**BIHAR CEMENT PLANT**
(A Unit of Shree Cement Ltd.)
Jasoia More, BIADA Industrial Growth Centre,
Post/P.S.- Aurangabad (Bihar)-824101, India
Tel. : 06186-292294, 292295, 292296
E-mail Id : shreebcgu@shreecementltd.com
CIN:L26943RJ1979PLC001935

SCL/Bihar/Env/2019-20/221

Date: 25/09/2019

To,
The Member Secretary,
Bihar State Pollution Control Board
Parivesh Bhawan, N.S.B-2
Patliputra Industrial Area,
Patna (Bihar) - 800010

Sub: Environment Statement Report of Clinker Grinding Unit "M/s Bihar Cement Plant, (A Unit of Shree Cement Ltd.)" Aurangabad, Bihar for the period of April, 2018 to March, 2019 under Environment Protection Act, 1986

Ref: Consent to operate letter no. T – 1041 and T – 1042, dated 17/02/2018.

Sir,

We are submitting herewith the Annual Environment Statement Report for the period from April 2018 to March 2019 for M/s Bihar Cement Plant (A Unit of Shree Cement Ltd.) situated at Jasoia More, BIADA, Industrial Growth Centre, Aurangabad, Tehsil & Dist.-Aurangabad (Bihar).

This is for your kind information please.

Thanking you.

Yours faithfully,
For BIHAR CEMENT PLANT
(A Unit of Shree Cement Ltd.)

GMKhare
(Gyanendra Mohan Khare)
**Unit in charge**

Copy to: The Additional Principal Chief Conservator of Forest (APCCF), Ministry of Environment, Forests & Climate Change, Regional Office, (ECZ), Bungalow No. A – 2, Shyamali Colony, Ranchi – 834002.



**Office :** BIHAR CEMENT PLANT (A Unit of Shree Cement Ltd.)
Jasoia More, BIADA Industrial Growth Centre, Post/P.S. - Aurangabad (Bihar)-824101, India
Tel. : 06186-292294, 292295, 292296, E-mail Id : shreebugu@shreecementltd.com

# ENVIRONMENT STATEMENT

**FORM-V**
**(See Rule-14)**
**(APRIL, 2018 to MARCH, 2019)**

## PART – A

| | | |
|---|---|---|
| 1. | Name and address of the Owner / Occupier of the Industry operation or process | M/s Bihar Cement Plant (A Unit of Shree Cement Ltd.), Jasoia More, BIADA, Industrial Growth Centre, Aurangabad, Tehsil & Dist. Aurangabad, Bihar |
| 2. | Industry Category<br>Primary (S.T.C. Code)<br>Secondary (S.T.C. Code) | Red Category |
| 3. | **Production Capacity**<br><br>Cement :<br><br>D.G. Set : | <br><br>4.5 Million TPA<br><br>2 x 500 KVA |
| 4. | Year of Establishment | 2014 |
| 5. | Date of the last Environmental Statement submitted | 27 September 2018 |

## PART – B

WATER AND RAW MATERIAL CONSUMPTION

(I) WATER CONSUMPTION:

| | | |
|---|---|---|
| Process | : | N.A. (As plant is based on dry Process technology) |
| Cooling and Dust Suppression | : | 46076 KL |
| Domestic | : | 14362 KL |

| Name of Product | Cooling & Dust Suppression Water Consumption per Unit of Product Output | |
|---|---|---|
| | During Previous Financial Year (2017-18) | During Current Financial Year (2018-19) |
| Cement | 0.0181 KL/ MT of Cement | 0.0174 KL/ MT of Cement |

(II) RAW MATERIAL CONSUMPTION: (CEMENT PLANT)

| Name of Raw Material | Name of Product | Consumption of Raw Material Per Unit of Output (Cement) | |
|---|---|---|---|
| | | During Previous Financial Year (2017-18) Metric Tons | During Current Financial Year (2018-19) Metric Tons |
| 1. Clinker | Cement | 0.532 | 0.538 |
| 2. Gypsum | | 0.042 | 0.087 |
| 3. Fly Ash | | 0.317 | 0.295 |
| 4. Slag | | 0.109 | 0.080 |

RAW MATERIAL CONSUMPTION: (HAG)

| Name of Raw Material | Name of Product | Consumption of Raw Material per unit of Output (Cement) | |
|---|---|---|---|
| | | During Previous Financial Year (2017-18) Metric Tons | During Current Financial Year (2018-19) Metric Tons |
| Fuel / Coal | Heat | 0.0053 | 0.0048 |

