

Ref. No.: JPL/ENV/21-22/July/20

July 14, 2021

To,

The Member Secretary,

Madhya Pradesh Pollution Control Board,
E-5, Arera Colony,
Paryawaran Parisar,
Bhopal-16, Madhya Pradesh.

Subject: Submission of Environmental Statement Report for the year 2020-21 for 1 x 600 MW Thermal Power Plant at Village-Barela & Gorakhpur, Tehsil- Ghansore, Distt.- Seoni, Madhya Pradesh by M/s Jhabua Power Plant.

Ref.: MoEF Environmental Clearance No.: J-13012/105/2008-IA-II (T) dated 17th February 2010 & Corrigendum dated 22nd December 2010.

Dear Sir,


Please find attached the **Environmental Statement** for the year 2020 - 2021 in fulfilment of conditions stipulated in the Environment Clearance (letter issued by MoEF, New Delhi and referenced above) for 1x600 MW Coal based Thermal Power Plant at Villages- Barela & Gorakhpur, Tehsil- Ghansore, Distt.- Seoni, Madhya Pradesh of M/s Jhabua Power Ltd.

We submit to you that Environmental Protection always remains in our top most agenda and all the efforts are being put for the effective compliance all the time.

Thanking You,

Yours Sincerely,

For Jhabua Power Ltd



[Signature]
14/07/2021

Authorized Signatory

Encl.: Environment Statement Report for the year 2020-21.

CC: Regional Office, MPPCB, Vijaynagar, Jabalpur, MP.

Jhabua Power Limited

(CIN : U40105WB1995PLC068616)

Village Barela, PO Attaria, Tehsil Ghansore, District Seoni-480997, Madhya Pradesh, India

Registered Office : Macmet House, 7th Floor, 10B, OC Ganguly Sarani, Kolkata-700 020, West Bengal, India

Corporate Office : Unit No.-307, 3rd Floor, ABW Tower, (Near IFFCO Chowk) M.G. Road, Gurugram - Pin-122002 (Haryana)

Tel.: +91-124-4392000/01 Fax: +91-124-4376496 E-mail : communications@avanthapower.com www.avanthapower.com

POWER PLANT

ENVIRONMENTAL STATEMENT

OF

JHABUA POWER LTD.

UNIT – BARELA & GORAKHPUR

TEHSIL: GHANSORE

DISTRICT – SEONI (M.P.)

CAPACITY: 1 X 600 MW



FINANCIAL YEAR ENDING THE 31ST MARCH, 2021

ENVIRONMENTAL STATEMENT FORM-V

(See rule 14)

Environmental Statement for the financial year ending with 31st March, 2021 as per condition stipulated under clause no. xxxiv of Specific Conditions in Environmental Clearance granted by Ministry of Environment & Forest vide letter no. F.No J - 13012/105/2008 - IA.II (T) dated 17th February, 2010 and under the clause no 23 of Consent to Establishment from MP Pollution control Board vide letter no 11425/TS/MPPCB/2010, dated 15th December 2010.

PART- A

Environmental Statement Report for the Financial Year ending the 31st March, 2021.

| | | |
|------|--|---|
| i. | Name and address of the owner/occupier of the industry Operation or process. | Mr. Ashok Singh Yadav Plant Head, Jhabua Power Ltd Vill. Barela-Gorakhpur, Near Overhead Tank, Tehsil-Ghansore, Dist. Seoni, Madhya Pradesh ,480997 |
| ii. | Industry category Primary- (STC Code) Secondary – (STC Code) | Red Category |
| iii. | Production Capacity | 1 X 600 MW |
| iv. | Year of establishment | COD: 3 rd May, 2016 |
| v. | Date of the last environmental statement submitted. | May 22nd ,2020, vide letter dated 21st May 2020 |

PART - B

(I) Water and raw Material Consumption: -

| | Water consumption by | Consumption M³/day | |
|-------------------|---------------------------------|---|--|
| 1 | Process | 109 | |
| 2 | Cooling | 21635 | |
| 3 | Domestic | 96 | |
| S. No. | Name of the Products | Process water consumption per unit of products | |
| | | During the previous financial year 2019-20 | During the current financial year 2020-21 |
| 1. | Process Water | 0.19 M ³ / kwh | 0.0105 M ³ / kwh |

(II) Raw material consumption

| Name of the Raw materials* | Name of the Products | Raw Material consumption per unit of products | |
|---------------------------------------|---------------------------------|---|--|
| | | During the previous financial year 2019-20 | During the current financial year 2020-21 |
| Coal | Electricity | 0.713 MT | 0.703 MT |

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

PART - C

Pollution discharged to environment/unit of output

(Parameter as specified in the consent issued)

The plant is commissioned on 3rd May 2016 and under operation.

