

**Monthly Performance Report
(HWT-NG100-MPR-24-R0)**

**July 2018
(From 01/07/2018 to 31/07/2018)**

**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 July 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. Metal Articles & Cans 3. Tetrapacks 4. Paper / Cardboard 5. Plastic Film 6. Hard Plastics 7. PET Bottles 8. Styrofoam & Thermocol 9. Cloth / Rags / Textile 10. Jute bags 11. Leather / Rubber / Rexine 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 143.33 TPD . Quantum of Inert is 0.74 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 0.52 MW/100 tons of Input Biodegradable Waste as received in the Facility (in TPD).

Sr. No.	Parameter	Performance Standard As per Schedule – 7	Actual Performance at Plant (Monthly Average)										
4.	Biogas Flaring System	The Biogas Flaring System shall strictly be used only in case of emergency and not as a routine practice.	Biogas is being flared strictly, only under emergency and not as a routine practice. The average running time of Biogas Flaring System is 0.11 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 726 1403 940"> <tbody> <tr> <td>pH</td> <td>6.98</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>1,617 mg/l</td> </tr> </tbody> </table>	pH	6.98	BOD	7 mg/l	COD	70 mg/l	TSS	8 mg/l	TDS	1,617 mg/l
pH	6.98												
BOD	7 mg/l												
COD	70 mg/l												
TSS	8 mg/l												
TDS	1,617 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: July 2018		
Sr. No.	Content	Month	Signature
1	Input Waste Composition	From 01.07.2018 To 31.07.2018	
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-Jul	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul	7-Jul	Weekly Average		8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	Weekly Average		
A Input Waste:																					
1	Dry Waste	TPD	65.16	72.67	67.84	71.16	81.98	62.88	79.67	71.62	50.47%	76.54	98.44	74.54	71.77	71.42	70.30	78.14	77.31	52.26%	
2	Wet Waste	TPD	57.65	65.44	69.46	59.74	58.96	75.68	61.06	64.00	45.10%	50.56	58.06	72.74	69.17	69.02	70.59	66.49	65.23	44.10%	
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%	
4	Sub Total.....(1) + (2) + (3)	TPD	122.81	138.11	137.30	130.90	140.94	138.56	140.73	135.62	95.57%	127.10	156.50	147.28	140.94	140.44	140.89	144.63	142.54	96.36%	
5	Tree Waste	TPD	4.33	4.93	7.08	10.34	10.22	1.95	5.18	6.29	4.43%	6.10	7.70	5.00	2.25	6.73	6.77	3.15	5.39	3.64%	
6	Total.....(4) + (5)	TPD	127.14	143.04	144.38	141.24	151.16	140.51	145.91	141.91	100.00%	133.20	164.20	152.28	143.19	147.17	147.66	147.78	147.93	100.00%	
B Input Waste Composition:																					
1	Organic / Bio-degradable Fraction	TPD	67.01	75.77	81.37	72.83	76.32	81.49	75.76	75.79	53.41%	64.04	77.01	84.09	80.25	79.07	82.23	81.59	78.33	52.95%	
2	Inorganic / Non-recyclable Fraction (RDF)	TPD	39.62	44.01	34.70	40.27	48.16	35.41	47.65	41.40	29.17%	48.94	55.42	46.00	39.63	42.51	40.50	44.89	45.41	30.70%	
3	Recyclables:	TPD	15.14	18.33	20.31	17.80	16.12	15.95	17.32	17.28	12.18%	13.52	24.07	17.19	21.06	18.12	16.99	17.49	18.35	12.40%	
	Glass	TPD	0.07	0.12	0.12	0.10	0.11	0.14	0.08	0.11	0.08%	0.09	0.13	0.09	0.08	0.07	0.11	0.09	0.09	0.07%	
	Metal	TPD	0.48	0.57	0.49	0.39	0.49	0.55	0.59	0.51	0.38%	0.39	0.61	0.47	0.48	0.55	0.46	0.46	0.49	0.34%	
	Paper / Cardboard / Tetra Pack	TPD	3.43	4.16	4.23	4.58	3.28	2.26	2.31	3.46	2.55%	2.01	4.65	2.72	4.67	3.15	2.69	3.80	3.38	2.37%	
	Mixed Plastic, Bottles, Cups, Food Packets, Coated Plastics	TPD	6.41	7.43	8.22	6.55	5.20	5.42	7.43	6.67	4.91%	6.04	11.61	6.85	7.06	7.04	5.04	5.99	7.09	4.97%	
	Thermocol / Styrofoam	TPD	0.11	0.07	0.11	0.13	0.14	0.11	0.11	0.11	0.08%	0.06	0.09	0.10	0.13	0.13	0.14	0.07	0.10	0.07%	
	Cloth / Rags / Textiles	TPD	2.30	2.33	2.33	3.42	3.07	4.14	2.56	2.88	2.12%	1.98	2.94	3.14	3.50	3.72	3.75	3.91	3.28	2.30%	
	Rubber	TPD	0.42	0.46	0.62	0.63	0.39	0.40	0.42	0.48	0.35%	0.62	0.44	0.46	0.49	0.60	0.65	0.59	0.55	0.39%	
	Coconut	TPD	1.93	3.19	4.17	2.00	3.42	2.92	3.81	3.07	2.26%	2.33	3.60	3.36	4.65	2.86	4.14	2.57	3.36	2.36%	
4	Inert	TPD	1.04	0.00	0.92	0.00	0.34	5.71	0.00	1.14	0.81%	0.60	0.00	0.00	0.00	0.74	1.17	0.66	0.45	0.31%	
5	Tree Waste	TPD	4.33	4.93	7.08	10.34	10.22	1.95	5.18	6.29	4.43%	6.10	7.70	5.00	2.25	6.73	6.77	3.15	5.39	3.64%	
	Total.....(1) + (2) + (3) + (4) + (5)	TPD	127.14	143.04	144.38	141.24	151.16	140.51	145.91	141.91	100.00%	133.20	164.20	152.28	143.19	147.17	147.66	147.78	147.93	100.00%	

