

**Monthly Performance Report
(HWT-NG100-MPR-34-R0)**

**May 2019
(From 01/05/2019 to 31/05/2019)**

**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)
Goa Waste Management Corporation (GWMC)**

Table – 1
Summary of Overall Average Results for May 2019
(As compared to Schedule – 7: Performance Standards, Volume – I of RFP)

| Sr. No. | Parameter | Performance Standard As per Schedule – 7 | Actual Performance at Plant (Monthly Average) |
|---------|--|---|--|
| 1. | Number of fractions of recyclables sorted per day from the input mixed waste | Minimum 10 numbers of fractions shall be sorted daily from the input dry waste as received in the facility. The list of fractions are as follows: 1. PET Bottles 2. Mixed Plastic Articles 3. Newspapers / other Paper Material 4. Cardboard 5. Styrofoam & Thermocol 6. Coconut Shells 7. Clothes 8. Rubber Articles 9. Metal Articles & Cans 10. E-waste Articles and any Hazardous Waste | 13 numbers of fractions are being sorted daily from the input dry waste as received in the facility. The list of fractions are as follows: 1. Glass 2. Aluminium 3. Metal 4. Paper + Cardboard 5. Tetra Pack 6. Hard Plastic 7. PET 8. Mixed Plastic 9. Styrofoam + Thermocol 10. Cloth + Rags + Textile 11. Leather + Rexine + Rubber 12. Coconut Shells 13. E-waste Articles and any Hazardous Waste |
| 2. | Quantum of reject/residues to be sent to the landfill after processing. No organic fraction shall be disposed in the landfill. | Maximum 10% of inert of the total input waste as received in the facility (in TPD). | Input waste to the Plant is 129.76 TPD . Quantum of Inert is 0.86 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 0.56 MW/100 MT of Input Biodegradable Waste as received in the Facility (in TPD). |
| 4. | Biogas Flaring System | The Biogas Flaring System shall strictly be used only in case of | Biogas is being flared strictly, only under emergency and not as a |

| Sr. No. | Parameter | Performance Standard As per Schedule – 7 | Actual Performance at Plant (Monthly Average) | | | | | | | | | | |
|---------|---|---|--|----|------|-----|--------|-----|---------|-----|--------|-----|------------|
| | | emergency and not as a routine practice. | routine practice. The average running time of Biogas Flaring System is 7.18 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 646 1403 856"> <tbody> <tr> <td>pH</td> <td>6.97</td> </tr> <tr> <td>BOD</td> <td>7 mg/l</td> </tr> <tr> <td>COD</td> <td>74 mg/l</td> </tr> <tr> <td>TSS</td> <td>8 mg/l</td> </tr> <tr> <td>TDS</td> <td>1,691 mg/l</td> </tr> </tbody> </table> | pH | 6.97 | BOD | 7 mg/l | COD | 74 mg/l | TSS | 8 mg/l | TDS | 1,691 mg/l |
| pH | 6.97 | | | | | | | | | | | | |
| BOD | 7 mg/l | | | | | | | | | | | | |
| COD | 74 mg/l | | | | | | | | | | | | |
| TSS | 8 mg/l | | | | | | | | | | | | |
| TDS | 1,691 mg/l | | | | | | | | | | | | |
| 6. | General Housekeeping, hygienic conditions, cleanliness, safety norms, adequate manpower, treatment methodology for plant operation & maintenance and storage conditions in the plant. | Minimum housekeeping, safety norms and cleanliness conditions shall be maintained at all times as per the Bid Document requirement. | <ul style="list-style-type: none"> • High standard of Housekeeping, Cleanliness and Safety are being maintained at all times at the Plant. • Adequate manpower has been deployed in all shifts. • Also, the treatment methodology is being followed properly and proper storage conditions have been maintained in the Plant. | | | | | | | | | | |

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

| # | Plant Performance Data: May 2019 | | |
|---------|----------------------------------|--|-----------|
| Sr. No. | Content | Month | Signature |
| 1 | Input Waste Composition | From 01.05.2019 To 31.05.2019 | |
| 2 | Recyclables | | |
| 3 | Electricity Generation | | |
| 4 | Biogas Flare | | |
| 5 | Effluent Treatment Plant | | |
| 6 | Inert | | |
| 7 | Housekeeping | | |

