JAYPEE NIGRIE SUPER THERMAL POWER PLANT

A DIVISION OF JAIPRAKASH POWER VENTURES LIMITED

JAIPRAKASH
POWER VENTURES LIMITED

JVPL/EC/ES/2017-18

September 5th, 2018

The Member Secretary

M.P. Pollution Control Board,
Paryavaran Parisar,
E-5, Arera Colony
BHOPAL (M.P.) - 462 016.

Sub: Environment Statement under the Environment (Protection) Act, 1986 for Jaypee Nigrie Super Thermal Power Project (A Division of Jaiprakash Power Ventures Limited) at village Nigrie, Dist. Singrauli.

Dear Sir

Please find enclosed herewith Environment Statements for the year **2017 - 2018** of our following Plants.

- Jaypee Nigrie Super Thermal Power Project, EC reference no. J-13012/223/2007-IA-II(T) dated 25.02.2010 and its amendment dated 13.07.2012 for the Jaypee Nigrie Super Thermal Power Plant (2x660 MW) & Jaypee Nigrie Cement Grinding Unit (2.0 MTPA)

Thanking you.

Yours Faithfully
For (Jaypee Nigrie Super Thermal Power Project)
(A Division of Jaiprakash Power Ventures Ltd.)

05/9/18

(Vinod Sharma)
President (O & M)

Encl: As Above.

1) C.C.:**Regional Officer** - **For information please.**
D-3 Russian complex, Vindhya Nagar
NTPC , Vindhyanagar
Madhya Pradesh Pollution Control Board, Singrauli

Site : Jaypee Nigrie Super Thermal Power Plant, Village & P.O. Nigrie, Tehsil Sarai, Distt. Singrauli (M.P.)
Ph. : +91 (7801) 286021 - 36 Fax : +91 (7801) 286020 Email : pthermal.sidhi@jalindia.co.in
Corp. Office : 'JA House', 63 Basant Lok, Vasant Vihar, New Delhi - 110 057 (India)
Ph. : +91 (11) 49828579, 49828642 Fax : +91 (11) 26145389
Regd. Office : Complex of Jaypee Nigrie Super Thermal Power Plant, Nigrie Tehsil Sarai, Distt. Singrauli 486669, (Madhya Pradesh)
Ph. : +91 (7801) 286021-39 Fax : +91 (7801) 286020
Website: www.jpoweventures.com **CIN** : L40101MP1994PLC042920

JAYPEE GROUP

ENVIRONMENTAL STATEMENT REPORT

JAYPEE NIGRIE SUPER THERMAL POWER PLANT

(A Division of M/s Jaiprakash Power Ventures Limited)

Village: Nigrie, Tehsil: Sarai
District: Singrauli

2017 – 2018

SUBMITTED

to

M.P. POLLUTION CONTROL BOARD
BHOPAL (M.P.)

Jaypee Nigrie Super Thermal Power Plant
(A Division of Jaiprakash Power Ventures Limited)

Factory/Plant in Operation: Jaypee Nigrie Super Thermal Power plant at Nigrie.

Introduction:

Jaiprakash Associates Ltd. (JAL), the flagship company of the Jaypee Group. JAL was formed due to merger of Jaiprakash Industries (JIL) and Jaiprakash Cement (JCL). JAL is the Engineering and Construction arm of the Jaypee group focused on development of River Valley and Hydro Electric Projects and a leader in Construction of River Valley and Hydropower Projects on turnkey basis for more than four decades. The company is currently executing various projects in Hydropower / Irrigation / other Infrastructure fields.

Jaiprakash Power Ventures Limited (JPVL) earlier known as Jaiprakash Hydro Power (JHPL), is a part of the Jaypee Group. The Company is engaged in the business of Generation of Power (Hydro & Thermal), Cement Grinding and Captive Coal Mining and Transmission of Power. Besides the 400MW Jaypee Vishnuprayag Hydro Power Plant in Uttarakhand; (3×660 MW) 1980MW Prayagraj Power Generation Company Limited in Uttar Pradesh, 500MW Phase I (of 1200 MW) Jaypee Bina Thermal Power Plant in Madhya Pradesh & (2X660 MW) 1320MW Jaypee Nigrie Supercritical Thermal Power Plant in Madhya Pradesh and Amelia (North) Coal Mine in Madhya Pradesh is dedicated Coal Mine to Jaypee Nigrie Super Thermal Power palnt. The Company has a Captive Cement Grinding Unit named 'Jaypee Nigrie Cement Grinding Unit' at Nigrie (M.P.) with a capacity of 2 MTPA, which is utilizing generated Fly Ash from Jaypee Nigrie Super Thermal Power Plant.