2 RECYCLABLES:

Sr. No.	Description	Unit	1-Jul	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul	7-Jul	Weekly Average		8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	Weekly Average	
1	Glass	Kg	74	124	124	105	113	139	84	109		89	125	88	85	70	113	87	94	
2	Metal	Kg	479	566	494	393	493	554	591	510		394	610	471	479	548	465	463	490	
3	Tetra Pack	Kg	336	237	406	449	213	203	138	283		179	265	213	261	160	159	205	206	
4	Paper / Cardboard	Kg	3,091	3,920	3,823	4,133	3,070	2,055	2,169	3,180		1,829	4,383	2,512	4,404	2,985	2,532	3,598	3,178	
	Total.....(3) + (4)	Kg	3,427	4,157	4,229	4,582	3,283	2,258	2,307	3,463		2,008	4,648	2,725	4,665	3,145	2,691	3,803	3,384	
5	Plastic Films	Kg	5,552	6,398	6,826	5,354	4,473	4,610	6,316	5,647		5,240	9,719	5,965	6,044	5,931	4,161	4,850	5,987	
6	Hard Plastic	Kg	391	505	757	589	432	471	646	542		350	836	349	614	640	434	599	546	
7	PET	Kg	468	528	641	602	296	336	468	477		447	1,057	534	402	464	449	539	556	
	Total.....(5) + (6) + (7)	Kg	6,411	7,431	8,224	6,545	5,201	5,417	7,430	6,666		6,037	11,612	6,848	7,060	7,035	5,044	5,988	7,089	
8	Thermocol	Kg	111	69	110	131	141	111	113	112		64	94	103	127	126	141	72	104	
9	Cloth / Rags / Textile	Kg	1,768	1,744	1,879	2,781	2,486	3,153	1,921	2,247		1,572	2,263	2,281	2,468	2,873	2,661	3,226	2,478	
10	Jute Bags	Kg	528	591	455	635	587	990	640	632		410	680	856	1,028	849	1,087	679	798	
	Total.....(9) + (10)	Kg	2,296	2,335	2,334	3,416	3,073	4,143	2,561	2,880		1,982	2,943	3,137	3,496	3,722	3,748	3,905	3,276	
11	Leather / Rubber / Rexine	Kg	418	456	618	628	395	402	422	477		623	438	457	493	604	648	593	551	
12	Coconut	Kg	1,928	3,190	4,174	2,003	3,425	2,924	3,814	3,065		2,326	3,600	3,358	4,651	2,865	4,142	2,574	3,359	
13	Total	Kg	15,144	18,328	20,307	17,803	16,124	15,948	17,322	17,282		13,523	24,070	17,187	21,056	18,115	16,992	17,485	18,347	
		TPD	15.14	18.33	20.31	17.80	16.12	15.95	17.32	17.28		13.52	24.07	17.19	21.06	18.12	16.99	17.49	18.35	

3 ELECTRICITY GENERATION:

Sr. No.	Description	Unit	1-Jul	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul	7-Jul	Weekly Average		8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	Weekly Average		
A Biogas Gensets:																					
1	Biogas Genset-I: Running Time	hr	23.45	23.95	23.80	23.70	21.80	19.00	23.90	22.80		13.10	23.95	24.00	16.70	20.65	24.00	15.75	19.74		
2	Biogas Genset-I: Energy Generation	kW.hr	3,500	3,820	3,900	3,920	3,260	2,920	3,690	3,573		2,070	3,530	3,540	2,450	2,760	3,670	2,150	2,881		
3	Biogas Genset-II: Running Time	hr	23.45	23.95	23.80	23.70	18.95	21.75	15.85	21.64		22.35	23.95	24.00	23.75	22.75	24.00	23.35	23.45		
4	Biogas Genset-II: Energy Generation	kW.hr	3,560	3,860	3,930	3,950	3,070	3,480	2,350	3,457		3,650	3,530	3,540	3,570	3,180	3,710	3,250	3,490		
5	Total.....(2) + (4)	kW.hr	7,060	7,680	7,830	7,870	6,330	6,400	6,040	7,030		5,720	7,060	7,080	6,020	5,940	7,380	5,400	6,371		
B Electricity Generation:																					
1	As per Tender: Minimum electricity to be generated in the plant shall be 0.4 MW per per 100 tons of Input Biodegradable Waste as received in the Facility.																				
2	Biodegradable Waste.....1.(B1)	Tons	67.01	75.77	81.37	72.83	76.32	81.49	75.76	75.79		64.04	77.01	84.09	80.25	79.07	82.23	81.59	78.33		
3	Electricity Generation required as per Tender = 0.4 x 1000 x (2) ÷ 100	kWH	240	240	240	240	240	240	240	240		240	240	240	240	240	240	240	240		
4	Electricity generated = (A2 ÷ A1) + (A4 ÷ A3)	kWH	301	321	329	332	312	314	303	316		321	295	295	297	273	308	276	295		
#	Surplus / Shortage	kWH	61	81	89	92	72	74	63			81	55	55	57	33	68	36			

