

**Monthly Performance Report
(HWT-NG100-MPR-23-R0)**

**June 2018
(From 01/06/2018 to 30/06/2018)**

**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 June 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: <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> 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 147.66 TPD . Quantum of Inert is 0.83 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 0.49 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 0.00 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="1036 688 1403 898"> <tbody> <tr> <td>pH</td> <td>6.95</td> </tr> <tr> <td>BOD</td> <td>8 mg/l</td> </tr> <tr> <td>COD</td> <td>73 mg/l</td> </tr> <tr> <td>TSS</td> <td>9 mg/l</td> </tr> <tr> <td>TDS</td> <td>1,596 mg/l</td> </tr> </tbody> </table>	pH	6.95	BOD	8 mg/l	COD	73 mg/l	TSS	9 mg/l	TDS	1,596 mg/l
pH	6.95												
BOD	8 mg/l												
COD	73 mg/l												
TSS	9 mg/l												
TDS	1,596 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. 										

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#	Plant Performance Data: June 2018		
Sr. No.	Content	Month	Signature
1	Input Waste Composition	From 01.06.2018 To 30.06.2018	
2	Recyclables		
3	Electricity Generation		
4	Biogas Flare		
5	Effluent Treatment Plant		
6	Inert		
7	Housekeeping		

1 INPUT WASTE COMPOSITION:

Sr. No.	Description	Unit	1-Jun	2-Jun	3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	Weekly Average	8-Jun	9-Jun	10-Jun	
A	Input Waste:													
1	Dry Waste	TPD	68.94	73.05	72.37	83.67	69.83	77.36	82.71	75.42	48.71%	78.21	80.50	64.33
2	Wet Waste	TPD	76.39	78.15	76.63	70.65	81.52	83.00	67.01	76.19	49.21%	78.15	84.51	59.72
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
4	Sub-Total.....1+2+3	TPD	145.33	151.20	149.00	154.32	151.35	160.36	149.72	151.61		156.36	165.01	124.05
5	Mulched Tree Waste	TPD	0.99	3.82	3.26	2.46	3.28	2.86	5.89	3.22	2.08%	0.51	3.39	3.21
6	Total.....4+5	TPD	146.32	155.02	152.26	156.78	154.63	163.22	155.61	154.83	100.00%	156.87	168.40	127.26
B	Input Waste Composition:													
1	Organic / Bio degradable Fraction	65.00%	76.39	78.15	76.63	70.65	81.52	83.00	67.01	76.19	49.21%	78.15	84.51	59.72
2	Inorganic / Non-recyclable Fraction (RDF)		52.42	51.21	49.99	60.03	49.98	58.39	57.23	54.18	34.99%	52.12	57.06	43.27
3	Recyclables	14.00%	16.52	21.84	19.15	23.64	19.85	18.97	22.45	20.35	13.14%	26.09	23.44	18.22
	Glass	0.50%	0.15	0.12	0.09	0.11	0.11	0.16	0.14	0.13	0.08%	0.08	0.08	0.08
	Metal	0.50%	0.56	0.47	0.55	0.56	0.68	0.73	0.61	0.59	0.38%	0.49	0.72	0.46
	Paper / Cardboard / Tetrapack	4.00%	3.01	4.50	5.01	4.50	3.05	5.24	3.33	4.09	2.64%	5.00	4.40	3.93
	Mixed Plastic, Bottles, Cups, Food Packets, Coated Plastics	6.00%	5.41	8.70	5.36	9.31	9.08	6.48	10.35	7.81	5.05%	10.75	10.24	6.82
	Thermocol / Styrofoam	1.00%	0.09	0.08	0.15	0.09	0.08	0.16	0.16	0.12	0.07%	0.08	0.10	0.08
	Cloth / Rags / Textiles	1.50%	3.76	4.45	2.66	3.36	3.45	2.81	2.63	3.30	2.13%	4.50	4.51	3.61
	Rubber Items	0.50%	0.45	0.64	0.65	0.71	0.51	0.60	0.75	0.62	0.40%	0.39	0.51	0.51
	Coconut		3.09	2.90	4.67	5.00	2.91	2.77	4.50	3.69	2.38%	4.80	2.88	2.74
4	Inert	10.00%	0.00	0.00	3.23	0.00	0.00	0.00	3.03	0.89	0.58%	0.00	0.00	2.84
5	Mulched Tree Waste	11.00%	0.99	3.82	3.26	2.46	3.28	2.86	5.89	3.22	2.08%	0.51	3.39	3.21
	Total.....1+2+3+4+5	100.00%									100.00%			

2 RECYCLABLES:

Sr. No.	Description	Unit	1-Jun	2-Jun	3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	Weekly Average	8-Jun	9-Jun	10-Jun
A	Recyclables:												
1	Glass	Kg	146	124	91	110	108	163	140	126	78	84	76
2	Metal	Kg	556	465	548	564	680	734	607	593	486	724	458
3	Tetrapack	Kg	178	324	476	432	247	356	170	312	395	382	232
4	Paper / Cardboard	Kg	2,836	4,172	4,533	4,068	2,799	4,883	3,160	3,779	4,609	4,013	3,700
	Total.....3+4	Kg	3,014	4,496	5,009	4,500	3,046	5,239	3,330	4,091	5,004	4,395	3,932
5	Plastic Films	Kg	4,802	7,349	4,631	7,851	7,516	5,385	9,148	6,669	8,897	8,570	5,566
6	Hard Plastic	Kg	282	496	338	810	799	531	662	560	956	1,003	648
7	Pet	Kg	330	852	391	652	762	564	538	584	892	666	607
	Total.....5+6+7	Kg	5,414	8,697	5,360	9,313	9,077	6,480	10,348	7,813	10,745	10,239	6,821
8	Thermocol	Kg	88	78	152	94	77	163	156	115	78	101	76
9	Cloth / Rags / Textile	Kg	2,824	3,737	2,038	2,516	2,828	2,145	2,191	2,611	3,458	3,741	2,743
10	Jute Bags	Kg	936	712	626	839	621	663	439	691	1,045	772	871

