

JPL/EMD/ES-TPP (4X250 MW)/2021/143

Date: 15/09/2021

The Member Secretary,  
Chhattisgarh Environment Conservation Board,  
Paryavas Bhavan , North Block Sec.19  
Naya Raipur (CG) -490099

**Sub:** Submission of "**Environmental Statement**" for O. P. Jindal Super Thermal Power Plant (4 X 250 MW) of Jindal Power Limited at Tamnar, District Raigarh (C.G) for the Financial Year of 2020 -2021.

Dear Sir,

This has reference to above mentioned subject. Enclosed please find herewith the "**Annual Environment Statement**" for the Financial Year 2020- 2021 in prescribed **Form V** for O.P. Jindal Super Thermal Power Plant (4X250 MW) of Jindal Power Limited, Tamnar, District Raigarh (C.G).

This is for your kind information and record please.

Thanking you,

Yours faithfully

For Jindal Power Limited,



HOD  
Environment Management Department

Encl: As above

CC: Regional Officer,  
Chhattisgarh Environment Conservation Board,  
TV Tower Road, Raigarh, C.G

: For your kind perusal and record please.

**Jindal Power Limited**

CIN No: U04010CT1995PLC008985

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Registered Office Tamnar - 496 107, District Raigarh, Chhattisgarh

**FORM -V**  
**(See Rule 14)**

**(Environmental Statement for the Financial Year 2020-2021)**

**PART A**

**(i) Name and address of the owner/ occupier of the industry operation or process.**

C. N. Singh  
ED & Plant Head,  
O.P. Jindal Super Thermal Power Plant,  
Jindal Power Ltd,  
Vill: Tamnar, Distt: Raigarh  
Chhattisgarh-496107

**(ii) Industry category Primary-(STC Code) Secondary-(STC Code).**

Primary- (STC Code): Large Scale (Coal based Power Plant)

Secondary- (STC Code): Red

**(iii) Production capacity- Units**

<b>Name of Product</b>	<b>As per Consent</b>
Power Generation	4 X 250 MW (1000MW)

**(iv) Year of establishment:** (Commercial Operation Declaration)

1<sup>st</sup> Unit-08.12.2007

2<sup>nd</sup> Unit-15.06.2008

3<sup>rd</sup> Unit-16.04.2008

4<sup>th</sup> Unit-05.09.2008

**(v) Date of the last Environmental Statement submitted**

Vide Letter No. **JPL/EMD/ES-TPP (4X250)MW/2020/345**, dated  
**09.09.2020**

## PART B

### Water and Raw Material Consumption

#### 1. Water consumption m<sup>3</sup>/ day

Sources Name	Total Water consumption (m <sup>3</sup> / day)
1. Process (DM Water Makeup)	668
2. Cooling (Cooling Tower Makeup)	20752
3. Domestic (Potable & Service Water)	2990

Name of Products	Process water (DM water makeup) consumption per unit of products	
	During the Previous financial year (2019-2020)	During the current financial year (2020-2021)
Power Generation	57.238 ml/kwh	55.329 ml/kwh

#### 2. Raw material consumption

Name of raw Materials*	Name of Products	Consumption of raw material per unit of output	
		During the previous financial year (2019-2020)	During the current financial year (2020-2021)
Coal	Power Generation	0.782 kg/kwh	0.794 kg/kwh
Oil	Power Generation	0.175 ml/kwh	0.185 ml/kwh

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

**PART C**

**Pollution discharged to environment/unit of output  
(Parameter as specified in the consent issued)**

Pollutants		Quantity of Pollutants discharged (mass/day)				Concentration of Pollutants discharged (mass/volume)				Percentage of variation from Prescribed standards with reasons.
(a) Water*		Not Applicable				Not Applicable				Not applicable
(b) Air										
		U#1	U#2	U#3	U#4	U#1	U#2	U#3	U#4	
Unit of measurement		(t/day)				(mg/Nm <sup>3</sup> )				
i)Particulate Matter (PM)	Min	0.988	1.037	1.081	1.043	36.4	38.2	39.8	38.4	Within the prescribed standards
	Max	1.094	1.176	1.154	1.211	40.3	43.3	42.5	44.6	

**\*Note** – 100% effluent (Process and domestic) is recycled back for Ash slurry preparation, dust suppression & green belt development purpose and Zero discharge is being maintained.