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

4 BIOGAS FLARE:

Sr. No.	Description	Unit	1-Jul	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul	7-Jul	Weekly Average	8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	Weekly Average
1	Operation Time	hr/day	0.05	0.08	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5 EFFLUENT TREATMENT PLANT:

Sr. No.	Description	Unit	1-Jul	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul	7-Jul	Weekly Average	8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	Weekly Average
A Raw Effluent Quality:																		
1	Flow	m ³ /day	17.79	41.18	81.06	85.46	84.96	78.72	90.64	68.54	91.08	97.78	103.86	95.25	87.74	94.07	88.80	94.08
2	pH	---	7.13	7.66	7.89	7.43	7.15	6.22	6.59	7.15	7.68	6.40	7.66	6.49	6.56	6.35	6.79	6.85
3	Biochemical Oxygen Demand (BOD5)	mg/l	1,777	1,858	2,490	1,557	2,157	2,262	1,967	2,010	2,143	2,481	1,534	2,449	1,864	1,956	2,448	2,125
4	Chemical Oxygen Demand (COD)	mg/l	4,762	5,332	6,399	4,110	7,053	5,632	5,567	5,551	4,586	6,699	4,234	6,220	5,928	4,577	5,018	5,323
5	Total Suspended Solids (TSS)	mg/l	3,092	4,403	4,382	2,647	3,408	4,094	4,603	3,804	5,079	4,515	3,206	5,314	4,064	3,560	4,015	4,250
6	Total Dissolve Solids (TDS)	mg/l	1,598	1,605	1,706	1,496	1,719	1,306	1,550	1,569	1,798	1,704	1,633	1,736	1,754	1,631	1,441	1,671
B Treated Effluent Quality:																		
1	pH	---	7.05	6.76	7.05	6.96	6.54	7.42	6.60	6.91	7.25	6.66	7.07	6.66	7.43	6.60	6.58	6.89
2	Biochemical Oxygen Demand (BOD5)	mg/l	5	7	9	8	6	7	6	7	9	9	7	5	9	9	8	8
3	Chemical Oxygen Demand (COD)	mg/l	58	55	90	80	64	63	86	71	88	58	66	51	88	55	91	71
4	Total Suspended Solids (TSS)	mg/l	6	8	10	9	7	8	7	8	10	10	8	6	10	10	9	9
5	Total Dissolve Solids (TDS)	mg/l	1,630	1,621	1,842	1,556	1,822	1,410	1,705	1,655	1,960	1,840	1,682	1,858	1,789	1,713	1,542	1,769

6 DISPOSAL OF INERT:

Sr. No.	Description	Unit	1-Jul	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul	7-Jul	Weekly Average	8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	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	122.81	138.11	137.30	130.90	140.94	138.56	140.73	135.62	127.10	156.50	147.28	140.94	140.44	140.89	144.63	142.54
3.00	Inert Fraction	TPD	1.04	0.00	0.92	0.00	0.34	5.71	0.00	1.14	0.60	0.00	0.00	0.00	0.74	1.17	0.66	0.45
4	% of Total Input Waste.....(3) ÷ (2)	%	0.85%	0.00%	0.67%	0.00%	0.24%	4.12%	0.00%	0.84%	0.47%	0.00%	0.00%	0.00%	0.53%	0.83%	0.46%	0.33%