RAW MATERIAL CONSUMPTION: (2 x 500 KVA D.G. SET)

| Name of Raw Material | Name of Product | Consumption of Raw Material per unit of Output (Liters / KWH) | |
|---|---|---|---|
| | | During Previous Financial year | During Current Financial year |
| Fuel/ Diesel | Power | 0.334 | 0.460 |

(III) POWER CONSUMPTION (KWH/T OF CEMENT):

| During Previous Financial Year (2017-18) | During Current Financial Year (2018-19) |
|---|---|
| 32.30 | 33.43 |

(IV) TOTAL CEMENT PRODUCTION (MT):

| During Previous Financial Year (2017-18) | During Current Financial Year (2018-19) |
|---|---|
| 2841141 | 2643278 |

(V) TOTAL D.G. POWER PRODUCTION (KWH):

| During Previous Financial Year (2017-18) | During Current Financial Year (2018-19) |
|---|---|
| 24080 | 12608 |

## PART – C

DISCHARGED TO ENVIRONMENTAL / UNIT OF OUTPUT

| Pollutants | Quantity of Pollutants Discharged | Concentration of Pollutants in Discharge (Mass/Value) | Percentage of variation from prescribed standard with reasons |
|---|---|---|---|
| (a) | Water | The plant is being operated on dry process technology, hence no liquid effluent is generated from the Clinker Grinding Unit. The waste water generated from the township, office toilets, canteen and guest house are being treated at sewage treatment plant (STP). The STP treated water is being utilized in horticulture activities and also to flush water in toilets. Monthly quantity and quality of STP treated water is given in **Annexure -I** | |
| (b) | Air | Please refer **Annexures - II & III** | |
| (c) | Noise | Please refer **Annexure - IV** | |

## PART – D

HAZARDOUS WASTE

(As specified under Hazardous Wastes (Management, Handling & Trans boundary Movement) Rules, 2016

| Hazardous Waste | Total Quantity (Liters.) | |
|---|---|---|
| | During Previous Financial Year (2017-18) | During Current Financial Year (2018-19) |
| a)From Process Cement manufacturing (Grinding) is based on "Dry Process" No Hazardous waste is generated from the process except used oil which is drained from Machinery / Equipments) | Total quantity generated = 2.4 KL<br>Old stock = Zero<br>Total disposal= 2.4 KL<br>Balance quantity= Zero | Total quantity generated = 3.6 KL<br>Old stock = Zero<br>Total disposal= 3.6 KL<br>Balance quantity= Zero |
| (b) From Pollution Control Facilities | N.A. | N.A. |

## PART – E

SOLID WASTE

| | | Total Quantity | |
|---|---|---|---|
| | | During Previous Financial Year | During Current Financial Year |
| (a) | From Process | N.A. | N.A |
| (b) | From Pollution Control Facility | Dust collected in the Bag Houses and Bag Filters are recycled to the system. | |
| (c) | 1) Quantity rejected or re-utilized within the unit | 100% | 100% |
| | 2) Sold | Nil | Nil |
| | 3) Disposed | Nil | Nil |

## PART – F

Please specify the characterization (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for the categories of wastes:

(I) Hazardous Waste:-

No Hazardous waste is generated from the process except used oil which is drained from machineries / equipment. Used oil is sold to the CPCB/BSPCB authorized recycler.

(II) Battery waste:-

As specified under Batteries (Management & Handling) Amendment Rules, 2010, Details of Lead-Acid batteries are as under:-