**PART D**

**HAZARDOUS WASTE**

**As specified under HAZARDOUS & OTHER WASTES (MANAGEMENT AND TRANSBOUNDARY MOVEMENT) RULES, 2016 & as amended time to time.**

Hazardous Waste	Total Quantity (Kg)	
	During the previous financial year (2019-2020)	During the current financial year (2020-2021)
1. From Process	<b>Used /Spent Oil 5.1</b> Generation- 6.38 MT Disposal- 12.38 MT <b>Waste /residue Containing oil 5.2</b> Generation - Nil Disposal- Nil	<b>Used /Spent Oil 5.1</b> Generation- 40.79 MT Disposal- 40.79 MT <b>Waste /residue Containing oil 5.2</b> Generation - Nil Disposal- Nil
2. From Pollution Control Facilities	Not Applicable	Not Applicable

**PART E  
SOLID WASTE:**

Solid Waste	Total Quantity (MT)	
	During the previous financial year (2019-2010)	During the current financial year (2020-2021)
a. From Process	Approx. 164110.00 MT (Bottom Ash)	Approx. 316415.00 MT (Bottom Ash)
b. From Pollution Control Facilities (ESPs)	656440.00 MT (Fly Ash)	1265659.00 MT (Fly Ash)
c. Quantity recycled or re-utilized within the unit.	830336.26 MT	246699.00 MT (Ash Utilization)

**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.**

**Characterization and disposal of wastes**

**1. Hazardous Waste (Used /Spent oil under category No-5.1)**

**Characterization:** Analysis report of hazardous waste (Used/Spent oil).

Reference: Ultimate Envirolytical Solutions, Report No: UES/TR/21-22/1839

SI No	Parameter	Measurement Unit	Result	Maximum Permissible limit as per Schedule 5 (Part A & Part B)
1	Lead as Pb	mg/l	58.6	100
2	Arsenic as As	mg/l	ND	5
3	Cadmium +Chromium+ Nickel	mg/l	42	500
4	Polyaromatic Hydrocarbon (PAH)	%	1.27	6
5	Polychlorinated Biphenyls (PBCs)	mg/l	0.64	< 2
6	Sulfur (as S)	%	0.28	4.5
7	Water Content	%	0.36	1
8	Sediment	%	0.20	0.25
9	Total Halogens	mg/l	1642	4000

**Disposal-** Used/Spent Oil has been sold to CPCB approved re-cycler as per the rule.

## 2. Solid Waste (Fly Ash)

Characteristics of Solid waste: Fly ash

Reference: Ultimate Envirolytical Solutions, Report No: UES/TR/21-22/1837

Sr. No.	Test Parameters	Test Value
1	Alumina (as Al <sub>2</sub> O <sub>3</sub> ) % by mass	24.8
2	Iron Oxide ( as Fe <sub>2</sub> O <sub>3</sub> ) % by mass	12.2
3	Silica (as SiO <sub>2</sub> ) % by mass	80.9
4	Reactive Silica % by mass	0.06
5	Calcium Oxide ( as CaO) % by mass	6.11
6	Magnesium oxide (as MgO) % by mass	0.18
7	Sulphur Trioxide (as SO <sub>3</sub> ) % by mass	0.52
8	Alkalies as ( Na <sub>2</sub> O) % by mass	9.11
9	Chloride ( as Cl) % by mass	1.28
10	Loss on Ignition (LOI) % by mass	0.46

**Disposal**-Ash Utilized in different purpose in this financial year is as mentioned below.

Financial Year	Total Ash Generation (MT )	Reclamation of low lying area (MT )	Road and flyover embankment (MT)	Ash Dyke Raising (MT )	Back Filling of Mine (MT )	Total Fly Ash Utilization (MT )	Utilization (%)
2020-21	1582074	59005	8011	0.00	179683	246699	15.59