7 HOUSEKEEPING:

Sr. No.	Description	Unit	1-Jul	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul	7-Jul	Weekly Average	8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	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-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	Weekly Average		22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	Weekly Average		
A Input Waste:																					
1	Dry Waste	TPD	53.93	76.70	74.03	69.61	85.43	69.97	63.64	70.47	48.29%	68.05	84.03	64.31	68.68	59.96	60.40	59.11	66.36	45.95%	
2	Wet Waste	TPD	67.76	79.53	71.01	74.00	60.45	61.23	81.91	70.84	48.55%	66.96	67.75	69.57	75.18	79.27	66.37	72.73	71.12	49.24%	
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	7.68	1.10	0.76%	
4	Sub Total.....(1) + (2) + (3)	TPD	121.69	156.23	145.04	143.61	145.88	131.20	145.55	141.31	96.84%	135.01	151.78	133.88	143.86	139.23	126.77	139.52	138.58	95.95%	
5	Tree Waste	TPD	5.56	2.44	4.75	4.70	4.23	7.67	2.92	4.61	3.16%	5.36	2.92	10.30	7.29	5.30	3.13	6.69	5.86	4.05%	
6	Total.....(4) + (5)	TPD	127.25	158.67	149.79	148.31	150.11	138.87	148.47	145.92	100.00%	140.37	154.70	144.18	151.15	144.53	129.90	146.21	144.43	100.00%	
B Input Waste Composition:																					
1	Organic / Bio-degradable Fraction	TPD	74.05	91.08	82.13	82.08	77.05	70.99	91.47	81.26	55.69%	79.52	84.49	80.70	85.97	87.66	76.28	85.41	82.86	57.37%	
2	Inorganic / Non-recyclable Fraction (RDF)	TPD	32.06	42.76	45.21	41.34	44.61	40.07	35.14	40.17	27.53%	40.28	43.98	34.09	38.27	31.44	27.72	33.53	35.62	24.66%	
3	Recyclables:	TPD	15.58	22.39	16.71	20.19	23.24	19.64	18.94	19.53	13.38%	14.53	23.31	17.46	18.66	20.13	15.07	20.58	18.53	12.83%	
	Glass	TPD	0.09	0.12	0.13	0.09	0.07	0.09	0.07	0.09	0.07%	0.08	0.15	0.12	0.07	0.13	0.13	0.14	0.12	0.08%	
	Metal	TPD	0.44	0.61	0.48	0.43	0.64	0.56	0.61	0.54	0.38%	0.55	0.53	0.43	0.50	0.47	0.52	0.45	0.49	0.36%	
	Paper / Cardboard / Tetra Pack	TPD	3.25	4.34	3.02	2.76	3.11	4.41	4.42	3.62	2.56%	3.96	4.43	2.20	4.14	3.40	2.16	3.36	3.38	2.44%	
	Mixed Plastic, Bottles, Cups, Food Packets, Coated Plastics	TPD	6.04	8.84	5.28	8.14	10.42	6.07	5.81	7.23	5.12%	5.18	9.82	9.22	6.88	9.23	6.14	10.38	8.12	5.86%	
	Thermocol / Styrofoam	TPD	0.12	0.11	0.10	0.09	0.15	0.12	0.09	0.11	0.08%	0.07	0.14	0.12	0.12	0.11	0.08	0.11	0.11	0.08%	
	Cloth / Rags / Textiles	TPD	2.41	3.53	4.34	3.25	3.75	3.32	3.97	3.51	2.48%	2.05	4.11	2.16	3.52	2.21	2.09	2.29	2.63	1.90%	
	Rubber	TPD	0.30	0.44	0.73	0.59	0.48	0.55	0.49	0.51	0.36%	0.41	0.39	0.40	0.36	0.46	0.49	0.70	0.46	0.33%	
	Coconut	TPD	2.93	4.39	2.64	4.85	4.62	4.51	3.46	3.92	2.77%	2.23	3.73	2.81	3.06	4.12	3.47	3.15	3.23	2.33%	
4	Inert	TPD	0.00	0.00	0.99	0.80	0.98	0.50	0.00	0.35	0.24%	0.68	0.00	1.63	0.96	0.00	7.70	0.00	1.57	1.09%	
5	Tree Waste	TPD	5.56	2.44	4.75	4.70	4.23	7.67	2.92	4.61	3.16%	5.36	2.92	10.30	7.29	5.30	3.13	6.69	5.86	4.05%	
	Total.....(1) + (2) + (3) + (4) + (5)	TPD	127.25	158.67	149.79	148.31	150.11	138.87	148.47	145.92	100.00%	140.37	154.70	144.18	151.15	144.53	129.90	146.21	144.43	100.00%	