**Year 2018-19**

| **Number of new batteries of different categories purchased from the manufacturer / importer / dealer or any other agency.** | **During 1st April, 2018 to 31st March, 2019** | |
|---|---|---|
| **Category:** | **(i) No. of Batteries** | **(ii) Approximate Weight (In Metric Tonnes)** |
| **(i) Automotive** | | |
| a) Four wheeler | Nil | Nil |
| b) Two wheeler | Nil | Nil |
| **(ii) Industrial** | | |
| a) UPS | 22 | NA |
| b) Motive Power | 03 | NA |
| c) Stand –by | Nil | Nil |
| **(iii) Others** | 03 | NA |
| **Total** | **28** | **NA** |
| **Number of used batteries of categories and Tonnage of scrap sent to manufacturer/ dealer/importer/registered recycler/or any other agency to whom the used batteries scrap was sent.** | **During 1st April, 2018 to 31st March, 2019** | |
| **Category:** | **(i) No. of Batteries** | **(ii) Approximate Weight (In Metric Tonnes)** |
| **(i) Automotive** | | |
| a) Four wheeler | Nil | Nil |
| b) Two wheeler | Nil | Nil |
| **(ii) Industrial** | | |
| a) UPS | Nil | Nil |
| b) Motive Power | Nil | Nil |
| c) Stand –by | Nil | Nil |
| **(iii) Others** | Nil | Nil |
| **Total** | **Nil** | **Nil** |

(III) Bio-Medical Waste:

Bio-Medical Waste generated during current financial year April, 2018 to March, 2019 under the Bio-Medical Waste (Management & Handling) Rules, 2016 are as follows.

**Bio-Medical waste quantity generated during 2018-19**

| S. No. | Month | Bio-Medical Waste Generation & Disposal (Kg) |
|---|---|---|
| 1 | April-18 | 0.240 |
| 2 | May-18 | 0.245 |
| 3 | June-18 | 0.280 |
| 4 | July-18 | 0.295 |
| 5 | August-18 | 0.260 |
| 6 | September-18 | 0.155 |
| 7 | October-18 | 0.70 |
| 8 | November-18 | 0.105 |
| 9 | December-18 | 0.180 |
| 10 | January-19 | 0.160 |
| 11 | February-19 | 0.115 |
| 12 | March-19 | 0.125 |
| | **TOTAL** | **2.860** |

We are registered with M/s Synergy Waste Management (P) Ltd. for proper treatment and disposal of the bio-medical waste.

(IV) E- Wastes:

| Source | Total Quantity | |
|---|---|---|
| | During Previous Financial Year | During Current Financial Year |
| From Process | Nil | Nil |
| From Pollution Control Facility | Nil | Nil |

(V) Solid Wastes: - N.A.

## PART – G

IMPACT OF THE POLLUTION CONTROL MEASURES ON CONSERVATION OF NATURAL RESOURCES AND CONSEQUENTLY ON THE COST OF PRODUCTION

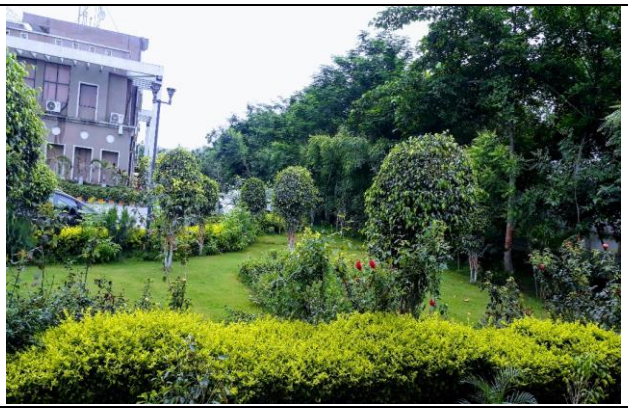
M/s Bihar Cement Plant, A Unit of Shree Cement Limited (Grinding Unit) is being operated on dry process technology, which is cost effective and environmentally clean technology. The advantage of dry process is also in fuel economy. The stack emissions from the plant are controlled by equipment like bag houses and bag filters installed at various material transfer points to clean the process and arrest the fugitive emissions. The particulate matter collected in the pollution control equipment is recycled in process and neutralizing the cost of operation of pollution control equipments and hence no cost impact on the production cost. Further fly ash and slag are being utilized in the production of cement thus eliminating the harmful impacts on environment.