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

1 WASTE:

| Sr. No. | Description | Unit | 1-May | 2-May | 3-May | 4-May | 5-May | 6-May | 7-May | Weekly Average | 8-May | 9-May | 10-May | 11-May | 12-May | 13-May | 14-May | Weekly Average | 15-May | 16-May | 17-May | 18-May | 19-May |
|------------------------|----------------------------------|------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|
| 1A Input Waste: | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Type I: Dry Waste | TPD | 59.08 | 67.66 | 59.39 | 49.26 | 60.09 | 58.62 | 58.26 | 58.91 | 55.450 | 65.310 | 55.720 | 54.760 | 47.830 | 79.420 | 58.000 | 59.50 | 62.94 | 59.58 | 57.91 | 64.54 | 43.90 |
| 2 | Type 2: Wet Waste | TPD | 63.49 | 69.32 | 70.63 | 77.58 | 52.19 | 83.15 | 66.87 | 69.03 | 59.930 | 61.000 | 62.080 | 72.140 | 63.960 | 65.970 | 51.340 | 62.35 | 76.38 | 67.83 | 57.40 | 63.66 | 55.38 |
| 3 | Type 3: Mixed Waste | TPD | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | Type 4: Tree Waste | TPD | 1.76 | 3.48 | 2.13 | 2.00 | 1.30 | 1.44 | 0.39 | 1.79 | 5.480 | 2.090 | 2.000 | 2.300 | 3.990 | 2.530 | 2.260 | 2.95 | 1.44 | 3.22 | 1.75 | 2.53 | 1.41 |
| 5 | Total.....(1)+(2)+(3)+(4) | TPD | 124.33 | 140.46 | 132.15 | 128.84 | 113.58 | 143.21 | 125.52 | 129.73 | 120.86 | 128.40 | 119.80 | 129.20 | 115.78 | 147.92 | 111.60 | 124.79 | 140.76 | 130.63 | 117.06 | 130.73 | 100.69 |

- # Note:
 1 Type-I: Dry Waste: This has 25-30% Organic and 70-75% Inorganic.
 2 Type-II: Wet Waste: This has 65-70% Organic and 30-35% Inorganic.
 3 Type-I: Mixed Waste: This has 45-50% Organic and 50-55% Inorganic.

| Sr. No. | Description | Unit | 1-May | 2-May | 3-May | 4-May | 5-May | 6-May | 7-May | Weekly Average | 8-May | 9-May | 10-May | 11-May | 12-May | 13-May | 14-May | Weekly Average | 15-May | 16-May | 17-May | 18-May | 19-May |
|----------------------------|------------------------------|------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|
| 1B Output Products: | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Organic Fraction | TPD | 59.83 | 66.55 | 63.72 | 68.62 | 50.95 | 72.28 | 59.53 | 63.07 | 56.28 | 57.07 | 56.60 | 63.38 | 54.86 | 68.47 | 50.23 | 58.13 | 70.10 | 60.31 | 54.33 | 59.50 | 49.84 |
| 2 | Inorganic Fraction: | | | | | | | | | | | | | | | | | | | | | | |
| | Recyclables | TPD | 9.54 | 10.57 | 10.08 | 8.80 | 8.60 | 10.29 | 8.67 | 9.51 | 8.23 | 9.32 | 8.05 | 9.33 | 8.65 | 10.16 | 7.73 | 8.78 | 10.11 | 9.01 | 8.73 | 9.29 | 7.10 |
| | RDF | TPD | 51.55 | 56.15 | 54.74 | 45.95 | 50.35 | 56.93 | 52.54 | 52.60 | 48.49 | 58.18 | 50.46 | 50.58 | 46.67 | 64.69 | 48.19 | 52.47 | 54.61 | 54.06 | 49.33 | 57.47 | 41.09 |
| | Bulking Material | TPD | 1.65 | 1.86 | 1.48 | 1.67 | 1.48 | 2.27 | 1.85 | 1.75 | 1.71 | 1.74 | 1.55 | 1.84 | 1.61 | 2.06 | 1.34 | 1.69 | 1.73 | 1.44 | 1.66 | 1.94 | 1.25 |
| | Inert | TPD | 0.00 | 1.84 | 0.00 | 1.79 | 0.90 | 0.00 | 2.54 | 1.01 | 0.68 | 0.00 | 1.14 | 1.77 | 0.00 | 0.00 | 1.84 | 0.78 | 2.77 | 2.59 | 1.26 | 0.00 | 0.00 |
| 3 | Tree Waste | TPD | 1.76 | 3.48 | 2.13 | 2.00 | 1.30 | 1.44 | 0.39 | 1.79 | 5.48 | 2.09 | 2.00 | 2.30 | 3.99 | 2.53 | 2.26 | 2.95 | 1.44 | 3.22 | 1.75 | 2.53 | 1.41 |
| 5 | Total.....(1)+(2)+(3) | TPD | 124.33 | 140.46 | 132.15 | 128.84 | 113.58 | 143.21 | 125.52 | 129.73 | 120.86 | 128.40 | 119.80 | 129.20 | 115.78 | 147.92 | 111.60 | 124.79 | 140.76 | 130.63 | 117.06 | 130.73 | 100.69 |