## PART G

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

- JPL has taken every possible measure to mitigate the environmental impacts and also to conform to the applicable regulatory norms through implementing state of art technologies for environment protection. Air Pollution Control Devices (APCD) with benchmark efficiency (ESPs with 99.9% efficiency) have been installed. Gaseous analyzers for SO<sub>2</sub>, NO<sub>x</sub> are also installed at stacks. Plant is designed on 100% recirculation/ reuse of waste water from cooling tower blow down, boiler blow down and decanted water from ash dyke. Thus the concept of "Zero Discharge" is being maintained at all the time. The plant management is focused for effective utilization / proper management of the waste generated including fly ash.
- Adequate measures for air pollution control have been taken in and around plant area. Developments of green belt have been done in Plant premises, Ash dyke area, Mines area (till March 2015), Rabo dam & Catchment area and Colony area. Approx. 25.48 Lakh nos. of Saplings has been planted since year 2005 to March'2021.
- JPL has installed total 06 nos of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) with an investment of approx. Rs.3.0 crores in & around power plant. All Stations have 06 nos. of online analyzers which records the Ambient Air Quality Monitoring (AAQM) Data round the clock. As per the notification issued by the Ministry of Environment & Forests (MoEF) on 16<sup>th</sup> November,2009 different environmental parameters are monitored at these stations by using specific measurement technique.
- In CHP mine site, coal is being crushed to 20 mm size and is fed to 07 km long cross-country closed pipe conveyor. The conveyor in completely closed pipe eliminates dangers of spillage with no chance of coal dust becoming airborne.
- Effluent generated from plant operation (Cooling Tower blow down, Boiler blow down, DM Plant neutralization pit discharge) and ash dyke is recirculated to ash handling system for ash slurry preparation.
- Domestic sewage is treated in 3 no. of Sewage Treatment Plants (STPs) installed 2 no. at plant premises and 1 no. STP at colony. The treated water is used for horticulture purpose.
- Installed 2 TPD capacity biogas plant near Plant premises, where Kitchen waste generated from plant is being used to produce Methane gas for cooking in plant canteen. The company has invested an amount of approx. Rs.28 Lakhs in the project.
- These measures have made a positive impact towards Environment Protection and conservation of natural resource such as Coal and Water.

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## PART – H

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

- The company has installed Continuous Emission Monitoring System (CEMS) in all stacks for Continuous Monitoring of Particulate Matter and Gaseous emission (SO<sub>2</sub> & NO<sub>x</sub>) to track on-line real time emission data on the continuous basis and its connected to CPCB and CECB server in the month of March 2015.
- The company has maintained zero liquid discharge at all the time. Further company has also installed Continuous Effluent Quality Monitoring System (EQMS) also connected to CPCB and CECB server in the month of June 2015.
- The company has invested an amount of approx. Rs. 30 Lakhs for CMC of 06 nos. Continuous Ambient Air Quality Monitoring Stations (CAAQMS).
- Achieved round-the-clock operation of Sewage Treatment Plants (STPs) without any tripping or reportable accident.
- Generated 61205 KWH Solar Energy in FY 2020-21.



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## PART I

### MISCELLANEOUS:

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

**Green Belt Development:** During the year 2020-2021 approx. 16000 nos. of saplings has been planted in and around the plant premises (4X250 MW & 4X600 MW TPP).

**House Keeping:** All the internal roads have been made pucca. Good housekeeping practices are being followed. Domestic House keeping like collection of domestic garbage (Colony & Plant), garden waste, civil debris is done in an efficient manner.

**Environment Management activities through CSR:** The unit has also under taken Environment Management initiatives through its CSR wing called "O.P. Jindal Samaj Kalyan Samiti (OPJSKS)" registered under the Societies Registration Act, 1973. At present it is working in 36 adopted villages in the vicinity of Power project, Mines and Water Reservoir area. OPJSKS has undertaken a number of innovative programmes in the area of environment protection such as pond deepening, mass plantation & distribution of saplings, construction of Biogas plant construction of Pucca roads, celebration of World Environment Day, Earth Day etc.