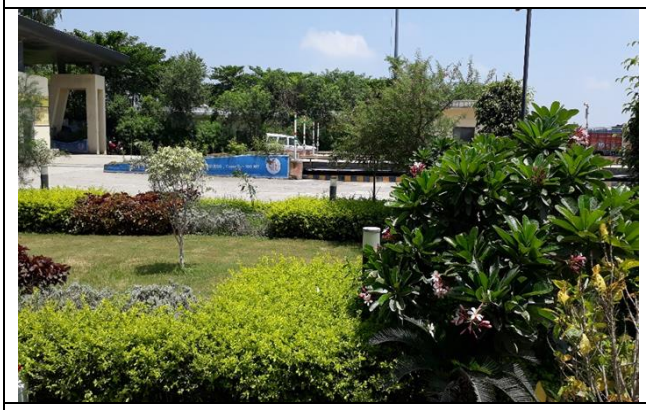
## PART – H

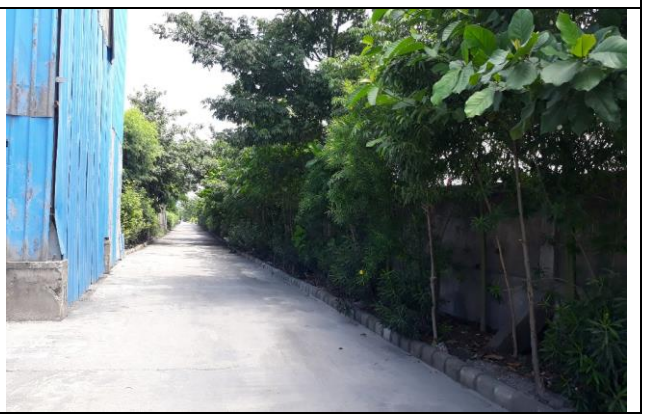
ADDITIONAL MEASURES / INVESTMENTS PROPOSAL FOR ENVIRONMENT PROTECTION INCLUDING ABATEMENT OF POLLUTION

Green belt development and tree plantation are our ongoing activity within the plant area and outside of the area. Every year plantation activities are being done to increase the bio-diversity of the area. Till 31st March 2019 we have covered 91088 $m^2$ area, around 26834 nos. of trees and shrubs with 24716 nos. survival with a survival rate of 92%, this is around 33 % green area of the total plant area. During the financial year 2019-20 we have a target of planting around 12000 nos. of tree species inside / outside of plant area.

