



Godavari Biorefineries Ltd

Distillery Division  
Date: 25.09.2020

GBL (D)/SMR/KSPCB/2020-2021/168

To,  
The Member Secretary  
Karnataka State Pollution Control Board  
#48 Parisar Bhavan  
4<sup>th</sup> and 5<sup>th</sup> Floor, church Street  
BENGALURU-560 001

Submitted through: Environmental officer, Regional Office, KSPCB, Bagalkot.

Sub: Submission of Environmental Statement for the year ending  
31<sup>st</sup> March 2020 ---Reg.

R/Sir,

With reference to the above, please find here with the Environmental Statement for  
the year ending 31<sup>st</sup> March 2020 in duplicate.

Kindly find the same in order and acknowledge the same.

Yours faithfully  
For Godavari Bio-Refineries Ltd.

  
S.U. Godage  
General Manager



Encl: Two copies of Environmental Statement.

Factory: P.O.Sameerwadi, Tal.Mudhol, Dist. Bagalkot (Karnataka State)-587 316  
Tel : (91-08350) 260081/46 /47/ 48 Fax : (91-08350) 260022 Website: www.somaiya.com  
Regd. Office: Somaiya Bhavan, 45/47, M G Road, Fort, Mumbai- 400 023 Tel : 2204 8272

TIN No:29100043219 w.e.f. 28.04.2009





ENVIRONMENTAL  
STATEMENT  
FORM V  
FOR THE YEAR ENDING

31<sup>ST</sup> MARCH 2020

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SUBMITTED BY

GODAVARI BIOREFINERIES LTD.  
(DISTILLERY DIVISION)  
SAMEERWADI-587316  
TAL: MUDHOL, DIST: BAGALKOT

**FORM-V****ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR  
ENDING THE 31<sup>ST</sup> MARCH 2020.****DISTILLERY****PART- A**

1. Name and address of the owner /  
Occupier of the industry, operation /  
Process: Godavari Biorefineries Limited,  
(Distillery Division)  
Sameerwadi-587316  
Tal: Mudhol ,Dist :Bagalkot  
State :Karnataka
2. Industry Category  
Primary- (SIC Code) :2000  
Secondary (SIC Code)
3. Installed Capacity-Unit :9998
4. Year of Establishment :30<sup>th</sup> October 1984
5. Date of the last Environmental  
Statement Submitted 28<sup>th</sup> September, 2019

**PART- B****WATER AND RAW MATERIAL CONSUMPTION****1. Water Consumption ( Cum/day ) :-**

| Sr. No. | Operation | During the previous Financial Year 2018- 2019 | During the Current Financial Year 2019 - 2020 |
|---------|-----------|---|---|
| I       | Process   | 780   | 820   |
| II      | Cooling   | Recycled                                      | Recycled                                      |
| III     | Domestic  | 25  | 25  |

**2. Products :-**

| Sr. No. | Name of Product  | Process Water Consumption per product output (KL/KL. of Spirit Produced) |   |
|---------|------------------|--|---|
|         |                  | During the previous financial year 2018 - 2019                           | During the Current Financial Year 2019 - 2020 |
| I       | Rectified Spirit | 4.62   | 4.18  |





## 2. Raw Material Consumption :

| Sr. No. | Raw Material     | Product  | Consumption of Raw Material Per Unit of Output ( Kgs/KL of Spirit Produced ) |             |
|---------|------------------|--|--|-------------|
|         |                  |  | 2018 - 2019  | 2019 - 2020 |
| 1a.     | C-grade Molasses | Rectified Spirit / Ethanol / Extra Neutral Alcohol | 3450   | 3927        |
| b.      | B-Heavy Molasses |  | -  | 3245        |
| c.      | Sugarcane syrup  |  | -  | 3425        |
| 2       | Yeast Used       |  | Recycled   | Recycled    |
| 3       | Urea             |  | ---  | ---         |
| 4       | D.A.P.           |  | ---  | ---         |
| 5       | Antifoam         |  | ---  | ---         |
| 6       | Bleaching Powder |  | ---  | ---         |
| 7       | Steam            |  | 5154   | 5219        |
| 8       | Power (KWH/ KL)  |  | 345  | 388         |
|         |                  | By-Product   | Litres/KL of Spirit Produced   |             |
|         |                  | Fusel Oil  | Nil  | Nil         |

Note: Power consumption is increased due to commissioning of Second stage Evaporation plant & Incineration boiler.

| Sr. No. | Product               | Total Quantity Produced in KL |             |
|---------|-----------------------|-------------------------------|-------------|
|         |                       | 2018 - 2019                   | 2019 - 2020 |
| A       | Rectified Spirit      | 14183.9408                    | 7369.474    |
| B       | Extra Neutral Alcohol | 8497.0365                     | 6537.146    |
| C       | Impure Alcohol        | 1453.2867                     | 868.430     |
| D       | Ethanol               | 24365.736                     | 41582.400   |
|         | Total production      | 48500.00                      | 56357.413   |
| E       | Fusel Oil             | Nil                           | Nil         |

Industry may use codes if disclosing the details of raw material would violate any contractual obligations, otherwise all the industries have to name the raw materials used.

**PART- C**

**Pollution Discharged to Environment per unit of output**  
**(Parameter as specified in the Consent Issued)**

| Sr. No. | Pollutants        | Quantity KL/day | Concentration | Concentration Discharged (Mass/Day) | Percentage of Variation prescribed standard with reasons |
|---------|-------------------|-----------------|---------------|-------------------------------------|--|
| I       | Waste water (BOD) | 467             | Nil           | 467                                 |  |
| II      | Air Stack-1       |                 | Not in use    |                                     | -  |
|         | Stack-2           |                 | Not in use    |                                     | -  |
|         | Stack -3          |                 | 77            | -                                   | -  |

**PART- D****HAZARDOUS WASTES**

As per specified under Hazardous Waste (Management and Handling) Rules, 1989

| Sr. No. | Hazardous Waste                   | Total Quantity ( Tonnes )                      |   |
|---------|-----------------------------------|--|---|
|         |                                   | During the previous financial year 2018 - 2019 | During the current financial year 2019 - 2020 |
| I       | From Pollution Control Facilities | Nil  | Nil   |



**PART- E**  
**SOLID WASTES**

| Sr. No. | Solid Waste                                     | Total Quantity in Tonnes  |   |
|---------|---|---|---|
|         |   | During the previous financial year 2018 - 2019  | During the current financial year 2019 - 2020   |
| I       | From Process (by products)                      |   |   |
|         | a) Yeast Sludge                                 | 6062  | 7044  |
| II      | From Pollution Control Facilities               |   |   |
|         | a) Biogas plant Sludge                          | 539   | 204   |
|         | b) Ash  | 27560   | 22500   |
| III     | Quantity recycled or reutilised within the unit | 6601 MT of sludge & 14000 MT of ash utilised in the Biocompost. 10100 MT of ash sold to Brick manufacture<br>Balance-15060 MT | 7248 MT sludge & 6800 MT of ash utilized for Biocompost activities & 12600 MT sold to brick manufactures<br>Balance qty -19400 MT |