Observation in and around the plant site:

| Pollutants | Quantity of Pollutants discharged (mass/day) | Concentration of Pollutants discharged (mass/volume) | Percentage of variation from prescribed standards with reasons. |
|-------------------|---|--|--|
| (a) Air | As per air consent | Stack monitoring report enclosed as Annexure-1 . | SO _x , FGD is to be installed. Time line under category -C of MoEF & CC Notification dated 31.03.2021 is December- 2024. Feasibility study report is completed and approved by CEA, New Delhi. |
| (b) Water | Zero Discharge | ETP treated effluent report, Condenser cooling water, Boiler blow down, Cooling tower blow down and treated sewage | NA |

| | | | |
|--|--|--|--|
| | | monitoring report enclosed as Annexure-5 & 6 respectively. | |
|--|--|--|--|

PART – D

HAZARDOUS WASTES

As specified under Hazardous Wastes (Management & Handling Rules, 1989)

| S. No. | Hazardous Wastes | Total Quantity (Kg) | |
|--------|-----------------------------------|---|--|
| | | During the previous financial year 2019-20 | During the current financial year 2020-21 |
| a. | From Process | Used Oil-11850 Liter Waste residue containing Oil: Nil Ltr | Used Oil-7500 Liter Waste residue containing Oil: Nil Ltr |
| b. | From Pollution Control Facilities | NIL | NIL |

PART - E

SOLID WASTES

| S. No. | Solid Wastes | Total Quantity (Kg) | |
|--------|---------------------------------|--|---|
| | | During the previous financial year 2019-20 | During the current financial year 2020-21 |
| a. | From Process | 166506 MT Bottom ash from boiler | 206676 MT Bottom ash from boiler |
| b. | From Pollution Control Facility | 666011 MT-Fly ash from ESP | 826709 MT-Fly ash from ESP |

| | | | |
|----|--|--|--|
| c. | Quantity recycled or reutilized within the unit. | Total ash utilization is 83%, utilized by cement industries, bricks manufacturer, Highway construction and roof sheet manufacturers. | Total ash utilization is 70%, utilized by cement industries, bricks manufacturer and Highway construction. |
|----|--|--|--|

PART – F

Please specify the characteristics (in terms of concentration and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

❖ SOLID WASTE:

- Ash is the main solid waste generated in the coal based thermal power plant. The quantity of fly ash and bottom ash generated is 826709 MT and 206676 MT respectively in year 2020-21.
- Fly ash is utilized as per notification for fly ash by Ministry of Environment & Forest, New Delhi. 70% fly ash is utilized in the year 2020-21 while 83% in the year 2019-20 by cement industries, bricks manufacturer, highway construction and roof sheet manufacturers. Fly ash utilization is affected in the year 2020-21 due to Covid -19 pandemic and national lock down.

Intermediate & main Silo is constructed for the storage & disposal of dry fly ash. Unutilized fly ash is disposed to ash pond through high concentration slurry disposal system for which pipe line is laid down with ash water recovery system. Ash pond is constructed in 100 acres with 250µ liner.

❖ **HAZARDOUS WASTE:**

Authorization no 642, dated 17.04.2013 renewed vide Authorization no H-52837, dated 18.01.2021 for generation, collection, storage and disposal of below H.W. has already been granted by MPPCB, Bhopal with validity till 30.04.2026.

Generated hazardous waste is being disposed-off in environmental friendly manner as below;

| Sl.No | Hazardous wastes | Mode of Disposal |
|-------|--|---|
| 1 | Used/Spent Oil | Authorized Hazardous waste Recycler registered with CPCB/SPCBMPPCB. |
| 2 | Waste or residue containing oil | Authorized Hazardous waste Recycler registered with CPCB/SPCB. |
| 3 | Spent Ion Exchange resin containing toxic metals | MP Waste Management Project Pithampur, Dist.-Dhar |
| 4 | Any process or distillation residue | MP Waste Management Project Pithampur, Dist.-Dhar |

JPL has agreement with Madhya Pradesh Waste Management Project at Pithampur, Distt.- Dhar, M.P. for disposal of Waste cotton Residual Containing Oil, Used Ion Exchange Residue and Waste filter & filter material.