Jaypee Nigrie Super Thermal Power Plant is a Coal Based Super Critical Thermal Power Plant of (660 x 2) 1320 MW at Nigrie Village, Sarai Tehsil in Singrauli District of Madhya Pradesh State having adjacent Cement Grinding Unit. Jaypee Nigrie Super (Critical) Thermal Power Plant commenced its operations w.e.f. 3rd September, 2014 (Unit # 01) & 24th March, 2015 (Unit # 02).

Supply of Super-Critical Boilers was executed by L & T - Power Boilers while the Steam Turbine Generator was sourced from L & T - Power. Boilers installed are with Super-Critical Steam Parameters and with High Efficiency resulting in Less Fuel Consumption and Less Environmental Pollution.

Features:

- Greater operating flexibility.
- Improved thermal efficiency.
- Lower emission levels.
- Reduced ash generation.
- Reduced fuel consumption.
- Reduced PM, NOx emission.
- Reduction of carbon dioxide emission due to less consumption of fuel.
- Super critical boiler technology will achieve a higher net efficiency level for coal fired power stations. This technology's higher steam temperatures and pressure parameters offer the most economical way to improve plant efficiency and operating flexibility – as well as achieve fuel cost savings and lower emissions for each KWH of electricity.

Environment

Efforts are made to Conserve Ecological Balance without any harm done to the local flora & Fauna. JPVL has also taken Green Initiatives, afforestation, Resources Conservation, Water Conservation, and Air Quality Control & Noise Pollution Control.

"FORM – V"

(See rule 14)

ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31st March 2018

PART – A

(I)	Name & Address of the Owner / Occupier of the Industry Operation or Process	**Jaypee Nigrie Super Thermal Power Plant (JNSTPP)** **(A Division of Jaiprakash Power Ventures Limited)** PO- Nigrie, Distt. Singrauli-486669 Madhya Pradesh
(II)	Industry category Primary – (STC Code) Secondary – (SIC Code)	17 Category /'RED' Category And Large Scale (Namely Thermal Power Generation Plant), Major
(III)	Production Capacity Unit-I Unit-II	2x660 MW Power Generation
(IV)	Year of Establishment Unit-I Unit-II	Year 2014 Year 2015
(V)	Date of last Environmental Statement Submitted	September, 2017.

PART – B

Water & Raw Material Consumption

A. Water Consumption - m3/day

(I)	Process	-	536.54
	Cooling	-	22029.63
	Domestic	-	898.00

Name of the Product	Process Water Consumption per unit of Product Output (m^3/MU) (1 Mu=1000000 KW)	
	During the Previous Financial Year (2016-2017)	During the Current Financial Year (2017-2018)
Electricity	56.68	43.13

(ii). Raw Material Consumption

Name of the Raw Material	Name of Product	Consumption of Raw Material per Unit Product Output (MT/MU of Electricity) (1 Mu=1000000 KW)	
		During the Previous Financial Year (2016-2017)	During the Current Financial Year (2017-2018)
Coal	Electricity	• 608.07	• 577.01
Fuel Oil **(HFO & LDO)**		• 0.5854	• 0.4293
Chemicals-			
• Hydrochloric acid (HCL)		• 0.1347	• 0.0951
• H_2SO_4		• 0.0270	• 0.0244
• NaOH		• 0.0906	• 0.0741
• Ammonia		• 0.0068	• 0.0072
• Hydrazine		• 0.0000	• 0.0000
• Alum		• 0.0240	• 0.0143
• NaOCl		• 0.0039	• 0.0020

• Hydrogen Gas • CO_2 Gas • Chlorine Gas • Ferric Chloride • Dolomite		• 0.0007 • 0.0000	• 0.0001 • 0.0002 • 0.0215 • 0.0007 • 0.0052

Total Electricity Generation MU (1 MU=1000000 KW)

Name of Product	During Previous Financial Year (16-17) MU	During Current Financial Year (17-18) MU
Electricity	**7266.955**	**7688.93**

PART - C

Pollutant Discharged To Environment / Unit of Output

(Parameters as specified in the consent issued)

S. No.	Pollutants	Quantity of Pollutants Discharged (Mass / day) (tonne/day)	Concentrations of Pollutants in discharged (Mass / Volume) (mg/Nm3)	Percentage of variation from prescribed standard with reasons
(a)	**Water**			
(i)	**Domestic**	Zero discharge is being maintained and treated domestic waste water is being used in Horticulture & Green belt development.		
(ii)	**Industrial**	Zero discharge is being maintained. Treated waste water is reused in Cooling Water makeup & sprinkling in coal handling plant.		
(b)	**Air**			
	Monitoring of Ambient Air Quality parameters within limits and report attached as **Annexure- I**			
	Stack emission			
	(a) ESPs			
	Stack-I (Unit-I) Parameter - PM	2.144	34.79	Within permissible limit