**PART-F**

**Please specify the characteristics (In terms of concentrations and quantity) of hazardous wastes as well as solid wastes and indicate disposal practice adopted for both the categories of wastes.**

Hazardous wastes: 1) Used Oil ; Nil  
2) Used Cotton waste ; 0.005 MT

**PART-G**

**Impact of the pollution abatement measures on conservation of natural resources and consequently on the cost of production**

Entire spentwash generated by utilizing the sugarcane syrup as raw material was reduced in three stage evaporation and utilized in Incineration boiler as fuel



## PART - H

### Additional measures / investment proposal for environmental protection including abatement of pollution, prevention of pollution

Industry has commissioned the Incineration boiler of 40 TPH for utilization of spentwash after multiple effect evaporation in the boiler as fuel. Entire spentwash generated by utilizing the sugarcane syrup as raw material was reduced in three stage evaporation and utilized in Incineration boiler as fuel. Electrostatic precipitator (ESP) is installed for emission control for the suspended particulate matter through flue gas.

## PART- I

### Any other particulars for improving the quality of environment.

Condensate polishing unit I (Activated Sludge process) ,Unit II( RO Process) and Unit - III (stripper ) are provided for the treatment of process condensate from MEE and spentless generated from process is mixed with the process condensate and treated in the condensate polishing unit and recycled back to cooling tower as make up.

This year additional plantation of 10000 trees is being carried out for the minimization of fugitative emissions

Additional two fields inclusion to ESP to increase the efficiency .





**Godavari Biorefineries Limited  
(Distillery Division), Sameerwadi**

Annexure No-1

## ❖ Boiler Stack monitoring results:-

| Month & Year | Stack No-3, 40 TPH Incineration boiler<br>Stack ID- 1.7 mtr, Height – 81 mtr<br>Fuel : Concentrated Spentwash & Coal, Fuel Ratio : 80 : 20 |                               |                                   |               |               |
|--------------|--|-------------------------------|-----------------------------------|---------------|---------------|
|              | Flue gas velocity<br>(m/Sec)   | Flue gas Outlet temp<br>deg C | Particulate matter(SPM)<br>mg/Nm3 | SO2<br>mg/nm3 | NOX<br>mg/Nm3 |
| July.2019    | 12.2   | 158                           | 102                               | 65            | 37            |
| September.19 | 13.1   | 161                           | 105                               | 67            | 50            |
| Dec.2019     | 12.1   | 137                           | 57                                | 42            | 30            |
| Jan.2020     | 12.2   | 141                           | 59                                | 43            | 31            |
| Feb.2020     | 12.3   | 144                           | 62                                | 45            | 32            |

## ❖ ESP – Electrical meter reading:-

| Month & Year | Working days | ESP Electrical meter reading |        |            |              |
|--------------|--------------|------------------------------|--------|------------|--------------|
|              |              | Initial                      | Final  | Total (MW) | In KWH units |
| April. 2019  | 22           | 527.40                       | 551.89 | 24.49      | 24490        |
| May.2019     | 10.8         | 551.89                       | 568.37 | 16.18      | 16180        |
| June.2019    | 0            | 568.37                       | 568.37 | 0          | 0            |
| July.2019    | 27           | 568.37                       | 602.82 | 34.45      | 34450        |
| August.2019  | 29.5         | 602.82                       | 634.46 | 31.64      | 31640        |
| September.19 | 23.8         | 634.46                       | 654.22 | 19.76      | 19760        |
| Oct.2019     | 4.7          | 654.22                       | 667.60 | 13.38      | 13380        |





|   |       |        |        |       |        |
|---|-------|--------|--------|-------|--------|
| Nov.2019  | 14.6  | 654.22 | 700.26 | 46.04 | 46040  |
| Dec.2019  | 31.0  | 700.26 | 770.96 | 70.70 | 70700  |
| Jan.2020  | 28.3  | 770.96 | 834.22 | 63.26 | 63260  |
| Feb.2020  | 29.0  | 834.22 | 892.91 | 58.69 | 58690  |
| March.2020  | 30.2  | 892.91 | 969.92 | 77.01 | 77010  |
|   | 250.9 |        |        |       | 455600 |
| Average unit consumption = 455600 / 250.9 = 1815.86 KWH units per day |       |        |        |       |        |

Note: Two No's of additional fields are installed in the existing ESP to achieve more efficiency.

❖ Ambient Air quality monitoring details:

| Month & Year   | Location                  | Wind direction | Parameters                             |                                       |                                      |                                      |
|----------------|---------------------------|----------------|--|---------------------------------------|--------------------------------------|--------------------------------------|
|                |                           |                | PM <sub>2.5</sub><br>µg/m <sup>3</sup> | PM <sub>10</sub><br>µg/m <sup>3</sup> | NO <sub>x</sub><br>µg/m <sup>3</sup> | SO <sub>2</sub><br>µg/m <sup>3</sup> |
| July.2019      | Near distillery main gate | Easterly       | 23                                     | 69                                    | 12.00                                | 7.00                                 |
|                | Near BTP Plant            | Easterly       | 20                                     | 62                                    | 10.00                                | 6.00                                 |
| September 2019 | Near distillery main gate | Easterly       | 21                                     | 67                                    | 10.00                                | 8.00                                 |
|                | Near BTP Plant            | Easterly       | 18                                     | 60                                    | 8.00                                 | 6.00                                 |



| Month & Year | Location             | Wind direction | Parameters                             |                                       |                                      |                                      |
|--------------|----------------------|----------------|--|---------------------------------------|--------------------------------------|--------------------------------------|
|              |                      |                | PM <sub>2.5</sub><br>µg/m <sup>3</sup> | PM <sub>10</sub><br>µg/m <sup>3</sup> | NO <sub>x</sub><br>µg/m <sup>3</sup> | SO <sub>2</sub><br>µg/m <sup>3</sup> |
| Oct.2019     | Near distillery gate | Easterly       | 17                                     | 58                                    | 8                                    | 6.00                                 |
|              | Near BTP plant       | Easterly       | 14                                     | 52                                    | 7.00                                 | 6.00                                 |
| Dec.2019     | Near distillery gate | Easterly       | 21                                     | 62                                    | 12.00                                | 8.00                                 |
|              | Near BTP plant       | Easterly       | 24                                     | 69                                    | 10.00                                | 8.00                                 |
| Jan.2020     | Near distillery gate | Easterly       | 26                                     | 72                                    | 15.00                                | 12.00                                |
|              | Near BTP plant       | Easterly       | 23                                     | 68                                    | 10.00                                | 08.00                                |
| Feb.2020     | Near distillery gate | Easterly       | 30                                     | 75                                    | 14.00                                | 12.00                                |
|              | Near BTP plant       | Easterly       | 26                                     | 70                                    | 10.00                                | 08.00                                |