PART – G

Impact of the pollution control measures taken on conservation of natural resources and consequently on the cost production.

The ambient air quality monitoring with respect to the 10 km radius study area around the project site is being carried out by M/s Vardan Envirolab,

Gurgaon on monthly, quarterly and six monthly basis to access existing ambient air quality of the area. The various sources of air pollution in the region are dust rising from unpaved roads, domestic fuel burning, vehicular traffic, agricultural activities, other industries like stone crusher, etc.

The surface and ground water quality of the study area is also being done on six monthly basis by M/s Vardan Envirolab, Gurgaon.

In order to know the baseline of noise levels in and around the project site, noise levels were measured in the core zone and within the plant premises. Regular monitoring of ambient air quality, Noise Level, ground & surface water quality has been carried out to evaluate the quality of environment.

Result for the same has been attached as below;

1. Stack Monitoring report enclosed as **Annexure -1.**
2. Ambient air quality monitoring report enclosed as **Annexure 2.**
3. Ambient Noise level monitoring report enclosed as **annexure 3.**
4. Ground and Surface water quality monitoring report enclosed as **annexure 4.**
5. ETP treated effluent quality monitoring report enclosed as **annexure 5.**
6. Condenser cooling water, Boiler blow down, Cooling tower blow down and treated Sewage quality monitoring report enclosed as **annexure -6.**
7. Used Oil monitoring report enclosed as **annexure -7.**

Sampling, monitoring & analysis of above report is carried out by our environmental consultant M/s Vardan Envirolab, Gurgaon.

PART – H

Additional measures/investment proposal for environmental protection including abatement of pollution.

Following investment carried out for the Environmental protection;

- Online Permanent continuous AAQM System with connectivity to MPPCB & CPCB.
- Online Permanent Continuous Effluent quality monitoring (EQMS) System with connectivity to MPPCB & CPCB.
- Opacity meter and gaseous monitoring system for continuous online monitoring of PM, SO_x, NO_x and CO in 275-meter stack with connectivity to MPPCB & CPCB.
- Installation of remote calibration facility with connectivity to MPPCB & CPCB.
- Installation of PTZ camera for stack and ETP with connectivity to MPPCB & CPCB.
- Monitoring Van for ambient air quality Monitoring.
- Installation of Ash water recovery system.
- Installation of Piezometers.
- Installation of water recycling system from garland drain near ash pond.
- Green belt development.
- World Environment Day celebration on 5th June.

PART - I

MISCELLANEOUS:

Any other particulars in respect of environmental protection and abatement of pollution.

- A system followed by training has been implemented for the effective compliance of Environmental clearance and consent to operate.
- Water sprinkling being used on the roads of site and other dust vulnerable areas of the plant.
- Greenery is being developed in and around the plant and till March 2021 approximately **1,76,102** plantations has been completed @ 2500 plants per ha in and around the plant premises with survival rate 70%. Photographs of Green belt is enclosed as **annexure -8**.
- Native species is being preferred for the plantation having following characteristics:
 - Fast growing with thick canopy cover.
 - Adequate height with longer duration of foliage.

Annexure - 1

Stack Monitoring Results

February -2020

Date of Sampling : 08.02.2021
Sampling Location : TPP (600 MW)

| Parameters | Unit | Results |
|--|--------------------|----------------|
| Particulate Matter (PM) | mg/NM ³ | 38.04 |
| Oxides of Nitrogen (as NO _x) | mg/NM ³ | 200.49 |
| Sulphur Dioxide (as SO _x) | mg/NM ³ | 567.72 |
| Total Mercury | mg/NM ³ | BDL (DL 0.005) |

ND: Not Detectable

Stack Monitoring Results

February -2021

Date of Sampling : 08.02.2021

Sampling Location : DG Set-1

| Parameters | Unit | Results |
|--|--------------------|---------|
| Particulate Matter (PM) at 15% O ₂ | mg/NM ³ | 45.96 |
| Oxides of Nitrogen (as NO ₂) at 15% O ₂ | PPM | 255.72 |
| NMHC (as C) at 15% O ₂ | mg/NM ³ | 22.35 |
| Carbon Monoxide at 15% O ₂ | mg/NM ³ | 60.41 |