2 RECYCLABLES:

| Sr. No. | Description | Unit | 1-May | 2-May | 3-May | 4-May | 5-May | 6-May | 7-May | Weekly Average | 8-May | 9-May | 10-May | 11-May | 12-May | 13-May | 14-May | Weekly Average | 15-May | 16-May | 17-May | 18-May | 19-May |
|---------|---------------------------|------|-------|-------|-------|-------|-------|-------|-------|----------------|-------|-------|--------|--------|--------|--------|--------|----------------|--------|--------|--------|--------|--------|
| 1 | Glass | Kg | 159 | 178 | 156 | 127 | 168 | 142 | 150 | 154 | 138 | 126 | 153 | 165 | 145 | 160 | 120 | 144 | 181 | 166 | 138 | 154 | 149 |
| 2 | Aluminum | Kg | 74 | 123 | 117 | 89 | 56 | 85 | 113 | 94 | 81 | 63 | 71 | 63 | 112 | 131 | 98 | 88 | 139 | 89 | 58 | 128 | 50 |
| 3 | Metal | Kg | 196 | 247 | 247 | 216 | 225 | 255 | 250 | 234 | 219 | 189 | 200 | 203 | 224 | 276 | 164 | 211 | 251 | 255 | 231 | 205 | 189 |
| 4 | Tetra Pack | Kg | 110 | 123 | 117 | 114 | 90 | 113 | 125 | 113 | 58 | 76 | 82 | 127 | 67 | 145 | 77 | 90 | 84 | 127 | 58 | 90 | 60 |
| 5 | Hard Plastic | Kg | 196 | 178 | 208 | 216 | 202 | 142 | 163 | 186 | 150 | 202 | 141 | 178 | 190 | 174 | 131 | 167 | 195 | 242 | 196 | 256 | 119 |
| 6 | PET | Kg | 196 | 233 | 260 | 190 | 146 | 156 | 163 | 192 | 185 | 215 | 141 | 190 | 179 | 262 | 197 | 196 | 265 | 204 | 208 | 231 | 189 |
| 7 | Mixed Plastic | Kg | 8,506 | 9,424 | 8,867 | 7,763 | 7,646 | 9,258 | 7,608 | 8,439 | 7,315 | 8,336 | 7,139 | 8,274 | 7,669 | 8,927 | 6,845 | 7,786 | 8,861 | 7,848 | 7,737 | 8,115 | 6,274 |
| 8 | Thermocol + Styrofoam | Kg | 98 | 68 | 104 | 89 | 67 | 142 | 100 | 95 | 81 | 114 | 118 | 127 | 67 | 87 | 98 | 99 | 139 | 76 | 104 | 115 | 69 |
| 9 | Cloth + Rags + Textiles | Kg | 1,115 | 781 | 832 | 1,027 | 764 | 1,404 | 888 | 973 | 577 | 783 | 872 | 888 | 771 | 1,120 | 580 | 799 | 947 | 777 | 1,130 | 1,256 | 506 |
| 10 | Leather + Rexine + Rubber | Kg | 944 | 1,288 | 702 | 939 | 685 | 1,318 | 964 | 977 | 762 | 821 | 1,131 | 863 | 872 | 1,192 | 678 | 903 | 1,045 | 930 | 1,095 | 833 | 625 |
| 11 | Paper + Cardboard | Kg | 797 | 890 | 819 | 786 | 719 | 879 | 751 | 806 | 808 | 808 | 777 | 850 | 671 | 1,003 | 765 | 812 | 836 | 790 | 692 | 820 | 625 |
| 12 | Coconut | Kg | 858 | 973 | 663 | 888 | 764 | 1,389 | 1,101 | 948 | 900 | 935 | 777 | 990 | 939 | 1,061 | 580 | 883 | 892 | 650 | 969 | 1,115 | 625 |

- # Note:
 1 Item No. 9 (Cloth + Rags + Textiles) and 10 (Leather + Rexine + Rubber) are sent to Cement Plants as RDF.
 2 Item No. 11 (Paper + Cardboard) and 12 (Coconut) are used as Bulking Material in Composting.

3 ELECTRICITY GENERATION:

| Sr. No. | Description | Unit | 1-May | 2-May | 3-May | 4-May | 5-May | 6-May | 7-May | Weekly Average | 8-May | 9-May | 10-May | 11-May | 12-May | 13-May | 14-May | Weekly Average | 15-May | 16-May | 17-May | 18-May | 19-May |
|------------------------------------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|--------------|--------------|--------------|--------------|--------------|
| 3.1 Biogas Gensets: | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Biogas Genset-I: Running Time | hr | 22.26 | 23.20 | 23.60 | 23.35 | 23.95 | 22.90 | 22.20 | 23.07 | 23.50 | 21.65 | 23.50 | 23.35 | 23.65 | 16.55 | 22.37 | 22.08 | 19.51 | 23.75 | 23.45 | 20.55 | 23.85 |
| 2 | Biogas Genset-I: Energy Generation | kW.hr | 3,935 | 3,530 | 3,840 | 3,900 | 3,930 | 3,680 | 3,690 | 3,786.43 | 3,950 | 3,230 | 3,730 | 3,570 | 3,680 | 2,630 | 3,795 | 3,512.14 | 3,396 | 3,120 | 3,380 | 2,830 | 3,440 |
| 3 | Biogas Genset-II: Running Time | hr | 19.73 | 23.10 | 23.55 | 23.50 | 23.95 | 22.95 | 21.95 | 22.68 | 23.55 | 20.35 | 23.45 | 23.45 | 23.70 | 23.20 | 17.15 | 22.12 | 23.38 | 23.80 | 23.40 | 20.50 | 22.75 |
| 4 | Biogas Genset-II: Energy Generation | kW.hr | 3,563 | 3,640 | 3,900 | 3,920 | 4,020 | 3,960 | 3,690 | 3,797.57 | 3,960 | 3,350 | 3,920 | 3,760 | 3,830 | 3,830 | 3,043 | 3,670.43 | 3,991 | 3,510 | 3,620 | 3,050 | 3,490 |
| 5 | Total.....(1)+(2)+(3)+(4) | kW.hr | 7,498 | 7,170 | 7,740 | 7,820 | 7,950 | 7,530 | 7,380 | 7,584 | 7,910 | 6,580 | 7,650 | 7,330 | 7,510 | 6,460 | 6,838 | 7,183 | 7,387 | 6,630 | 7,000 | 5,880 | 6,930 |
| 3.2 Electricity Generation: | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | As per Tender: Minimum electricity to be generated in the plant shall be 0.4 MW per 100 tons of Input Biodegradable Waste as received in the Facility. | MW/100 MT | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| 2 | Biodegradable Waste | TPD | 59.83 | 66.55 | 63.72 | 68.62 | 50.95 | 72.28 | 59.53 | 63.07 | 56.28 | 57.07 | 56.60 | 63.38 | 54.86 | 68.47 | 50.23 | 58.13 | 70.10 | 60.31 | 54.33 | 59.50 | 49.84 |
| 3 | Electricity Generation = 100 * ((A2 + A1) + (A4 + A3)) ÷ 1000 ÷ 18.1 | kW | 357 | 310 | 328 | 334 | 332 | 328 | 334 | 332 | 336 | 314 | 326 | 313 | 317 | 324 | 347 | 325 | 345 | 279 | 299 | 287 | 298 |
| 4 | Electricity Generation | MW/100 MT | 0.60 | 0.52 | 0.55 | 0.56 | 0.65 | 0.55 | 0.56 | 0.57 | 0.60 | 0.55 | 0.58 | 0.52 | 0.58 | 0.54 | 0.69 | 0.58 | 0.57 | 0.46 | 0.55 | 0.48 | 0.60 |

