Monthly Performance Report
(From 01/11/2016 to 30/11/2016)
(HWT-NG100-MPR-04-R0)

For

100 TPD

Municipal Solid Waste (MSW) Treatment Facility

Calangute, North Goa

Prepared By

Hindustan Waste Treatment Pvt. Ltd.

Submitted To:

Government of Goa

Department of Science, Technology & Environment

Table – 1
Summary of Overall Average Results for December 2016
As compared to Schedule – 7: Performance Standards, Volume – I of RFP

Sr. No.	Parameter	Performance Standard As per Schedule – 7	Actual Performace 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. Newspaper s / 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 **102.47 TPD**. Quantum of Inert is **7.24 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 0.4 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).

<table>
<tr><th>Sr. No.</th><th>Parameter</th><th>Performance Standard
As per Schedule – 7</th><th>Actual Performace at Plant
(Monthly Average)</th></tr>
<tr><td>4.</td><td>Biogas Flaring System</td><td>The Biogas Flaring System shall strictly be used only in case of emergency and not as a routine practice.</td><td>Biogas is being flared strictly, only under emergency and not as a routine practice. The average running time of Biogas Flaring System is <u>6.45 hours/day</u>.</td></tr>
<tr><td>5.</td><td>Discharge of treated effluent conforming to regulatory norms</td><td>Effluent Treatment Plant shall be operated under all conditions.</td><td>Effluent Treatment Plant is being operated continuously and is meeting all statutory conditions. The Treated Effluent Characteristics are as follows:<table><tr><td>pH</td><td>7.04</td></tr><tr><td>BOD</td><td>8 mg/l</td></tr><tr><td>COD</td><td>71 mg/l</td></tr><tr><td>TSS</td><td>9 mg/l</td></tr><tr><td>TDS</td><td>1956 mg/l</td></tr></table></td></tr>
<tr><td>6.</td><td>General Housekeeping, hygienic conditions, cleanliness, safety norms, adequate manpower, treatment methodology for plant operation & maintenance and storage conditions in the plant.</td><td>Minimum housekeeping, safety norms and cleanliness conditions shall be maintained at all times as per the Bid Document requirement.</td><td>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.</td></tr>
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#	Plant Performance Data: November 2016		
Sr. No.	**Content**	**Month**	**Signature**
1	Input Waste Composition	November 2016 From 01.11.2016 To 30.11.2016	
2	Recyclables		
3	Electricity Generation		
4	Biogas Flare		
5	Effluent Treatment Plant		
6	Inert		
7	Housekeeping		

1 INPUT WASTE COMPOSITION:

Sr. No.	Input Waste Composition	As per Tender	1-Nov	2-Nov	3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	Weekly Average		8-Nov	9-Nov	10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	Weekly Average	
A	**Input Waste:**																			
1	Dry Waste	TPD	0.92	0.95	0.33	1.85	0.00	0.00	1.48	**0.79**	**0.74%**	1.36	0.77	0.50	2.03	0.16	0.00	0.48	**0.76**	**0.78%**
2	Wet Waste	TPD	31.61	36.09	31.35	26.46	29.59	31.62	32.26	**31.28**	**29.22%**	30.28	29.93	27.42	25.97	27.30	23.77	26.16	**27.26**	**28.17%**
3	Mixed Waste	TPD	69.21	65.56	75.07	72.63	80.99	75.14	86.22	**74.97**	**70.04%**	70.95	67.11	69.96	61.17	71.99	63.29	76.88	**68.76**	**71.05%**
4	Mulched Tree 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%**
5	**Total.....1+2+3+4**	**TPD**	**101.74**	**102.60**	**106.75**	**100.94**	**110.58**	**106.76**	**119.96**	**107.05**	**100.00%**	**102.59**	**97.81**	**97.88**	**89.17**	**99.45**	**87.06**	**103.52**	**96.78**	**100.00%**
B	**Input Waste Composition:**																			
1	**Organic / Bio degradable fraction**	**65.00%**	**56.46**	**58.05**	**57.10**	**51.30**	**58.42**	**57.24**	**61.92**	**57.21**	**53.45%**	**54.47**	**53.82**	**51.84**	**47.50**	**51.42**	**45.48**	**52.45**	**51.00**	**52.69%**
2	**Inorganic / Non-recyclable Fraction (RDF)**		**26.21**	**28.49**	**27.86**	**33.58**	**30.37**	**29.40**	**36.40**	**30.33**	**28.33%**	**26.32**	**26.93**	**27.88**	**24.05**	**31.07**	**22.22**	**33.37**	**27.40**	**28.31%**
3	**Recyclables**	**14.00%**	**13.39**	**9.94**	**13.91**	**9.99**	**13.79**	**12.14**	**13.92**	**12.44**	**11.62%**	**13.54**	**10.45**	**9.96**	**11.24**	**11.03**	**12.80**	**11.73**	**11.54**	**11.92%**
	Glass	0.50%	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%**
	Metal	0.50%	0.00	0.00	0.37	0.00	0.00	0.00	0.37	**0.11**	**0.10%**	0.00	0.00	0.35	0.00	0.00	0.24	0.00	**0.08**	**0.09%**
	Paper / Cardboard / Tetrapack	4.00%	3.00	1.74	2.38	1.52	3.10	3.09	2.84	**2.52**	**2.36%**	2.51	2.32	2.09	1.68	1.96	1.92	1.75	**2.03**	**2.10%**
	Mixed Plastic, Bottles, Cups, Food Packets, Coated Plastics	6.00%	4.94	5.23	5.67	4.21	6.90	3.77	6.55	**5.32**	**4.97%**	6.38	3.95	4.20	6.14	5.32	5.52	6.63	**5.45**	**5.63%**
	Thermocoal / Styrofoam	1.00%	0.04	0.00	0.00	0.02	0.00	0.00	0.00	**0.01**	**0.01%**	0.09	0.00	0.00	0.00	0.07	0.00	0.00	**0.02**	**0.02%**
	Cloth / Rags / Textiles	1.50%	2.21	1.04	2.41	1.91	1.17	2.26	1.64	**1.81**	**1.69%**	1.17	2.42	1.62	1.32	1.11	1.95	1.19	**1.54**	**1.59%**
	Rubber Items	0.50%	0.41	0.35	0.19	0.22	0.19	0.18	0.53	**0.30**	**0.28%**	0.19	0.18	0.18	0.37	0.20	0.24	0.35	**0.24**	**0.25%**
	Coconut		2.79	1.58	2.88	2.11	2.43	2.84	1.98	**2.37**	**2.22%**	3.19	1.58	1.53	1.74	2.37	2.93	1.81	**2.16**	**2.24%**
4	**Inert**	**10.00%**	**5.69**	**6.11**	**7.88**	**6.07**	**7.99**	**7.97**	**7.73**	**7.06**	**6.60%**	**8.26**	**6.61**	**8.20**	**6.38**	**5.94**	**6.56**	**5.97**	**6.85**	**7.07%**
5	**Mulched Tree Waste**	**11.00%**	**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%**
	Total.....1+2+3+4+5	**100.00%**									**100.00%**									**100.00%**