Date of Sampling : 08.02.2021

Sampling Location : DG Set-2

| Parameters | Unit | Results |
|--|--------------------|---------|
| Particulate Matter (PM) at 15% O ₂ | mg/NM ³ | 47.96 |
| Oxides of Nitrogen (as NO ₂) at 15% O ₂ | PPM | 277.06 |
| NMHC (as C) at 15% O ₂ | mg/NM ³ | 23.84 |
| Carbon Monoxide at 15% O ₂ | mg/NM ³ | 65.12 |

Annexure - 2

Ambient Air Quality Monitoring Results

February -2021

| S. No. | Parameters | Project Site | Village Barela | Village Binaki | Village Dola | Village Durjanpur | Village Panarjhir | Village Gorakhpur | Village Guneri |
|--------|---|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| | Date of Monitoring | 05.02.2021 | 05.02.2021 | 06.02.2021 | 09.02.2021 | 08.02.2021 | 07.02.2021 | 06.02.2021 | 08.02.2021 |
| 1. | Particulate Matter (PM _{2.5}), µg/m ³ | 35.20 | 30.84 | 26.34 | 28.34 | 29.65 | 29.33 | 28.92 | 28.24 |
| 2. | Particulate Matter (PM ₁₀), µg/m ³ | 71.38 | 69.62 | 64.44 | 68.93 | 63.68 | 69.87 | 66.41 | 71.68 |
| 3. | Nitrogen Dioxide (NO ₂), µg/m ³ | 20.67 | 18.85 | 16.98 | 15.21 | 14.73 | 17.74 | 16.77 | 18.64 |
| 4. | Sulphur Dioxide (SO ₂), µg/m ³ | 9.81 | 10.25 | 9.83 | 7.56 | 8.01 | 8.93 | 9.39 | 9.53 |
| 5. | Mercury (mg/m ³) | BDL (*DL 1.0 ng/m ³) | BDL (*DL 1.0 ng/m ³) | BDL (*DL 1.0 ng/m ³) | BDL (*DL 1.0 ng/m ³) | BDL (*DL 1.0 ng/m ³) | BDL (*DL 1.0 ng/m ³) | BDL (*DL 1.0 ng/m ³) | BDL (*DL 1.0 ng/m ³) |

Annexure - 3**Ambient Noise Level Results****February -2021**

| S. No. | Name Of Sampling / Monitoring Location | Date of Sampling | Noise level Monitoring Unit - dB (A) | |
|--------|---|------------------|--|--|
| | | | Day Time Leq (6.00 am to 10.00 pm) | Night Time Leq (10.00 pm to 6.00 am) |
| 1 | Project Site | 05.02.2021 | 57.47 | 51.17 |
| 2 | Village -Barela | 05.02.2021 | 52.12 | 43.16 |
| 3 | Village - Gorakhpur | 06.02.2021 | 53.18 | 42.90 |
| 4 | Village - Guneri | 08.02.2021 | 52.93 | 43.67 |
| 5 | Village - Dola | 09.02.2021 | 54.74 | 44.66 |
| 6 | Village – Binaiki | 06.02.2021 | 54.47 | 43.61 |
| 7 | Village - Panarjhir | 07.02.2021 | 54.29 | 43.56 |