2 RECYCLABLES:

Sr. No.	Description	Unit	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	Weekly Average		22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	Weekly Average	
1	Glass	Kg	85	125	131	86	73	92	73	95		81	152	120	72	125	127	140	117	
2	Metal	Kg	438	609	479	431	642	564	611	539		554	531	428	504	473	520	446	494	
3	Tetra Pack	Kg	296	217	253	141	283	326	438	279		218	293	200	265	296	194	171	234	
4	Paper / Cardboard	Kg	2,953	4,126	2,763	2,617	2,824	4,082	3,987	3,336		3,738	4,139	1,996	3,878	3,102	1,961	3,191	3,144	
	Total.....(3) + (4)	Kg	3,249	4,343	3,016	2,758	3,107	4,408	4,425	3,615		3,956	4,432	2,196	4,143	3,398	2,155	3,362	3,377	
5	Plastic Films	Kg	5,064	7,684	4,472	6,832	9,197	5,218	5,029	6,214		4,262	7,974	8,108	5,845	7,929	5,117	8,886	6,874	
6	Hard Plastic	Kg	513	531	364	684	687	425	453	522		508	943	600	598	738	411	592	627	
7	PET	Kg	459	628	443	627	531	431	325	492		415	903	517	433	563	607	903	620	
	Total.....(5) + (6) + (7)	Kg	6,036	8,843	5,279	8,143	10,415	6,074	5,807	7,228		5,185	9,820	9,225	6,876	9,230	6,135	10,381	8,122	
8	Thermocol	Kg	122	109	102	86	146	118	87	110		68	137	120	115	111	76	112	106	
9	Cloth / Rags / Textile	Kg	1,807	2,705	3,105	2,587	2,624	2,383	2,881	2,585		1,687	3,258	1,793	2,770	1,716	1,711	1,931	2,124	
10	Jute Bags	Kg	602	826	1,232	659	1,125	936	1,093	925		365	856	362	754	498	381	357	510	
	Total.....(9) + (10)	Kg	2,409	3,531	4,337	3,246	3,749	3,319	3,974	3,509		2,052	4,114	2,155	3,524	2,214	2,092	2,288	2,634	
11	Leather / Rubber / Rexine	Kg	304	437	725	589	481	551	495	512		405	395	402	360	459	494	698	459	
12	Coconut	Kg	2,933	4,390	2,640	4,854	4,624	4,513	3,464	3,917		2,228	3,734	2,811	3,064	4,121	3,473	3,153	3,226	
13	Total	Kg	15,576	22,387	16,709	20,193	23,237	19,639	18,936	19,525		14,529	23,315	17,457	18,658	20,131	15,072	20,580	18,535	
		TPD	15.58	22.39	16.71	20.19	23.24	19.64	18.94	19.53		14.53	23.32	17.46	18.66	20.13	15.07	20.58	18.53	

3 ELECTRICITY GENERATION:

Sr. No.	Description	Unit	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	Weekly Average		22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	Weekly Average		
A Biogas Gensets:																					
1	Biogas Genset-I: Running Time	hr	23.05	21.10	23.75	23.60	21.60	23.75	23.15	22.86		23.00	23.90	18.30	20.30	24.00	22.85	23.40	22.25		
2	Biogas Genset-I: Energy Generation	kW.hr	2,970	3,280	3,190	3,880	3,490	3,850	3,390	3,436		3,560	3,730	2,840	2,570	4,040	3,790	3,860	3,484		
3	Biogas Genset-II: Running Time	hr	23.15	19.60	23.75	23.40	22.20	23.75	23.15	22.71		23.15	23.95	17.95	20.35	24.00	23.05	23.35	22.26		
4	Biogas Genset-II: Energy Generation	kW.hr	3,040	2,880	3,250	3,890	3,600	3,870	3,440	3,424		3,570	3,490	2,620	2,610	4,040	3,820	3,880	3,433		
5	Total.....(2) + (4)	kW.hr	6,010	6,160	6,440	7,770	7,090	7,720	6,830	6,860		7,130	7,220	5,460	5,180	8,080	7,610	7,740	6,917		
B Electricity Generation:																					
1	As per Tender: Minimum electricity to be generated in the plant shall be 0.4 MW per per 100 tons of Input Biodegradable Waste as received in the Facility.																				
2	Biodegradable Waste.....1.(B1)	Tons	74.05	91.08	82.13	82.08	77.05	70.99	91.47	81.26		79.52	84.49	80.70	85.97	87.66	76.28	85.41	82.86		
3	Electricity Generation required as per Tender = 0.4 x 1000 x (2) ÷ 100	kWH	240	240	240	240	240	240	240	240		240	240	240	240	240	240	240	240		
4	Electricity generated = (A2 ÷ A1) + (A4 ÷ A3)	kWH	260	302	271	331	324	325	295	301		309	302	301	255	337	332	331	309		
#	Surplus / Shortage	kWH	20	62	31	91	84	85	55			69	62	61	15	97	92	91			

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

4 BIOGAS FLARE:

Sr. No.	Description	Unit	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	Weekly Average	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	Weekly Average
1	Operation Time	hr/day	0.03	2.07	0.65	0.05	0.02	0.00	0.00	0.40	0.78	0.00	0.08	0.08	0.00	0.00	0.00	0.13

5 EFFLUENT TREATMENT PLANT:

Sr. No.	Description	Unit	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	Weekly Average	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	Weekly Average
A Raw Effluent Quality:																		
1	Flow	m ³ /day	63.53	84.60	98.28	98.94	92.32	100.36	101.50	91.36	87.83	84.84	85.96	99.65	102.33	103.38	100.85	94.98
2	pH	---	7.28	6.57	6.73	6.67	7.57	7.19	6.76	6.97	6.30	6.40	6.95	6.10	7.21	6.11	7.39	6.64
3	Biochemical Oxygen Demand (BOD5)	mg/l	2,198	2,463	2,458	1,766	2,447	1,635	1,863	2,119	2,324	2,159	2,089	1,759	2,317	2,498	2,446	2,227
4	Chemical Oxygen Demand (COD)	mg/l	6,220	6,355	7,816	5,316	5,139	4,660	5,514	5,860	7,274	6,866	6,643	5,048	6,789	6,170	6,311	6,443
5	Total Suspended Solids (TSS)	mg/l	4,418	5,271	5,309	2,861	5,922	3,123	4,005	4,416	4,857	3,886	4,658	3,483	4,286	5,446	5,846	4,637
6	Total Dissolve Solids (TDS)	mg/l	1,633	1,475	1,485	1,654	1,407	1,452	1,449	1,508	1,458	1,682	1,460	1,494	1,333	1,408	1,561	1,485
B Treated Effluent Quality:																		
1	pH	---	7.32	7.44	7.27	6.84	7.01	7.13	7.40	7.20	6.99	7.16	7.11	7.22	6.71	6.75	6.97	6.99
2	Biochemical Oxygen Demand (BOD5)	mg/l	9	9	9	8	7	5	9	8	8	9	7	6	6	7	6	7
3	Chemical Oxygen Demand (COD)	mg/l	73	84	65	68	59	83	64	71	59	68	56	84	55	53	90	66
4	Total Suspended Solids (TSS)	mg/l	10	10	10	9	8	6	10	9	9	10	8	7	7	8	7	8
5	Total Dissolve Solids (TDS)	mg/l	1,747	1,623	1,500	1,720	1,463	1,467	1,608	1,590	1,531	1,817	1,621	1,643	1,346	1,535	1,592	1,584

