Monthly Performance Report
(From 01/02/2017 to 28/02/2017)
(HWT-NG100-MPR-07-R0)

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

Prepared By

Hindustan Waste Treatment Pvt. Ltd.

Submitted To

Goa State Infrastructural Development Corporation Limited

1 INPUT WASTE COMPOSITION:

Sr. No.	Description	Unit	1-Feb	2-Feb	3-Feb	4-Feb	5-Feb	6-Feb	7-Feb	Weekly Average		8-Feb	9-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	Weekly Average	
A	**Input Waste:**																			
1	Dry Waste	TPD	0.98	1.01	2.08	0.00	1.16	0.98	0.98	1.03	0.91%	1.07	0.00	0.00	0.00	0.00	1.41	2.54	0.72	0.71%
2	Wet Waste	TPD	29.17	33.92	33.57	14.02	30.20	36.75	10.32	26.85	23.70%	6.00	13.35	10.17	1.74	15.48	5.14	10.19	8.87	8.73%
3	Mixed Waste	TPD	88.46	83.11	81.75	78.45	75.38	98.12	91.45	85.25	75.25%	84.27	93.43	85.09	105.07	72.08	108.92	93.83	91.81	90.44%
4	Mulched Tree waste	TPD	0.00	0.00	0.00	0.00	0.00	1.15	0.00	0.16	0.15%	0.35	0.50	0.00	0.00	0.00	0.00	0.00	0.12	0.12%
5	**Total.....1+2+3+4**	**TPD**	**118.61**	**118.04**	**117.40**	**92.47**	**106.74**	**137.00**	**102.75**	**113.29**	**100.00%**	**91.69**	**107.28**	**95.26**	**106.81**	**87.56**	**115.47**	**106.56**	**101.52**	**100.00%**
B	**Input Waste Composition:**																			
1	**Organic / Bio degradable Fraction**	**65.00%**	**60.84**	**63.34**	**65.13**	**42.65**	**57.26**	**74.04**	**45.99**	**58.46**	**51.61%**	**36.67**	**50.25**	**43.27**	**40.83**	**41.86**	**46.64**	**45.38**	**43.56**	**42.91%**
2	**Inorganic / Non-recyclable Fraction (RDF)**		**37.67**	**32.57**	**22.83**	**31.44**	**26.05**	**36.26**	**33.70**	**31.50**	**27.81%**	**35.63**	**35.78**	**34.45**	**47.87**	**26.10**	**47.93**	**37.78**	**37.93**	**37.37%**
3	**Recyclables**	**14.00%**	**13.44**	**13.07**	**19.14**	**13.06**	**13.93**	**18.59**	**15.56**	**15.25**	**13.46%**	**12.81**	**15.42**	**12.40**	**10.33**	**13.43**	**13.22**	**16.37**	**13.43**	**13.22%**
	Glass	0.50%	0.07	0.07	0.12	0.05	0.11	0.08	0.08	0.08	0.07%	0.08	0.11	0.09	0.05	0.05	0.06	0.11	0.08	0.08%
	Metal	0.50%	0.44	0.38	0.42	0.38	0.45	0.56	0.37	0.43	0.38%	0.28	0.46	0.32	0.38	0.27	0.54	0.34	0.37	0.37%
	Paper / Cardboard / Tetrapack	4.00%	2.55	3.35	3.38	1.54	2.87	2.44	1.91	2.58	2.27%	1.99	2.81	1.91	1.61	2.50	1.79	2.45	2.15	2.12%
	Mixed Plastic, Bottles, Cups, Food Packets, Coated Plastics	6.00%	6.17	4.85	8.81	6.25	5.04	8.74	7.48	6.76	5.97%	5.63	7.18	5.88	3.99	6.18	5.58	7.50	5.99	5.90%
	Thermocoal / Styrofoam	1.00%	0.11	0.11	0.11	0.08	0.05	0.11	0.08	0.09	0.08%	0.06	0.05	0.06	0.09	0.09	0.06	0.11	0.07	0.07%
	Cloth / Rags / Textiles	1.50%	1.32	1.64	1.77	1.17	1.75	3.22	2.50	1.91	1.68%	1.38	1.38	1.38	1.76	1.40	1.84	2.01	1.59	1.57%
	Rubber Items	0.50%	0.44	0.54	0.47	0.46	0.38	0.37	0.41	0.44	0.39%	0.34	0.43	0.40	0.41	0.34	0.58	0.39	0.41	0.41%
	Coconut		2.35	2.12	4.06	3.13	3.28	3.07	2.72	2.96	2.62%	3.04	2.99	2.36	2.03	2.60	2.78	3.45	2.75	2.71%
4	**Inert**	**10.00%**	**6.67**	**9.07**	**10.31**	**5.33**	**9.50**	**8.11**	**7.50**	**8.07**	**7.12%**	**6.58**	**5.84**	**5.13**	**7.79**	**6.17**	**7.68**	**7.03**	**6.60**	**6.50%**
5	**Mulched Tree Waste**	**11.00%**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.15**	**0.00**			**0.35**	**0.50**	**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-Feb	2-Feb	3-Feb	4-Feb	5-Feb	6-Feb	7-Feb	Weekly Average	8-Feb	9-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	Weekly Average
A	**Recyclables:**																	
1	Glass	Kg	71	71	117	46	107	82	82	82	83	107	86	53	53	58	107	78
2	Metal	Kg	439	378	423	379	448	562	370	428	275	461	324	385	271	543	341	371
3	Tetrapack	Kg	135	121	139	52	158	112	103	117	62	84	107	79	80	100	96	87
4	Paper / Cardboard	Kg	2,415	3,232	3,242	1,483	2,713	2,326	1,808	2,460	1,928	2,726	1,808	1,534	2,416	1,690	2,355	2,065
	Total.....3+4	**Kg**	**2,550**	**3,353**	**3,381**	**1,535**	**2,871**	**2,438**	**1,911**	**2,577**	**1,990**	**2,810**	**1,915**	**1,613**	**2,496**	**1,790**	**2,451**	**2,152**
5	Plastic Films	Kg	5,705	4,192	7,792	5,170	4,690	7,875	6,283	5,958	4,706	6,380	4,972	3,495	5,322	4,841	6,722	5,205
6	Hard Plastic	Kg	185	175	440	594	171	437	696	385	473	388	329	184	618	524	525	434
7	Pet	Kg	278	485	572	488	176	428	501	418	450	409	576	316	241	212	255	351
	Total.....5+6+7	**Kg**	**6,168**	**4,852**	**8,804**	**6,252**	**5,037**	**8,740**	**7,480**	**6,762**	**5,629**	**7,177**	**5,877**	**3,995**	**6,181**	**5,577**	**7,502**	**5,991**
8	Thermocal	Kg	107	106	106	83	53	110	82	92	64	54	57	85	88	58	107	73
9	Cloth / Rags / Textile	Kg	983	1,252	1,482	903	1,425	2,411	1,788	1,463	1,070	1,075	1,022	1,401	1,058	1,493	1,527	1,235
10	Jute Bags	Kg	333	389	291	262	326	808	709	445	314	309	359	361	343	343	487	359
	Total.....9+10	**Kg**	**1,316**	**1,641**	**1,773**	**1,165**	**1,751**	**3,219**	**2,497**	**1,909**	**1,384**	**1,384**	**1,381**	**1,762**	**1,401**	**1,836**	**2,014**	**1,595**
11	Leather / Rubber / Rexine	Kg	439	543	470	462	384	370	411	440	339	429	400	406	341	577	394	412
12	Coconut	Kg	2,348	2,125	4,062	3,135	3,277	3,069	2,723	2,963	3,044	2,993	2,362	2,029	2,601	2,783	3,453	2,752
13	**Total**	**Kg**	**13,438**	**13,069**	**19,136**	**13,057**	**13,928**	**18,590**	**15,556**	**15,253**	**12,808**	**15,415**	**12,402**	**10,328**	**13,432**	**13,222**	**16,369**	**13,425**
		TPD	**13.44**	**13.07**	**19.14**	**13.06**	**13.93**	**18.59**	**15.56**	**15.25**	**12.81**	**15.42**	**12.40**	**10.33**	**13.43**	**13.22**	**16.37**	**13.43**