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	Total.....9+10	Kg	3,760	4,449	2,664	3,355	3,449	2,808	2,630	3,302	4,503	4,513	3,614
11	Leather / Rubber / Rexine	Kg	454	636	655	706	510	604	747	616	392	505	509
12	Coconut	Kg	3,087	2,899	4,674	5,001	2,907	2,775	4,497	3,691	4,800	2,880	2,736
13	Total	Kg	16,519	21,844	19,153	23,643	19,854	18,966	22,455	20,348	26,086	23,441	18,222
		TPD	16.52	21.84	19.15	23.64	19.85	18.97	22.46	20.35	26.09	23.44	18.22

3 ELECTRICITY GENERATION:

Sr. No.	Description	Unit	1-Jun	2-Jun	3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	Weekly Average	8-Jun	9-Jun	10-Jun
A	Biogas Gensets:												
1	Biogas Genset-I: Running Time	hr	13.10	23.90	20.43	12.50	18.80	16.90	23.60	18.46	21.85	16.68	23.43
2	Biogas Genset-I: Energy Generation	kW.hr	1,670	3,970	3,214	1,390	2,978	2,250	3,620	2,727	3,540	2,770	3,788
3	Biogas Genset-II: Running Time	hr	20.85	22.70	23.25	23.70	22.55	20.95	23.75	22.54	21.90	23.70	15.65
4	Biogas Genset-II: Energy Generation	kW.hr	3,240	3,410	3,460	3,550	3,750	2,960	3,690	3,437	3,570	3,670	2,080
5	Total.....2+4	kW.hr	4,910	7,380	6,674	4,940	6,728	5,210	7,310	6,165	7,110	6,440	5,868
Sr. No.	Description	Unit	1-Jun	2-Jun	3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	Weekly Average	8-Jun	9-Jun	10-Jun
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.B4	Tons	76.39	78.15	76.63	70.65	81.52	83.00	67.01	76.19	78.15	84.51	59.72
3	Electricity Generation required as per Tender.....0.4 x 1000 x B2/100	kWH	240	240	240	240	240	240	240	240	240	240	239
4	Electricity generated..... (A2/A1) + (A4/A3)	kWH	283	316	306	261	325	274	309	296	325	321	295
#	Surplus / Shortage	kWH	43	76	66	21	85	34	69		85	81	56

4 BIOGAS FLARE:

Sr. No.	Description	Unit	1-Jun	2-Jun	3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	Weekly Average	8-Jun	9-Jun	10-Jun
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

5 EFFLUENT TREATMENT PLANT:

Sr. No.	Description	Unit	1-Jun	2-Jun	3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	Weekly Average	8-Jun	9-Jun	10-Jun
A	Raw Effluent Quality:												
1	Flow	m ³ /day	75.19	79.25	79.86	80.31	70.13	67.38	48.20	71.47	51.52	54.46	60.49
2	pH	---	6.45	7.29	7.58	7.47	7.62	7.06	6.93	7.20	7.74	6.19	6.58
3	Biochemical Oxygen Demand (BOD5)	mg/l	2,097	1,529	1,586	1,692	2,102	2,077	2,289	1,910	1,514	2,201	1,772
4	Chemical Oxygen Demand (COD)	mg/l	5,599	3,807	4,790	4,958	7,168	4,736	5,883	5,277	4,784	5,370	4,731
5	Total Suspended Solids (TSS)	mg/l	3,271	2,951	2,649	4,112	3,321	4,424	3,708	3,491	3,073	3,390	3,385
6	Total Dissolve Solids (TDS)	mg/l	1,771	1,760	1,794	1,506	1,319	1,395	1,669	1,602	1,419	1,702	1,666

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B	Treated Effluent Quality:												
1	pH	---	7.16	7.36	7.13	6.75	6.66	7.20	7.28	7.08	6.85	7.31	6.66
2	Biochemical Oxygen Demand (BOD5)	mg/l	9	8	9	5	6	6	8	7	7	5	7
3	Chemical Oxygen Demand (COD)	mg/l	90	72	80	67	73	58	74	73	79	90	74
4	Total Suspended Solids (TSS)	mg/l	10	9	10	6	7	7	9	8	8	6	8
5	Total Dissolved Solids (TDS)	mg/l	1,860	1,830	1,848	1,536	1,372	1,409	1,686	1,649	1,433	1,719	1,683