**Watershed Development:** Successful completion of Catchments Area Treatment involving engineering structures and vegetative measures in the catchment area of Kurket River.

**Integrated Management System:** JPL has implemented the integrated management system as per ISO 9001:2015 (Quality Management System), ISO 14001:2015 (Environment Management System), OHSAS 45001:2018 (Occupational Health & Safety Assessment Series) .These Systems have been certified by reputed certifying agency .(The company also Certified for **EN ISO 50001 (Energy Management System)** by reputed certifying agency (TUV NORD).

**Implementation of FIVE-S Work Place Management System:** JPL has implemented Five-S Work Place Management System in Plant, Colony, Mines and Rabo dam area for proper Housekeeping and cleanliness. JPL has been certified for **Five-S Certificate** by Quality Circle Forum of India (QCFI).

**Environmental Awareness Program:** To promote the environmental awareness among the masses including employee, Earth Day, Earth Hour, World Environment Day, and Ozone Day have been celebrated. In these occasion various environmental awareness program like poster, slogan, essay writing, quiz competition, Skits Play, etc. have been organized in nearby village schools. Environmental rally was organized covering the nearby villages for mass campaigning.

**Training & Development:** JPL has conducted following training programs to creating awareness among employees towards Environmental Management.

<b>Sl. No</b>	<b>Title of the Training</b>	<b>Faculty</b>	<b>Venue</b>
1	IMS Awareness	Internal Trainer	JPL Tamnar
2	Training on "Firefighting & Safety & Demo"	Internal Trainer	JPL Tamnar
3	Ash Water System	Internal Trainer	JPL Tamnar
4	EnMS Audit	External Trainer	JPL Tamnar
5	Occupational Health & Hazards	External Trainer	DGFASLI Ministry of labor & Employeement
6	Water Optimization	External Trainer	Mission Energy
7	Sox Nox	External Trainer	Mission Energy
8	Fly Ash Dumping	Internal Trainer	JPL Tamnar
9	Hydrogen Plant	Internal Trainer	JPL Tamnar
10	Fire Hazards and its Precaution/Prevention	Internal Trainer	JPL Tamnar
11	Electrical hazards precautions & Prevention	Internal Trainer	JPL Tamnar
12	Optimization of Auxiliary Power Consumption	Internal Trainer	JPL Tamnar
13	Awareness on Energy management system	Internal Trainer	JPL Tamnar
14	Water System	Internal Trainer	JPL Tamnar
15	5'S Awareness Training	Internal Trainer	JPL Tamnar

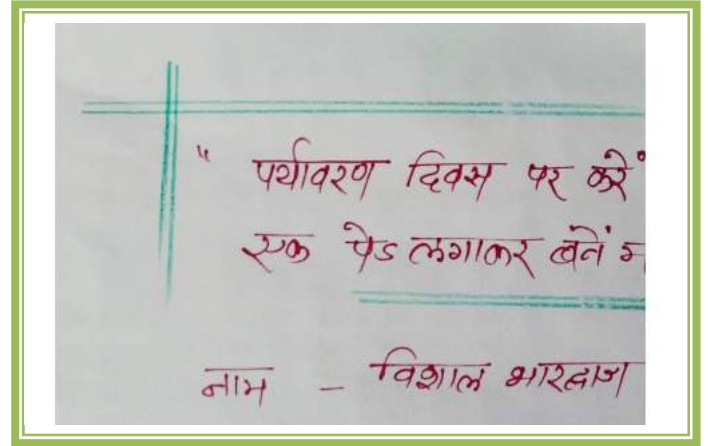
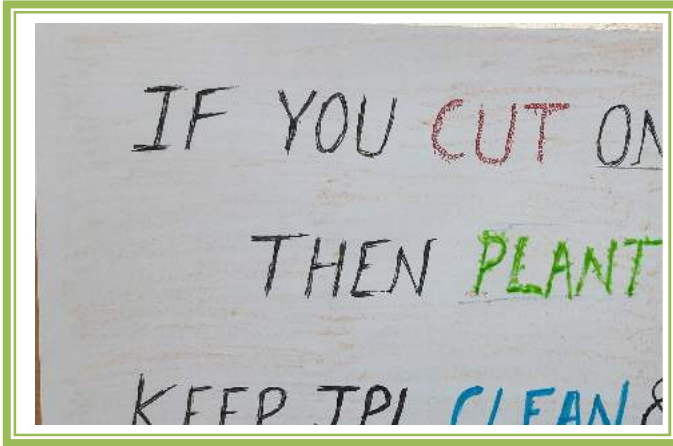
**Awards:**