## ❖ Trade sample Analysis report: Raw Spentwash sample

| Sl No | Parameter              | Unit   | Results    |            |            |            |            | Test method                                   |
|-------|------------------------|--------|------------|------------|------------|------------|------------|---|
|       |                        |        | 1          | 2          | 3          | 4          | 5          |   |
|       |                        |        | 23.07.2019 | 21.09.2019 | 12.12.2019 | 28.01.2020 | 22.02.2020 |   |
| 1     | pH                     |        | 4.14       | 3.8        | 3.01       | 2.64       | 2.25       | IS-3025(P-11)1983                             |
| 2     | COD                    | mg/lit | 102630     | 153760     | 87028      | 34816      | 136972     | IS-3025(P-58)2006                             |
| 3     | BOD                    | mg/lit | 48310      | 68130      | 45210      | 15260      | 57270      | IS-3025(P-44)1993                             |
| 4     | Total solids           | mg/lit | 153910     | 197580     | 130760     | 66120      | 169610     | APHA 22 <sup>nd</sup> edition 2012, 2540 B    |
| 5     | Total Volatile solids  | mg/lit | 75140      | 84130      | 55410      | 27610      | 71530      | APHA 22 <sup>nd</sup> edition 2012, 240- E, G |
| 6.    | Total Inorganic solids | mg/lit | 89250      | 113450     | 75350      | 38510      | 98080      | APHA 22 <sup>nd</sup> edition 2012, 2540 C    |
| 7.    | Chlorides              | mg/lit | 14110      | 17032      | 9854       | 2870       | 6998       | IS-3025(P-12)1988                             |
| 8.    | Sulphate               | mg/lit | 10974      | 12910      | 6711       | 4172       | 7326       | IS-3025(P-24)1986                             |
| 9.    | Potash                 | mg/lit | 14300      | -          | 12900      | 12800      | 16100      | IS-3025(P-45)1993                             |



## ❖ Trade sample Analysis report: Biomethanated Spentwash sample

| Sl No | Parameter              | Unit   | Results    |            |            |            | Test method                                    |
|-------|------------------------|--------|------------|------------|------------|------------|--|
|       |                        |        | 1          | 2          | 3          | 4          |  |
|       |                        |        | 23.07.2019 | 21.09.2019 | 12.12.2019 | 22.02.2020 |  |
| 1     | pH                     |        | 7.88       | 7.37       | 7.91       | 7.62       | IS: 3025(P-11)1983                             |
| 2     | Alkalinity             | mg/lit | 9630       | 9140       | 9710       | 7920       | IS: 3025(P-23)1986                             |
| 3     | Volatile solids        | mg/lit | 3710       | 3490       | 3790       | 3570       | APHA 22 <sup>nd</sup> edition 2012, 505 6C     |
| 4     | COD                    | mg/lit | 47120      | 46192      | 40073      | 44844      | IS: 3025(P-58) 2006                            |
| 5     | BOD                    | mg/lit | 5170       | 5120       | 5120       | 5760       | IS: 3025(P-44)1993                             |
| 6     | Total solids           | mg/lit | 79630      | 78240      | 73910      | 74210      | APHA 22 <sup>nd</sup> edition 2012, 254 0B     |
| 7     | Total Volatile solids  | mg/lit | 32660      | 33150      | 33450      | 38190      | APHA 22 <sup>nd</sup> edition 2012, 240 - I, G |
| 8.    | Total Inorganic solids | mg/lit | 46970      | 45090      | 40460      | 36020      | APHA 22 <sup>nd</sup> edition 2012, 2540 C     |
| 9.    | Chlorides              | mg/lit | 7125       | 7092       | 6997       | 6495       | IS: 3025(P-32)1988                             |
| 10.   | Sulphates              | mg/lit | 4508       | 4269       | 4892       | 5058       | IS: 3025(P-24)1986                             |
| 11.   | Potash                 | mg/lit | 14760      | 14100      | 14130      | 14300      | IS: 3025(P-45)1993                             |





❖ Trade sample Analysis report: Spentwash sample after 1<sup>st</sup> Stage Evaporation

| Sl No | Parameter              | Unit   | Results    |            | Test method                                 |
|-------|------------------------|--------|------------|------------|---|
|       |                        |        | 1          | 2          |   |
|       |                        |        | 12.12.2019 | 28.01.2020 |   |
| 1     | pH                     |        | 3.38       | 2.69       | IS: 3025(P-11)1983                          |
| 2     | COD                    | mg/lit | 162732     | 38046      | IS: 3025(P-58) 2006                         |
| 3     | BOD                    | mg/lit | 70340      | 17210      | IS: 3025(P-44)1993                          |
| 4     | Total solids           | mg/lit | 193340     | 76820      | APHA 22 <sup>nd</sup> edition2012,2540 B    |
| 5     | Total Volatile solids  | mg/lit | 86080      | 29170      | APHA 22 <sup>nd</sup> edition2012, 240- E,G |
| 6.    | Total Inorganic solids | mg/lit | 107260     | 47650      | APHA 22 <sup>nd</sup> edition2012, 2540 C.  |
| 7.    | Chlorides              | mg/lit | 12243      | 3828       | IS: 3025(P-32)1988                          |
| 8.    | Sulphate               | mg/lit | 15519      | 5623       | IS: 3025(P-24)1986                          |
| 9.    | Potash                 | mg/lit | 19700      | 13900      | IS: 3025(P-45)1993                          |

❖ Noise Level Measurement Report:

Date of measurement: 28.01.2020

| Sl No | Location               | Sampling time | dB(A) Leq |
|-------|------------------------|---------------|-----------|
| 1     | Distillery main gate   | Day           | 56.9      |
|       |                        | Night         | 51.2      |
| 2.    | BTP Plant              | Day           | 69.4      |
|       |                        | Night         | 65.6      |
| 3.    | Incineration Boiler    | Day           | 71.8      |
|       |                        | Night         | 68.3      |
| 4.    | Compost yard           | Day           | 65.1      |
|       |                        | Night         | 53.3      |
| 5.    | Distillery Time Office | Day           | 67.2      |
|       |                        | Night         | 62.4      |