4 BIOGAS FLARE:

| Sr. No. | Description | Unit | 1-May | 2-May | 3-May | 4-May | 5-May | 6-May | 7-May | Weekly Average | 8-May | 9-May | 10-May | 11-May | 12-May | 13-May | 14-May | Weekly Average | 15-May | 16-May | 17-May | 18-May | 19-May |
|---------|----------------|--------|-------|-------|-------|-------|--------|-------|--------|----------------|--------|--------|--------|--------|--------|--------|--------|----------------|--------|--------|--------|--------|--------|
| 1 | Operation Time | hr/day | 7.633 | 1.650 | 1.550 | 5.783 | 12.267 | 8.817 | 10.350 | 6.86 | 11.933 | 14.100 | 5.333 | 3.433 | 1.300 | 0.000 | 1.867 | 5.42 | 0.733 | 1.033 | 0.133 | 1.283 | 0.000 |

5 EFFLUENT TREATMENT PLANT:

| Sr. No. | Description | Unit | 1-May | 2-May | 3-May | 4-May | 5-May | 6-May | 7-May | Weekly Average | 8-May | 9-May | 10-May | 11-May | 12-May | 13-May | 14-May | Weekly Average | 15-May | 16-May | 17-May | 18-May | 19-May |
|----------------------------------|----------------------------------|---------------------|-------|-------|-------|-------|--------|--------|-------|----------------|--------|--------|--------|--------|--------|--------|--------|----------------|--------|--------|--------|--------|--------|
| 5.1 Raw Effluent Quality: | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Flow | m ³ /day | 91.98 | 74.30 | 79.85 | 92.97 | 131.71 | 132.84 | 93.72 | 99.62 | 101.24 | 101.24 | 82.97 | 99.35 | 78.09 | 79.41 | 76.66 | 88.42 | 81.02 | 71.66 | 67.33 | 68.28 | 82.59 |
| 2 | pH | --- | 6.03 | 6.61 | 7.68 | 7.71 | 6.14 | 6.28 | 6.13 | 6.65 | 6.09 | 6.84 | 6.38 | 7.36 | 7.62 | 7.12 | 6.57 | 6.85 | 7.25 | 7.38 | 6.66 | 6.16 | 6.87 |
| 3 | Biochemical Oxygen Demand (BOD5) | mg/l | 1,910 | 1,980 | 1,809 | 2,471 | 1,659 | 1,789 | 1,511 | 1,876 | 1,823 | 2,340 | 2,217 | 2,344 | 2,054 | 2,048 | 2,210 | 2,148 | 2,369 | 2,024 | 2,339 | 1,592 | 2,116 |

