-Sep	7-Sep	Weekly Average	8-Sep	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep	Weekly Average
A Raw Effluent Quality:																		
1	Flow	m ³ /day	102.42	102.42	98.12	100.07	76.64	59.00	56.41	85.01	43.26	90.31	91.05	95.56	96.05	102.78	102.86	88.84
2	pH	---	6.93	6.27	7.77	7.02	6.35	7.42	6.91	6.95	6.65	7.45	7.66	7.71	6.93	6.96	6.64	7.14
3	Biochemical Oxygen Demand (BOD5)	mg/l	1,887	2,019	2,467	1,791	2,314	2,217	1,703	2,057	2,342	2,008	1,708	2,478	2,197	2,281	2,298	2,187
4	Chemical Oxygen Demand (COD)	mg/l	5,302	5,673	6,118	6,143	5,461	7,405	3,542	5,663	6,441	6,707	5,722	7,285	7,404	5,064	7,078	6,529
5	Total Suspended Solids (TSS)	mg/l	3,868	4,987	5,625	3,528	4,859	3,392	2,640	4,128	4,450	4,136	3,245	4,634	4,877	3,923	3,585	4,121
6	Total Dissolve Solids (TDS)	mg/l	1,668	1,792	1,573	1,647	1,682	1,607	1,600	1,653	1,605	1,783	1,352	1,498	1,644	1,729	1,316	1,561
B Treated Effluent Quality:																		
1	pH	---	6.78	6.95	7.26	7.32	7.28	6.66	7.26	7.07	7.21	7.18	6.64	6.57	6.75	6.96	6.56	6.84
2	Biochemical Oxygen Demand (BOD5)	mg/l	9	6	9	7	6	5	8	7	9	9	6	8	7	9	8	8
3	Chemical Oxygen Demand (COD)	mg/l	85	52	55	62	72	65	66	65	57	71	67	90	87	71	88	76
4	Total Suspended Solids (TSS)	mg/l	10	7	10	8	7	6	9	8	10	10	7	9	8	10	9	9
5	Total Dissolve Solids (TDS)	mg/l	1,851	1,989	1,683	1,713	1,699	1,671	1,616	1,746	1,733	1,890	1,379	1,588	1,776	1,815	1,434	1,659

6 DISPOSAL OF INERT:

Sr. No.	Description	Unit	1-Sep	2-Sep	3-Sep	4-Sep	5-Sep	6-Sep	7-Sep	Weekly Average	8-Sep	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep	Weekly 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	140.68	123.18	148.32	144.33	154.56	134.76	146.22	141.72	173.90	150.55	177.69	161.09	151.06	112.89	120.40	149.65
3	Inert Fraction	TPD	0.37	0.34	0.00	0.00	0.00	0.97	0.00	0.24	0.00	0.00	0.00	0.00	29.67	0.00	0.00	4.24
4	% of Total Input Waste.....(3) ÷ (2)	%	0.26%	0.28%	0.00%	0.00%	0.00%	0.72%	0.00%	0.18%	0.00%	0.00%	0.00%	0.00%	19.64%	0.00%	0.00%	2.81%

7 HOUSEKEEPING:

Sr. No.	Description	Unit	1-Sep	2-Sep	3-Sep	4-Sep	5-Sep	6-Sep	7-Sep	Weekly Average	8-Sep	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep	Weekly 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