2 RECYCLABLES:

Sr. No.	Description	Unit	1-Nov	2-Nov	3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	Weekly Average	8-Nov	9-Nov	10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	Weekly Average
A	**Recyclables:**																	
1	Glass	Kg	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**
2	Metal	Kg	0	0	374	0	0	0	372	**107**	0	0	352	0	0	235	0	**84**
3	Tetrapack	Kg	0	120	0	0	146	0	0	**38**	88	0	0	112	0	0	66	**38**
4	Paper / Cardboard	Kg	3,001	1,624	2,381	1,524	2,951	3,085	2,843	**2,487**	2,425	2,318	2,095	1,564	1,959	1,924	1,683	**1,995**
	Total.....3+4	**Kg**	**3,001**	**1,744**	**2,381**	**1,524**	**3,097**	**3,085**	**2,843**	**2,525**	**2,513**	**2,318**	**2,095**	**1,676**	**1,959**	**1,924**	**1,749**	**2,033**
5	Plastic Films	Kg	4,331	4,301	4,835	3,574	6,017	3,331	5,862	**4,607**	5,430	3,481	3,443	5,278	4,645	4,968	5,804	**4,721**
6	Hard Plastic	Kg	282	523	408	253	366	188	393	**345**	498	146	416	467	388	259	384	**365**
7	Pet	Kg	331	408	425	383	518	249	295	**373**	453	324	340	399	287	293	437	**362**
	Total.....5+6+7	**Kg**	**4,944**	**5,232**	**5,668**	**4,210**	**6,901**	**3,768**	**6,550**	**5,325**	**6,381**	**3,951**	**4,199**	**6,144**	**5,320**	**5,520**	**6,625**	**5,449**
8	Thermocal	Kg	41	0	0	20	0	0	0	**9**	92	0	0	0	70	0	0	**23**
9	Cloth / Rags / Textile	Kg	1,698	822	1,860	1,463	981	1,630	1,239	**1,385**	847	1,797	1,355	1,103	845	1,632	855	**1,205**
10	Jute Bags	Kg	510	215	552	445	191	634	404	**422**	323	618	260	216	268	318	336	**334**
	Total.....9+10	**Kg**	**2,208**	**1,037**	**2,412**	**1,908**	**1,172**	**2,264**	**1,643**	**1,806**	**1,170**	**2,415**	**1,615**	**1,319**	**1,113**	**1,950**	**1,191**	**1,539**
11	Leather / Rubber / Rexine	Kg	407	349	192	222	188	181	528	**295**	195	176	176	366	199	235	352	**243**
12	Coconut	Kg	2,788	1,580	2,882	2,110	2,433	2,840	1,979	**2,373**	3,191	1,585	1,527	1,739	2,367	2,934	1,812	**2,165**
13	**Total**	**Kg**	**13,389**	**9,942**	**13,909**	**9,994**	**13,791**	**12,138**	**13,915**	**12,440**	**13,542**	**10,445**	**9,964**	**11,244**	**11,028**	**12,798**	**11,729**	**11,536**
		TPD	**13.39**	**9.94**	**13.91**	**9.99**	**13.79**	**12.14**	**13.92**	**12.44**	**13.54**	**10.45**	**9.96**	**11.24**	**11.03**	**12.80**	**11.73**	**11.54**