❖ Borewell Analysis report: Date of Sampling: 22.07.2019

| Sl No | Test parameter    | Unit     | CBSE School Sameerwadi | Iswar Terdal, Bisnal village | KIAAR Bisnal | Rasappa R. Wali, Bisnal | Hanumanth S Banaj, Bisnal | Test Method        |
|-------|-------------------|----------|------------------------|------------------------------|--------------|-------------------------|---------------------------|--------------------|
|       |                   |          | 1                      | 2                            | 3            | 4                       | 5                         |                    |
| 1     | Color             | Hazen    | <5                     | <5                           | <5           | <5                      | <5                        | IS: 3025(P-04)1983 |
| 2     | Odor              |          | Agreeable              | Agreeable                    | Agreeable    | Agreeable               | Agreeable                 | IS: 3025(P-05)1983 |
| 3     | pH                |          | 7.30                   | 7.56                         | 7.37         | 7.38                    | 7.74                      | IS: 3025(P-11)1983 |
| 4     | Turbidity         | NTU      | 0.1                    | 0.2                          | 0.3          | 0.1                     | 0.1                       | IS: 3025(P-10)1984 |
| 5     | Total Alkalinity  | mg/lit   | 210                    | 212                          | 190          | 154                     | 154                       | IS: 3025(P-23)1985 |
| 6     | COD               | mg/lit   | 18                     | 12                           | 15           | 10                      | 29                        | IS: 3025(P-58)2006 |
| 7     | BOD( 3days @270 C | mg/lit   | 4                      | <4                           | <4           | <4                      | <4                        | IS: 3025(P-44)1993 |
| 8     | TDS               | mg/lit   | 570                    | 430                          | 412          | 445                     | 492                       | IS: 3025(P-16)1984 |
| 9     | Chlorides         | mg/lit   | 163                    | 102                          | 45           | 82                      | 128                       | IS: 3025(P-32)1988 |
| 10    | Hardness          | mg/lit   | 255                    | 290                          | 371          | 452                     | 391                       | IS: 3025(P-21)1983 |
| 11    | Calcium           | mg/lit   | 69                     | 84                           | 106          | 134                     | 107                       | IS: 3025(P-40)1991 |
| 12    | Magnesium         | mg/lit   | 20                     | 20                           | 26           | 29                      | 30                        | IS: 3025(P-46)1994 |
| 13    | Sodium            | mg/lit   | 85.7                   | 76.2                         | 92.7         | 79.3                    | 92.5                      | IS: 3025(P-45)1993 |
| 14    | Potassium         | mg/lit   | 2.6                    | 1.8                          | 2.1          | 5.6                     | 1.8                       | IS: 3025(P-44)1993 |
| 15    | Sodium            | %        | 41.95                  | 36                           | 35           | 27.02                   | 33.72                     | By calculation     |
| 16    | SAR               |          | 2.33                   | 1.93                         | 2.09         | 1.61                    | 2.03                      |                    |
| 17    | RSC               | Meq/l    | -0.91                  | -1.62                        | -3.67        | -6.03                   | -4.77                     |                    |
| 18    | EC                | µmhos/cm | 930                    | 792                          | 592          | 708                     | 832                       |                    |



## ❖ Borewell Analysis report: Date of Sampling: 21.09.2019

| Sl No | Test parameter               | Unit     | Sujata<br>Bhadrasheety,<br>Handigund | Girish R<br>Kulkarni,<br>Handigund | Ullappa<br>Chana,<br>Handigund | Satyappa<br>Kotigud,<br>Handigund | Devendra<br>Kuribagi,<br>Handigund | Test Method        |
|-------|------------------------------|----------|--------------------------------------|------------------------------------|--------------------------------|-----------------------------------|------------------------------------|--------------------|
|       |                              |          | 1                                    | 2                                  | 3                              | 4                                 | 5                                  |                    |
| 1     | Color                        | Hazen    | <5                                   | <5                                 | <5                             | <5                                | <5                                 | IS: 3025(P-04)1983 |
| 2     | Odor                         |          | Agreeable                            | Agreeable                          | Agreeable                      | Agreeable                         | Agreeable                          | IS: 3025(P-05)1983 |
| 3     | pH                           |          | 7.67                                 | 7.74                               | 7.23                           | 7.10                              | 7.10                               | IS: 3025(P-11)1983 |
| 4     | Turbidity                    | NTU      | 0.4                                  | 0.3                                | 0.1                            | 0.1                               | 0.2                                | IS: 3025(P-10)1984 |
| 5     | Total Alkalinity             | mg/lit   | 148                                  | 120                                | 270                            | 360                               | 284                                | IS: 3025(P-23)1986 |
| 6     | COD                          | mg/lit   | 14                                   | 23                                 | 29                             | 37                                | 30                                 | IS: 3025(P-58)2006 |
| 7     | BOD <sub>5</sub> 3days @27°C | mg/lit   | <4                                   | <4                                 | <4                             | <4                                | <4                                 | IS: 3025(P-44)1993 |
| 8     | TDS                          | mg/lit   | 264                                  | 281                                | 647                            | 1016                              | 843                                | IS: 3025(P-16)1984 |
| 9     | Chlorides                    | mg/lit   | 38                                   | 56                                 | 140                            | 315                               | 229                                | IS: 3025(P-32)1988 |
| 10    | Hardness                     | mg/lit   | 162                                  | 290                                | 710                            | 921                               | 830                                | IS: 3025(P-21)1983 |
| 11    | Calcium                      | mg/lit   | 73                                   | 102                                | 241                            | 284                               | 286                                | IS: 3025(P-40)1991 |
| 12    | Magnesium                    | mg/lit   | 5                                    | 9                                  | 26                             | 51                                | 28                                 | IS: 3025(P-48)1991 |
| 13    | Sodium                       | mg/lit   | 22.5                                 | 23.7                               | 80.3                           | 68.5                              | 72.3                               | IS: 3025(P-45)1993 |
| 14    | Potassium                    | mg/lit   | 2.6                                  | 2.0                                | 2.4                            | 2.6                               | 3.0                                | IS: 3025(P-44)1993 |
| 15    | Sodium                       | %        | 19.18                                | 14.9                               | 19.7                           | 13.91                             | 15.88                              | By calculation     |
| 16    | SAR                          |          | 0.68                                 | 0.6                                | 1.31                           | 0.98                              | 1.09                               | By calculation     |
| 17    | RSC                          | Meq/l    | -1.1                                 | -3.45                              | -8.81                          | -11.25                            | -10.95                             | By calculation     |
| 18    | EC                           | µmhos/cm | 408                                  | 464                                | 910                            | 1520                              | 1390                               | IS: 3025(P-14)1984 |