3 ELECTRICITY GENERATION:

Sr. No.	Description	Unit	1-Feb	2-Feb	3-Feb	4-Feb	5-Feb	6-Feb	7-Feb	Weekly Average	8-Feb	9-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	Weekly Average
A	**Biogas Gensets:**																	
1	Biogas Genset-I: Running Time	hr	9.56	14.50	14.28	14.99	12.35	14.17	15.99	13.69	18.44	12.24	10.97	15.76	13.93	14.73	12.71	14.11
2	Biogas Genset-I: Energy Generation	kW.hr	1,539	2,119	1,917	1,916	1,645	1,825	1,970	1,847	2,078	1,713	1,786	2,417	2,093	2,128	1,676	1,984
3	Biogas Genset-II: Running Time	hr	14.97	4.94	11.11	16.02	9.63	8.62	16.95	11.75	13.12	18.83	19.45	6.90	2.88	13.48	18.56	13.32
4	Biogas Genset-II: Energy Generation	kW.hr	2,009	637	1,678	2,299	1,474	1,144	2,314	1,651	1,612	2,453	2,454	1,019	454	1,981	2,750	1,818
5	**Total.....2+4**	**kW.hr**	**3,548**	**2,756**	**3,595**	**4,215**	**3,119**	**2,969**	**4,284**	**3,498**	**3,690**	**4,166**	**4,240**	**3,436**	**2,547**	**4,109**	**4,426**	**3,802**