6 DISPOSAL OF INERT:

Sr. No.	Description	Unit	1-Jun	2-Jun	3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	Weekly Average	8-Jun	9-Jun	10-Jun
1	As per Tender: Maximum 10% of Inerts of the Total Input Waste as received in the Facility.												
2	Input Waste	TPD	146.32	155.02	152.26	156.78	154.63	163.22	155.61	154.83	156.87	168.40	127.26
3	Total Inert Fraction	TPD	0.000	0.000	3.230	0.000	0.000	9.590	18.270	4.441	7.450	8.700	5.920
(a)	Inert from Wave Screen	TPD	0.000	0.000	3.230	0.000	0.000	0.000	3.030	0.894	0.000	0.000	2.840
(b)	Inert from Buffer Tank Cleaning	TPD	0.000	0.000	0.000	0.000	0.000	9.590	15.240	3.547	7.450	8.700	3.080
4	% of Total Input Waste.....3(a)/2	%	0.00%	0.00%	2.12%	0.00%	0.00%	0.00%	1.95%	0.58%	0.00%	0.00%	2.23%

7 HOUSEKEEPING:

Sr. No.	Description	Unit	1-Jun	2-Jun	3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	Weekly Average	8-Jun	9-Jun	10-Jun
1	Hygienic Conditions	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
2	Cleanliness	---	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
4	Safety Norms	---	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
6	Storage Conditions	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted

1 INPUT WASTE COMPOSITION:

Sr. No.	Description	Unit	11-Jun	12-Jun	13-Jun	14-Jun	Weekly Average		15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
A	Input Waste:													
1	Dry Waste	TPD	90.67	77.36	82.32	77.84	78.75	51.35%	76.97	62.03	64.52	82.20	82.63	67.01
2	Wet Waste	TPD	84.06	70.28	67.39	54.74	71.26	46.47%	65.43	57.90	62.70	56.31	65.36	66.99
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
4	Sub-Total.....1+2+3	TPD	174.73	147.64	149.71	132.58	150.01		142.40	119.93	127.22	138.51	147.99	134.00
5	Mulched Tree Waste	TPD	3.26	2.85	6.43	3.73	3.34	2.18%	3.28	4.59	5.46	1.22	3.40	4.67
6	Total.....4+5	TPD	177.99	150.49	156.14	136.31	153.35	100.00%	145.68	124.52	132.68	139.73	151.39	138.67
B	Input Waste Composition:													
1	Organic / Bio degradable Fraction	65.00%	84.06	70.28	67.39	54.74	71.26	46.47%	65.43	57.90	62.70	56.31	65.36	66.99
2	Inorganic / Non-recyclable Fraction (RDF)		65.79	56.56	57.22	54.96	55.28	36.05%	51.99	43.33	44.59	58.42	59.89	46.18
3	Recyclables	14.00%	24.88	20.80	21.24	20.98	22.24	14.50%	21.88	18.70	19.93	20.99	22.74	20.83
	Glass	0.50%	0.14	0.12	0.11	0.07	0.10	0.06%	0.12	0.10	0.11	0.11	0.12	0.11
	Metal	0.50%	0.68	0.57	0.50	0.49	0.56	0.36%	0.50	0.42	0.45	0.48	0.51	0.47
	Paper / Cardboard / Tetrapack	4.00%	3.84	4.54	2.56	3.09	3.91	2.55%	4.21	3.60	3.83	4.04	4.38	4.01
	Mixed Plastic, Bottles, Cups, Food Packets, Coated Plastics	6.00%	11.12	9.50	11.51	9.96	9.99	6.51%	8.81	7.53	8.03	8.45	9.16	8.39
	Thermocol / Styrofoam	1.00%	0.14	0.08	0.08	0.12	0.10	0.06%	0.15	0.12	0.13	0.14	0.15	0.14
	Cloth / Rags / Textiles	1.50%	3.60	2.38	3.48	2.90	3.57	2.33%	2.55	2.18	2.32	2.45	2.65	2.43
	Rubber Items	0.50%	0.55	0.42	0.59	0.35	0.48	0.31%	0.60	0.51	0.54	0.57	0.62	0.57
	Coconut		4.81	3.19	2.40	3.98	3.54	2.31%	4.95	4.23	4.51	4.75	5.15	4.71
4	Inert	10.00%	0.00	0.00	3.86	1.90	1.23	0.80%	3.10	0.00	0.00	2.79	0.00	0.00
5	Mulched Tree Waste	11.00%	3.26	2.85	6.43	3.73	3.34	2.18%	3.28	4.59	5.46	1.22	3.40	4.67
	Total.....1+2+3+4+5	100.00%						100.00%						

2 RECYCLABLES:

Sr. No.	Description	Unit	11-Jun	12-Jun	13-Jun	14-Jun	Weekly Average		15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
A	Recyclables:													
1	Glass	Kg	142	120	109	68	97		117	100	106	112	121	111
2	Metal	Kg	676	572	500	491	558		495	423	451	475	515	471
3	Tetrapack	Kg	192	423	169	229	289		215	338	349	384	232	297
4	Paper / Cardboard	Kg	3,652	4,122	2,392	2,865	3,622		3,995	3,260	3,486	3,655	4,143	3,711
	Total.....3+4	Kg	3,844	4,545	2,561	3,094	3,911		4,210	3,598	3,835	4,039	4,375	4,008
5	Plastic Films	Kg	9,689	7,967	9,609	8,420	8,388		7,439	6,275	6,871	7,228	8,161	6,972
6	Hard Plastic	Kg	623	826	1,082	598	819		661	716	586	592	531	722
7	Pet	Kg	812	703	817	947	778		714	542	570	634	467	696
	Total.....5+6+7	Kg	11,124	9,496	11,508	9,965	9,985		8,814	7,533	8,027	8,454	9,159	8,390
8	Thermocol	Kg	142	75	78	123	96		146	125	133	140	151	139
9	Cloth / Rags / Textile	Kg	2,700	1,807	2,831	2,340	2,803		1,795	1,558	1,702	1,817	2,043	1,937
10	Jute Bags	Kg	895	571	651	563	767		755	621	620	628	607	490