## ❖ Borewell Analysis report: Date of Sampling: 19.10.2019

| Sl No | Test parameter    | Unit     | Bharmappa H Sanadi Kappalguddi | Mahadev L Ajjapagal Kappalguddi | Bhimappa R Udappagal Kappalguddi | Mayappa Sanadi Kappalguddi | Parmahans G Bangi Kappalguddi | Test Method        |
|-------|-------------------|----------|--------------------------------|---------------------------------|----------------------------------|----------------------------|-------------------------------|--------------------|
|       |                   |          | 1                              | 2                               | 3                                | 4                          | 5                             |                    |
| 1     | Color             | Hazen    | <5                             | <5                              | <5                               | <5                         | <5                            | IS: 3025(P-04)1983 |
| 2     | Odor              |          | Agreeable                      | Agreeable                       | Agreeable                        | Agreeable                  | Agreeable                     | IS: 3025(P-05)1983 |
| 3     | pH                |          | 6.81                           | 6.63                            | 6.63                             | 7.37                       | 7.34                          | IS: 3025(P-11)1983 |
| 4     | Turbidity         | NTU      | 1.6                            | 0.7                             | 0.6                              | 0.7                        | 0.2                           | IS: 3025(P-10)1984 |
| 5     | Total Alkalinity  | mg/lit   | 360                            | 370                             | 420                              | 310                        | 280                           | IS: 3025(P-23)1986 |
| 6     | COD               | mg/lit   | 47                             | 58                              | 74                               | 40                         | 21                            | IS: 3025(P-58)2006 |
| 7     | BOD( 3days @270 C | mg/lit   | 5                              | 7                               | 10                               | <4                         | <4                            | IS: 3025(P-44)1993 |
| 8     | TDS               | mg/lit   | 1090                           | 1270                            | 1590                             | 1180                       | 761                           | IS: 3025(P-16)1984 |
| 9     | Chlorides         | mg/lit   | 312                            | 410                             | 390                              | 158                        | 113                           | IS: 3025(P-32)1988 |
| 10    | Hardness          | mg/lit   | 1210                           | 1560                            | 2050                             | 1250                       | 870                           | IS: 3025(P-21)1983 |
| 11    | Calcium           | mg/lit   | 390                            | 523                             | 682                              | 603                        | 283                           | IS: 3025(P-40)1991 |
| 12    | Magnesium         | mg/lit   | 57                             | 61                              | 84                               | 63                         | 40                            | IS: 3025(P-46)1994 |
| 13    | Sodium            | mg/lit   | 85.4                           | 85.9                            | 116.1                            | 85.5                       | 78.9                          | IS: 3025(P-45)1993 |
| 14    | Potassium         | mg/lit   | 6.3                            | 6.4                             | 6.2                              | 3.8                        | 2.0                           | IS: 3025(P-44)1993 |
| 15    | %sodium           | %        | 13.25                          | 10.66                           | 10.93                            | 8.8                        | 16.41                         | By calculation     |
| 16    | SAR               |          | 1.06                           | 0.94                            | 1.11                             | 0.81                       | 1.16                          | By calculation     |
| 17    | RSC               | meq/l    | -17.05                         | -23.83                          | -32.7                            | -29.2                      | -11.88                        | By calculation     |
| 18    | EC                | µmhos/cm | 1750                           | 1950                            | 2750                             | 2070                       | 1410                          | IS: 3025(P-14)1984 |





❖ Borewell Analysis report: Date of Sampling: 12.12.2019

| Sl No. | Test parameter    | Unit     | CBSE School campus Soidapur | Ishwar R Terdal Binal | KIAAR Campus  | Basappa R Wail Binal | Hanumant S Banaj Binal | Test Method        |
|--------|-------------------|----------|-----------------------------|-----------------------|---------------|----------------------|------------------------|--------------------|
|        |                   |          | 1                           | 2                     | 3             | 4                    | 5                      |                    |
| 1      | Color             | Hazen    | <5                          | <5                    | <5            | <5                   | <5                     | IS: 3025(P-04)1983 |
| 2      | Odor              |          | Agreeable                   | Agreeable             | Agreeabl<br>e | Agreeable            | Agreeable              | IS: 3025(P-05)1983 |
| 3      | pH                |          | 7.37                        | 7.52                  | 7.33          | 7.56                 | 7.84                   | IS: 3025(P-11)1983 |
| 4      | Turbidity         | NTU      | 0.1                         | 0.1                   | 0.1           | 0.1                  | 0.2                    | IS: 3025(P-10)1984 |
| 5      | Total Alkalinity  | mg/lit   | 190                         | 230                   | 184           | 171                  | 196                    | IS: 3025(P-23)1986 |
| 6      | COD               | mg/lit   | 17                          | 15                    | 12            | 12                   | 32                     | IS: 3025(P-58)2006 |
| 7      | BOD( 3days @27° C | mg/lit   | <4                          | <4                    | <4            | <4                   | <4                     | IS: 3025(P-44)1993 |
| 8      | TDS               | mg/lit   | 523                         | 538                   | 414           | 624                  | 570                    | IS: 3025(P-16)1984 |
| 9      | Chlorides         | mg/lit   | 163                         | 128                   | 120           | 138                  | 165                    | IS: 3025(P-32)1988 |
| 10     | Hardness          | mg/lit   | 270                         | 315                   | 381           | 509                  | 554                    | IS: 3025(P-21)1983 |
| 11     | Calcium           | mg/lit   | 64                          | 89                    | 92            | 143                  | 129                    | IS: 3025(P-40)1991 |
| 12     | Magnesium         | mg/lit   | 27                          | 23                    | 37            | 37                   | 56                     | IS: 3025(P-46)1994 |
| 13     | Sodium            | mg/lit   | 82.1                        | 90.7                  | 78.1          | 119.5                | 139.1                  | IS: 3025(P-45)1993 |
| 14     | Potassium         | mg/lit   | 2.3                         | 2.5                   | 1.2           | 6.9                  | 4.6                    | IS: 3025(P-44)1993 |
| 15     | Sodium            | %        | 39.47                       | 38.13                 | 30.7          | 33.41                | 35.14                  | By calculation     |
| 16     | SAR               |          | 2.16                        | 2.21                  | 1.73          | 2.3                  | 2.57                   | By calculation     |
| 17     | RSC               | meq/l    | -1.65                       | -1.76                 | -4.0          | -6.81                | -7.19                  | By calculation     |
| 18     | EC                | µmhos/cm | 829                         | 891                   | 610           | 905                  | 1080                   | IS: 3025(P-14)1984 |