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	60.84	63.34	65.13	42.65	57.26	74.04	45.99	**58.46**	36.67	50.25	43.27	40.83	41.86	46.64	45.38	**43.56**
3	Electricity Generation required as per Tender.....0.4 x 1000 x B2/100	kWH	240	240	240	171	229	240	184	**221**	147	201	173	163	167	187	182	**174**
4	Electricity generated..... (A2/A1) + (A4/A3)	kWH	295	275	285	271	286	262	260	**276**	236	270	289	301	308	291	280	**282**

4 BIOGAS FLARE:

Sr. No.	Description	Unit	1-Feb	2-Feb	3-Feb	4-Feb	5-Feb	6-Feb	7-Feb	Weekly Average	8-Feb	9-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	Weekly Average
1	**Operation Time**	**hr/day**	5.17	8.30	7.64	8.38	8.06	6.65	6.17	**7.20**	8.11	8.06	7.05	7.39	5.76	7.82	5.92	**7.16**

5 EFFLUENT TREATMENT PLANT:

Sr. No.	Description	Unit	1-Feb	2-Feb	3-Feb	4-Feb	5-Feb	6-Feb	7-Feb	Weekly Average	8-Feb	9-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	Weekly Average
A	**Raw Effluent Quality:**																	
1	Flow	m^3/day	56.62	62.65	63.09	53.75	47.61	60.60	50.39	**56.39**	48.17	48.80	62.73	58.85	62.58	63.20	42.22	**55.22**
2	pH	---	7.29	6.43	6.45	6.69	7.44	6.19	7.5	**6.86**	6.83	6.23	6.49	7.97	7.67	7.65	6.76	**7.09**
3	Biochemical Oxygen Demand (BOD5)	mg/l	2,396	2,446	2,024	1,543	2,390	1,909	1,587	**2,042**	2,111	2,472	2,318	1,629	2,287	2,186	2,418	**2,203**
4	Chemical Oxygen Demand (COD)	mg/l	5,894	7,436	4,412	3,441	7,361	6,433	5,364	**5,763**	4,729	8,528	6,259	3,958	5,214	5,443	8,221	**6,050**
5	Total Suspended Solids (TSS)	mg/l	4,313	5,186	3,259	2,777	5,832	4,123	3,285	**4,111**	4,813	3,807	4,590	3,274	5,672	5,246	4,933	**4,619**
6	Total Dissolve Solids (TDS)	mg/l	1,679	1,536	1,768	1,707	1,560	1,528	1,629	**1,630**	1,623	1,735	1,767	1,532	1,632	1,793	1,535	**1,660**
B	**Treated Effluent Quality:**																	
1	pH	---	7.42	7.29	7.37	7.45	7.42	7.33	6.77	**7.29**	7.22	7.47	7.17	7.04	6.89	7.37	6.55	**7.10**
2	Biochemical Oxygen Demand (BOD5)	mg/l	8	5	9	6	9	8	5	**7**	6	5	7	9	7	6	6	**7**
3	Chemical Oxygen Demand (COD)	mg/l	45	89	56	87	55	50	64	**64**	40	68	55	42	90	43	43	**54**
1	Total Suspended Solids (TSS)	mg/l	9	6	10	7	10	9	6	**8**	7	6	8	10	8	7	7	**8**
2	Total Dissolve Solids (TDS)	mg/l	1,729	1,551	1,803	1,878	1,685	1,666	1,792	**1,729**	1,720	1,909	1,838	1,639	1,648	1,865	1,673	**1,756**

6 DISPOSAL OF INERT:

Sr. No.	Description	Unit	1-Feb	2-Feb	3-Feb	4-Feb	5-Feb	6-Feb	7-Feb	Weekly Average	8-Feb	9-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	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**	**118.61**	**118.04**	**117.40**	**92.47**	**106.74**	**137.00**	**102.75**	**113.29**	**91.69**	**107.28**	**95.26**	**106.81**	**87.56**	**115.47**	**106.56**	**101.52**
3	Inert Fraction	Kg	6,666	9,065	10,308	5,326	9,500	8,110	7,501	**8,068**	6,583	5,836	5,135	7,786	6,173	7,679	7,033	**6,604**
		TPD	**6.67**	**9.07**	**10.31**	**5.33**	**9.50**	**8.11**	**7.50**	**8.07**	**6.58**	**5.84**	**5.13**	**7.79**	**6.17**	**7.68**	**7.03**	**6.60**
4	**% of Total Input Waste.....3/2**	**%**	**5.62%**	**7.68%**	**8.78%**	**5.76%**	**8.90%**	**5.92%**	**7.30%**	**7.14%**	**7.18%**	**5.44%**	**5.39%**	**7.29%**	**7.05%**	**6.65%**	**6.60%**	**6.51%**