3 ELECTRICITY GENERATION:

Sr. No.	Parameter	Unit	1-Nov	2-Nov	3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	Weekly Average	8-Nov	9-Nov	10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	Weekly Average
A	**Biogas Gensets:**																	
1	Biogas Genset-I: Running Time	hr	20.36	8.23	16.07	22.71	17.45	13.41	19.09	**16.76**	20.75	13.76	19.43	12.59	11.82	17.60	20.18	**16.59**
2	Biogas Genset-I: Energy Generation	kW.hr	2,705	1,047	2,227	2,619	2,568	1,850	2,727	**2,249**	2,441	1,823	2,142	1,624	1,682	2,515	2,598	**2,118**
3	Biogas Genset-II: Running Time	hr	5.29	21.14	13.32	8.31	8.49	12.07	4.96	**10.51**	5.30	16.11	11.71	13.62	11.81	9.31	4.88	**10.39**
4	Biogas Genset-II: Energy Generation	kW.hr	740	2,720	1,498	945	1,120	1,559	721	**1,329**	769	2,356	1,595	1,752	1,716	1,335	623	**1,449**
5	**Total.....2+4**	**kW.hr**	**3,445**	**3,767**	**3,725**	**3,564**	**3,688**	**3,409**	**3,448**	**3,578**	**3,210**	**4,179**	**3,737**	**3,376**	**3,398**	**3,850**	**3,221**	**3,567**
B	**Electricty 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	56.46	58.05	57.10	51.30	58.42	57.24	61.92	**57.21**	54.47	53.82	51.84	47.50	51.42	45.48	52.45	**51.00**
3	Electricity Generation required as per Tender.....0.4 x 1000 x B2/100	kWH	226	232	228	205	234	229	248	**229**	218	215	207	190	206	182	210	**204**
4	Electricity generated..... (A2/A1) + (A4/A3)	kWH	273	256	251	229	279	267	288	**263**	263	279	246	258	288	286	256	**268**

4 BIOGAS FLARE:

Sr. No.	Parameter	Unit	1-Nov	2-Nov	3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	Weekly Average	8-Nov	9-Nov	10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	Weekly Average
1	**As per Tender:** The Biogas Flaring System shall strictly be used only in case of emergeny and not as a routine practice.																	
2	**Operation Time**	**hr/day**	5.58	4.90	7.79	7.61	4.72	4.99	6.84	**6.06**	5.70	5.73	5.77	4.68	5.39	6.43	6.52	**5.75**

5 EFFLUENT TREATMENT PLANT:

Sr. No.	Parameter	Unit	1-Nov	2-Nov	3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	Weekly Average	8-Nov	9-Nov	10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	Weekly Average
A	**Raw Effluent Quality:**																	
1	Flow	m^3/day	43.18	38.92	52.28	39.53	36.38	31.88	44.06	**40.89**	49.29	42.70	58.40	51.16	36.59	49.76	58.98	**49.55**
2	pH	---	7.22	6.61	5.73	5.67	7.33	6.00	6.16	**6.39**	6.48	7.76	5.63	7.67	8.48	6.59	7.44	**7.15**
3	Biochemical Oxygen Demand (BOD5)	mg/l	2,903	2,674	2,682	2,100	2,976	3,374	2,455	**2,738**	3,095	2,231	2,565	2,779	3,309	2,897	2,563	**2,777**
4	Chemical Oxygen Demand (COD)	mg/l	5,975	6,861	4,621	6,757	6,240	5,392	5,296	**5,877**	6,089	6,606	4,883	5,969	5,357	4,390	6,106	**5,629**
5	Total Suspended Solids (TSS)	mg/l	2,897	2,445	3,154	3,362	3,446	3,304	2,487	**3,014**	2,265	2,117	3,328	2,560	2,308	3,146	3,144	**2,695**
6	Total Dissolve Solids (TDS)	mg/l	1,925	1,857	1,985	1,844	1,891	1,801	2,013	**1,902**	1,917	1,966	1,927	2,009	1,897	1,814	1,838	**1,910**
B	**Treated Effluent Quality:**																	
1	pH	---	7.55	6.52	6.54	7.05	7.09	7.1	7.85	**7.10**	6.69	6.89	7.74	6.52	6.63	6.5	6.54	**6.79**
2	Biochemical Oxygen Demand (BOD5)	mg/l	9	9	9	8	10	9	6	**9**	9	6	8	9	6	6	9	**8**
3	Chemical Oxygen Demand (COD)	mg/l	79	78	71	66	61	83	53	**70**	59	88	69	69	78	56	61	**69**
1	Total Suspended Solids (TSS)	mg/l	10	10	10	9	9	9	8	**9**	8	8	9	9	10	9	10	**9**
2	Total Dissolve Solids (TDS)	mg/l	1,847	1,987	1,869	1,828	2,083	1,959	1,848	**1,917**	1,811	2,063	1,830	1,830	2,074	1,872	1,822	**1,900**