**PLANTATION IN PLANT AREA**

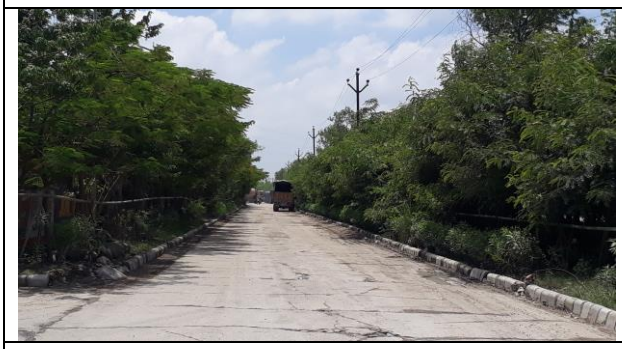


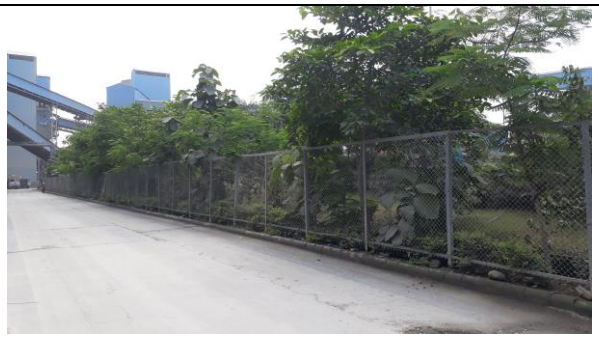


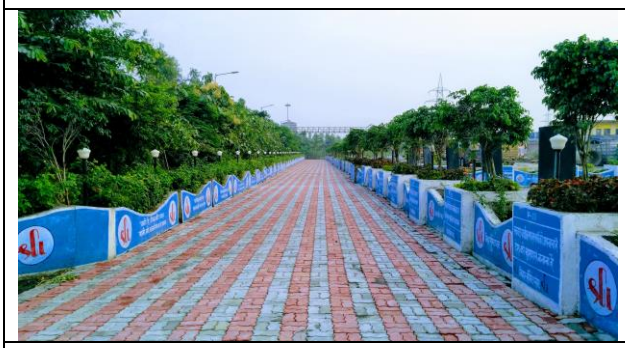


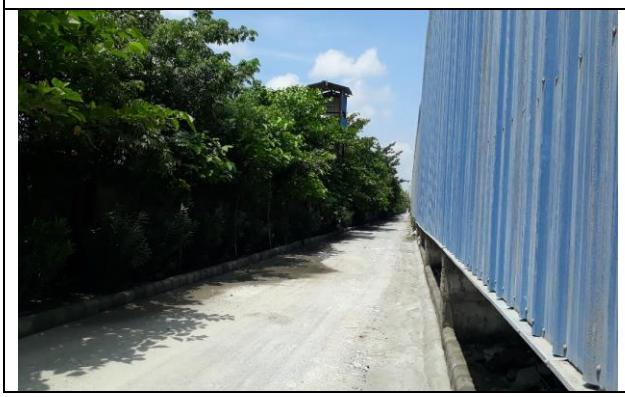
## RAIN WATER HARVESTING POND

## CONCRETED/ AAC BLOCK ROAD









## PART – I

ANY OTHER PARTICULATES FOR IMPROVING THE QUALITY OF ENVIRONMENT

1. We have full-fledged Environment Department with three separate cells, one for monitoring, one for maintenance of pollution control equipment and one for Green Belt development.
2. Regular monitoring of stack emissions, ambient air quality, ambient noise and ground water quality & levels. Data analysis is being done to further improve the environment quality of the plant area.
3. Maintenance Department is performing regular checking and scheduled maintenance of all the pollution control devices i.e. bag filters etc.
4. Civil and Personal & Administration departments are taking care of entire House keeping of the Plant area.
5. To further reduce fugitive emissions, we have a big size truck mounted and 02 nos of small 3D TPS sweeping machines for regular sweeping and cleaning of paved area. All the material transfer belts are covered and transfer points are equipped with pollution control equipment. Truck parking area and vehicle movement area are concreted to avoid any fugitive emissions.
6. Horticulture section is taking care of tree plantation and green belt development. Every year we are planting tree species inside and outside of the plant area.
7. We have installed Continuous Emission Monitoring System (CEMS) to display the data on CPCB and BSPCB servers.
8. Domestic waste water is being treated at Sewage Treatment Plant (STP). This treated water is being utilized in plantation & flushing.
9. We are maintaining Zero Liquid Discharge (ZLD) from our premises.
10. We create environment awareness for all our stakeholders through meetings, training programs, world environment day celebrations etc.

**On support of above, we are enclosing herewith following Annexures:-**

| | | |
|---|---|---|
| **Annexure-I** | **:** | Monthly treated domestic effluent Report for the year 2018-19 |
| **Annexure-II** | **:** | Ambient Air Quality Monitoring Report for the year 2018-19 |
| **Annexure-III** | **:** | Stack Emission Level Monitoring Report for the year 2018-19 |
| **Annexure-IV** | **:** | Ambient Noise level Monitoring Report for the year 2018-19 |
| **Annexure-V** | **:** | Yearly plantation Report & for the year 2018-19 |

## MONTHLY TREATED DOMESTIC EFFLUENT

| QUANTITY OF STP TREATED DOMESTIC EFFLUENT(Monthly) | | |
|---|---|---|
| YEAR: 2018-19 | | |
| **MONTH** | **MONTHLY VOLUME (KL)** | **DAILY AVERAGE (KLD)** |
| April,18 | - | - |
| May,18 | - | - |
| June,18 | - | - |
| July,18 | 250 | 8.06 |
| August,18 | 412 | 13.29 |
| September,18 | 540 | 18.00 |
| October,18 | 428 | 13.81 |
| November,18 | 310 | 10.33 |
| December,18 | 359 | 11.58 |
| January,19 | 487 | 15.71 |
| February,19 | 607 | 21.68 |
| March,19 | 516 | 16.65 |
| **Total** | **3909** | **14.27** |