7 HOUSEKEEPING:

Sr. No.	Description	Unit	1-Feb	2-Feb	3-Feb	4-Feb	5-Feb	6-Feb	7-Feb	Weekly Average	8-Feb	9-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	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.	Description	Unit	15-Feb	16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	Weekly Average		22-Feb	23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	Weekly Average	
A	**Input Waste:**																			
1	Dry Waste	TPD	0.32	0.00	1.00	1.40	0.00	0.00	1.14	**0.55**	**0.53%**	0.48	2.12	2.94	0.00	0.49	1.28	2.24	**1.36**	**1.27%**
2	Wet Waste	TPD	19.69	4.67	1.54	9.19	11.34	15.03	14.46	**10.85**	**10.44%**	16.29	6.82	15.26	7.88	9.12	12.34	16.53	**12.03**	**11.20%**
3	Mixed Waste	TPD	93.60	92.24	103.34	83.55	82.94	95.68	95.00	**92.34**	**88.87%**	94.38	99.85	83.73	102.28	84.92	105.09	87.46	**93.96**	**87.45%**
4	Mulched Tree waste	TPD	0.00	0.55	0.64	0.00	0.00	0.00	0.00	**0.17**	**0.16%**	0.00	0.58	0.00	0.00	0.00	0.00	0.00	**0.08**	**0.08%**
5	**Total.....1+2+3+4**	**TPD**	**113.61**	**97.46**	**106.52**	**94.14**	**94.28**	**110.71**	**110.60**	**103.90**	**100.00%**	**111.15**	**109.37**	**101.93**	**110.16**	**94.53**	**118.71**	**106.23**	**107.44**	**100.00%**
B	**Input Waste Composition:**																			
1	**Organic / Bio degradable Fraction**	**65.00%**	**55.35**	**39.72**	**40.60**	**40.77**	**44.43**	**50.43**	**51.51**	**46.12**	**44.38%**	**49.51**	**46.06**	**44.65**	**46.44**	**42.07**	**53.01**	**48.45**	**47.17**	**43.90%**
2	**Inorganic / Non-recyclable Fraction (RDF)**		**38.24**	**34.45**	**43.02**	**35.56**	**29.58**	**38.17**	**34.38**	**36.20**	**34.84%**	**39.28**	**44.65**	**35.74**	**40.16**	**32.71**	**40.11**	**39.15**	**38.83**	**36.14%**
3	**Recyclables**	**14.00%**	**13.86**	**14.72**	**16.23**	**10.52**	**13.27**	**14.62**	**15.25**	**14.07**	**13.54%**	**15.22**	**11.82**	**12.64**	**14.31**	**11.56**	**18.42**	**10.34**	**13.47**	**12.54%**
	Glass	0.50%	0.11	0.06	0.11	0.05	0.08	0.07	0.06	**0.07**	**0.07%**	0.07	0.08	0.05	0.07	0.08	0.09	0.11	**0.08**	**0.07%**
	Metal	0.50%	0.47	0.39	0.38	0.36	0.47	0.43	0.35	**0.41**	**0.39%**	0.40	0.51	0.51	0.51	0.40	0.46	0.51	**0.47**	**0.44%**
	Paper / Cardboard / Tetrapack	4.00%	2.25	2.19	1.81	2.28	2.42	3.19	2.86	**2.43**	**2.34%**	2.99	1.71	2.63	2.58	2.03	2.75	2.60	**2.47**	**2.30%**
	Mixed Plastic, Bottles, Cups, Food Packets, Coated Plastics	6.00%	7.12	6.61	7.85	3.48	6.19	6.97	7.22	**6.49**	**6.25%**	5.47	5.81	4.90	5.16	4.98	8.89	3.90	**5.59**	**5.20%**
	Thermocoal / Styrofoam	1.00%	0.06	0.08	0.07	0.06	0.06	0.08	0.08	**0.07**	**0.07%**	0.06	0.05	0.06	0.09	0.09	0.08	0.10	**0.07**	**0.07%**
	Cloth / Rags / Textiles	1.50%	1.32	2.02	1.94	1.84	1.07	1.18	1.13	**1.50**	**1.44%**	1.98	1.24	1.99	1.74	1.12	2.37	1.17	**1.66**	**1.54%**
	Rubber Items	0.50%	0.47	0.36	0.52	0.43	0.30	0.45	0.44	**0.43**	**0.41%**	0.48	0.45	0.30	0.52	0.39	0.58	0.27	**0.42**	**0.40%**
	Coconut		2.07	3.01	3.55	2.02	2.68	2.25	3.11	**2.67**	**2.57%**	3.78	1.98	2.20	3.66	2.49	3.18	1.69	**2.71**	**2.52%**
4	**Inert**	**10.00%**	**6.16**	**8.58**	**6.67**	**7.30**	**7.01**	**7.48**	**9.46**	**7.52**	**7.24%**	**7.15**	**6.84**	**8.90**	**9.25**	**8.19**	**7.17**	**8.30**	**7.97**	**7.42%**
5	**Mulched Tree Waste**	**11.00%**	**0.00**	**0.55**	**0.64**	**0.00**	**0.00**	**0.00**	**0.00**			**0.00**	**0.58**	**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	15-Feb	16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	Weekly Average	22-Feb	23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	Weekly Average
A	**Recyclables:**																	
1	Glass	Kg	114	58	107	47	75	66	55	**75**	67	77	51	66	76	95	106	**77**
2	Metal	Kg	466	390	383	358	471	432	354	**408**	400	514	510	507	397	463	510	**472**
3	Tetrapack	Kg	83	116	83	107	90	140	160	**111**	126	67	158	80	67	160	81	**106**
4	Paper / Cardboard	Kg	2,166	2,077	1,728	2,171	2,333	3,048	2,704	**2,318**	2,864	1,640	2,472	2,498	1,965	2,594	2,522	**2,365**
	Total.....3+4	**Kg**	**2,249**	**2,193**	**1,811**	**2,278**	**2,423**	**3,188**	**2,864**	**2,429**	**2,990**	**1,707**	**2,630**	**2,578**	**2,032**	**2,754**	**2,603**	**2,471**
5	Plastic Films	Kg	6,083	6,066	6,571	3,009	5,500	6,103	6,659	**5,713**	5,020	4,896	4,388	4,707	4,369	7,442	3,462	**4,898**
6	Hard Plastic	Kg	620	344	620	212	409	516	217	**420**	262	424	157	217	453	889	296	**385**
7	Pet	Kg	420	198	659	261	285	356	347	**361**	186	488	358	232	159	560	140	**303**
	Total.....5+6+7	**Kg**	**7,123**	**6,608**	**7,850**	**3,482**	**6,194**	**6,975**	**7,223**	**6,494**	**5,468**	**5,808**	**4,903**	**5,156**	**4,981**	**8,891**	**3,898**	**5,586**
8	Thermocal	Kg	57	78	75	56	57	77	77	**68**	56	55	61	88	85	83	96	**75**
9	Cloth / Rags / Textile	Kg	1,081	1,660	1,588	1,388	816	859	953	**1,192**	1,654	957	1,473	1,445	931	2,018	825	**1,329**
10	Jute Bags	Kg	237	357	351	448	249	326	175	**306**	324	279	515	296	184	356	344	**328**
	Total.....9+10	**Kg**	**1,318**	**2,017**	**1,939**	**1,836**	**1,065**	**1,185**	**1,128**	**1,498**	**1,978**	**1,236**	**1,988**	**1,741**	**1,115**	**2,374**	**1,169**	**1,657**
11	Leather / Rubber / Rexine	Kg	466	361	522	433	302	454	442	**426**	478	448	296	518	388	582	266	**425**
12	Coconut	Kg	2,068	3,012	3,547	2,024	2,678	2,247	3,108	**2,669**	3,779	1,980	2,202	3,657	2,486	3,181	1,689	**2,711**
13	**Total**	**Kg**	**13,861**	**14,717**	**16,234**	**10,514**	**13,265**	**14,624**	**15,251**	**14,067**	**15,216**	**11,825**	**12,641**	**14,311**	**11,560**	**18,423**	**10,337**	**13,473**
		TPD	**13.86**	**14.72**	**16.23**	**10.51**	**13.27**	**14.62**	**15.25**	**14.07**	**15.22**	**11.83**	**12.64**	**14.31**	**11.56**	**18.42**	**10.34**	**13.47**