	Stack-II(Unit-II) Parameter – PM	2.295	37.23	

PART – D
Hazardous Wastes

As specified under Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016

Hazardous Waste		**Total Quantity (Kg)**					
		During the Previous Financial Year (2016-2017)			**During the Current Financial Year (2017-2018)**		
(a)	From Process	Used oil	Waste oil	Resins	Used oil	Waste oil	Resins
		Nil	38,200 kg	Nil	Nil	15,240 kg	Nil
(b)	From Pollution Control Facilities.	NA			NA		

PART – E

Solid Wastes

Solid Waste		**Total Quantity**	
		During the Previous Financial Year (2016-2017)	**During the Current Financial Year (2017-2018)**
(a)	From Process	Fly Ash (11,62,201 MT) Bottom Ash (2,90,549 MT)	Fly Ash (12,12,655 MT) Bottom Ash (2,71,285 MT)
(b)	From Pollution Control facilities	All the collected material is utilized in manufacturing of PPC and used in Height Raising & Landfill within the premises.	All the collected material is utilized in manufacturing of PPC and used in Height Raising & Landfill within the premises.

(c)	(i) Qty. recycled or reutilised within the unit.	Fly Ash (794 MT) (Utilized in adjacent Cement Grinding unit of Jaypee Nigrie)	Fly Ash (32439 MT) (Utilized in adjacent Cement Grinding unit of Jaypee Nigrie)
	(ii) Sold	11,52,796 MT (Sold out to Cement Manufacturers)	11,80,216 MT of Fly Ash Sold out to Cement Manufacturers & Brick Manufacturers & Ash Dyke Raising/ Low lying Area Filling & Local Gram Panchayath (100% Fly Ash is being utilized.)
	(iii) Disposed	Bottom Ash (2,90,549 MT) is disposed in Ash Pond Ash Bunding /Height raising, Land fill etc. (9405 MT)	Bottom Ash (2,71,285 MT) is disposed in Ash Pond (174300 MT of Bottom Ash has been utilized in Low lying area filling)

PART – F

PLEASE SPECIFY THE CHARACTERISATIONS (IN TERMS OF COMPOSITION AND QUANTUM) OF HAZARDOUS AS WELL AS SOLID WASTES AND INDICATE DISPOSAL PRACTICE ADOPTED FOR BOTH THESE CATEGORIES OF WASTES.

Hazardous waste: Generated Haz. Waste is being stored under covered shed at an isolated covered place; the floor is concreted & person working at site has been provided with all required PPEs. From there the stored hazardous waste will be sold out to authorized recyclers.

Solid waste: Fly Ash & Bottom Ash are being generated in form of solid waste from Jaypee Nigrie Super Thermal Power Plant for which suitable provisions are made for its use-

- Fly Ash is being consumed by its adjacent Jaypee Nigrie Cement Grinding Unit & rest is transported to nearby Cement Plants (Jaypee Rewa, PCL Satna, Birla Corp Satna, KJS Maihar, VTC Maihar & Other Brick manufacturing Unit) for manufacturing of PPC and manufacturing of fly ash bricks.
- Bottom ash is carried in slurry form to Ash Ponds situated inside the plant premises. Ash Ponds are lined with fine sand then HDPE (1 mm thickness) lining and over that PCC. Bottom Ash will also be suitably utilized after drying to meet the stipulation of Fly ash Notifications.

Ash Dyke Pond

PART – G

IMPACT OF THE POLLUTION ABATEMENT MEASURES TAKEN ON CONSERVATION OF NATURAL RESOURCES AND ON THE COST OF PRODUCTION.

Following measures have been adopted for abatement of pollution, conservation of natural resources:-

a) Utilization of Fly Ash for the manufacturing of cement

JNSTPP having capacity of 2 x 660 MW has the potential to generate 1.477 MTPA (Fly ash = 1.177 MTPA & Bottom Ash 0.30 MTPA). Generated Fly ash is consumed in adjacent Jaypee Nigrie Cement Grinding Unit & rest is transported to nearby Cement Plants (Jaypee Rewa,

PCL Satna, Birla Corp Satna, KJS Maihar, VTC Maihar & Other Brick manufacturing Unit) for manufacturing of PPC and manufacturing of fly ash bricks.

b) Installation of Sewage Treatment Plant & Effluent Treatment Plant-

Adequate facilities for treatment of industrial waste water including blow down from Cooling Towers. The waste water is treated in the ETP (WWTP) and the quality of treated water conforms to MPPCB standards as given in Consent Order. Sewage Treatment Plant of 1000 KLD has been installed and treated water is used for horticulture.

Waste water Treatment Plant (ETP)

Photograph of WWTP

c). Installation of APCDs at various sources-

Highly efficient Electrostatic Precipitators (ESPs) with efficiency of 99.93% have been installed for each boiler to meet particulate emission less than 50 mg/Nm3. The ESP Engineering, supply and erection work is done by M/s. BHEL (A Govt. of India Undertaking), with one field out of service at full load with worst coal. Each ESP has six passes and each pass is having 16 fields (i.e. total 96 fields).We have installed 7 no. of bag filters at various points source to control the fugitive emission.