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

1 INPUT WASTE COMPOSITION:

Sr. No.	Description	Unit	15-Sep	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep	Weekly Average		22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep	Weekly Average	
1A	Input Waste:																			
1	Type 1: Dry Waste	TPD	61.89	49.93	52.05	57.67	65.25	69.44	66.89	60.45	46.33%	60.10	57.94	67.09	76.41	56.54	71.56	62.16	64.54	47.87%
2	Type 2: Wet Waste	TPD	64.31	69.80	67.38	66.59	55.57	62.60	66.39	64.66	49.57%	73.18	74.86	77.99	60.76	55.37	57.90	50.18	64.32	47.70%
3	Type 3: Mixed Waste	TPD	0.00	1.66	6.99	3.88	5.04	0.00	1.68	2.75	2.11%	4.41	2.80	3.45	0.00	1.95	0.00	3.86	2.35	1.75%
4	Type 4: Tree Waste	TPD	3.68	1.56	1.95	1.77	3.31	3.28	2.66	2.60	1.99%	1.63	3.53	4.81	4.15	3.79	3.39	4.00	3.61	2.68%
5	Total.....(1)+(2)+(3)+(4)	TPD	129.88	122.95	128.37	129.91	129.17	135.32	137.62	130.46	100.00%	139.32	139.13	153.34	141.32	117.65	132.85	120.20	134.83	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% Inorganic.
 3 **Type-I: Mixed Waste:** This has 45-50% Organic and 50-55% Inorganic.

Sr. No.	Description	Unit	15-Sep	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep	Weekly Average		22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep	Weekly Average	
1B	Input Waste Composition:																			
1	Organic Fraction	TPD	62.28	59.79	63.42	61.25	58.03	60.42	64.25	61.35	47.02%	69.21	68.08	72.39	61.36	52.13	59.23	53.17	62.22	46.15%
2	Inorganic Fraction:																			
	Recyclables	TPD	9.87	9.38	9.71	8.98	8.99	9.68	9.80	9.49	7.27%	10.45	10.10	11.11	10.22	8.33	9.28	8.88	9.77	7.24%
	RDF	TPD	52.54	50.67	51.67	55.91	55.42	60.09	59.05	55.05	42.20%	56.24	51.32	62.64	63.75	50.94	58.40	52.18	56.50	41.90%
	Bulking Material	TPD	1.51	1.54	1.62	2.00	1.85	1.85	1.86	1.75	1.34%	1.79	2.05	1.92	1.84	1.92	2.15	1.72	1.91	1.42%
	Inert	TPD	0.00	0.00	0.00	0.00	1.57	0.00	0.00	0.22	0.17%	0.00	4.05	0.47	0.00	0.53	0.40	0.25	0.81	0.60%
3	Tree Waste	TPD	3.68	1.56	1.95	1.77	3.31	3.28	2.66	2.60	1.99%	1.63	3.53	4.81	4.15	3.79	3.39	4.00	3.61	2.68%
	Total.....(1)+(2)+(3)	TPD	129.88	122.95	128.37	129.91	129.17	135.32	137.62	130.46	100.00%	139.32	139.13	153.34	141.32	117.65	132.85	120.20	134.83	100.00%

2 RECYCLABLES:

Sr. No.	Description	Unit	15-Sep	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep	Weekly Average		22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep	Weekly Average	
1	Glass	Kg	126	134	126	154	176	132	148	142		138	203	163	137	114	181	174	159	
2	Aluminum	Kg	114	109	76	103	113	66	135	102		138	108	89	96	68	104	116	103	
3	Metal	Kg	227	194	253	243	252	251	256	239		248	271	297	274	205	207	209	244	
4	Paper + Cardboard	Kg	782	801	860	859	793	898	823	831		826	814	1,025	933	786	893	744	860	
5	Tetra Pack	Kg	88	85	88	64	113	119	135	99		83	136	134	123	68	129	70	106	
6	Hard Plastic	Kg	202	134	177	256	164	238	175	192		165	231	208	206	114	246	209	197	
7	PET	Kg	227	243	215	231	252	132	189	213		234	231	253	247	205	220	232	232	
8	Mixed Plastic	Kg	8,796	8,424	8,698	7,868	7,828	8,675	8,624	8,416		9,322	8,841	9,833	9,053	7,446	8,091	7,774	8,623	
9	Thermocol + Styrofoam	Kg	88	61	76	64	88	66	135	83		124	81	134	82	114	104	93	105	
10	Cloth + Rags + Textiles	Kg	1,136	838	809	871	1,196	1,070	958	983		1,143	936	1,084	700	1,013	1,062	627	938	
11	Leather + Rexine + Rubber	Kg	1,262	1,044	923	1,256	1,221	845	742	1,042		1,088	1,071	1,426	686	1,036	1,178	802	1,041	
12	Coconut	Kg	732	740	759	1,140	1,057	951	1,039	917		964	1,234	891	905	1,139	1,256	976	1,052	