3 ELECTRICITY GENERATION:

Sr. No.	Description	Unit	15-Feb	16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	Weekly Average	22-Feb	23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	Weekly Average
A	**Biogas Gensets:**																	
1	Biogas Genset-I: Running Time	hr	18.56	10.92	14.40	14.57	12.18	15.80	15.29	**14.53**	15.03	13.88	12.51	12.75	19.43	14.16	12.72	**14.35**
2	Biogas Genset-I: Energy Generation	kW.hr	2,331	1,597	2,169	1,794	1,643	1,778	2,170	**1,926**	2,394	1,992	1,787	1,777	2,378	1,846	1,889	**2,009**
3	Biogas Genset-II: Running Time	hr	16.87	10.87	7.48	13.34	14.82	8.85	4.08	**10.90**	4.92	11.91	10.39	18.24	4.79	14.23	5.35	**9.98**
4	Biogas Genset-II: Energy Generation	kW.hr	2,160	1,768	1,252	1,801	2,256	1,331	621	**1,598**	743	1,466	1,444	2,548	648	2,042	906	**1,400**
5	**Total.....2+4**	**kW.hr**	**4,491**	**3,365**	**3,421**	**3,595**	**3,899**	**3,109**	**2,791**	**3,524**	**3,137**	**3,458**	**3,231**	**4,325**	**3,026**	**3,888**	**2,795**	**3,409**

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	55.35	39.72	40.60	40.77	44.43	50.43	51.51	**46.12**	49.51	46.06	44.65	46.44	42.07	53.01	48.45	**47.17**
3	Electricity Generation required as per Tender.....0.4 x 1000 x B2/100	kWH	221	159	162	163	178	202	206	**184**	198	184	179	186	168	212	194	**189**
4	Electricity generated..... (A2/A1) + (A4/A3)	kWH	254	309	318	258	287	263	294	**283**	310	267	282	279	258	274	318	**284**