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	Total.....9+10	Kg	3,595	2,378	3,482	2,903	3,570	2,550	2,179	2,322	2,445	2,650	2,427
11	Leather / Rubber / Rexine	Kg	552	421	593	354	475	597	511	544	573	621	569
12	Coconut	Kg	4,806	3,190	2,405	3,980	3,542	4,953	4,234	4,511	4,751	5,147	4,715
13	Total	Kg	24,881	20,797	21,236	20,978	22,234	21,882	18,703	19,929	20,989	22,739	20,830
		TPD	24.88	20.80	21.24	20.98	22.23	21.88	18.70	19.93	20.99	22.74	20.83

3 ELECTRICITY GENERATION:

Sr. No.	Description	Unit	11-Jun	12-Jun	13-Jun	14-Jun	Weekly Average	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
A	Biogas Gensets:												
1	Biogas Genset-I: Running Time	hr	18.10	23.45	21.35	22.50	21.05	20.75	21.45	14.40	24.00	14.90	17.95
2	Biogas Genset-I: Energy Generation	kW.hr	2,510	3,470	3,190	2,940	3,173	2,710	3,100	1,940	3,470	3,190	2,809
3	Biogas Genset-II: Running Time	hr	18.40	23.45	22.50	22.70	21.19	23.60	23.65	14.25	24.00	24.00	23.10
4	Biogas Genset-II: Energy Generation	kW.hr	2,630	3,550	3,490	3,270	3,180	3,270	3,580	2,020	3,540	3,690	3,650
5	Total.....2+4	kW.hr	5,140	7,020	6,680	6,210	6,353	5,980	6,680	3,960	7,010	6,880	6,459
Sr. No.	Description	Unit	11-Jun	12-Jun	13-Jun	14-Jun	Weekly Average	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
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.B4	Tons	84.06	70.28	67.39	54.74	71.26	65.43	57.90	62.70	56.31	65.36	66.99
3	Electricity Generation required as per Tender.....0.4 x 1000 x B2/100	kWH	240	240	240	219	237	240	232	240	225	240	240
4	Electricity generated..... (A2/A1) + (A4/A3)	kWH	282	299	305	275	300	269	296	276	292	368	314
#	Surplus / Shortage	kWH	42	59	65	56		29	64	36	67	128	74

4 BIOGAS FLARE:

Sr. No.	Description	Unit	11-Jun	12-Jun	13-Jun	14-Jun	Weekly Average	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
1	Operation Time	hr/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00

5 EFFLUENT TREATMENT PLANT:

Sr. No.	Description	Unit	11-Jun	12-Jun	13-Jun	14-Jun	Weekly Average	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
A	Raw Effluent Quality:												
1	Flow	m ³ /day	61.63	64.27	64.83	65.09	60.33	73.14	59.55	35.93	66.28	63.33	63.81
2	pH	---	6.51	7.92	6.83	6.34	6.87	6.9	7.59	6.38	6.55	6.94	6.32
3	Biochemical Oxygen Demand (BOD5)	mg/l	1,839	2,447	1,820	1,878	1,924	2,048	2,201	2,157	2,127	1,867	2,168
4	Chemical Oxygen Demand (COD)	mg/l	4,469	8,246	5,132	5,165	5,414	6,861	7,329	7,097	6,934	6,254	6,721
5	Total Suspended Solids (TSS)	mg/l	3,053	3,744	3,130	4,169	3,421	3,277	4,886	4,249	4,594	2,969	3,924
6	Total Dissolve Solids (TDS)	mg/l	1,725	1,483	1,605	1,442	1,577	1,658	1,396	1,457	1,331	1,390	1,595

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B	Treated Effluent Quality:												
1	pH	---	6.72	7.41	6.54	6.82	6.90	7.22	6.97	6.63	7.38	7.28	7.3
2	Biochemical Oxygen Demand (BOD5)	mg/l	9	6	9	7	7	9	6	9	8	8	8
3	Chemical Oxygen Demand (COD)	mg/l	52	67	82	87	76	60	82	91	84	68	76
4	Total Suspended Solids (TSS)	mg/l	10	7	10	8	8	10	7	10	9	9	9
5	Total Dissolved Solids (TDS)	mg/l	1,742	1,587	1,717	1,543	1,632	1,708	1,508	1,574	1,411	1,543	1,723

6 DISPOSAL OF INERT:

Sr. No.	Description	Unit	11-Jun	12-Jun	13-Jun	14-Jun	Weekly Average	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
1	As per Tender: Maximum 10% of Inerts of the Total Input Waste as received in the Facility.												
2	Input Waste	TPD	177.99	150.49	156.14	136.31	153.35	145.68	124.52	132.68	139.73	151.39	138.67
3	Total Inert Fraction	TPD	21.980	13.320	23.600	41.040	17.430	26.800	18.280	20.640	14.520	13.810	10.730
(a)	Inert from Wave Screen	TPD	0.000	0.000	3.860	1.900	1.229	3.100	0.000	0.000	2.790	0.000	0.000
(b)	Inert from Buffer Tank Cleaning	TPD	21.980	13.320	19.740	39.140	16.201	23.700	18.280	20.640	11.730	13.810	10.730
4	% of Total Input Waste.....3(a)/2	%	0.00%	0.00%	2.47%	1.39%	0.87%	2.13%	0.00%	0.00%	2.00%	0.00%	0.00%