Photograph of ESP

d**) Online Monitoring system**:

- ✓ Four Continues Ambient Air Quality Monitoring Stations (Online/Real Time) are provided along the boundary considering the wind rose/wind directions of PM 10, PM 2.5, SO2, NOx & CO and the total data of the CAAQMS is connected with MPPCB server at Bhopal & CPCB server at Delhi.

- ✓ Continuous Online Emission Monitoring analyzers installed to Monitor emissions (PM, SO2 & NOx & Hg) for both boiler stacks and data is being transmitted to MPPCB & CPCB Website, and the results are well within the Norms.

CAAQMS

Opacity Meter & CEMS

Photo of CAAQMs &CEMS

e). Installation of Water Sprinkling Systems- Water spraying arrangements are made for control of fugitive emission from Coal handling plant and other areas by installation of Water Sprinklers.

Photograph of sprinkler at coal stacker

f).Noise Pollution Abatement Measures – Provision of Acoustic Enclosures at Turbines & other Machineries to attenuate Noise Levels. Acoustic Enclosures of Machines to control Noise Levels.

g). Good housekeeping practice adopted

Following measures have been taken for good house keeping

a. The conveyor belts are fully covered.

b. Schedule maintenance of PCDs is carried out.

c. Coal Wagon bottom unloading System is installed.

CHP and covered conveyer belts

Coal wagon unloading system

PART – H

ADDITONAL MEASURES / INVESTMENT PROPOSALS FOR ENVIRONMENTAL PROTECTION INCLUDING ABATEMENT POLLUTION, PREVENTION OF POLLUTION.

Additional measures taken for Environmental Protection are as under

Extensive plantation in and around the Plant.

We have a dedicated team of skilled horticulturists for the afforestation and greenery development program at our plant under the supervision of senior experienced person. Till date we have planted approximately 2.35 lakhs (2,34,950 nos.) of plants in around 95 Ha. (94.97 ha.)

Steps taken to protect plantation:

1. Barricading provided for protection of plants.
2. Two numbers of dedicated water tankers are provided for regular watering of plant.
3. Dedicated manpower is provided for regular watering & care of plants.
4. Tree Guards are provided for protection of the plants.

PART – I

ANY OTHER PARTICULARS FOR IMPROVING THE QUALITY OF ENVIRONMENT.

- Water Harvesting Measures- A surface water body is constructed in the township area for rain water harvesting.

- Establishment of Environment Laboratory-

Environment Laboratory has been set up with well equipped facilities such as water & waste water testing instruments as well Air Quality Monitoring instruments.

Environment Cell

- Concreting of Roads- All internal roads in plant & township area are made Pucca.

- **CSR works –**
  - A separate budget earmarked for CSR activities. CSR study report already submitted to the ministry vide letter no. - JPVL/JNSTPP/MOEF/2010 dated 20.01.2011 and 29.06.2011.
  - The capital fund of Rs 24 Crores is earmarked for CSR activities and Rs. 4.8 Crores per annum fund kept for recurring expenditure.
  - The company is carrying out CSR activities in the vicinity of the Project as per the directions and guidance of the District Administration.
  - Providing drinking water facility benefitting to the nearby villages.
  - Unit is also investing on CSR Activities like conducting Medical camps in villages, Plantation programs, Road development activities, women empowerment, etc...
  - Total expenditure incurred up to March, 2018 is Rs 2.33 Crores.

Based on Need Base Assessment Study for development of nearby villages, an action plan was worked out for income generating projects for up-liftment of poor section of society.

The following activities were undertaken:

- Sardar Patel Uchchtar Madhyamik Vidyalaya was started functioning up to class five w.e.f. July, 2011 and subsequently upgraded up to 10th class in July'2016 session.
- Annapurna mess is serving the free mid day meal to students.
- An ITI institute is being constructed for development of skilled man power in nearby areas of project.
- Other CSR activities include Stipend for secondary school students, Paying tribute to Old Age Persons, Vocational Training for students, and Drinking Water facility to local habitants.

- **Hindi Medium School- Free Education for nearby villagers-**

- **Free Medical Camps –**

- **Free Medicines to all nearby Villagers -** A 10 bed hospital is functional for medical check-up and treatment to the local habitats for the surrounding 10 villages. Almost 250 to 300 people avail the Medical facilities daily

For Jaypee Nigrie Super Thermal Power Plant,
(A Division of Jaiprakash Power Ventures Ltd)

(Vinod Sharma)
President (O & M)

Jaiprakash Power Ventures Limited JNSTPP Nigrie, Singrauli (M.P.)