6 DISPOSAL OF INERT:

Sr. No.	Description	Unit	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	Weekly Average	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	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	121.69	156.23	145.04	143.61	145.88	131.20	145.55	141.31	135.01	151.78	133.88	143.86	139.23	126.77	139.52	138.58
3.00	Inert Fraction	TPD	0.00	0.00	0.99	0.00	0.98	0.50	0.00	0.35	0.68	0.00	1.63	0.96	0.00	7.70	0.00	1.57
4	% of Total Input Waste.....(3) ÷ (2)	%	0.00%	0.00%	0.68%	0.00%	0.67%	0.38%	0.00%	0.25%	0.50%	0.00%	1.22%	0.67%	0.00%	6.07%	0.00%	1.21%

7 HOUSEKEEPING:

Sr. No.	Description	Unit	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	Weekly Average	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	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-Jul	30-Jul	31-Jul	Weekly Average		Monthly Average	
A Input Waste:									
1	Dry Waste	TPD	53.21	62.84	67.73	61.26	44.89%	69.41	48.37%
2	Wet Waste	TPD	52.51	67.18	72.00	63.90	46.83%	67.02	46.76%
3	Mixed Waste	TPD	8.33	11.36	1.45	7.05	5.16%	1.63	1.18%
4	Sub Total.....(1) + (2) + (3)	TPD	114.05	141.38	141.18	132.20	96.88%	138.05	96.32%
5	Tree Waste	TPD	6.55	2.04	4.17	4.25	3.12%	5.28	3.68%
6	Total.....(4) + (5)	TPD	120.60	143.42	145.35	136.46	100.00%	143.33	100.00%
B Input Waste Composition:									
1	Organic / Bio-degradable Fraction	TPD	65.01	81.78	82.09	76.29	57.71%	78.91	55.43%
2	Inorganic / Non-recyclable Fraction (RDF)	TPD	29.73	39.92	39.31	36.32	27.47%	39.79	27.91%
3	Recyclables:	TPD	19.31	19.09	19.78	19.39	14.67%	18.62	13.09%
	Glass	TPD	0.08	0.13	0.13	0.11	0.08%	0.11	0.08%
	Metal	TPD	0.40	0.47	0.59	0.49	0.37%	0.50	0.37%
	Paper / Cardboard / Tetra Pack	TPD	3.41	2.88	2.56	2.95	2.23%	3.36	2.43%
	Mixed Plastic, Bottles, Cups, Food Packets, Coated Plastics	TPD	7.88	7.61	8.85	8.11	6.14%	7.44	5.40%
	Thermocol / Styrofoam	TPD	0.11	0.08	0.14	0.11	0.09%	0.11	0.08%
	Cloth / Rags / Textiles	TPD	3.35	4.10	3.95	3.80	2.88%	3.22	2.34%
	Rubber	TPD	0.49	0.66	0.54	0.56	0.43%	0.51	0.37%
	Coconut	TPD	3.58	3.15	3.02	3.25	2.46%	3.36	2.44%
4	Inert	TPD	0.00	0.59	0.00	0.20	0.15%	0.74	0.52%
5	Tree Waste	TPD	6.55	2.04	4.17	4.25	3.22%	5.28	3.70%
	Total.....(1) + (2) + (3) + (4) + (5)	TPD	120.60	143.42	145.35	136.46	103.22%	143.33	100.64%