Annexure – 4

Ground Water Monitoring Results

February -2021

| S. No. | Parameter | Project Site | Village-Barela | Village-Panarjhir | Village-Durjanpur | Village-Guneri | Village-Dola | Village-Binaiki | Village-Gorakhpur | Desirable limit (Max.) | Permissible limit in the Absence of Alternate Source (Max.) |
|--------|--|--------------|----------------|-------------------|-------------------|----------------|--------------|-----------------|-------------------|------------------------|---|
| 1 | Colour (Hazen Unit) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 5 | 15 |
| 2 | Odour | Agreeable | Agreeable | Agreeable | Agreeable | Agreeable | Agreeable | Agreeable | Agreeable | Agreeable | Agreeable |
| 3 | Turbidity (NTU) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 1 | 5 |
| 4 | pH (at 25 °C) | 7.27 | 7.07 | 7.22 | 7.56 | 7.40 | 7.42 | 7.49 | 7.51 | 6.5 to 8.5 | No Relaxation |
| 5 | Total Dissolved Solids (mg/l) | 342.0 | 278.0 | 297.0 | 360.0 | 353.0 | 344.0 | 318.0 | 336.0 | 500 | 2000 |
| 6 | Total Hardness as CaCO ₃ (mg/l) | 184.3 | 126.1 | 135.8 | 194.0 | 174.6 | 194.0 | 174.6 | 174.6 | 200 | 600 |
| 7 | Alkalinity as CaCO ₃ , (mg/l) | 155.2 | 106.7 | 126.1 | 155.6 | 155.6 | 174.6 | 164.9 | 161.5 | 200 | 600 |
| 8 | Sulphate as SO ₄ (mg/l) | 35.71 | 28.72 | 41.08 | 39.2 | 38.11 | 41.08 | 35.71 | 34.59 | 200 | 400 |
| 9 | Chloride as Cl (mg/l) | 57.43 | 52.64 | 71.79 | 67.0 | 76.57 | 57.43 | 62.21 | 43.07 | 250 | 1000 |
| 10 | Nitrate as NO ₃ mg/l | 8.0 | 3.01 | 3.43 | 8.54 | 7.31 | 8.54 | 8.0 | 8.33 | 45 | No Relaxation |
| 11 | Calcium as Ca mg/l | 62.20 | 31.10 | 38.9 | 62.20 | 62.20 | 58.32 | 50.54 | 58.31 | 75 | 200 |
| 12 | Magnesium as Mg (mg/l) | 7.07 | 11.79 | 9.41 | 9.43 | 4.72 | 11.78 | 11.79 | 7.07 | 30 | 100 |
| 13 | Iron as Fe (mg/l) | 0.24 | 0.21 | 0.23 | 0.36 | 0.26 | 0.24 | 0.24 | 0.24 | 0.3 | No Relaxation |

600 MW Coal Based Thermal Power Plant

At Villages Barela and Gorakhpur, Tehsil Ghansore, District Seoni (Madhya Pradesh)

**Environmental
Statement Report,
2020-2021**

| | | | | | | | | | | | |
|----|-------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--|---------------|
| 14 | Fluoride as F (mg/l) | 0.6 | 0.54 | 0.51 | 0.69 | 0.82 | 0.69 | 0.64 | 0.66 | 1.0 | 1.5 |
| 15 | Aluminum (as Al) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 0.03 | 0.2 |
| 16 | Boron (as B) (mg/l) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 0.5 | 1.0 |
| 17 | Cadmium as Cd (mg/l) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 0.003 | No Relaxation |
| 18 | Chromium as Cr (mg/l) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 0.05 | No Relaxation |
| 19 | Copper as Cu (mg/l) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 0.05 | 1.5 |
| 20 | Lead as Pb (mg/l) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 0.01 | No Relaxation |
| 21 | Manganese as Mn (mg/l) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 0.1 | 0.3 |
| 22 | Selenium as Se (mg/l) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 0.01 | No Relaxation |
| 23 | Arsenic as As (mg/l) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 0.01 | 0.05 |
| 24 | Zinc as Zn (mg/l) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 5 | 15 |
| 25 | Mercury as Hg (mg/l) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 0.001 | No Relaxation |
| 26 | Residual free Chlorine (mg/l) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 0.2 | 1.0 |
| 27 | Phenolic Compound (mg/l) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 0.001 | 0.002 |
| 28 | Anionic Detergent (mg/l) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 0.2 | 1.0 |
| 29 | Cyanides (mg/l) | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 0.005 | No Relaxation |
| 30 | Mercury as Hg | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 0.001 | No Relaxation |
| 31 | E. Coli | Absent | Absent | Absent | Absent | Absent | Absent | Absent | Absent | Shall not be detectable in any 100 ml sample | |
| 32 | T. Coliform | Absent | Absent | Absent | Absent | Absent | Absent | Absent | Absent | Shall not be | |

| | | | | | | | | | | |
|--|------------|--|--|--|--|--|--|--|--|------------------------------------|
| | per/100 ml | | | | | | | | | detectable in any 100 ml sample |
|--|------------|--|--|--|--|--|--|--|--|------------------------------------|