| QUALITY OF STP TREATED DOMESTIC EFFLUENT | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| YEAR: 2018-19 | | | | | | | | | | | |
| Parameters | Prescribed Standard Limit (mg/l) except pH | Observed value(mg/L) except pH | | | | | | | | | |
| | | **June 18** | **July 18** | **Aug 18** | **Sep 18** | **Oct 18** | **Nov 18** | **Dec 18** | **Jan 19** | **Feb 19** | **Mar 19** |
| pH | 5.5-9.0 | **6.87** | **7.25** | **7.13** | **6.79** | **7.18** | **6.84** | **7.11** | **6.97** | **7.13** | **7.21** |
| Total Suspended Solids | 100.0 | **32.0** | **56.0** | **44.0** | **28.0** | **40.0** | **32.0** | **36.0** | **48.0** | **56.0** | **42.0** |
| Oil and Grease (O&G) | 10.0 | **3.4** | **1.6** | **2.1** | **1.3** | **<1.0** | **<1.0** | **<1.0** | **1.5** | **1.9** | **1.2** |
| B.O.D. (3 days at 27°C) | 30.0 | **24** | **16.0** | **21.0** | **18.0** | **26.0** | **22.0** | **17.0** | **23.0** | **25.0** | **21.0** |
| C.O.D | 250.0 | **88** | **60.0** | **76.0** | **64.0** | **112.0** | **96.0** | **60.0** | **76.0** | **96.0** | **68.0** |
| Total Residual Chlorine as Cl | 1.0 | **<0.1** | **<0.1** | **<0.1** | **<0.1** | **<0.1** | **<0.1** | **<0.1** | **<0.1** | **<0.1** | **<0.1** |
| Chloride as Cl | | **64** | **42.0** | **58.0** | **40.0** | **52.0** | **36.0** | **24.0** | **40.0** | **36.0** | **48.0** |
| Sulphide as S | 2.0 | **<0.1** | **<0.1** | **<0.1** | **<0.1** | **<0.1** | **<0.1** | **<0.1** | **<0.1** | **<0.1** | **<0.1** |
| Ammonical Nitrogen as N | 50.0 | **16** | **8.0** | **11.0** | **15.0** | **21.0** | **12.0** | **8.0** | **15.0** | **18.0** | **11.0** |
| Total Kjeldahl Nitrogen as N | 100.0 | **31** | **14.0** | **20.0** | **28.0** | **44.0** | **25.0** | **13.0** | **27.0** | **31.0** | **24.0** |

**ANNEXURE-II**

## AMBIENT AIR QUALITY (µg/m³) FOR YEAR 2018-19

| Location Month | Plant boundary towards main gate / NH - 98 | | | | Plant boundary towards Hostel | | | | Plant boundary towards Water harvesting pond | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PM10 | PM2.5 | SO2 | NO2 | PM10 | PM2.5 | SO2 | NO2 | PM10 | PM2.5 | SO2 | NO2 |
| Apr-18 | 65 | 46 | 11 | 24 | 57 | 36 | 10 | 16 | 56 | 34 | 6 | 12 |
| May-18 | 58 | 39 | 14 | 18 | 58 | 30 | 9 | 18 | 54 | 29 | 9 | 16 |
| June-18 | 56 | 33 | 16 | 23 | 56 | 37 | 12 | 19 | 54 | 34 | 11 | 14 |
| July-18 | 55 | 31 | 12 | 21 | 55 | 20 | 9 | 15 | 51 | 27 | 8 | 17 |
| Aug-18 | 55 | 33 | 17 | 22 | 54 | 27 | 8 | 19 | 52 | 25 | 12 | 19 |
| Sept-18 | 59 | 37 | 19 | 18 | 55 | 33 | 11 | 17 | 55 | 36 | 10 | 21 |
| Oct-18 | 68 | 55 | 10.6 | 21 | 64 | 46 | 11.5 | 18 | 57 | 44 | 7.5 | 18.2 |
| Nov-18 | 63 | 34 | 11.2 | 19.6 | 60 | 32 | 11.9 | 19.4 | 56 | 31 | 9.3 | 17.6 |
| Dec-18 | 60 | 35 | 11.8 | 21.7 | 59 | 33 | 10.6 | 18.9 | 57 | 32 | 11.6 | 19.8 |
| Jan-19 | 59 | 41 | 10.9 | 19.9 | 58 | 38 | 12.1 | 20.3 | 55 | 36 | 10.9 | 20.4 |
| Feb-19 | 58 | 33 | 11.7 | 20.3 | 58 | 29 | 11.4 | 19.6 | 54 | 27 | 11.1 | 18.6 |
| Mar-19 | 62 | 34 | 11.6 | 18.4 | 59 | 31 | 10.9 | 19 | 55 | 36 | 10.4 | 19.6 |
| **Median** | **59** | **34.5** | **11.8** | **20.7** | **58** | **32.5** | **11** | **19** | **55** | **33** | **10.2** | **18.4** |