4 BIOGAS FLARE:

Sr. No.	Description	Unit	15-Feb	16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	Weekly Average	22-Feb	23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	Weekly Average
1	**Operation Time**	**hr/day**	5.05	5.95	5.19	7.09	7.71	7.09	8.35	**6.63**	6.50	6.18	7.42	7.57	7.62	6.12	8.28	**7.10**

5 EFFLUENT TREATMENT PLANT:

Sr. No.	Description	Unit	15-Feb	16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	Weekly Average	22-Feb	23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	Weekly Average
A	**Raw Effluent Quality:**																	
1	Flow	m^3/day	57.50	67.51	53.81	62.22	50.53	62.37	60.35	**59.18**	61.91	44.85	51.40	64.00	49.04	51.43	66.25	**55.55**
2	pH	---	6.78	7.85	7.21	7.27	7.73	6.85	6	**7.10**	6.58	6.61	6.47	6.53	7.55	6.16	6.07	**6.57**
3	Biochemical Oxygen Demand (BOD5)	mg/l	2,319	2,013	2,114	1,904	2,120	2,177	1,932	**2,083**	2,286	2,150	2,478	2,096	2,235	2,490	2,286	**2,289**
4	Chemical Oxygen Demand (COD)	mg/l	5,079	5,516	4,672	6,074	7,017	4,376	4,675	**5,344**	6,424	6,945	7,211	6,078	5,409	7,669	7,658	**6,771**
5	Total Suspended Solids (TSS)	mg/l	5,195	3,563	4,186	2,856	3,477	4,550	4,637	**4,066**	4,572	5,053	5,699	4,045	3,755	5,627	4,755	**4,787**
6	Total Dissolve Solids (TDS)	mg/l	1,705	1,549	1,594	1,610	1,592	1,639	1,565	**1,608**	1,768	1,589	1,532	1,633	1,516	1,749	1,542	**1,618**
B	**Treated Effluent Quality:**																	
1	pH	---	7.31	7.24	6.61	7.13	7.35	6.92	7.21	**7.11**	6.54	6.65	7.24	6.96	7.29	6.89	7.31	**6.98**
2	Biochemical Oxygen Demand (BOD5)	mg/l	5	6	8	5	5	6	8	**6**	6	6	5	9	8	7	5	**7**
3	Chemical Oxygen Demand (COD)	mg/l	77	81	55	50	45	79	66	**65**	79	46	41	52	53	79	90	**63**
1	Total Suspended Solids (TSS)	mg/l	6	7	9	6	6	7	9	**7**	7	7	6	10	9	8	6	**8**
2	Total Dissolve Solids (TDS)	mg/l	1,739	1,611	1,737	1,610	1,751	1,737	1,690	**1,696**	1,856	1,621	1,532	1,747	1,577	1,836	1,650	**1,688**

6 DISPOSAL OF INERT:

Sr. No.	Description	Unit	15-Feb	16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	Weekly Average	22-Feb	23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	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**	**113.61**	**97.46**	**106.52**	**94.14**	**94.28**	**110.71**	**110.60**	**103.90**	**111.15**	**109.37**	**101.93**	**110.16**	**94.53**	**118.71**	**106.23**	**107.44**
3	Inert Fraction	Kg	6,158	8,576	6,668	7,296	7,005	7,484	9,456	**7,520**	7,147	6,836	8,898	9,253	8,186	7,170	8,297	**7,970**
		TPD	**6.16**	**8.58**	**6.67**	**7.30**	**7.01**	**7.48**	**9.46**	**7.52**	**7.15**	**6.84**	**8.90**	**9.25**	**8.19**	**7.17**	**8.30**	**7.97**
4	**% of Total Input Waste.....3/2**	**%**	**5.42%**	**8.80%**	**6.26%**	**7.75%**	**7.43%**	**6.76%**	**8.55%**	**7.28%**	**6.43%**	**6.25%**	**8.73%**	**8.40%**	**8.66%**	**6.04%**	**7.81%**	**7.47%**