Surface Water Monitoring Results

February -2021

| Sr. No | Parameters | Pariyat River near Biuai Village | Temor River near Pati village | Nala near Binaiki | Surface Water Quality Standards (as per IS 10500:2012 and amendment 1). | |
|--------|---|--|-------------------------------------|----------------------|--|---------------|
| | | | | | Desirable | Permissible |
| 1 | Colour (Hazen Unit) | *BDL(**DL 1.0) | *BDL(**DL 1.0) | 4.0 | 5 | 15 |
| 2 | Odour | Agreeable | Agreeable | Agreeable | Agreeable | Agreeable |
| 3 | Turbidity (NTU) | *BDL(**DL 1.0) | 3.0 | 10.0 | 1 | 5 |
| 4 | pH (at 25 °C) | 7.32 | 7.41 | 7.26 | 6.5-8.5 | No relaxation |
| 5 | Total Dissolved Solids (mg/l) | 264.0 | 198.0 | 374.0 | 500 | 2000 |
| 6 | TSS mg/l | 6.3 | 5.0 | 22.1 | - | - |
| 7 | Total Hardness as CaCO ₃ (mg/l) | 194.0 | 135.8 | 223.1 | 200 | 600 |
| 8 | Alkalinity as CaCO ₃ , (mg/l) | 155.2 | 155.2 | 213.4 | 200 | 600 |
| 9 | Sulphate as SO ₄ (mg/l) | 7.26 | 8.95 | 10.81 | 200 | 400 |
| 10 | Chloride as Cl (mg/l) | 19.14 | 33.5 | 43.07 | 250 | 1000 |
| 11 | Nitrate as NO ₃ mg/l | 8.43 | 8.02 | 8.1 | 45 | No relaxation |
| 12 | Calcium as Ca mg/l | 35.0 | 31.10 | 43.07 | 75 | 200 |
| 13 | BOD mg/l | 7.5 | 6.0 | 10.5 | - | - |
| 14 | Magnesium as Mg (mg/l) | 25.92 | 14.14 | 9.43 | 30 | 100 |
| 15 | Iron as Fe (mg/l) | 0.13 | 0.12 | 0.14 | 1.0 | No relaxation |
| 16 | Fluoride as F (mg/l) | 0.60 | 0.53 | 0.69 | 1.0 | 1.5 |
| 17 | COD mg/l | 30.36 | 30.4 | 50.6 | - | - |
| 18 | Boron (as B) (mg/l) | *BDL(**DL | *BDL(**DL | *BDL(**DL | 0.5 | 0.1 |

| | | | | | | |
|----|-------------------------------|---------------------|---------------------|---------------------|-------|---------------|
| | | 0.2) | 0.2) | 0.2) | | |
| 19 | Cadmium as Cd (mg/l) | *BDL(**DL 0.002) | *BDL(**DL 0.002) | *BDL(**DL 0.002) | 0.003 | No relaxation |
| 20 | Chromium as Cr (mg/l) | *BDL(**DL 0.02) | *BDL(**DL 0.02) | *BDL(**DL 0.02) | 0.05 | No relaxation |
| 21 | Copper as Cu (mg/l) | *BDL(**DL 0.02) | *BDL(**DL 0.02) | *BDL(**DL 0.02) | 0.05 | 1.5 |
| 22 | Lead as Pb (mg/l) | *BDL(**DL 0.005) | *BDL(**DL 0.005) | *BDL(**DL 0.005) | 0.01 | No relaxation |
| 23 | Manganese as Mn (mg/l) | *BDL(**DL 0.05) | *BDL(**DL 0.05) | 0.15 | 0.1 | 0.3 |
| 24 | Selenium as Se (mg/l) | *BDL(**DL 0.005) | *BDL(**DL 0.005) | *BDL(**DL 0.005) | 0.01 | No relaxation |
| 25 | Arsenic as As (mg/l) | BDL | BDL | BDL | 0.01 | No relaxation |
| 26 | Zinc as Zn (mg/l) | BDL | BDL | 0.31 | 5 | 15 |
| 27 | Mercury as Hg (mg/l) | BDL | BDL | BDL | 0.001 | No relaxation |
| 28 | Residual free Chlorine (mg/l) | BDL | BDL | BDL | 0.2 | 1.0 |
| 29 | Phenolic Compound (mg/l) | BDL | BDL | BDL | - | - |
| 30 | Anionic Detergent (mg/l) | BDL | BDL | BDL | | |
| 32 | Cyanides (mg/l) | BDL | BDL | BDL | | |