❖



## ❖ Borewell Analysis report: Date of Sampling: 28.01.2020

| Sl No | Test parameter    | Unit     | Borewell Near Havelli Saidapur | CBSE School Borewell Saidapur | Sidappa S Kuribagi, Borewell No -1 Handigund | Sidappa S Kuribagi Borewell No-2 Handigund | Azadnagar Borewell Saidapur | Sujata Bhadrashetty Handigund |
|-------|-------------------|----------|--------------------------------|-------------------------------|--|--|-----------------------------|-------------------------------|
|       |                   |          | 1                              | 2                             | 3  | 4  | 5                           | 6                             |
| 1     | Color             | Hazen    | <5                             | <5                            | <5   | <5   | <5                          | <5                            |
| 2     | Odor              |          | Agreeable                      | Agreeable                     | Agreeable                                    | Agreeable                                  | Agreeable                   | Agreeable                     |
| 3     | pH                |          | 7.04                           | 7.03                          | 7.01   | 8.28                                       | 8.33                        | 7.80                          |
| 4     | Turbidity         | NTU      | 0.1                            | 0.1                           | 0.2  | 0.7  | 0.2                         | 0.1                           |
| 5     | Total Alkalinity  | mg/lit   | 250                            | 150                           | 210  | 150  | 190                         | 200                           |
| 6     | COD               | mg/lit   | 23                             | 15                            | 33   | 34   | 13                          | 21                            |
| 7     | BOD( 3days @270 C | mg/lit   | < 4                            | < 4                           | < 4  | < 4  | < 4                         | < 4                           |
| 8     | TDS               | mg/lit   | 710                            | 510                           | 930  | 940  | 610                         | 631                           |
| 9     | Chlorides         | mg/lit   | 199                            | 100                           | 310  | 342  | 119                         | 89                            |
| 10    | Hardness          | mg/lit   | 740                            | 230                           | 1220   | 1060                                       | 510                         | 570                           |
| 11    | Calcium           | mg/lit   | 192                            | 68                            | 232  | 216  | 148                         | 161                           |
| 12    | Magnesium         | mg/lit   | 63                             | 15                            | 155  | 126  | 34                          | 41                            |
| 13    | Sodium            | mg/lit   | 68.4                           | 84.4                          | 69.9   | 69.2                                       | 62                          | 73.2                          |
| 14    | Potassium         | mg/lit   | 3.5                            | 5.4                           | 3.1  | 2.9  | 2.6                         | 3.0                           |
| 15    | %sodium           | %        | 16.68                          | 43.5                          | 11.07  | 12.42                                      | 20.82                       | 21.7                          |
| 16    | SAR               |          | 1.09                           | 2.41                          | 0.87   | 0.92                                       | 1.19                        | 1.33                          |
| 17    | RSC               | meq/l    | - 9.85                         | -1.65                         | -20.31                                       | -18.3                                      | -6.43                       | -7.46                         |
| 18    | EC                | µmhos/cm | 1190                           | 848                           | 1830   | 1890                                       | 962                         | 1131                          |



## ❖ Borewell Analysis report:

Date of Sampling: 28.01.2020

| Sl No | Test parameter    | Unit     | Girish R Kulkarni Handigund | Ulleppa Chanal Handigund | Test Method         |
|-------|-------------------|----------|-----------------------------|--------------------------|---------------------|
|       |                   |          | 7                           | 8                        |                     |
| 1     | Color             | Hazen    | <5                          | <5                       | IS: 3025(P-04)1983  |
| 2     | Odor              |          | Agreeable                   | Agreeable                | IS: 3025(P-05) 1983 |
| 3     | pH                |          | 8.17                        | 8.20                     | IS: 3025(P-11)1983  |
| 4     | Turbidity         | NTU      | 0.2                         | 0.1                      | IS: 3025(P-10)1984  |
| 5     | Total Alkalinity  | mg/lit   | 220                         | 220                      | IS: 3025(P-23) 1986 |
| 6     | COD               | mg/lit   | 35                          | 31                       | IS: 3025(P-58) 2006 |
| 7     | BOD( 3days @270 C | mg/lit   | < 4                         | < 4                      | IS: 3025(P-44)1993  |
| 8     | TDS               | mg/lit   | 852                         | 938                      | IS: 3025(P-16) 1984 |
| 9     | Chlorides         | mg/lit   | 239                         | 428                      | IS: 3025(P-12)1988  |
| 10    | Hardness          | mg/lit   | 920                         | 1270                     | IS: 3025(P-21)1983  |
| 11    | Calcium           | mg/lit   | 248                         | 325                      | IS: 3025(P-40) 1991 |
| 12    | Magnesium         | mg/lit   | 73                          | 230                      | IS: 3025(P-46)1994  |
| 13    | Sodium            | mg/lit   | 72.1                        | 73.6                     | IS: 3025(P-45) 1993 |
| 14    | Potassium         | mg/lit   | 3.1                         | 3.2                      | IS: 3025(P-44)1993  |
| 15    | %sodium           | %        | 14.5                        | 8.33                     | By calculation      |
| 16    | SAR               |          | 1.03                        | 0.76                     | By calculation      |
| 17    | RSC               | meq/l    | -14.08                      | -31.01                   | By calculation      |
| 18    | EC                | µmhos/cm | 1960                        | 2150                     | IS: 3025(P-14)1984  |



## ❖ Borewell Analysis report:

Date of Sampling: 22.02.2020

| Sl No | Test parameter    | Unit     | Sidappa K Biradi Bisnal | Ishwar R Teral Bisnal | Test Borewell No-2 | Test Borewell No-4 Saidapur | Shankar P Maygur Bisnal | KIAAR Premises Bisnal |
|-------|-------------------|----------|-------------------------|-----------------------|--------------------|-----------------------------|-------------------------|-----------------------|
|       |                   |          | 1                       | 2                     | 3                  | 4                           | 5                       | 6                     |
| 1     | Color             | Hazen    | <5                      | <5                    | <5                 | <5                          | <5                      | <5                    |
| 2     | Odor              |          | Agreeable               | Agreeable             | Agreeable          | Agreeable                   | Agreeable               | Agreeable             |
| 3     | pH                |          | 7.52                    | 7.48                  | 7.50               | 6.77                        | 7.21                    | 7.42                  |
| 4     | Turbidity         | NTU      | 0.1                     | 0.1                   | 0.1                | 0.1                         | 0.1                     | 0.1                   |
| 5     | Total Alkalinity  | mg/lit   | 150                     | 220                   | 240                | 120                         | 90                      | 250                   |
| 6     | COD               | mg/lit   | 27                      | 34                    | 33                 | 29                          | 17                      | 30                    |
| 7     | BOD( 3days @270 C | mg/lit   | < 4                     | < 4                   | < 4                | < 4                         | < 4                     | < 4                   |
| 8     | TDS               | mg/lit   | 390                     | 460                   | 690                | 830                         | 340                     | 440                   |
| 9     | Chlorides         | mg/lit   | 84                      | 80                    | 115                | 260                         | 40                      | 80                    |
| 10    | Hardness          | mg/lit   | 320                     | 410                   | 590                | 800                         | 320                     | 470                   |
| 11    | Calcium           | mg/lit   | 112                     | 144                   | 200                | 269                         | 160                     | 164                   |
| 12    | Magnesium         | mg/lit   | 10                      | 24                    | 28                 | 31                          | 20                      | 15                    |
| 13    | Sodium            | mg/lit   | 46                      | 32.7                  | 69.3               | 91                          | 97.8                    | 39.5                  |
| 14    | Potassium         | mg/lit   | 2.1                     | 1.8                   | 3.6                | 3.2                         | 3.3                     | 4.6                   |
| 15    | %sodium           | %        | 23.62                   | 13.37                 | 19.35              | 19.77                       | 30.44                   | 15.26                 |
| 16    | SAR               |          | 1.11                    | 0.66                  | 1.19               | 1.4                         | 1.93                    | 0.79                  |
| 17    | RSC               | meq/l    | -3.43                   | -4.8                  | -7.53              | -13.63                      | -7.86                   | -4.45                 |
| 18    | EC                | µmhos/cm | 745                     | 657                   | 1191               | 1436                        | 2250                    | 718                   |