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

6 DISPOSAL OF INERT:

| Sr. No. | Description | Unit | 1-May | 2-May | 3-May | 4-May | 5-May | 6-May | 7-May | Weekly Average | 8-May | 9-May | 10-May | 11-May | 12-May | 13-May | 14-May | Weekly Average | 15-May | 16-May | 17-May | 18-May | 19-May |
|---------|--|------|--------|--------|--------|--------|--------|--------|--------|----------------|--------|--------|--------|--------|--------|--------|--------|----------------|--------|--------|--------|--------|--------|
| 1 | As per Tender: Maximum 10% of Inerts of the Total Input Waste (excluding Mulched Tree Waste) as received in the Facility. | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Input Waste | TPD | 122.57 | 136.98 | 130.02 | 126.84 | 112.28 | 141.77 | 125.13 | 127.94 | 115.38 | 126.31 | 117.80 | 126.90 | 111.79 | 145.39 | 109.34 | 121.84 | 139.32 | 127.41 | 115.31 | 128.20 | 99.28 |
| 3 | Inert Fraction | TPD | 0.00 | 1.84 | 0.00 | 1.79 | 0.90 | 0.00 | 2.54 | 1.01 | 0.68 | 0.00 | 1.14 | 1.77 | 0.00 | 0.00 | 1.84 | 0.78 | 2.77 | 2.59 | 1.26 | 0.00 | 0.00 |
| 4 | % of Total Input Waste.....(3) ÷ (2) | % | 0.00% | 1.34% | 0.00% | 1.41% | 0.80% | 0.00% | 2.03% | 0.80% | 0.59% | 0.00% | 0.97% | 1.39% | 0.00% | 0.00% | 1.68% | 0.66% | 1.99% | 2.03% | 1.09% | 0.00% | 0.00% |

7 HOUSEKEEPING:

| Sr. No. | Description | Unit | 1-May | 2-May | 3-May | 4-May | 5-May | 6-May | 7-May | Weekly Average | 8-May | 9-May | 10-May | 11-May | 12-May | 13-May | 14-May | Weekly Average | 15-May | 16-May | 17-May | 18-May | 19-May |
|---------|-----------------------|------|----------|----------|----------|----------|----------|----------|----------|----------------|----------|----------|----------|----------|----------|----------|----------|----------------|----------|----------|----------|----------|----------|
| 1 | Hygienic Conditions | --- | Accepted | 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 | Accepted |
| 3 | Manpower Deployed | --- | Accepted | 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 | Accepted |
| 5 | Treatment Methodology | --- | Accepted | 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 | Accepted |

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

1 WASTE:

| Sr. No. | Description | Unit | 20-May | 21-May | Weekly Average | | 22-May | 23-May | 24-May | 25-May | 26-May | 27-May | 28-May | Weekly Average | | 29-May | 30-May | 31-May | Weekly Average | | Monthly Average | |
|----------------------------------|---------------------|------|---------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|---------------|----------------|----------------|-----------------|----------------|
| 1A Input Waste: | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Type 1: Dry Waste | TPD | 66.30 | 65.87 | 60.15 | 47.08% | 59.26 | 61.67 | 62.74 | 75.46 | 47.18 | 73.69 | 74.14 | 64.88 | 49.87% | 61.37 | 65.34 | 59.97 | 62.23 | 45.60% | 61.13 | 47.13% |
| 2 | Type 2: Wet Waste | TPD | 65.50 | 68.57 | 64.96 | 50.85% | 63.04 | 54.82 | 61.40 | 59.99 | 63.33 | 67.96 | 67.67 | 62.60 | 48.12% | 68.80 | 71.31 | 76.97 | 72.36 | 53.03% | 66.26 | 51.03% |
| 3 | Type 3: Mixed Waste | TPD | 0.00 | 0.00 | 0.00 | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00% | 0.00 | 0.00% |
| 4 | Type 4: Tree Waste | TPD | 3.20 | 4.94 | 2.64 | 2.07% | 4.15 | 1.51 | 2.57 | 2.40 | 4.22 | 1.02 | 2.39 | 2.61 | 2.01% | 2.61 | 1.52 | 1.49 | 1.87 | 1.37% | 2.37 | 1.84% |
| Total.....(1)+(2)+(3)+(4) | | | 135.00 | 139.38 | 127.75 | 100.00% | 126.45 | 118.00 | 126.71 | 137.85 | 114.73 | 142.67 | 144.20 | 130.09 | 100.00% | 132.78 | 138.17 | 138.43 | 136.46 | 100.00% | 129.76 | 100.00% |

- # Note:
 1 Type-I: Dry Waste: This has 25-30% Organic and 70-75% Inorganic.
 2 Type-II: Wet Waste: This has 65-70% Organic and 30-35% Inorganic.
 3 Type-I: Mixed Waste: This has 45-50% Organic and 50-55% Inorganic.