6 DISPOSAL OF INERT:

Sr. No.	Parameter	Unit	1-Nov	2-Nov	3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	Weekly Average	8-Nov	9-Nov	10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	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**	**101.74**	**102.60**	**106.75**	**100.94**	**110.58**	**106.76**	**119.96**	**107.05**	**102.59**	**97.81**	**97.88**	**89.17**	**99.45**	**87.06**	**103.52**	**96.78**
3	Inert Fraction	Kg	5,687	6,115	7,878	6,066	7,995	7,975	7,725	**7,063**	8,258	6,612	8,202	6,376	5,937	6,564	5,973	**6,846**
		TPD	**5.69**	**6.11**	**7.88**	**6.07**	**7.99**	**7.97**	**7.73**	**7.06**	**8.26**	**6.61**	**8.20**	**6.38**	**5.94**	**6.56**	**5.97**	**6.85**
4	**% of Total Input Waste.....3/2**	**%**	**5.59%**	**5.96%**	**7.38%**	**6.01%**	**7.23%**	**7.47%**	**6.44%**	**6.58%**	**8.05%**	**6.76%**	**8.38%**	**7.15%**	**5.97%**	**7.54%**	**5.77%**	**7.09%**

7 HOUSEKEEPING:

Sr. No.	Parameter	Unit	1-Nov	2-Nov	3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	Weekly Average	8-Nov	9-Nov	10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	Weekly Average
1	Hygenic 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**