## ❖ Borewell Analysis report:

Date of Sampling: 22.02.2020

| Sl No | Test parameter    | Unit     | Prakash D Naik Bisnal | Hanumanth S Naik Bisnal | Nagappa Satyappa Banaj Bisnal | Test Method         |
|-------|-------------------|----------|-----------------------|-------------------------|-------------------------------|---------------------|
|       |                   |          | 7                     | 8                       | 9                             |                     |
| 1     | Color             | Hazen    | <5                    | <5                      | <5                            | IS: 3025(P-04)1983  |
| 2     | Odor              |          | Agreeable             | Agreeable               | Agreeable                     | IS: 3025(P-05) 1983 |
| 3     | pH                |          | 7.09                  | 7.09                    | 7.22                          | IS: 3025(P-11)1983  |
| 4     | Turbidity         | NTU      | 0.1                   | 0.1                     | 0.1                           | IS: 3025(P-10)1984  |
| 5     | Total Alkalinity  | mg/lit   | 270                   | 250                     | 300                           | IS: 3025(P-23) 1986 |
| 6     | COD               | mg/lit   | 34                    | 26                      | 31                            | IS: 3025(P-58) 2006 |
| 7     | BOD( 3days @270 C | mg/lit   | < 4                   | < 4                     | < 4                           | IS: 3025(P-44)1993  |
| 8     | TDS               | mg/lit   | 610                   | 518                     | 626                           | IS: 3025(P-16) 1984 |
| 9     | Chlorides         | mg/lit   | 149                   | 106                     | 134                           | IS: 3025(P-32)1988  |
| 10    | Hardness          | mg/lit   | 730                   | 490                     | 660                           | IS: 3025(P-21)1983  |
| 11    | Calcium           | mg/lit   | 212                   | 119                     | 205                           | IS: 3025(P-40) 1993 |
| 12    | Magnesium         | mg/lit   | 49                    | 47                      | 36                            | IS: 3025(P-46)1994  |
| 13    | Sodium            | mg/lit   | 56.9                  | 90.8                    | 71                            | IS: 3025(P-45) 1993 |
| 14    | Potassium         | mg/lit   | 1.8                   | 4.1                     | 1.8                           | IS: 3025(P-44)1993  |
| 15    | %sodium           | %        | 14.44                 | 28.49                   | 18.91                         | By calculation      |
| 16    | SAR               |          | 0.91                  | 1.78                    | 1.2                           | By calculation      |
| 17    | RSC               | meq/l    | -9.28                 | -4.86                   | -7.28                         | By calculation      |
| 18    | EC                | µmhos/cm | 976                   | 835                     | 910                           | IS: 3025(P-14)1984  |



❖ Soil Sample:- Sample collected on 19.10.2019

| Sl No | Test parameter         | Unit     | Bharmappa H Sanadi | Mahadev Ajjapagoal | Bhimappa Udappgaol | Mayappa Sanadi | Test Method |
|-------|------------------------|----------|--------------------|--------------------|--------------------|----------------|-------------|
|       |                        |          | 1                  | 2                  | 3                  | 4              |             |
| 1     | pH                     |          | 7.79               | 6.86               | 6.88               | 7.23           | PP-77-78    |
| 2     | Conductivity           | µmhos/cm | 0.248              | 0.634              | 0.511              | 0.504          | PP-81-82    |
| 3     | Mineralizable Nitrogen | Kg/ha    | 0.0053             | 0.0041             | 0.0032             | 0.0067         | PP-89-91    |
| 4     | Available Phosphorus   | Kg/ha    | 69                 | 64                 | 57                 | 49             | PP-96-98    |
| 5     | Available Potassium    | Kg/ha    | 630                | 790                | 880                | 370            | PP -99-100  |
| 6     | Organic Carbon         | %        | 0.73               | 0.82               | 1.16               | 0.86           | PP -84-85   |
| 7     | Calcium                | %        | 3.58               | 3.17               | 2.91               | 2.46           | PP-103-104  |
| 8     | Magnesium              | %        | 0.42               | 0.29               | 0.48               | 0.34           | PP-104-105  |

❖ Soil Sample :- Sample collected on: 12.12.2019

| Sl No | Test parameter       | Unit     | Ishwar Terdal | KJAAR Campus | Basappa R Wali | Hanumanth S Banaj | Test Method |
|-------|----------------------|----------|---------------|--------------|----------------|-------------------|-------------|
|       |                      |          | 1             | 2            | 3              | 4                 |             |
| 1     | pH                   |          | 8.37          | 8.19         | 7.82           | 7.76              | PP-77-78    |
| 2     | Conductivity         | µmhos/cm | 0.348         | 0.436        | 0.336          | 0.412             | PP-81-82    |
| 3     | Available Nitrogen   | Kg/ha    | 0.0045        | 0.0033       | 0.0051         | 0.064             | PP-89-91    |
| 4     | Available Phosphorus | Kg/ha    | 25            | 43           | 47             | 51                | PP-96-98    |
| 5     | Available Potassium  | Kg/ha    | 380           | 680          | 510            | 490               | PP -99-100  |
| 6     | Organic Carbon       | %        | 0.59          | 0.74         | 0.83           | 0.69              | PP -84-85   |
| 7     | Calcium              | %        | 2.23          | 2.05         | 1.56           | 2.82              | PP-103-104  |
| 8     | Magnesium            | %        | 0.15          | 0.14         | 0.19           | 0.23              | PP-104-105  |