2 RECYCLABLES:

Sr. No.	Description	Unit	29-Jul	30-Jul	31-Jul	Weekly Average		Monthly Average	
1	Glass	Kg	80	127	127	111		105	
2	Metal	Kg	399	467	593	486		504	
3	Tetra Pack	Kg	177	280	212	223		245	
4	Paper / Cardboard	Kg	3,233	2,604	2,343	2,727		3,113	
	Total.....(3) + (4)	Kg	3,410	2,884	2,555	2,950		3,358	
5	Plastic Films	Kg	6,581	6,359	7,737	6,892		6,323	
6	Hard Plastic	Kg	615	631	505	584		564	
7	PET	Kg	686	616	611	638		557	
	Total.....(5) + (6) + (7)	Kg	7,882	7,606	8,853	8,114		7,444	
8	Thermocol	Kg	114	85	141	113		109	
9	Cloth / Rags / Textile	Kg	2,780	3,071	2,807	2,886		2,464	
10	Jute Bags	Kg	573	1,029	1,146	916		756	
	Total.....(9) + (10)	Kg	3,353	4,100	3,953	3,802		3,220	
11	Leather / Rubber / Rexine	Kg	490	664	536	563		512	
12	Coconut	Kg	3,581	3,153	3,021	3,252		3,364	
13	Total	Kg	19,309	19,086	19,779	19,391		18,616	
		TPD	19.31	19.09	19.78	19.39		18.62	

3 ELECTRICITY GENERATION:

Sr. No.	Description	Unit	29-Jul	30-Jul	31-Jul	Weekly Average		Monthly Average	
A Biogas Gensets:									
1	Biogas Genset-I: Running Time	hr	23.90	24.00	22.85	23.58		22.25	
2	Biogas Genset-I: Energy Generation	kW.hr	4,030	4,070	3,870	3,990		3,473	
3	Biogas Genset-II: Running Time	hr	23.90	24.00	22.90	23.60		22.73	
4	Biogas Genset-II: Energy Generation	kW.hr	4,050	4,060	3,870	3,993		3,560	
5	Total.....(2) + (4)	kW.hr	8,080	8,130	7,740	7,983		7,032	
B Electricity Generation:									
1	As per Tender: Minimum electricity to be generated in the plant shall be 0.4 MW per per 100 tons of Input Biodegradable Waste as received in the Facility.								
2	Biodegradable Waste.....1.(B1)	Tons	65.01	81.78	82.09	76.29		78.91	
3	Electricity Generation required as per Tender = 0.4 x 1000 x (2) ÷ 100	kWH	240	240	240	240		240	
4	Electricity generated = (A2 ÷ A1) + (A4 ÷ A3)	kWH	338	339	338	338		312	
#	Surplus / Shortage	kWH	98	99	98				

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

4 BIOGAS FLARE:

Sr. No.	Description	Unit	29-Jul	30-Jul	31-Jul	Weekly Average	Monthly Average
1	Operation Time	hr/day	0.00	0.00	0.00	0.00	0.11

5 EFFLUENT TREATMENT PLANT:

Sr. No.	Description	Unit	29-Jul	30-Jul	31-Jul	Weekly Average	Monthly Average
A Raw Effluent Quality:							
1	Flow	m ³ /day	101.04	91.57	91.57	94.73	88.74
2	pH	---	6.65	6.40	6.04	6.36	6.79
3	Biochemical Oxygen Demand (BOD5)	mg/l	2,200	1,667	1,621	1,829	2,062
4	Chemical Oxygen Demand (COD)	mg/l	7,062	5,018	3,355	5,145	5,664
5	Total Suspended Solids (TSS)	mg/l	5,038	4,034	2,756	3,943	4,210
6	Total Dissolve Solids (TDS)	mg/l	1,408	1,346	1,360	1,371	1,521
B Treated Effluent Quality:							
1	pH	---	6.88	6.66	7.25	6.93	6.98
2	Biochemical Oxygen Demand (BOD5)	mg/l	7	8	5	7	7
3	Chemical Oxygen Demand (COD)	mg/l	57	67	91	72	70
4	Total Suspended Solids (TSS)	mg/l	8	9	6	8	8
5	Total Dissolve Solids (TDS)	mg/l	1,464	1,481	1,510	1,485	1,617