1 INPUT WASTE COMPOSITION:

Sr. No.	Input Waste Composition	As per Tender	15-Nov	16-Nov	17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	Weekly Average		22-Nov	23-Nov	24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	Weekly Average		29-Nov	30-Nov	Weekly Average		Monthly Average	
A	**Input Waste:**																									
1	Dry Waste	TPD	1.88	0.87	0.49	0.97	0.00	0.00	0.39	0.66	0.66%	0.58	1.62	0.33	0.75	0.00	0.00	0.19	0.50	0.48%	1.34	0.72	1.03	0.01	0.75	0.73%
2	Wet Waste	TPD	31.17	30.37	30.08	30.32	30.43	29.90	25.78	29.72	29.66%	31.75	27.99	31.17	29.08	31.84	26.39	29.90	29.73	28.65%	27.67	29.56	28.62	0.27	29.32	28.61%
3	Mixed Waste	TPD	56.96	71.22	68.13	69.61	69.99	66.33	84.25	69.50	69.36%	73.80	74.42	68.02	69.63	70.40	69.50	89.09	73.55	70.87%	78.03	71.80	74.92	0.72	72.34	70.59%
4	Mulched Tree waste	TPD	0.00	1.75	0.51	0.00	0.00	0.00	0.00	0.32	0.32%	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	0.06	0.06%
5	**Total.....1+2+3+4**	**TPD**	**90.01**	**104.21**	**99.21**	**100.90**	**100.42**	**96.23**	**110.42**	100.20	100.00%	**106.13**	**104.03**	**99.52**	**99.46**	**102.24**	**95.89**	**119.18**	103.78	100.00%	**107.04**	**102.08**	104.56	100.00%	102.47	100.00%
B	**Input Waste Composition:**																									
1	**Organic / Bio degradable fraction**	**65.00%**	**51.33**	**55.37**	**52.63**	**55.24**	**55.42**	**52.98**	**54.68**	53.95	53.84%	**56.25**	**54.56**	**54.09**	**52.20**	**55.28**	**50.92**	**59.57**	54.70	52.70%	**55.37**	**53.68**	54.53	52.15%	54.28	52.97%
2	**Inorganic / Non-recyclable Fraction (RDF)**		**20.94**	**26.43**	**31.51**	**25.98**	**26.89**	**24.93**	**36.05**	27.53	27.48%	**29.85**	**28.95**	**28.51**	**27.92**	**26.42**	**26.60**	**34.95**	29.03	27.97%	**29.31**	**28.15**	28.73	27.48%	28.61	27.92%
3	**Recyclables**	**14.00%**	**10.72**	**14.40**	**9.38**	**12.70**	**10.83**	**12.59**	**12.05**	11.81	11.78%	**13.31**	**12.75**	**10.54**	**13.54**	**14.87**	**11.11**	**17.38**	13.36	12.87%	**13.26**	**11.95**	12.61	12.06%	12.35	12.05%
	Glass	0.50%	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	0.00%
	Metal	0.50%	0.00	0.29	0.00	0.00	0.33	0.00	0.00	0.09	0.09%	0.44	0.00	0.00	0.00	0.43	0.00	0.00	0.12	0.12%	0.41	0.00	0.20	0.19%	0.12	0.12%
	Paper / Cardboard / Tetrapack	4.00%	2.26	2.19	1.82	1.76	2.11	1.85	3.19	2.17	2.16%	2.37	1.78	1.59	2.68	2.84	2.56	3.35	2.45	2.36%	2.04	1.79	1.92	1.83%	2.22	2.16%
	Mixed Plastic, Bottles, Cups, Food Packets, Coated Plastics	6.00%	4.67	6.58	4.14	5.73	3.89	5.99	4.59	5.08	5.07%	6.58	7.09	3.97	5.06	6.51	4.30	7.62	5.88	5.66%	5.01	6.27	5.64	5.39%	5.47	5.35%
	Thermocoal / Styrofoam	1.00%	0.00	0.08	0.00	0.00	0.04	0.00	0.00	0.02	0.02%	0.00	0.06	0.00	0.00	0.04	0.00	0.00	0.01	0.01%	0.00	0.09	0.05	0.04%	0.02	0.02%
	Cloth / Rags / Textiles	1.50%	1.40	1.99	1.40	1.84	1.23	2.13	1.62	1.66	1.65%	1.28	1.07	1.65	2.21	1.79	1.93	2.55	1.78	1.72%	2.14	1.67	1.91	1.82%	1.74	1.69%
	Rubber Items	0.50%	0.31	0.18	0.38	0.40	0.41	0.33	0.33	0.33	0.33%	0.42	0.40	0.30	0.27	0.40	0.23	0.36	0.34	0.33%	0.33	0.29	0.31	0.30%	0.30	0.30%
	Coconut		2.08	3.10	1.65	2.98	2.82	2.30	2.31	2.46	2.46%	2.22	2.35	3.03	3.32	2.85	2.10	3.50	2.77	2.67%	3.33	1.85	2.59	2.48%	2.47	2.41%
4	**Inert**	**10.00%**	**7.01**	**8.01**	**5.69**	**6.97**	**7.29**	**5.73**	**7.64**	6.91	6.89%	**6.72**	**7.77**	**6.38**	**5.81**	**5.67**	**7.25**	**7.28**	6.70	6.45%	**9.10**	**8.29**	8.69	8.31%	7.24	7.07%
5	**Mulched Tree Waste**	**11.00%**	**0.00**	**1.75**	**0.51**	**0.00**	**0.00**	**0.00**	**0.00**	0.32	0.32%	**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%		
	Total.....1+2+3+4+5	100.00%									100.32%									100.00%				100.00%		100.00%

2 RECYCLABLES:

Sr. No.	Description	Unit	15-Nov	16-Nov	17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	Weekly Average	22-Nov	23-Nov	24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	Weekly Average	29-Nov	30-Nov	Weekly Average	Monthly Average
A	**Recyclables:**																					
1	Glass	Kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Metal	Kg	0	292	0	0	331	0	0	89	435	0	0	0	429	0	0	123	407	0	204	121
3	Tetrapack	Kg	0	0	85	0	0	98	0	26	0	114	0	0	145	0	0	37	119	0	60	40
4	Paper / Cardboard	Kg	2,259	2,188	1,730	1,756	2,109	1,750	3,191	2,140	2,367	1,665	1,592	2,675	2,697	2,560	3,349	2,415	1,926	1,786	1,856	2,179
	Total.....3+4	**Kg**	**2,259**	**2,188**	**1,815**	**1,756**	**2,109**	**1,848**	**3,191**	2,167	**2,367**	**1,779**	**1,592**	**2,675**	**2,842**	**2,560**	**3,349**	2,452	**2,045**	**1,786**	1,916	2,219
5	Plastic Films	Kg	4,158	5,695	3,479	4,871	3,362	5,273	3,803	4,377	5,626	6,392	3,431	4,501	6,050	3,527	6,839	5,195	4,654	5,760	5,207	4,822
6	Hard Plastic	Kg	355	513	410	401	284	198	446	372	612	298	147	375	261	352	236	326	165	201	183	318
7	Pet	Kg	159	368	248	458	241	515	345	333	342	404	393	187	202	417	541	355	190	307	249	334
	Total.....5+6+7	**Kg**	**4,672**	**6,576**	**4,137**	**5,730**	**3,887**	**5,986**	**4,594**	5,083	**6,580**	**7,094**	**3,971**	**5,063**	**6,513**	**4,296**	**7,616**	5,876	**5,009**	**6,268**	5,639	5,474
8	Thermocal	Kg	0	83	0	0	40	0	0	18	0	62	0	0	41	0	0	15	0	92	46	22
9	Cloth / Rags / Textile	Kg	1,028	1,658	990	1,517	869	1,591	1,344	1,285	1,023	824	1,232	1,654	1,453	1,394	2,158	1,391	1,794	1,192	1,493	1,352
10	Jute Bags	Kg	376	332	408	320	357	536	279	373	261	248	420	554	336	534	393	392	347	482	415	387
	Total.....9+10	**Kg**	**1,404**	**1,990**	**1,398**	**1,837**	**1,226**	**2,127**	**1,623**	1,658	**1,284**	**1,072**	**1,652**	**2,208**	**1,789**	**1,928**	**2,551**	1,783	**2,141**	**1,674**	1,908	1,739
11	Leather / Rubber / Rexine	Kg	306	177	377	404	412	327	331	333	425	395	299	269	399	230	358	339	332	286	309	304
12	Coconut	Kg	2,079	3,095	1,647	2,977	2,822	2,300	2,308	2,461	2,218	2,351	3,025	3,322	2,852	2,100	3,504	2,767	3,329	1,848	2,589	2,471
13	**Total**	**Kg**	**10,720**	**14,401**	**9,374**	**12,704**	**10,827**	**12,588**	**12,047**	11,809	**13,309**	**12,753**	**10,539**	**13,537**	**14,865**	**11,114**	**17,378**	13,356	**13,263**	**11,954**	12,609	12,350
		TPD	**10.72**	**14.40**	**9.37**	**12.70**	**10.83**	**12.59**	**12.05**	11.81	**13.31**	**12.75**	**10.54**	**13.54**	**14.87**	**11.11**	**17.38**	13.36	**13.26**	**11.95**	12.61	12.35