❖ Bio- organic Manure (Bhumilabh) Analysis Report:-

| Sl No | Parameter                | Unit     | Result     |            |            |
|-------|--------------------------|----------|------------|------------|------------|
|       |                          |          | 12.12.2019 | 28.01.2020 | 22.02.2020 |
| 1     | Moisture                 | %        | 36.20      | 34.26      | 33.15      |
| 2     | pH(Saturated)            |          | 6.80       | 6.83       | 6.71       |
| 3     | Total Volatile Solids    | %        | 64.19      | 63.02      | 63.37      |
| 4     | Residual ash             | %        | 35.81      | 36.98      | 36.63      |
| 5     | Nitrogen                 | %        | 1.68       | 1.65       | 1.68       |
| 6     | Phosphorus               | %        | 1.75       | 1.79       | 1.81       |
| 7     | Potassium                | %        |            | 3.23       | 3.29       |
| 8     | Organic carbon           | %        | 29.34      | 28.79      | 28.51      |
| 9     | C/N ratio                |          | 17.46      | 17.44      | 16.97      |
|       | Leachate Water(Filtrate) |          |            |            |            |
| 10    | pH                       |          | 7.54       | 7.59       | 7.52       |
| 11    | COD                      | mg/lit   | 236        | 231        | 229        |
| 12    | BOD                      | mg/lit   | 28         | 27         | 26         |
| 13    | Chlorides                | mg/lit   | 146        | 142        | 145        |
| 14    | EC                       | µmhos/cm | 1530       | 1524       | 1540       |



❖ Condensate polishing unit (BTP) Inlet & Outlet parameter details: Date: 12.12.2019

| Sl No | Test Parameter         | Unit   | Inlet | Outlet | Test Method                |
|-------|------------------------|--------|-------|--------|----------------------------|
| 1     | pH                     | -      | 3.31  | 7.34   | IS: 3025(P-11)1986         |
| 2     | Chemical Oxygen demand | mg/lit | 191   | 103    | IS: 3025(P-58) 2006        |
| 3     | BOD (3days @ 27 OC)    | mg/lit | 87    | 36     | IS:3025(P-44)1993          |
| 4     | Total dissolved solids | mg/lit | 310   | 298    | IS:3025(P-16)1984          |
| 5     | Total suspended solids | mg/lit | 68    | 37     | IS:3025(P-17)1984          |
| 6     | Chloride as Cl-        | mg/lit | 104   | 40     | IS:3025(P-32)1988          |
| 7     | Sulphate as SO4        | mg/lit | 83    | 51     | IS:3025(P-24)1986          |
| 8     | Oil & Grease           | mg/lit | ND    | ND     | IS:3025(P-39)1993(RA 2003) |

❖ Boiler Ash analysis report:

| Sl No | Parameter             | Unit | Result     |            |            |
|-------|-----------------------|------|------------|------------|------------|
|       |                       |      | ESP Ash    | Bottom Ash | ESP Ash    |
|       |                       |      | 28.01.2020 | 28.01.2020 | 22.02.2020 |
| 1     | Moisture              | %    | 0.12       | 0.15       | 0.11       |
| 2     | pH(Saturated)         |      | 12.87      | 11.84      | 12.85      |
| 3     | Total Volatile Solids | %    | 1.43       | 1.69       | 1.44       |
| 4     | Residual ash          | %    | 98.57      | 98.31      | 98.56      |
| 5     | Nitrogen              | %    | 1.04       | 1.12       | 1.07       |
| 6     | Phosphorus as P2O5    | %    | 1.62       | 1.67       | 1.54       |
| 7     | Potassium as K2O      | %    | 22.32      | 5.07       | 22.91      |
| 8     | Organic carbon        | %    | 6.9        | 6.82       | 7.2        |





❖ Press mud Analysis

| Sl No | Parameter             | Unit | Result     |            |
|-------|-----------------------|------|------------|------------|
|       |                       |      | 28.01.2020 | 22.02.2020 |
| 1     | Moisture              | %    | 69.29      | 65.81      |
| 2     | pH(Saturated)         |      | 4.36       | 4.39       |
| 3     | Total Volatile Solids | %    | 90.56      | 90.68      |
| 4     | Residual ash          | %    | 9.44       | 9.32       |
| 5     | Nitrogen              | %    | 2.34       | 2.31       |
| 6     | Phosphorus as P2O5    | %    | 1.6        | 1.72       |
| 7     | Potassium as K2O      | %    | 0.41       | 0.45       |
| 8     | Organic carbon        | %    | 46.96      | 47.12      |

❖ Yeast Sludge Analysis

| Sl No | Parameter             | Unit | Result     |
|-------|-----------------------|------|------------|
|       |                       |      | 28.01.2020 |
| 1     | Moisture              | %    | 87.14      |
| 2     | pH(Saturated)         |      | 4.31       |
| 3     | Total Volatile Solids | %    | 88.16      |
| 4     | Residual ash          | %    | 11.84      |
| 5     | Nitrogen              | %    | 1.03       |
| 6     | Phosphorus as P2O5    | %    | 1.29       |
| 7     | Potassium as K2O      | %    | 1.37       |
| 8     | Organic carbon        | %    | 41         |



## ENVIRONMENTAL STATEMENT IN BRIEF

Name of Factory: GODAVARI BIOREFINERIES LTD.,  
(Distillery Division)  
SAMEERWADI. 587 316,  
DIST.: BAGALKOT,  
KARNATAKA (STATE).

### Units of effluent treatment plant:

**Distillery:** Bio-digesters, Multiple Effect Evaporators, Biocomposting & Incineration boiler

1) Whether untreated, treated effluents are analyzed regularly?

A: Yes, Untreated, treated effluents are analyzed usually once in a month from third agency.

2) Whether treated effluent is used for irrigation purpose and how much land is used for irrigation?

A : No. 1) Biomethanisation ,Multi effect evaporation followed by 'Bio-Composting  
2) Two stage Multiple Effect Evaporation followed by Incineration Boiler  
technique is adopted.

3) Whether soil and ground water are tested regularly?

R: Yes, soil and ground water are tested once in a month. Results are enclosed.

4) Whether stack monitoring arrangement have been made? And if so whether the monitoring is done regularly as per the consent condition?

R: Yes, Results enclosed.

5) What is the capital cost of pollution control measures since the inception of the plant and also mention the details of operation and maintenance cost.

Capital Cost : in lakhs

|   |           |
|---|-----------|
| 1) Primary Effluent treatment plant (Biomethanisation)    | : 680.00  |
| 2) Secondary effluent Treatment plant ( Biocompost Plant) | : 820.00  |
| 3) Integrated Evaporation(I <sup>st</sup> Stage)          | : 570.00  |
| 4) II <sup>nd</sup> Stage Evaporation                     | : 1180.00 |
| 5) SS Techno Evaporation                                  | : 920.00  |
| 6) Incineration Boiler                                    | : 2750.00 |
| 7) Biological Treatment plant (CPU)                       | : 650.00  |
| Total   | : 7570.00 |

Operation and maintenance cost per annum:

|                                    |          |
|------------------------------------|----------|
| 1) Primary                         | : 101.00 |
| 2) Secondary                       | : 425.00 |
| 3) Air pollution control equipment | : 12.00  |

6) How many trees are planted in the factory premises?

R: About 10000 tree plantation is under progress in the factory premises. About 6.5 acres of land is covered under greenbelt.

  
ENVIRONMENTAL OFFICER

  
GENERAL MANAGER