| Sr. No. | Description | Unit | 20-May | 21-May | Weekly Average | | 22-May | 23-May | 24-May | 25-May | 26-May | 27-May | 28-May | Weekly Average | | 29-May | 30-May | 31-May | Weekly Average | | Monthly Average | |
|------------------------------|------------------|------|---------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|---------------|----------------|----------------|-----------------|----------------|
| 1B Output Products: | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Organic Fraction | TPD | 62.52 | 66.00 | 60.37 | 47.26% | 59.07 | 53.06 | 57.09 | 60.23 | 55.92 | 66.96 | 66.44 | 59.82 | 45.99% | 61.66 | 66.21 | 69.23 | 65.70 | 48.15% | 61.42 | 47.32% |
| Inorganic Fraction: | | | | | | | | | | | | | | | | | | | | | | |
| Recyclables | | | | | | | | | | | | | | | | | | | | | | |
| 2 | TPD | 9.21 | 10.34 | 9.11 | 7.13% | 8.68 | 8.61 | 9.38 | 10.23 | 7.98 | 10.60 | 9.97 | 9.35 | 7.19% | 8.86 | 9.91 | 10.76 | 9.85 | 7.21% | 9.32 | 7.18% | |
| | RDF | TPD | 55.88 | 56.42 | 52.69 | 41.25% | 52.52 | 53.21 | 53.78 | 63.15 | 42.96 | 60.89 | 63.37 | 55.70 | 42.82% | 57.59 | 58.37 | 53.52 | 56.49 | 41.40% | 53.99 | 41.61% |
| | Bulking Material | TPD | 1.66 | 1.68 | 1.62 | 1.27% | 2.03 | 1.61 | 1.85 | 1.84 | 1.38 | 2.08 | 2.03 | 1.83 | 1.41% | 2.06 | 2.16 | 2.19 | 2.14 | 1.56% | 1.81 | 1.39% |
| | Inert | TPD | 2.53 | 0.00 | 1.31 | 1.02% | 0.00 | 0.00 | 2.04 | 0.00 | 2.27 | 1.12 | 0.00 | 0.78 | 0.60% | 0.00 | 0.00 | 1.24 | 0.41 | 0.30% | 0.86 | 0.66% |
| 3 | Tree Waste | TPD | 3.20 | 4.94 | 2.64 | 2.07% | 4.15 | 1.51 | 2.57 | 2.40 | 4.22 | 1.02 | 2.39 | 2.61 | 2.01% | 2.61 | 1.52 | 1.49 | 1.87 | 1.37% | 2.37 | 1.84% |
| Total.....(1)+(2)+(3) | | | 135.00 | 139.38 | 127.75 | 100.00% | 126.45 | 118.00 | 126.71 | 137.85 | 114.73 | 142.67 | 144.20 | 130.09 | 100.00% | 132.78 | 138.17 | 138.43 | 136.46 | 100.00% | 129.76 | 100.00% |

2 RECYCLABLES:

| Sr. No. | Description | Unit | 20-May | 21-May | Weekly Average | | 22-May | 23-May | 24-May | 25-May | 26-May | 27-May | 28-May | Weekly Average | | 29-May | 30-May | 31-May | Weekly Average | | Monthly Average | |
|---------|---------------------------|------|--------|--------|----------------|--|--------|--------|--------|--------|--------|--------|--------|----------------|--|--------|--------|--------|----------------|--|-----------------|--|
| 1 | Glass | Kg | 145 | 161 | 156 | | 159 | 116 | 149 | 149 | 122 | 212 | 156 | 152 | | 182 | 205 | 192 | 193 | | 160 | |
| 2 | Aluminum | Kg | 105 | 121 | 99 | | 110 | 82 | 87 | 108 | 88 | 99 | 142 | 102 | | 78 | 109 | 68 | 85 | | 94 | |
| 3 | Metal | Kg | 237 | 229 | 228 | | 220 | 233 | 186 | 203 | 166 | 241 | 213 | 209 | | 208 | 246 | 260 | 238 | | 224 | |
| 4 | Tetra Pack | Kg | 66 | 94 | 83 | | 61 | 105 | 74 | 108 | 111 | 142 | 85 | 98 | | 91 | 123 | 82 | 99 | | 97 | |
| 5 | Hard Plastic | Kg | 250 | 134 | 199 | | 135 | 140 | 174 | 230 | 111 | 170 | 156 | 159 | | 169 | 219 | 219 | 202 | | 183 | |
| 6 | PET | Kg | 158 | 229 | 212 | | 232 | 140 | 236 | 135 | 144 | 198 | 255 | 191 | | 221 | 219 | 246 | 229 | | 204 | |
| 7 | Mixed Plastic | Kg | 8,172 | 9,236 | 8,035 | | 7,668 | 7,688 | 8,367 | 9,224 | 7,150 | 9,420 | 8,849 | 8,338 | | 7,810 | 8,691 | 9,586 | 8,696 | | 8,259 | |
| 8 | Thermocol + Styrofoam | Kg | 79 | 134 | 102 | | 98 | 105 | 112 | 68 | 88 | 113 | 113 | 100 | | 104 | 96 | 110 | 103 | | 100 | |
| 9 | Cloth + Rags + Textiles | Kg | 1,305 | 1,089 | 1,001 | | 844 | 874 | 968 | 1,233 | 829 | 1,218 | 950 | 988 | | 1,263 | 779 | 739 | 927 | | 938 | |
| 10 | Leather + Rexine + Rubber | Kg | 1,041 | 1,089 | 951 | | 881 | 582 | 881 | 1,084 | 630 | 892 | 993 | 849 | | 1,015 | 793 | 1,287 | 1,032 | | 942 | |
| 11 | Paper + Cardboard | Kg | 830 | 914 | 787 | | 844 | 757 | 757 | 948 | 718 | 878 | 851 | 822 | | 872 | 957 | 904 | 911 | | 827 | |
| 12 | Coconut | Kg | 830 | 766 | 835 | | 1,186 | 850 | 1,092 | 894 | 663 | 1,204 | 1,177 | 1,009 | | 1,185 | 1,203 | 1,287 | 1,225 | | 980 | |

- # Note:
 1 Item No. 9 (Cloth + Rags + Textiles) and 10 (Leather + Rexine + Rubber) are sent to Cement Plants as RDF.
 2 Item No. 11 (Paper + Cardboard) and 12 (Coconut) are used as Bulking Material in Composting.