3 ELECTRICITY GENERATION:

Sr. No.	Parameter	Unit	15-Nov	16-Nov	17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	Weekly Average	22-Nov	23-Nov	24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	Weekly Average	29-Nov	30-Nov	Weekly Average	Monthly Average
A	**Biogas Gensets:**																					
1	Biogas Genset-I: Running Time	hr	12.48	23.53	11.24	18.31	13.69	13.91	14.22	15.34	17.99	12.38	17.20	21.13	17.04	13.07	12.02	15.83	13.35	16.42	14.89	15.88
2	Biogas Genset-I: Energy Generation	kW.hr	1,772	2,539	1,525	2,571	1,644	1,529	1,797	1,911	2,105	1,669	1,856	2,535	2,377	1,631	1,693	1,981	1,511	2,269	1,890	2,030
3	Biogas Genset-II: Running Time	hr	21.17	6.98	19.46	7.07	13.30	20.58	11.69	14.32	13.38	19.09	11.76	9.49	9.77	15.04	20.06	14.08	13.02	9.27	11.15	12.09
4	Biogas Genset-II: Energy Generation	kW.hr	2,330	992	2,160	1,041	1,629	2,374	1,703	1,747	1,839	2,443	1,358	1,146	1,084	1,759	2,379	1,715	1,813	1,236	1,525	1,553
5	**Total.....2+4**	**kW.hr**	**4,102**	**3,531**	**3,685**	**3,612**	**3,273**	**3,903**	**3,500**	3,658	**3,944**	**4,112**	**3,214**	**3,681**	**3,461**	**3,390**	**4,072**	3,696	**3,324**	**3,505**	3,415	3,583
B	**Electricty 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	51.33	55.37	52.63	55.24	55.42	52.98	54.68	53.95	56.25	54.56	54.09	52.20	55.28	50.92	59.57	54.70	55.37	53.68	54.53	54.28
3	Electricity Generation required as per Tender.....0.4 x 1000 x B2/100	kWH	205	221	211	221	222	212	219	216	225	218	216	209	221	204	238	219	221	215	218	217
4	Electricity generated..... (A2/A1) + (A4/A3)	kWH	252	250	247	288	243	225	272	254	254	263	223	241	250	242	259	248	252	272	262	259

4 BIOGAS FLARE:

Sr. No.	Parameter	Unit	15-Nov	16-Nov	17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	Weekly Average	22-Nov	23-Nov	24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	Weekly Average	29-Nov	30-Nov	Weekly Average	Monthly Average
1	**As per Tender:** The Biogas Flaring System shall strictly be used only in case of emergeny and not as a routine practice.																					
2	**Operation Time**	**hr/day**	8.01	8.08	7.23	5.73	8.11	5.21	7.46	**7.12**	6.95	5.88	6.39	6.00	7.92	5.83	7.06	**6.58**	6.38	7.15	**6.77**	**6.45**