7 HOUSEKEEPING:

Sr. No.	Description	Unit	11-Jun	12-Jun	13-Jun	14-Jun	Weekly Average	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
1	Hygienic Conditions	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
2	Cleanliness	---	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
4	Safety Norms	---	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
6	Storage Conditions	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted

1 INPUT WASTE COMPOSITION:

Sr. No.	Description	Unit	21-Jun	Weekly Average		22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	Weekly Average	
A	Input Waste:													
1	Dry Waste	TPD	67.58	71.85	51.71%	76.92	77.35	66.60	91.35	76.05	77.42	82.72	78.34	54.48%
2	Wet Waste	TPD	69.19	63.41	45.64%	60.53	65.98	62.41	61.02	61.12	57.74	62.77	61.65	42.87%
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%
4	Sub-Total.....1+2+3	TPD	136.77	135.26		137.45	143.33	129.01	152.37	137.17	135.16	145.49	140.00	
5	Mulched Tree Waste	TPD	3.23	3.69	2.66%	2.43	3.73	3.10	5.84	1.95	3.49	6.12	3.81	2.65%
6	Total.....4+5	TPD	140.00	138.95	100.00%	139.88	147.06	132.11	158.21	139.12	138.65	151.61	143.81	100.00%
B	Input Waste Composition:													
1	Organic / Bio degradable Fraction	65.00%	69.19	63.41	45.64%	60.53	65.98	62.41	61.02	61.12	57.74	62.77	61.65	42.87%
2	Inorganic / Non-recyclable Fraction (RDF)		46.55	50.14	36.08%	55.91	55.26	46.76	67.59	55.15	56.59	59.95	56.74	39.46%
3	Recyclables	14.00%	21.03	20.87	15.02%	21.01	22.09	19.84	23.76	20.90	20.83	22.77	21.60	15.02%
	Glass	0.50%	0.11	0.11	0.08%	0.11	0.12	0.11	0.13	0.11	0.11	0.12	0.12	0.08%
	Metal	0.50%	0.48	0.47	0.34%	0.48	0.50	0.45	0.54	0.47	0.47	0.52	0.49	0.34%
	Paper / Cardboard / Tetrapack	4.00%	4.05	4.02	2.89%	4.04	4.25	3.82	4.57	4.02	4.01	4.38	4.16	2.89%
	Mixed Plastic, Bottles, Cups, Food Packets, Coated Plastics	6.00%	8.47	8.41	6.05%	8.46	8.90	7.99	9.57	8.42	8.39	9.17	8.70	6.05%
	Thermocol / Styrofoam	1.00%	0.14	0.14	0.10%	0.14	0.15	0.13	0.16	0.14	0.14	0.15	0.14	0.10%
	Cloth / Rags / Textiles	1.50%	2.45	2.43	1.75%	2.45	2.57	2.31	2.77	2.43	2.43	2.65	2.52	1.75%
	Rubber Items	0.50%	0.57	0.57	0.41%	0.57	0.60	0.54	0.65	0.57	0.57	0.62	0.59	0.41%
	Coconut		4.76	4.72	3.40%	4.76	5.00	4.49	5.38	4.73	4.71	5.15	4.89	3.40%
4	Inert	10.00%	0.00	0.84	0.61%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
5	Mulched Tree Waste	11.00%	3.23	3.69	2.66%	2.43	3.73	3.10	5.84	1.95	3.49	6.12	3.81	2.65%
	Total.....1+2+3+4+5	100.00%			100.00%									100.00%

2 RECYCLABLES:

Sr. No.	Description	Unit	21-Jun	Weekly Average		22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	Weekly Average	
A	Recyclables:													
1	Glass	Kg	112	111		112	118	106	127	111	111	121	115	
2	Metal	Kg	476	472		476	500	449	538	473	471	515	489	
3	Tetrapack	Kg	312	304		291	242	382	416	225	369	250	311	
4	Paper / Cardboard	Kg	3,734	3,712		3,751	4,008	3,436	4,156	3,795	3,638	4,132	3,845	
	Total.....3+4	Kg	4,046	4,016		4,042	4,250	3,818	4,572	4,020	4,007	4,382	4,156	
5	Plastic Films	Kg	6,801	7,107		7,049	7,402	6,794	8,375	7,205	7,222	7,815	7,409	
6	Hard Plastic	Kg	822	661		601	623	727	526	581	721	862	663	
7	Pet	Kg	847	639		812	872	472	670	631	445	495	628	
	Total.....5+6+7	Kg	8,470	8,407		8,462	8,897	7,993	9,571	8,417	8,388	9,172	8,700	
8	Thermocol	Kg	140	139		140	147	132	158	139	139	152	144	
9	Cloth / Rags / Textile	Kg	1,740	1,799		1,929	1,817	1,893	2,279	2,057	2,043	1,857	1,982	
10	Jute Bags	Kg	711	633		519	757	418	490	377	383	796	534	

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	Total.....9+10	Kg	2,451	2,432	2,448	2,574	2,311	2,769	2,434	2,426	2,653	2,516
11	Leather / Rubber / Rexine	Kg	574	570	574	603	542	649	570	568	622	590
12	Coconut	Kg	4,760	4,724	4,756	5,000	4,492	5,379	4,730	4,714	5,155	4,889
13	Total	Kg	21,029	20,872	21,010	22,089	19,843	23,763	20,894	20,824	22,772	21,599
		TPD	21.03	20.87	21.01	22.09	19.84	23.76	20.89	20.82	22.77	21.60