**ANNEXURE-III**

## STACK EMISSION LEVEL (mg/Nm³) FOR YEAR 2018-19

| Sr. No. | Month | Pollution Control Measures | PM (mg/Nm3) |
|---|---|---|---|
| 1 | April-18 | Bag House | 18 |
| 2 | May-18 | Bag House | 16 |
| 3 | June-18 | Bag House | 24 |
| 4 | July-18 | Bag House | 13 |
| 5 | August-18 | Bag House | 14 |
| 6 | September-18 | Bag House | 19 |
| 7 | October-18 | Bag House | 19 |
| 8 | November-18 | Bag House | 21 |
| 9 | December-18 | Bag House | 19 |
| 10 | January-19 | Bag House | 20 |
| 11 | February-19 | Bag House | 15 |
| 12 | March-19 | Bag House | 19 |
| **Median** | | **Bag House** | **19** |

### Stack emission level of 2 x 500 KVA DG Set (mg/Nm³) for the Period of April, 2018 to March, 2019

| S. No | Date & Month ↓ | Stack attached with 500 KVA DG Set | | | |
|---|---|---|---|---|---|
| | | Parameters | Monitored Value DG Set I (mg/Nm3) | Monitored Value DG Set II (mg/Nm3) | Prescribed Standard Limit (mg/Nm3) |
| 1 | 04.10.2018 | Particulate Matter | 43.9 | 57.2 | **75** |
| | | NOx | 194.7 | 208.7 | **710** |
| | | CO | 47.0 | 53.0 | **150** |
| | | NMHC | 31.0 | 37.0 | **100** |
| 2 | 28.02.2019 | Particulate Matter | 48.3 | 46.2 | **75** |
| | | NOx | 212.2 | 193.2 | **710** |
| | | CO | 41.0 | 47.0 | **150** |
| | | NMHC | 29.0 | 32.0 | **100** |

**ANNEXURE-IV**

## NOISE LEVEL Leq-dB (A) FOR YEAR 2018-19

| S. No. | Monitoring Location ⇨ / Month ⇩ | Plant boundary towards main gate / NH - 98 | | Plant boundary towards Hostel | | Plant boundary towards Water Harvesting Pond | |
|---|---|---|---|---|---|---|---|
| | | Day Time | Night Time | Day Time | Night Time | Day Time | Night Time |
| 01. | Apr-18 | 64.2 | 59.8 | 66.7 | 62.7 | 58.7 | 56.2 |
| 02. | May-18 | 66.7 | 59.8 | 65.8 | 61.6 | 56.4 | 50.2 |
| 03. | June-18 | 65.8 | 60.7 | 60.3 | 57.2 | 55.9 | 51.4 |
| 04. | July-18 | 64.7 | 60.2 | 62.8 | 58.8 | 56.7 | 48.5 |
| 05. | Aug-18 | 62.6 | 61.1 | 60.5 | 57.3 | 58.7 | 54.2 |
| 06. | Sept-18 | 64.7 | 58.9 | 63.4 | 59.7 | 58.6 | 52.6 |
| 07. | Oct-18 | 65.3 | 56.2 | 66.3 | 59.3 | 58.9 | 52.3 |
| 08. | Nov-18 | 66.9 | 55.6 | 65.5 | 58.1 | 56.7 | 51.3 |
| 09. | Dec-18 | 66.7 | 56.9 | 62.5 | 57.3 | 56.2 | 54.3 |
| 10. | Jan-19 | 68.2 | 57.2 | 62.1 | 56.9 | 56.7 | 53.1 |
| 11. | Feb-19 | 65.9 | 58.3 | 60.5 | 57.2 | 57.3 | 52.3 |
| 12. | Mar-19 | 66.3 | 56.3 | 63.8 | 58.4 | 55.8 | 50.6 |
| | **Median** | **65.9** | **58.6** | **63.1** | **58.3** | **56.7** | **52.3** |

**ANNEXURE-V**

## YEARWISE PLANTATION DETAILS

| Year | No. of plant saplings planted | No. of plant saplings survived | Rate of Survival (%) |
|---|---|---|---|
| 2013-14 | 2000 | 1786 | 89 |
| 2014-15 | 2000 | 1883 | 94 |
| 2015-16 | 2000 | 1844 | 92 |
| 2016-17 | 2500 | 2290 | 92 |
| 2017-18 | 5998 | 5013 | 84 |
| 2018-19 | 12336 | 11900 | 97 |
| **Total** | **26834** | **24716** | **92** |