5 EFFLUENT TREATMENT PLANT:

Sr. No.	Parameter	Unit	15-Nov	16-Nov	17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	Weekly Average	22-Nov	23-Nov	24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	Weekly Average	29-Nov	30-Nov	Weekly Average	Monthly Average
A	**Raw Effluent Quality:**																					
1	Flow	m^3/day	52.21	39.43	46.42	53.82	33.00	31.06	50.82	**43.82**	30.03	54.26	37.36	31.13	51.31	51.32	38.61	**42.00**	58.49	49.45	**53.97**	**46.05**
2	pH	---	8.13	6.97	7.03	7.7	6.92	8.01	7.19	**7.42**	7.2	7.53	5.84	8.46	7.93	7.11	7.85	**7.42**	6.56	7.11	**6.84**	**7.04**
3	Biochemical Oxygen Demand (BOD5)	mg/l	3,159	3,305	3,414	2,547	3,132	2,848	2,685	**3,013**	3,362	2,782	2,891	2,361	2,738	2,905	2,061	**2,729**	2,734	3,054	**2,894**	**2,830**
4	Chemical Oxygen Demand (COD)	mg/l	6,618	6,108	6,141	6,026	6,214	4,894	4,213	**5,745**	5,895	5,098	6,179	4,135	4,026	4,033	6,989	**5,194**	4,943	6,011	**5,477**	**5,584**
5	Total Suspended Solids (TSS)	mg/l	3,356	2,110	2,144	3,246	3,059	2,410	3,319	**2,806**	2,726	2,837	2,694	2,563	3,070	2,172	2,420	**2,640**	3,322	2,198	**2,760**	**2,783**
6	Total Dissolve Solids (TDS)	mg/l	1,923	2,074	1,846	1,918	2,016	1,928	2,013	**1,960**	1,898	1,932	1,875	2,077	2,090	1,912	2,005	**1,970**	1,846	1,812	**1,829**	**1,914**
B	**Treated Effluent Quality:**																					
1	pH	---	7.55	7.07	6.66	6.82	7.62	7.36	6.5	**7.08**	7.23	6.79	6.77	6.65	7.36	6.84	7.55	**7.03**	7.48	6.96	**7.22**	**7.04**
2	Biochemical Oxygen Demand (BOD5)	mg/l	6	6	9	9	7	6	7	**7**	8	10	7	6	8	10	10	**8**	6	6	**6**	**8**
3	Chemical Oxygen Demand (COD)	mg/l	83	63	58	59	64	83	78	**70**	60	59	71	79	87	70	64	**70**	82	73	**78**	**71**
1	Total Suspended Solids (TSS)	mg/l	10	10	10	8	10	10	9	**10**	10	8	10	10	9	9	8	**9**	10	10	**10**	**9**
2	Total Dissolve Solids (TDS)	mg/l	2,013	1,823	2,009	1,877	2,006	2,064	1,912	**1,958**	2,048	2,013	2,082	2,036	2,038	1,843	1,938	**2,000**	2,057	1,948	**2,003**	**1,956**

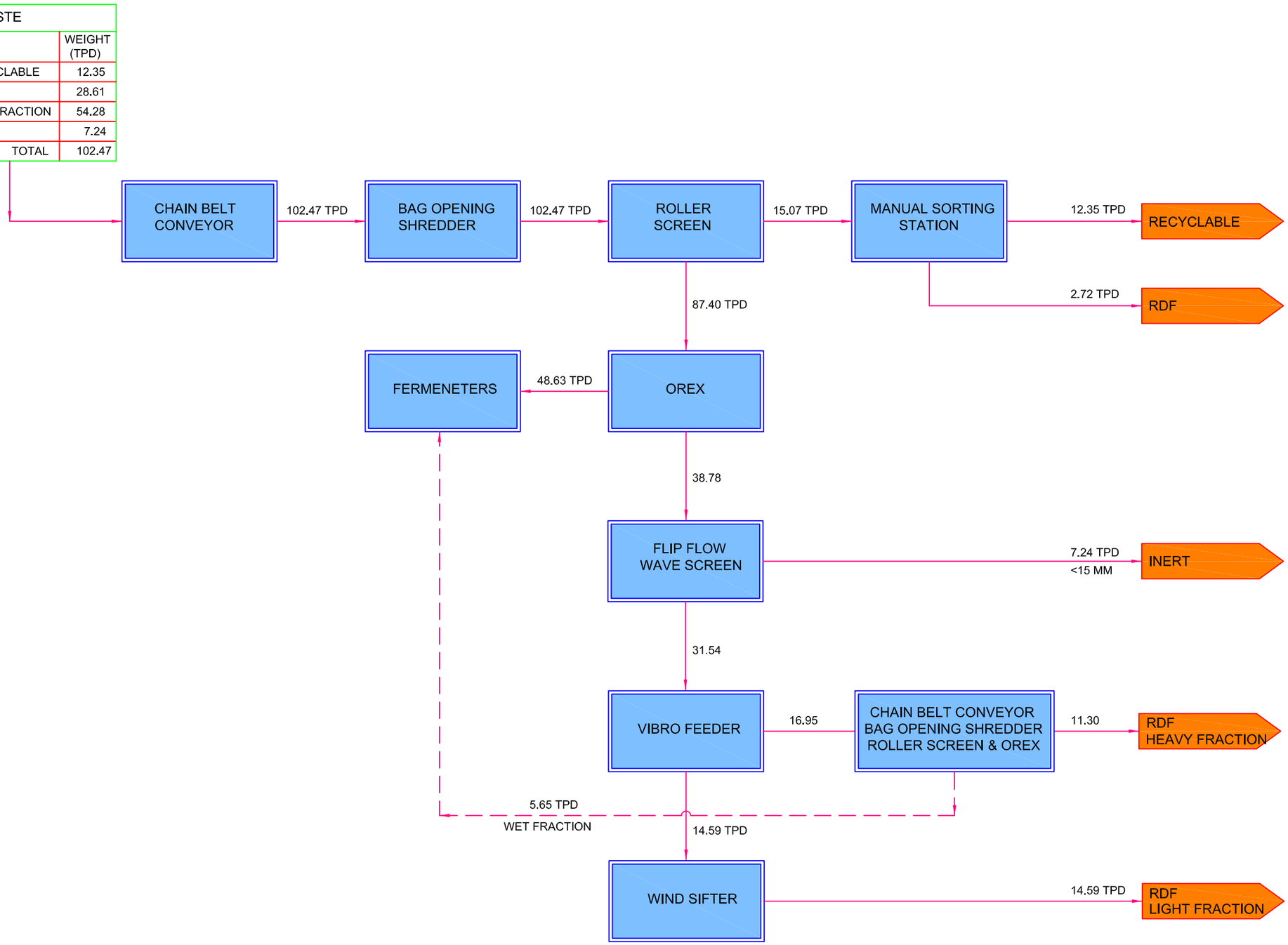
6 DISPOSAL OF INERT:

Sr. No.	Parameter	Unit	15-Nov	16-Nov	17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	Weekly Average	22-Nov	23-Nov	24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	Weekly Average	29-Nov	30-Nov	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**	**90.01**	**104.21**	**99.21**	**100.90**	**100.42**	**96.23**	**110.42**	**100.20**	**106.13**	**104.03**	**99.52**	**99.46**	**102.24**	**95.89**	**119.18**	**103.78**	**107.04**	**102.08**	**104.56**	**102.47**
3	Inert Fraction	Kg	7,012	8,014	5,695	6,972	7,290	5,726	7,641	**6,907**	6,718	7,771	6,379	5,808	5,674	7,249	7,282	**6,697**	9,098	8,289	**8,694**	**7,242**
		TPD	**7.01**	**8.01**	**5.69**	**6.97**	**7.29**	**5.73**	**7.64**	**6.91**	**6.72**	**7.77**	**6.38**	**5.81**	**5.67**	**7.25**	**7.28**	**6.70**	**9.10**	**8.29**	**8.69**	**7.24**
4	**% of Total Input Waste.....3/2**	**%**	**7.79%**	**7.69%**	**5.74%**	**6.91%**	**7.26%**	**5.95%**	**6.92%**	**6.89%**	**6.33%**	**7.47%**	**6.41%**	**5.84%**	**5.55%**	**7.56%**	**6.11%**	**6.47%**	**8.50%**	**8.12%**	**8.31%**	**7.07%**

7 HOUSEKEEPING:

Sr. No.	Parameter	Unit	15-Nov	16-Nov	17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	Weekly Average	22-Nov	23-Nov	24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	Weekly Average	29-Nov	30-Nov	Weekly Average	Monthly Average
1	Hygenic Conditions	---	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**
3	Manpower Deployed	---	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**
5	Treatment Methodology	---	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**

INPUT WASTE		
SR. NO.	NAME	WEIGHT (TPD)
1	RECYCLABLE	12.35
2	RDF	28.61
3	WET FRACTION	54.28
4	INERT	7.24
	TOTAL	102.47



NUMBER OF RECYCLABLE FRACTIONS		
SR. NO.	NAME	WEIGHT (KG)
1	PLASTIC FILM	4822
2	MULTI-LAYERED PLASTIC PACKS	0
3	HARD PLASTIC	318
4	PET	334
5	TETRAPACK	40
6	PAPER/CARDBOARD	2179
7	CLOTH/RAGS/TEXTILE	1352
8	JUTE BAGS	387
9	LDPE BAGS	0
10	GLASS	0
11	METALS	121
12	FOOTWEAR	0
13	LEATHER/RUBBER/REXINE	304
14	THERMOCAL	22
15	COCONUT	2471
	TOTAL	12350

ANNEXURE -1: MASS BALANCE (NOVEMBER 2016) 01-11-2016 TO 30-11-2016

100 TPD MSW FACILITY AT NORTH GOA