6 DISPOSAL OF INERT:

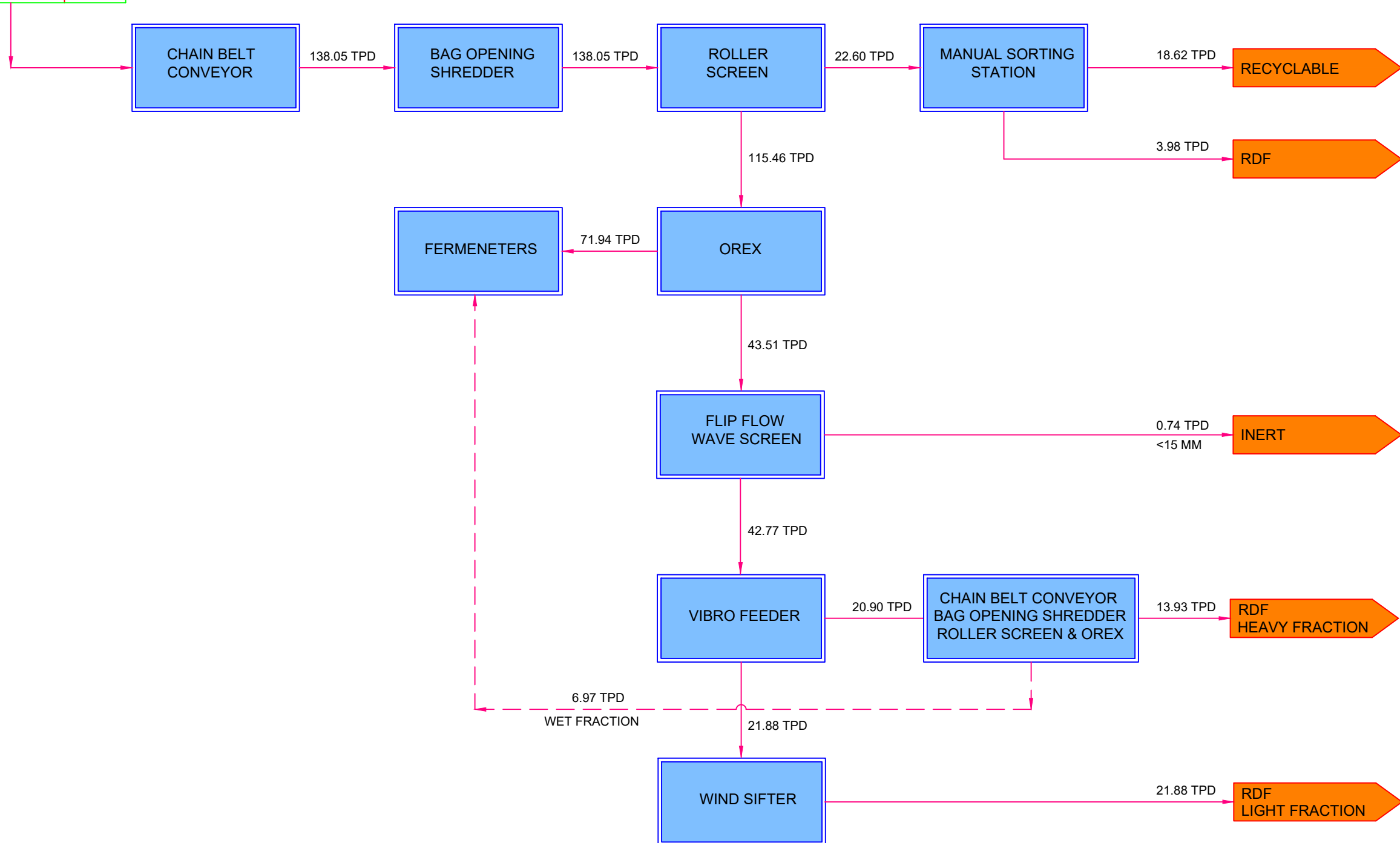
Sr. No.	Description	Unit	29-Jul	30-Jul	31-Jul	Weekly Average	Monthly Average
1	As per Tender: Maximum 10% of Inerts of the Total Input Waste (excluding Mulched Tree Waste) as received in the Facility.						
2	Input Waste	TPD	114.05	141.38	141.18	132.20	138.05
3.00	Inert Fraction	TPD	0.00	0.59	0.00	0.20	0.74
4	% of Total Input Waste.....(3) ÷ (2)	%	0.00%	0.42%	0.00%	0.14%	0.55%

7 HOUSEKEEPING:

Sr. No.	Description	Unit	29-Jul	30-Jul	31-Jul	Weekly Average	Monthly Average
1	Hygienic Conditions	---	Accepted	Accepted	Accepted	Accepted	Accepted
2	Cleanliness	---	Accepted	Accepted	Accepted	Accepted	Accepted
3	Manpower Deployed	---	Accepted	Accepted	Accepted	Accepted	Accepted
4	Safety Norms	---	Accepted	Accepted	Accepted	Accepted	Accepted
5	Treatment Methodology	---	Accepted	Accepted	Accepted	Accepted	Accepted
6	Storage Conditions	---	Accepted	Accepted	Accepted	Accepted	Accepted

INPUT WASTE		
SR. NO.	NAME	WEIGHT (TPD)
1	RECYCLABLES	18.62
2	RDF	39.79
3	WET FRACTION	78.91
4	INERT	0.74
TOTAL		138.05

NUMBER OF RECYCLABLE FRACTIONS		
SR. NO.	NAME	WEIGHT (KG)
01	GLASS	105
02	METALS	504
03	TETRAPACK	245
04	PAPER/CARDBOARD	3,113
05	PLASTIC FILM	6,323
06	HARD PLASTIC	564
07	PET	557
08	THERMOCOL	109
09	CLOTH/RAGS/TEXTILE	2,464
10	JUTE BAGS	756
11	LEATHER/RUBBER/REXINE	512
12	COCONUT	3,364
TOTAL		18,616



OWNER:	DEPARTMENT OF SCIENCE, TECHNOLOGY & ENVIRONMENT
THE MANAGING ASSOCIATE:	GOA STATE INFRASTRUCTURE DEVELOPMENT LTD.
CONTRACTOR:	M/s HINDUSTAN WASTE TREATMENT PVT. LTD.

	NAME	SIGN	DATE
DRWN	KG		01/08/18
DSGN	SG		01/08/18
CHKD	SG		01/08/18
APPD	SG		01/08/18

TITLE :		SCALE
ANNEXURE -1		NTS
MASS BALANCE: JULY 2018		
SIZE	REV.	
A3	R0	