- # **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	15-Sep	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep	Weekly Average		22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep	Weekly Average	
A	Biogas Gensets:																			
1	Biogas Genset-I: Running Time	hr	20.10	20.30	22.35	23.66	23.62	20.21	23.16	21.91		18.40	23.85	20.20	18.20	20.85	19.05	19.75	20.04	
2	Biogas Genset-I: Energy Generation	kW.hr	2,540	2,530	3,570	3,900	3,910	3,200	3,900	3,364		2,880	3,920	3,420	2,220	2,410	2,200	2,360	2,773	
3	Biogas Genset-II: Running Time	hr	20.25	20.30	20.70	20.10	18.65	19.20	21.15	20.05		21.20	20.20	20.65	16.90	21.05	18.58	19.60	19.74	
4	Biogas Genset-II: Energy Generation	kW.hr	2,820	2,800	2,770	2,920	2,490	2,660	2,770	2,747		2,800	2,550	2,690	2,100	2,430	2,840	2,320	2,533	
5	Total.....(2) + (4)	kW.hr	5,360	5,330	6,340	6,820	6,400	5,860	6,670	6,111		5,680	6,470	6,110	4,320	4,840	5,040	4,680	5,306	

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

Sr. No.	Description	Unit	15-Sep	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep	Weekly Average	22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep	Weekly Average	
B 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
2	Biodegradable Waste.....1B-1	TPD	62.28	59.79	63.42	61.25	58.03	60.42	64.25	61.35	69.21	68.08	72.39	61.36	52.13	59.23	53.17	62.22	
3	Electricity Generation = $100 * \{(A2 \div A1) + (A4 \div A3)\} \div 1000 \div 1B.1$	kW	266	263	294	310	299	297	299	290	289	291	300	246	231	268	238	266	
4	Electricity Generation	MW/100 MT	0.44	0.44	0.49	0.52	0.52	0.49	0.50	0.49	0.48	0.48	0.50	0.41	0.44	0.45	0.45	0.46	

4 BIOGAS FLARE:

Sr. No.	Description	Unit	15-Sep	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep	Weekly Average	22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep	Weekly Average
1	Operation Time	hr/day	0.00	0.00	0.03	4.30	1.65	0.00	0.00	0.85	0.03	0.03	0.15	0.45	0.00	0.00	0.03	0.10

5 EFFLUENT TREATMENT PLANT:

Sr. No.	Description	Unit	15-Sep	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep	Weekly Average	22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep	Weekly Average
A Raw Effluent Quality:																		
1	Flow	m ³ /day	97.53	100.35	102.17	102.87	116.72	122.33	127.36	109.90	128.37	115.45	107.19	106.21	84.10	81.06	77.17	99.94
2	pH	---	7.43	6.62	6.66	6.91	6.26	7.88	6.91	6.95	6.43	6.67	7.53	7.00	8.00	7.52	6.65	7.11
3	Biochemical Oxygen Demand (BOD5)	mg/l	2,007	1,962	2,026	2,188	2,003	1,566	2,369	2,017	1,748	1,726	1,584	2,218	2,498	1,921	1,958	1,950
4	Chemical Oxygen Demand (COD)	mg/l	5,098	6,632	4,761	6,214	5,228	3,508	6,538	5,426	4,073	4,125	5,433	4,791	6,795	4,476	6,794	5,212
5	Total Suspended Solids (TSS)	mg/l	3,532	3,649	4,579	4,507	4,367	2,615	5,425	4,096	3,129	3,935	3,200	3,926	3,772	4,053	3,799	3,688
6	Total Dissolve Solids (TDS)	mg/l	1,391	1,432	1,619	1,590	1,629	1,419	1,702	1,540	1,713	1,312	1,455	1,450	1,326	1,677	1,651	1,512
B Treated Effluent Quality:																		
1	pH	---	6.63	7.05	6.54	7.49	6.93	7.04	7.27	6.99	6.65	7.20	7.48	6.93	7.20	6.89	6.84	7.03
2	Biochemical Oxygen Demand (BOD5)	mg/l	7	8	8	5	6	7	6	7	6	5	9	6	7	7	9	7
3	Chemical Oxygen Demand (COD)	mg/l	73	71	67	53	66	91	82	72	85	79	55	75	51	53	80	68
4	Total Suspended Solids (TSS)	mg/l	8	9	9	6	7	8	7	8	7	6	10	7	8	8	10	8
5	Total Dissolve Solids (TDS)	mg/l	1,433	1,561	1,668	1,685	1,808	1,504	1,787	1,635	1,867	1,404	1,586	1,479	1,379	1,794	1,783	1,613