7 HOUSEKEEPING:

Sr. No.	Description	Unit	15-Feb	16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	Weekly Average	22-Feb	23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	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.	Description	Unit	Monthly Average	
A	**Input Waste:**			
1	Dry Waste	TPD	**0.92**	**0.85%**
2	Wet Waste	TPD	**14.65**	**13.52%**
3	Mixed Waste	TPD	**90.84**	**85.50%**
4	Mulched Tree waste	TPD	**0.13**	**0.13%**
5	**Total.....1+2+3+4**	**TPD**	**106.54**	**100.00%**
B	**Input Waste Composition:**			
1	**Organic / Bio degradable Fraction**	**65.00%**	**48.83**	**45.70%**
2	**Inorganic / Non-recyclable Fraction (RDF)**		**36.12**	**34.04%**
3	**Recyclables**	**14.00%**	**14.05**	**13.19%**
	Glass	0.50%	**0.08**	**0.07%**
	Metal	0.50%	**0.42**	**0.39%**
	Paper / Cardboard / Tetrapack	4.00%	**2.41**	**2.26%**
	Mixed Plastic, Bottles, Cups, Food Packets, Coated Plastics	6.00%	**6.21**	**5.83%**
	Thermocoal / Styrofoam	1.00%	**0.08**	**0.07%**
	Cloth / Rags / Textiles	1.50%	**1.66**	**1.56%**
	Rubber Items	0.50%	**0.43**	**0.40%**
	Coconut		**2.77**	**2.60%**
4	**Inert**	**10.00%**	**7.54**	**7.07%**
5	**Mulched Tree Waste**	**11.00%**		
	Total.....1+2+3+4+5	**100.00%**		**100.00%**

2 RECYCLABLES:

Sr. No.	Description	Unit	Monthly Average
A	**Recyclables:**		
1	Glass	Kg	**78**
2	Metal	Kg	**420**
3	Tetrapack	Kg	**105**
4	Paper / Cardboard	Kg	**2,302**
	Total.....3+4	**Kg**	**2,407**
5	Plastic Films	Kg	**5,444**
6	Hard Plastic	Kg	**406**
7	Pet	Kg	**358**
	Total.....5+6+7	**Kg**	**6,208**
8	Thermocal	Kg	**77**
9	Cloth / Rags / Textile	Kg	**1,305**
10	Jute Bags	Kg	**360**
	Total.....9+10	**Kg**	**1,665**
11	Leather / Rubber / Rexine	Kg	**426**
12	Coconut	Kg	**2,774**
13	**Total**	**Kg**	**14,055**
		TPD	**14.05**

3 ELECTRICITY GENERATION:

Sr. No.	Description	Unit	Monthly Average
A	**Biogas Gensets:**		
1	Biogas Genset-I: Running Time	hr	**14.17**
2	Biogas Genset-I: Energy Generation	kW.hr	**1,942**
3	Biogas Genset-II: Running Time	hr	**11.49**
4	Biogas Genset-II: Energy Generation	kW.hr	**1,617**
5	**Total.....2+4**	**kW.hr**	**3,558**

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	**48.83**
3	Electricity Generation required as per Tender.....0.4 x 1000 x B2/100	kWH	**192**
4	Electricity generated..... (A2/A1) + (A4/A3)	kWH	**281**

4 BIOGAS FLARE:

Sr. No.	Description	Unit	Monthly Average
1	**Operation Time**	**hr/day**	**7.02**

5 EFFLUENT TREATMENT PLANT:

Sr. No.	Description	Unit	Monthly Average
A	**Raw Effluent Quality:**		
1	Flow	m^3/day	**56.59**
2	pH	---	**6.90**
3	Biochemical Oxygen Demand (BOD5)	mg/l	**2,154**
4	Chemical Oxygen Demand (COD)	mg/l	**5,982**
5	Total Suspended Solids (TSS)	mg/l	**4,396**
6	Total Dissolve Solids (TDS)	mg/l	**1,629**
B	**Treated Effluent Quality:**		
1	pH	---	**7.12**
2	Biochemical Oxygen Demand (BOD5)	mg/l	**7**
3	Chemical Oxygen Demand (COD)	mg/l	**61**
1	Total Suspended Solids (TSS)	mg/l	**8**
2	Total Dissolve Solids (TDS)	mg/l	**1,718**

6 DISPOSAL OF INERT:

Sr. No.	Description	Unit	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**	**106.54**
3	Inert Fraction	Kg	**7,540**
		TPD	**7.54**
4	**% of Total Input Waste.....3/2**	**%**	**7.10%**