Annexure – 5

ETP treated Effluent Monitoring Results
February - 2021

Sampling Date : 07.02.2021

Location : ETP outlet

| Parameters | Unit | Results |
|------------------------|------|---------|
| pH (at 25°C) | --- | 7.36 |
| Oil and Grease | mg/l | 3.0 |
| Temperature | °C | 29.4 |
| Total Suspended Solids | mg/l | 23.6 |
| Total Dissolved Solids | mg/l | 204.0 |
| BOD | mg/l | 17.4 |
| COD | mg/l | 70.84 |
| Arsenic as As | mg/l | BDL |
| Mercury as Hg | mg/l | BDL |
| Cadmium as Cd | mg/l | BDL |
| Lead as Pb | mg/l | BDL |
| Chromium as Cr | mg/l | BDL |
| Sulphide | mg/l | BDL |

BDL: Below detection limit

Annexure – 6

Waste water monitoring result

February 2021

Sampling Date : 07.02.2021

Location : Condenser cooling water

| Parameters | Unit | Results |
|-------------------------|------|---------------------|
| pH (at 25°C) | --- | 7.38 |
| Temperature | °C | 26.2 |
| Free Available chlorine | mg/l | *BDL(**DL-0.2 mg/l) |

Sampling Date : 07.02.2021

Location : Boiler Blow Down

| Parameters | Unit | Results |
|------------------------|------|---------|
| Oil and Grease | mg/l | 1.0 |
| Total Suspended Solids | mg/l | 7.1 |
| Iron (as Fe) | mg/l | 0.76 |
| Copper (as Cu) | mg/l | 0.15 |

Sampling Date : 07.02.2021

Location : Cooling tower blow down

| Parameters | Unit | Results |
|-------------------------|------|---------------------|
| Free Available Chlorine | mg/l | *BDL(**DL-0.2 mg/l) |
| Zink (As Zn) | mg/l | 0.75 |
| Total Chromium (as Cr) | mg/l | 0.08 |

* BDL: Below Detection Limit

Sampling Date : 08.02.2021

Location : Treated Sewage water (Field Hostel)

| Parameters | Unit | Results |
|------------------------------|------------|---------|
| pH (at 25°C) | --- | 7.18 |
| COD | mg/l | 20.24 |
| BOD (3 Days at 27°C) | mg/l | 6.6 |
| TSS | mg/l | 5.2 |
| Ammonical Nitrogen as N | mg/l | 4.88 |
| Phosphate (PO ₄) | mg/l | 0.3 |
| Fecal Coliform | MPN/100 ml | Absent |
| Total Kjeldhal Nitrogen | mg/l | 6.79 |

Annexure – 7

Used Oil monitoring result
February 2021

| Parameters | Unit | Results |
|--------------------------------------|--------------------|-----------------|
| Density | --- | 0.89 |
| Water | % | 11.0 |
| Neutralization Number | mg KOH/gm | 2.1 |
| Polychlorinated biphenyls | ppm | *BDL (**DL 0.1) |
| Lead as Pb | ppm | 11.1 |
| Arsenic | ppm | BDL |
| Polyaromatic hydrocarbon | % | *BDL (**DL 0.1) |
| Kinetic Viscosity 100 ^o C | cst (Centi Stokes) | 19.2 |
| Saponification Value | mg KOH/gm | 12.8 |
| Chromium+Cadmium+Nickel | ppm | 16.2 |
| Total Hydrocarbon | % | *BDL (**DL 0.1) |

Annexure 8

| | |
|---|---------------------|
| Plantation on 33% land of 406 acres | 134 acres |
| Density of plantation | 2500 plants/Hectare |
| Area required per plant | 4.0 SQM |
| Total plantation required on 134 acres (542164 SQM) of land | 177102 Nos |
| No of plantation completed | 176102 |
| Survival rate maintained | >70% |

PLANTATION PHOTOGRAPH









Green Belt Development

| | |
|---|---------------------|
| Plantation on 33% land of 406 acres | 134 acres |
| Density of plantation | 2500 plants/Hectare |
| Area required per plant | 4.0 SQM |
| Total plantation required on 134 acres (542164 SQM) of land | 135541 Nos |
| No of plantation completed | 176102 |
| Survival rate maintained | >70% |

Photographs of Plantations



Photographs of Plantations



Photographs of Plantations



Photographs of Plantations



Photographs of Plantations