3 ELECTRICITY GENERATION:

| Sr. No. | Description | Unit | 20-May | 21-May | Weekly Average | | 22-May | 23-May | 24-May | 25-May | 26-May | 27-May | 28-May | Weekly Average | | 29-May | 30-May | 31-May | Weekly Average | | Monthly Average | |
|------------------------------------|--|-----------|--------------|--------------|----------------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|--|--------------|--------------|--------------|----------------|--|-----------------|--|
| 3.1 Biogas Gensets: | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Biogas Genset-I: Running Time | hr | 23.75 | 23.45 | 22.62 | | 23.25 | 22.40 | 23.65 | 18.83 | 23.30 | 20.75 | 23.00 | 22.17 | | 21.55 | 23.00 | 23.50 | 22.68 | | 22.52 | |
| 2 | Biogas Genset-I: Energy Generation | kW.hr | 3,550 | 3,400 | 3,302.29 | | 3,020 | 3,640 | 3,930 | 3,317 | 3,740 | 3,310 | 3,590 | 3,506.71 | | 3,140 | 3,926 | 3,930 | 3,665.33 | | 3,554.58 | |
| 3 | Biogas Genset-II: Running Time | hr | 20.70 | 23.40 | 22.56 | | 23.20 | 22.15 | 23.60 | 22.38 | 23.30 | 20.45 | 23.00 | 22.58 | | 15.85 | 18.40 | 23.55 | 19.27 | | 21.84 | |
| 4 | Biogas Genset-II: Energy Generation | kW.hr | 3,350 | 3,620 | 3,518.71 | | 3,300 | 3,690 | 3,950 | 3,812 | 3,870 | 3,360 | 3,680 | 3,666.00 | | 2,640 | 3,253 | 3,940 | 3,277.67 | | 3,586.08 | |
| Total.....(1)+(2)+(3)+(4) | | | 6,900 | 7,020 | 6,821 | | 6,320 | 7,330 | 7,880 | 7,129 | 7,610 | 6,670 | 7,270 | 7,173 | | 5,780 | 7,179 | 7,870 | 6,943 | | 7,141 | |
| 3.2 Electricity Generation: | | | | | | | | | | | | | | | | | | | | | | |
| 1 | As per Tender: Minimum electricity to be generated in the plant shall be 0.4 MW per 100 tons of Input Biodegradable Waste as received in the Facility. | MW/100 MT | 0.40 | 0.40 | 0.40 | | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | | 0.40 | 0.40 | 0.40 | 0.40 | | 0.40 | |
| 2 | Biodegradable Waste | TPD | 62.52 | 66.00 | 60.37 | | 59.07 | 53.06 | 57.09 | 60.23 | 55.92 | 66.96 | 66.44 | 59.82 | | 61.66 | 66.21 | 69.23 | 65.70 | | 61.42 | |
| 3 | Electricity Generation = 100 * ((A2 + A1) + (A4 + A3)) ÷ 1000 ÷ 1B.1 | kW | 311 | 300 | 303 | | 272 | 329 | 334 | 346 | 327 | 324 | 316 | 321 | | 312 | 347 | 335 | 331 | | 322 | |
| 4 | Electricity Generation | MW/100 MT | 0.52 | 0.50 | 0.53 | | 0.46 | 0.62 | 0.58 | 0.58 | 0.58 | 0.54 | 0.53 | 0.56 | | 0.52 | 0.58 | 0.56 | 0.55 | | 0.56 | |

4 BIOGAS FLARE:

| Sr. No. | Description | Unit | 20-May | 21-May | Weekly Average | | 22-May | 23-May | 24-May | 25-May | 26-May | 27-May | 28-May | Weekly Average | | 29-May | 30-May | 31-May | Weekly Average | | Monthly Average | |
|---------|----------------|--------|--------|--------|----------------|--|--------|--------|--------|--------|--------|--------|--------|----------------|--|--------|--------|--------|----------------|--|-----------------|--|
| 1 | Operation Time | hr/day | 0.000 | 0.000 | 0.45 | | 1.200 | 4.400 | 3.467 | 11.200 | 7.500 | 10.267 | 9.117 | 6.74 | | 17.567 | 17.350 | 14.283 | 16.40 | | 7.18 | |