3 ELECTRICITY GENERATION:

Sr. No.	Description	Unit	21-Jun	Weekly Average	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	Weekly Average
A Biogas Gensets:												
1	Biogas Genset-I: Running Time	hr	16.01	18.49	15.18	23.26	22.70	23.59	21.10	23.65	23.15	21.80
2	Biogas Genset-I: Energy Generation	kW.hr	2,598	2,831	2,630	3,707	3,775	3,742	2,680	3,260	3,000	3,256
3	Biogas Genset-II: Running Time	hr	24.00	22.37	23.30	24.00	24.00	23.30	23.45	23.65	23.15	23.55
4	Biogas Genset-II: Energy Generation	kW.hr	3,580	3,333	3,570	3,970	3,420	2,980	3,120	3,360	3,120	3,363
5	Total.....2+4	kW.hr	6,178	6,164	6,200	7,677	7,195	6,722	5,800	6,620	6,120	6,619
Sr. No.	Description	Unit	21-Jun	Weekly Average	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	Weekly Average
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.B4	Tons	69.19	63.41	60.53	65.98	62.41	61.02	61.12	57.74	62.77	61.65
3	Electricity Generation required as per Tender.....0.4 x 1000 x B2/100	kWH	240	237	240	240	240	240	240	231	240	239
4	Electricity generated..... (A2/A1) + (A4/A3)	kWH	311	304	326	325	309	287	260	280	264	293
#	Surplus / Shortage	kWH	71		86	85	69	47	20	49	24	

4 BIOGAS FLARE:

Sr. No.	Description	Unit	21-Jun	Weekly Average	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	Weekly 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

5 EFFLUENT TREATMENT PLANT:

Sr. No.	Description	Unit	21-Jun	Weekly Average	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	Weekly Average
A Raw Effluent Quality:												
1	Flow	m ³ /day	39.04	57.30	64.18	63.13	63.72	59.68	61.91	68.58	65.07	63.75
2	pH	---	6.72	6.77	6.86	6.62	7.94	6.69	7.39	7.06	6.73	7.04
3	Biochemical Oxygen Demand (BOD5)	mg/l	1,983	2,079	1,693	1,916	1,962	1,521	1,791	1,508	1,562	1,708
4	Chemical Oxygen Demand (COD)	mg/l	4,938	6,591	5,451	5,671	6,318	4,548	5,355	3,996	3,515	4,979
5	Total Suspended Solids (TSS)	mg/l	4,858	4,108	3,657	3,870	4,611	3,696	3,421	2,322	2,374	3,422
6	Total Dissolve Solids (TDS)	mg/l	1,534	1,480	1,665	1,502	1,437	1,647	1,516	1,641	1,404	1,545

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B	Treated Effluent Quality:											
1	pH	---	7.29	7.15	6.54	6.83	7.16	6.59	6.6	6.73	6.55	6.71
2	Biochemical Oxygen Demand (BOD5)	mg/l	9	8	5	5	6	9	9	9	9	7
3	Chemical Oxygen Demand (COD)	mg/l	80	77	64	76	85	51	68	68	67	68
4	Total Suspended Solids (TSS)	mg/l	10	9	6	6	7	10	10	10	10	8
5	Total Dissolved Solids (TDS)	mg/l	1,687	1,593	1,698	1,637	1,494	1,812	1,546	1,674	1,446	1,615

6 DISPOSAL OF INERT:

Sr. No.	Description	Unit	21-Jun	Weekly Average	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	Weekly Average
1	As per Tender: Maximum 10% of Inerts of the Total Input Waste as received in the Facility.											
2	Input Waste	TPD	140.00	138.95	139.88	147.06	132.11	158.21	139.12	138.65	151.61	143.81
3	Total Inert Fraction	TPD	1.690	15.210	2.650	0.000	3.230	0.000	0.000	0.000	0.000	0.840
(a)	Inert from Wave Screen	TPD	0.000	0.841	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(b)	Inert from Buffer Tank Cleaning	TPD	1.690	14.369	2.650	0.000	3.230	0.000	0.000	0.000	0.000	0.840
4	% of Total Input Waste.....3(a)/2	%	0.00%	0.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

7 HOUSEKEEPING:

Sr. No.	Description	Unit	21-Jun	Weekly Average	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	Weekly Average
1	Hygienic Conditions	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
2	Cleanliness	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
3	Manpower Deployed	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
4	Safety Norms	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
5	Treatment Methodology	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
6	Storage Conditions	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted

1 INPUT WASTE COMPOSITION:

Sr. No.	Description	Unit	29-Jun	30-Jun	Weekly Average		Monthly Average	
A	Input Waste:							
1	Dry Waste	TPD	92.88	67.19	80.04	54.32%	76.88	52.11%
2	Wet Waste	TPD	55.33	69.09	62.21	42.22%	66.95	45.28%
3	Mixed Waste	TPD	0.00	0.00	0.00	0.00%	0.00	0.00%
4	Sub-Total.....1+2+3	TPD	148.21	136.28	142.25		143.83	
5	Mulched Tree Waste	TPD	7.02	3.16	5.09	3.45%	3.83	2.60%
6	Total.....4+5	TPD	155.23	139.44	147.34	100.00%	147.66	100.00%
B	Input Waste Composition:							
1	Organic / Bio degradable Fraction	65.00%	55.33	69.09	62.21	42.22%	66.95	45.28%
2	Inorganic / Non-recyclable Fraction (RDF)		69.56	43.92	56.74	38.51%	54.62	37.02%
3	Recyclables	14.00%	23.32	20.94	22.13	15.02%	21.44	14.54%
	Glass	0.50%	0.12	0.11	0.12	0.08%	0.11	0.08%
	Metal	0.50%	0.53	0.47	0.50	0.34%	0.52	0.35%
	Paper / Cardboard / Tetrapack	4.00%	4.49	4.03	4.26	2.89%	4.09	2.77%
	Mixed Plastic, Bottles, Cups, Food Packets, Coated Plastics	6.00%	9.39	8.44	8.91	6.05%	8.76	5.94%
	Thermocol / Styrofoam	1.00%	0.16	0.14	0.15	0.10%	0.13	0.09%
	Cloth / Rags / Textiles	1.50%	2.72	2.44	2.58	1.75%	2.88	1.94%
	Rubber Items	0.50%	0.64	0.57	0.60	0.41%	0.57	0.39%
	Coconut		5.28	4.74	5.01	3.40%	4.37	2.98%
4	Inert	10.00%	0.00	2.33	1.17	0.79%	0.83	0.55%
5	Mulched Tree Waste	11.00%	7.02	3.16	5.09	3.45%	3.83	2.60%
	Total.....1+2+3+4+5	100.00%				100.00%		100.00%

2 RECYCLABLES:

Sr. No.	Description	Unit	29-Jun	30-Jun	Weekly Average		Monthly Average	
A	Recyclables:							
1	Glass	Kg	124	112	118		113	
2	Metal	Kg	528	474	501		523	
3	Tetrapack	Kg	287	290	289		301	
4	Paper / Cardboard	Kg	4,199	3,740	3,970		3,785	
	Total.....3+4	Kg	4,486	4,030	4,258		4,086	
5	Plastic Films	Kg	8,189	7,069	7,629		7,440	
6	Hard Plastic	Kg	610	776	693		679	
7	Pet	Kg	592	591	592		644	
	Total.....5+6+7	Kg	9,391	8,436	8,914		8,764	
8	Thermocol	Kg	155	139	147		128	
9	Cloth / Rags / Textile	Kg	1,904	1,986	1,945		2,228	
10	Jute Bags	Kg	812	454	633		652	

	Total.....9+10	Kg	2,716	2,440	2,578	2,880
11	Leather / Rubber / Rexine	Kg	636	572	604	571
12	Coconut	Kg	5,278	4,741	5,010	4,371
13	Total	Kg	23,314	20,944	22,129	21,436
		TPD	23.31	20.94	22.13	21.44

3 ELECTRICITY GENERATION:

Sr. No.	Description	Unit	29-Jun	30-Jun	Weekly Average	Monthly Average
A	Biogas Gensets:					
1	Biogas Genset-I: Running Time	hr	23.95	23.70	23.83	20.73
2	Biogas Genset-I: Energy Generation	kW.hr	3,120	3,370	3,245	3,046
3	Biogas Genset-II: Running Time	hr	23.95	23.70	23.83	22.69
4	Biogas Genset-II: Energy Generation	kW.hr	3,200	3,440	3,320	3,327
5	Total.....2+4	kW.hr	6,320	6,810	6,565	6,373
Sr. No.	Description	Unit	29-Jun	30-Jun	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 per 100 tons of Input Biodegradable Waste as received in the Facility.					
2	Biodegradable Waste.....1.B4	Tons	55.33	69.09	62.21	66.95
3	Electricity Generation required as per Tender.....0.4 x 1000 x B2/100	kWH	221	240	231	237
4	Electricity generated..... (A2/A1) + (A4/A3)	kWH	264	287	276	294
#	Surplus / Shortage	kWH	43	47		

4 BIOGAS FLARE:

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

5 EFFLUENT TREATMENT PLANT:

Sr. No.	Description	Unit	29-Jun	30-Jun	Weekly Average	Monthly Average
A	Raw Effluent Quality:					
1	Flow	m ³ /day	66.03	62.00	64.02	63.37
2	pH	---	7.1	7.56	7.33	7.04
3	Biochemical Oxygen Demand (BOD5)	mg/l	2,237	1,804	2,021	1,928
4	Chemical Oxygen Demand (COD)	mg/l	6,510	5,556	6,033	5,659
5	Total Suspended Solids (TSS)	mg/l	4,340	3,861	4,101	3,708
6	Total Dissolve Solids (TDS)	mg/l	1,408	1,316	1,362	1,513

B	Treated Effluent Quality:					
1	pH	---	7.16	6.63	6.90	6.95
2	Biochemical Oxygen Demand (BOD5)	mg/l	9	6	8	8
3	Chemical Oxygen Demand (COD)	mg/l	56	88	72	73
4	Total Suspended Solids (TSS)	mg/l	10	7	9	9
5	Total Dissolved Solids (TDS)	mg/l	1,563	1,421	1,492	1,596