6 DISPOSAL OF INERT:

Sr. No.	Description	Unit	15-Sep	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep	Weekly Average	22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep	Weekly 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	126.20	121.39	126.42	128.14	125.86	132.04	134.96	127.86	137.69	135.60	148.53	137.17	113.86	129.46	116.20	131.22
3	Inert Fraction	TPD	0.00	0.00	0.00	0.00	1.57	0.00	0.00	0.22	0.00	4.05	0.47	0.00	0.53	0.40	0.25	0.81
4	% of Total Input Waste.....(3) ÷ (2)	%	0.00%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%	0.18%	0.00%	2.99%	0.32%	0.00%	0.47%	0.31%	0.22%	0.61%

7 HOUSEKEEPING:

Sr. No.	Description	Unit	15-Sep	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep	Weekly Average	22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep	Weekly 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

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

1 INPUT WASTE COMPOSITION:

Sr. No.	Description	Unit	29-Sep	30-Sep	Weekly Average		Monthly Average	
1A	Input Waste:							
1	Type 1: Dry Waste	TPD	64.85	61.95	63.40	47.05%	63.68	45.53%
2	Type 2: Wet Waste	TPD	63.73	67.16	65.45	48.57%	69.50	49.54%
3	Type 3: Mixed Waste	TPD	5.46	3.34	4.40	3.27%	3.56	2.54%
4	Type 4: Tree Waste	TPD	1.72	1.28	1.50	1.11%	3.39	2.39%
5	Total.....(1)+(2)+(3)+(4)	TPD	135.76	133.73	134.75	100.00%	140.13	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% Inorganic.
 - Type-I: Mixed Waste:** This has 45-50% Organic and 50-55% Inorganic.

Sr. No.	Description	Unit	29-Sep	30-Sep	Weekly Average		Monthly Average	
1B	Input Waste Composition:							
1	Organic Fraction	TPD	62.72	66.14	64.43	47.82%	66.02	47.11%
2	Inorganic Fraction:							
	Recyclables	TPD	10.44	9.10	9.77	7.25%	10.13	7.23%
	RDF	TPD	59.07	55.40	57.23	42.47%	57.60	41.19%
	Bulking Material	TPD	1.81	1.81	1.81	1.34%	1.88	1.35%
	Inert	TPD	0.00	0.00	0.00	0.00%	1.10	0.74%
3	Tree Waste	TPD	1.72	1.28	1.50	1.11%	3.39	2.39%
	Total.....(1)+(2)+(3)	TPD	135.76	133.73	134.75	100.00%	140.13	100.00%