5 EFFLUENT TREATMENT PLANT:

| Sr. No. | Description | Unit | 20-May | 21-May | Weekly Average | | 22-May | 23-May | 24-May | 25-May | 26-May | 27-May | 28-May | Weekly Average | | 29-May | 30-May | 31-May | Weekly Average | | Monthly Average | |
|--------------------------------------|----------------------------------|---------------------|--------|--------|----------------|--|--------|--------|--------|--------|--------|--------|--------|----------------|--|--------|--------|--------|----------------|--|-----------------|--|
| 5.1 Raw Effluent Quality: | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Flow | m ³ /day | 84.57 | 89.32 | 77.82 | | 87.55 | 79.46 | 69.39 | 78.52 | 93.39 | 67.59 | 77.41 | 79.04 | | 74.94 | 82.13 | 88.89 | 81.99 | | 85.38 | |
| 2 | pH | --- | 6.35 | 7.51 | 6.88 | | 6.32 | 6.07 | 7.76 | 6.14 | 6.89 | 6.33 | 7.15 | 6.67 | | 6.76 | 6.40 | 6.40 | 6.52 | | 6.72 | |
| 3 | Biochemical Oxygen Demand (BOD5) | mg/l | 1,660 | 1,702 | 1,972 | | 2,480 | 1,998 | 1,873 | 2,343 | 2,076 | 1,728 | 2,120 | 2,088 | | 1,544 | 2,455 | 1,885 | 1,961 | | 2,009 | |
| 4 | Chemical Oxygen Demand (COD) | mg/l | 4,631 | 5,191 | 5,801 | | 7,663 | 6,813 | 5,507 | 6,584 | 4,235 | 5,115 | 5,957 | 5,982 | | 4,848 | 5,205 | 4,241 | 4,765 | | 5,650 | |
| 5 | Total Suspended Solids (TSS) | mg/l | 3,303 | 3,540 | 4,374 | | 4,414 | 4,595 | 3,765 | 5,693 | 4,443 | 3,335 | 4,282 | 4,361 | | 2,594 | 5,990 | 3,544 | 4,043 | | 4,232 | |
| 6 | Total Dissolve Solids (TDS) | mg/l | 1,792 | 1,716 | 1,644 | | 1,406 | 1,468 | 1,502 | 1,498 | 1,323 | 1,302 | 1,649 | 1,450 | | 1,393 | 1,720 | 1,508 | 1,540 | | 1,574 | |
| 5.2 Treated Effluent Quality: | | | | | | | | | | | | | | | | | | | | | | |
| 1 | pH | --- | 6.68 | 7.22 | 6.85 | | 6.95 | 6.61 | 6.92 | 6.72 | 7.35 | 7.43 | 7.17 | 7.02 | | 7.39 | 6.75 | 6.91 | 7.02 | | 6.97 | |
| 2 | Biochemical Oxygen Demand (BOD5) | mg/l | 7 | 8 | 7 | | 7 | 7 | 6 | 5 | 7 | 5 | 8 | 7 | | 6 | 9 | 9 | 7 | | 7 | |
| 3 | Chemical Oxygen Demand (COD) | mg/l | 55 | 62 | 75 | | 72 | 71 | 87 | 64 | 68 | 61 | 74 | 71 | | 91 | 87 | 60 | 79 | | 74 | |
| 4 | Total Suspended Solids (TSS) | mg/l | 8 | 9 | 8 | | 8 | 8 | 7 | 6 | 10 | 9 | 9 | 8 | | 7 | 7 | 10 | 8 | | 8 | |
| 5 | Total Dissolve Solids (TDS) | mg/l | 1,935 | 1,819 | 1,745 | | 1,420 | 1,600 | 1,577 | 1,663 | 1,416 | 1,445 | 1,715 | 1,548 | | 1,504 | 1,875 | 1,674 | 1,684 | | 1,691 | |

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

6 DISPOSAL OF INERT:

| Sr. No. | Description | Unit | 20-May | 21-May | Weekly Average | 22-May | 23-May | 24-May | 25-May | 26-May | 27-May | 28-May | Weekly Average | 29-May | 30-May | 31-May | 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 | 131.80 | 134.44 | 125.11 | 122.30 | 116.49 | 124.14 | 135.45 | 110.51 | 141.65 | 141.81 | 127.48 | 130.17 | 136.65 | 136.94 | 134.59 | 127.39 |
| 3 | Inert Fraction | TPD | 2.53 | 0.00 | 1.31 | 0.00 | 0.00 | 2.04 | 0.00 | 2.27 | 1.12 | 0.00 | 0.78 | 0.00 | 0.00 | 1.24 | 0.41 | 0.86 |
| 4 | % of Total Input Waste.....(3) ÷ (2) | % | 1.92% | 0.00% | 1.00% | 0.00% | 0.00% | 1.64% | 0.00% | 2.05% | 0.79% | 0.00% | 0.64% | 0.00% | 0.00% | 0.91% | 0.30% | 0.68% |

7 HOUSEKEEPING:

| Sr. No. | Description | Unit | 20-May | 21-May | Weekly Average | 22-May | 23-May | 24-May | 25-May | 26-May | 27-May | 28-May | Weekly Average | 29-May | 30-May | 31-May | Weekly Average | Monthly Average |
|---------|-----------------------|------|----------|----------|----------------|----------|----------|----------|----------|----------|----------|----------|----------------|----------|----------|----------|----------------|-----------------|
| 1 | Hygienic Conditions | --- | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted |
| 2 | Cleanliness | --- | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted |
| 3 | Manpower Deployed | --- | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted |
| 4 | Safety Norms | --- | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted |
| 5 | Treatment Methodology | --- | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted |
| 6 | Storage Conditions | --- | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted | Accepted |