- ❖ ATD BEST Award 2019 ATD formerly known as ASTD (American Society for Training & Development), USA.
- ❖ Golden Globe Tigers Award & People First HR Excellence Awards 2019.
- ❖ Jindal Power Limited Quality Circle teams bagged "Par Excellence" and "Excellence" Awards at National Convention on Quality Concepts (NCQC-2018), held at Gwalior.
- ❖ Jindal Power Limited (3400 MW) has been awarded Re-certification of ISO 9001:2015, ISO 14001:2015 and BS OHSAS 18001:2007 by TUV NORD GMBH certification agency, Germany.
- ❖ Won the 16th Annual Genentech Award -2015 in "Gold Category" in Thermal Power sector in India.
- ❖ ENERGY EFFICIENCY AWARD 2015 in the Category: Power (>1000 MW) by CREDA at Raipur, Chhattisgarh, on 9th of August, 2015 in recognition and appreciation of our unrelenting efforts in Energy Efficiency during 2014-15.
- ❖ Jindal Power limited (JPL) has been ranked 5th with 2 Leaves Award in green rating project of thermal power plants in the country conducted by Centre for Science and Environment (CSE), New Delhi.
- ❖ Genentech Award -2014 in "Gold Category" in Thermal Power sector in India.
- ❖ Greentech CSR Award-2014
- ❖ Genentech Award -2013 in "Platinum Category" (Highest category) in Thermal Power sector in India.
- ❖ Greentech CSR Award-2013.
- ❖ Greentech Environment Gold Award-2012.
- ❖ Frost & Sullivan's Green Manufacturing Excellence Awards 2013.
- ❖ Won the par excellence & excellence award from QCFI for the Year 2013.
- ❖ Won the First Prize" in the Annual Flower & Vegetable Show organized by TRL Krosaki Refractory's Ltd. for the Year 2013.

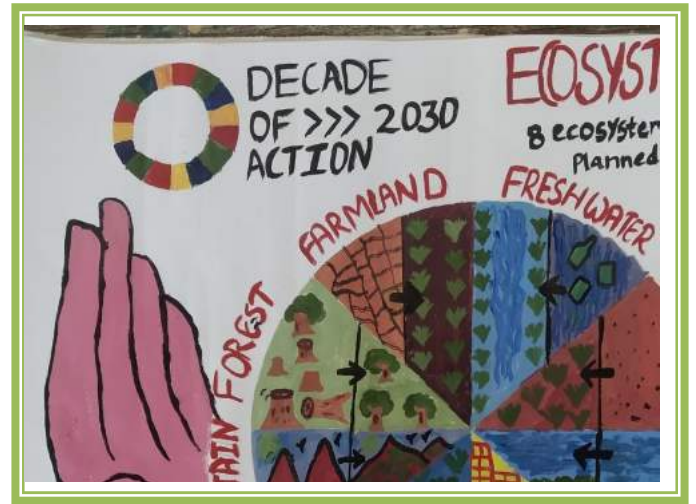
**PHOTOGRAPHS OF ENVIRONMENTAL AWARENESS PROGRAM**



Plantation program at Jindal Power Limited



Slogan competition organized on the occasion of WED-21



Online poster competition organized on the occasion of WED-2021

**CERTIFICATES & PHOTOGRAPHS OF ENVIRONMENT AWARDS RECEIVED.**



Certificate of Green Rating Project Award



Certificate of Greentech Award



ISO certificates