6 DISPOSAL OF INERT:

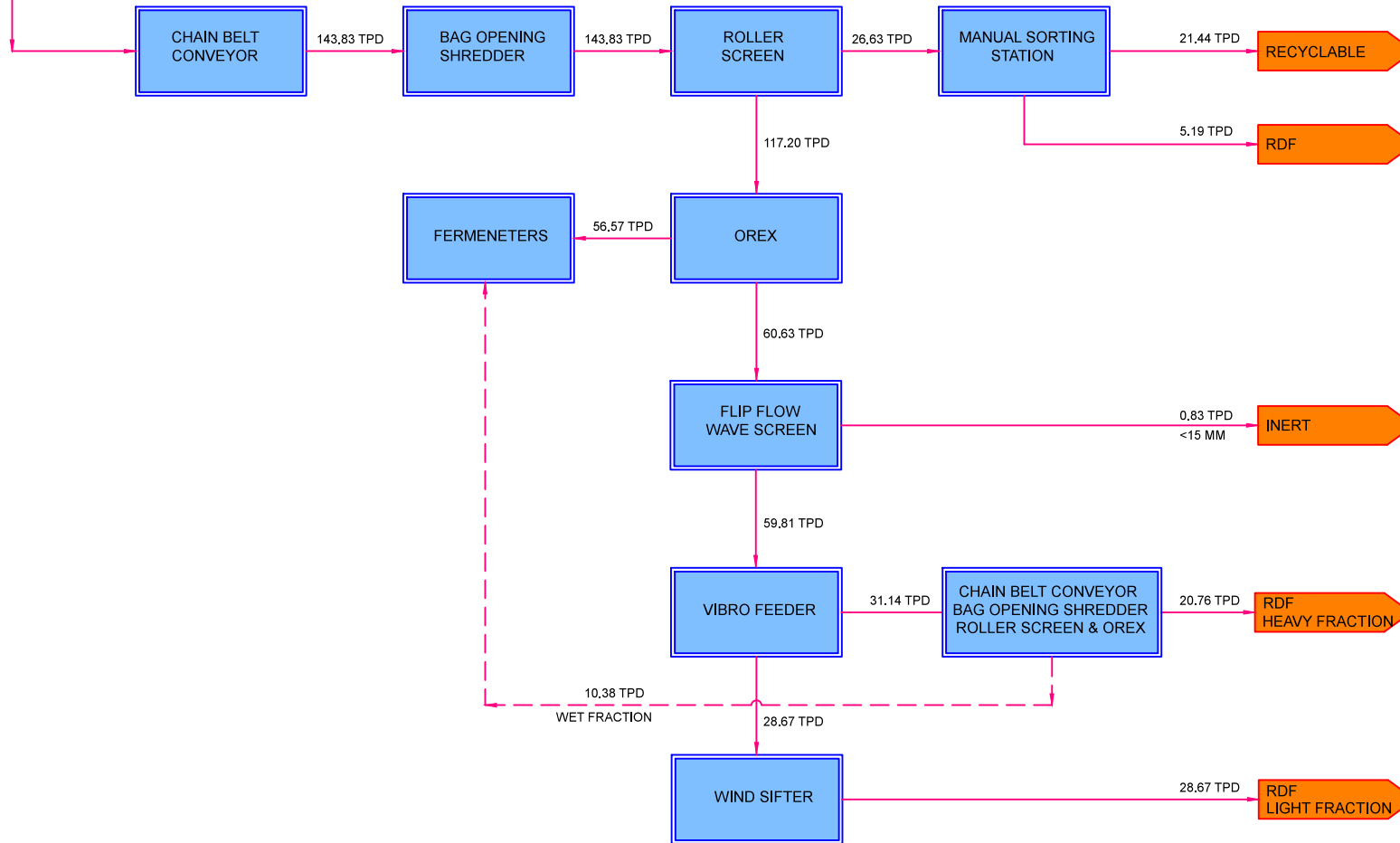
Sr. No.	Description	Unit	29-Jun	30-Jun	Weekly Average	Monthly Average
1	As per Tender: Maximum 10% of Inerts of the Total Input Waste as received in the Facility.					
2	Input Waste	TPD	155.23	139.44	147.34	147.66
3	Total Inert Fraction	TPD	0.000	2.330	1.165	7.817
(a)	Inert from Wave Screen	TPD	0.000	2.330	1.165	0.826
(b)	Inert from Buffer Tank Cleaning	TPD	0.000	0.000	0.000	6.991
4	% of Total Input Waste.....3(a)/2	%	0.00%	1.67%	0.84%	0.58%

7 HOUSEKEEPING:

Sr. No.	Description	Unit	29-Jun	30-Jun	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

INPUT WASTE		
SR. NO.	NAME	WEIGHT (TPD)
1	RECYCLABLES	21.44
2	RDF	54.62
3	WET FRACTION	66.95
4	INERT	0.83
TOTAL		143.83

NUMBER OF RECYCLABLE FRACTIONS		
SR. NO.	NAME	WEIGHT (KG)
01	GLASS	113
02	METALS	523
03	TETRAPACK	301
04	PAPER/CARDBOARD	3,785
05	PLASTIC FILM	7,440
06	HARD PLASTIC	679
07	PET	644
08	THERMOCOL	128
09	CLOTH/RAGS/TEXTILE	2,228
10	JUTE BAGS	652
11	LEATHER/RUBBER/REXINE	571
12	COCONUT	4,371
TOTAL		21,436



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 SG		30/04/18
DSGN SG		30/05/18
CHKD SG		30/06/18
APPD SG		30/06/18

TITLE :
ANNEXURE -1
MASS BALANCE: JUNE 2018

SCALE
NTS

SIZE
A3

REV
R0