7 HOUSEKEEPING:

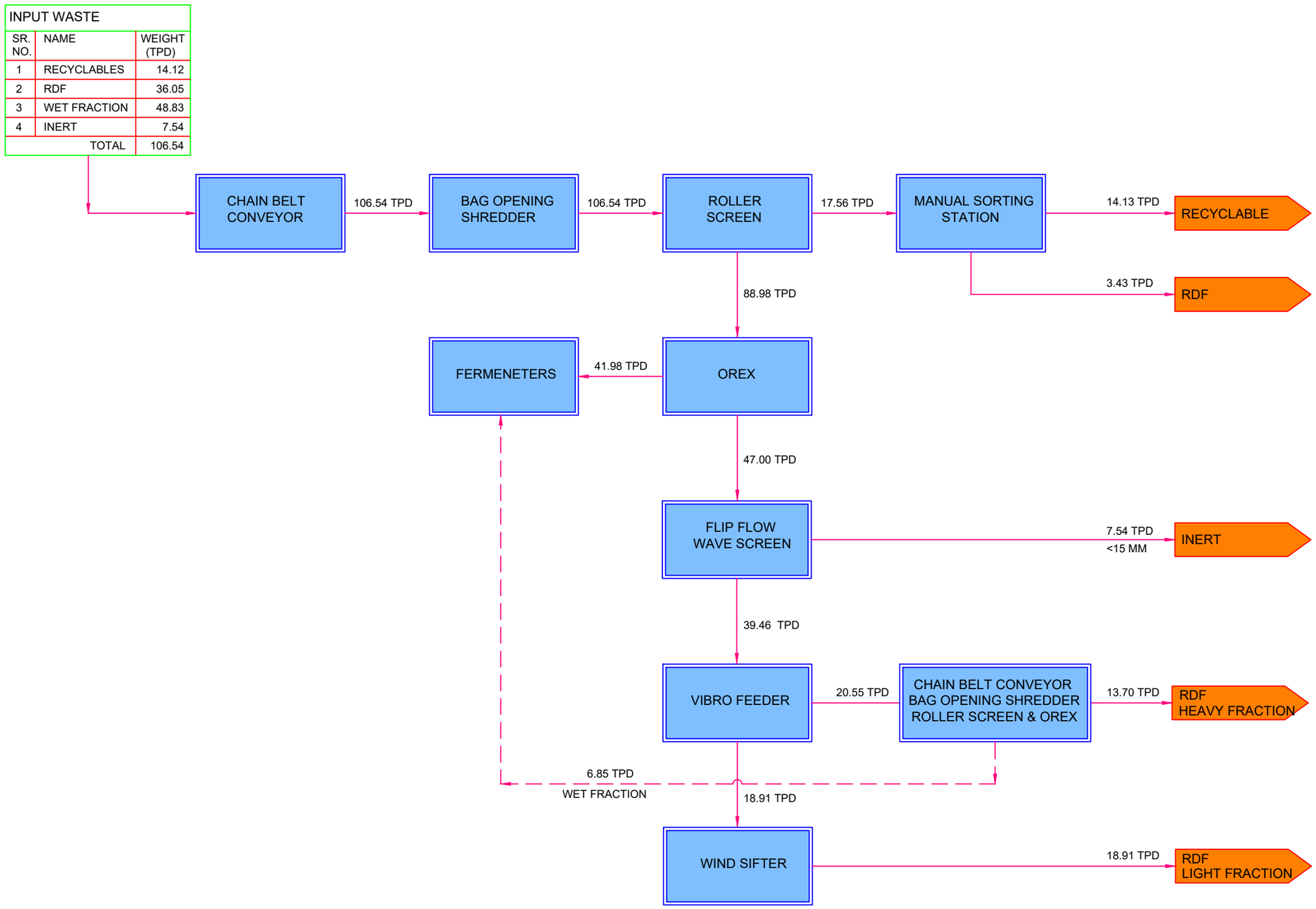
Sr. No.	Description	Unit	Monthly Average
1	Hygenic Conditions	---	**Accepted**
2	Cleanliness	---	**Accepted**
3	Manpower Deployed	---	**Accepted**
4	Safety Norms	---	**Accepted**
5	Treatment Methodology	---	**Accepted**
6	Storage Conditions	---	**Accepted**

Table – 1
Summary of Overall Average Results for February 2017
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. 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 **106.54 TPD**. Quantum of Inert is **7.54 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 **0.58** 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>7.02 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>7.12</td></tr><tr><td>BOD</td><td>7 mg/l</td></tr><tr><td>COD</td><td>61 mg/l</td></tr><tr><td>TSS</td><td>8 mg/l</td></tr><tr><td>TDS</td><td>1718 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>
</table>

INPUT WASTE		
SR. NO.	NAME	WEIGHT (TPD)
1	RECYCLABLES	14.12
2	RDF	36.05
3	WET FRACTION	48.83
4	INERT	7.54
	TOTAL	106.54



NUMBER OF RECYCLABLE FRACTIONS		
SR. NO.	NAME	WEIGHT (KG)
01	GLASS	78
02	METALS	420
03	TETRAPACK	105
04	PAPER/CARDBOARD	2302
05	PLASTIC FILM	5644
06	HARD PLASTIC	406
07	PET	358
08	THERMOCAL	77
09	CLOTH/RAGS/TEXTILE	1366
10	JUTE BAGS	371
11	LEATHER/RUBBER/REXINE	426
12	COCONUT	2774
	TOTAL	14126

REV.NO.	DESCRIPTION	DRAWN	DESIGNED	CHECKED	APPROVED	DATE

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	CSS		01/03/17
DSGN	SGG		01/03/17
CHKD	SGG		01/03/17
APPD	SGG		01/03/17

DRAWING NO.

TITLE :
ANNEXURE -1:
MASS BALANCE
FEBRUARY 2017 (01-02-2017 TO 28-02-2017)

SCALE NTS

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SIZE A3

REV. R0