2 RECYCLABLES:

Sr. No.	Description	Unit	29-Sep	30-Sep	Weekly Average		Monthly Average	
1	Glass	Kg	174	132	153		166	
2	Aluminum	Kg	134	66	100		104	
3	Metal	Kg	268	225	247		252	
4	Paper + Cardboard	Kg	858	874	866		899	
5	Tetra Pack	Kg	80	66	73		99	
6	Hard Plastic	Kg	147	265	206		213	
7	PET	Kg	201	159	180		207	
8	Mixed Plastic	Kg	9,302	8,079	8,691		8,984	
9	Thermocol + Styrofoam	Kg	134	106	120		102	
10	Cloth + Rags + Textiles	Kg	791	1,272	1,032		1,026	
11	Leather + Rexine + Rubber	Kg	751	834	793		1,031	
12	Coconut	Kg	952	940	946		985	

- # **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 ELECTRICITY GENERATION:

Sr. No.	Description	Unit	29-Sep	30-Sep	Weekly Average		Monthly Average	
A	Biogas Gensets:							
1	Biogas Genset-I: Running Time	hr	19.90	21.18	20.54		21.39	
2	Biogas Genset-I: Energy Generation	kW.hr	2,210	3,540	2,875		3,016	
3	Biogas Genset-II: Running Time	hr	20.87	16.17	18.52		20.60	
4	Biogas Genset-II: Energy Generation	kW.hr	3,450	2,640	3,045		2,978	
5	Total.....(2) + (4)	kW.hr	5,660	6,180	5,920		5,995	

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

Sr. No.	Description	Unit	29-Sep	30-Sep	Weekly Average	Monthly Average
B 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
2	Biodegradable Waste.....1B-1	TPD	62.72	66.14	64.43	66.02
3	Electricity Generation = $100 * \{(A2 \div A1) + (A4 \div A3)\} \div 1000 \div 1B.1$	kW	276	330	303	285
4	Electricity Generation	MW/100 MT	0.46	0.55	0.47	0.48

4 BIOGAS FLARE:

Sr. No.	Description	Unit	29-Sep	30-Sep	Weekly Average	Monthly Average
1	Operation Time	hr/day	0.00	4.28	2.14	0.97

5 EFFLUENT TREATMENT PLANT:

Sr. No.	Description	Unit	29-Sep	30-Sep	Weekly Average	Monthly Average
A Raw Effluent Quality:						
1	Flow	m ³ /day	91.40	75.65	83.53	93.44
2	pH	---	7.17	7.73	7.45	7.12
3	Biochemical Oxygen Demand (BOD5)	mg/l	2,371	1,800	2,086	2,060
4	Chemical Oxygen Demand (COD)	mg/l	7,587	4,950	6,269	5,820
5	Total Suspended Solids (TSS)	mg/l	5,904	4,086	4,995	4,206
6	Total Dissolve Solids (TDS)	mg/l	1,707	1,754	1,731	1,599
B Treated Effluent Quality:						
1	pH	---	6.74	6.55	6.65	6.92
2	Biochemical Oxygen Demand (BOD5)	mg/l	5	8	7	7
3	Chemical Oxygen Demand (COD)	mg/l	57	63	60	68
4	Total Suspended Solids (TSS)	mg/l	6	9	8	8
5	Total Dissolve Solids (TDS)	mg/l	1,724	1,842	1,783	1,687

6 DISPOSAL OF INERT:

Sr. No.	Description	Unit	29-Sep	30-Sep	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	134.04	132.45	133.25	136.74
3	Inert Fraction	TPD	0.00	0.00	0.00	1.10
4	% of Total Input Waste.....(3) ÷ (2)	%	0.00%	0.00%	0.00%	0.76%

7 HOUSEKEEPING:

Sr. No.	Description	Unit	29-Sep	30-Sep	Weekly Average	Monthly Average
1	Hygienic Conditions	---	Accepted	Accepted	Accepted	Accepted
2	Cleanliness	---	Accepted	Accepted	Accepted	Accepted
3	Manpower Deployed	---	Accepted	Accepted	Accepted	Accepted
4	Safety Norms	---	Accepted	Accepted	Accepted	Accepted
5	Treatment Methodology	---	Accepted	Accepted	Accepted	Accepted
6	Storage Conditions	---	Accepted	Accepted	Accepted	Accepted