

VL/OPCB/002/2023-209
September 28, 2023

The Member Secretary
State Pollution Control Board, Odisha
Parivesh Bhawan,
A/118, Nilakantha Nagar,
Unit-VIII
Bhubaneswar – 751 012

Sub.: **Submission of Environment Statement for 2022-23 of 2400 MW Thermal Power Plant of Vedanta Limited, Jharsuguda**

Ref.: **Rule 14 of the Environment (Protection) Rules, 1986**

Dear Sir,

This has reference to the captioned subject and the cited reference. Please find the Environment Statement of 2400 MW Thermal Power Plant (IPP) of Vedanta Limited, Jharsuguda for 2022-23 duly filled in Form-V.

Thanking you,

Yours faithfully,


Dr. Amit Kumar Tyagi
Head-Environment

Encl.: Environment Statement in Form-V

Copy to: The Regional Officer, State Pollution Control Board, Odisha, Jharsuguda

VEDANTA LIMITED, JHARSUGUDA

Vill : Bhurkamunda, P. O. : Kalimandir, Dist. : Jharsuguda (Odisha) : 768202
T +91-664 566 6000 F +91-664 566 6267 www.vedantalimited.com

REGISTERED OFFICE: Vedanta Limited, 1st Floor, 'C' wing, Unit 103, Corporate Avenue, Atul Projects, Chakala,
Andheri (East), Mumbai 400093, Maharashtra, India.
CIN: L13209MH1965PLC291394

Sensitivity: Internal (CS)



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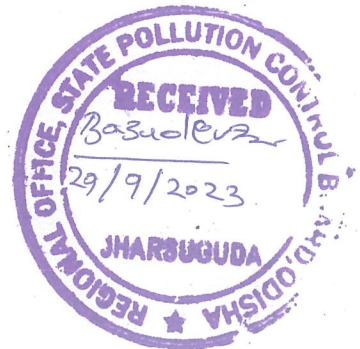
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ODISHA POLLUTION CONTROL BOARD

FORM V

(See Rule 14)

Environmental Statement for the financial year ending on 31st March on or before 30th of September every year.

PART A

- (i) Name and address of the owner/ occupier of the industry operation or process : Arun Misra
- (ii) Industry category Primary-(STC Code) : RED A, Thermal Power Plant
Secondary-(STC Code)
- (iii) Production capacity :

Production Name	Production Capacity	Production Unit
Power Generation	2400	Megawatt

- (iv) Year of establishment : 2010
- (v) Date of the last environment statement submitted : 23/09/2022

PART B

1. Water consumption m3/ d

Process : 1416 m3/day

Cooling : 76316 m3/day

Domestic : 2563 m3/day

Name of products	Process water consumption per unit of product output	
	During the previous financial year	During the current financial year
Power Generation	2.12 m3/MWH	2.25 m3/MWH

2. Raw material consumption

Name of raw materials	Name of products	Consumption of raw material per unit	
		During the previous financial year	During the current financial year
LDO	Power Generation	0.00023 KL/MWH	0.00028 KL/MWH
Coal	Power Generation	0.735 (at GCV 3120 Kcal/Kg) MT/MWH	0.717 (at GCV 3150 Kcal/Kg) MT/MWH

*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.

Pollution	Quantity of pollutants discharged(mass/day)	Concentration of pollutants in discharges(mass/volume)	Percentage of variation from prescribed standards with reasons
Water	Zero discharge Condition Maintained		
Air			
Air	TPP Unit -1 PM 1940.38 Kg/day	40.81 Mg/Nm ³	within the prescribed limit
Air	TPP Unit -1 SO _x 60529.40 Kg/day	1278.40 Mg/Nm ³	within the prescribed limit
Air	TPP Unit -1 NO _x 16705.81 Kg/day	352.50 Mg/Nm ³	within the prescribed limit
Air	TPP Unit -2 PM 2455.29 Kg/day	44.45 Mg/Nm ³	within the prescribed limit
Air	TPP Unit -2 SO _x 67756.17 Kg/day	1230.08 Mg/Nm ³	within the prescribed limit
Air	TPP Unit -2 NO _x 19427.90 Kg/day	353.33 Mg/Nm ³	within the prescribed limit
Air	TPP Unit -3 PM 2504.68 Kg/day	44.27 Mg/Nm ³	within the prescribed limit
Air	TPP Unit -3 SO _x 69484.75 Kg/day	1236.42 Mg/Nm ³	within the prescribed limit
Air	TPP Unit -3 NO _x 18820.16 Kg/day	335.08 Mg/Nm ³	within the prescribed limit
Air	TPP Unit -4 PM 2216.66 Kg/day	42.27 Mg/Nm ³	within the prescribed limit
Air	TPP Unit 4 SO _x 65254.62 Kg/day	1242.09 Mg/Nm ³	within the prescribed limit
Air	TPP Unit -4 NO _x 18678.38 Kg/day	354.73 Mg/Nm ³	within the prescribed limit

Name of Pollutants : PM,SO_x,NO_x.

PART D Hazardous Wastes

(as specified under Hazardous Wastes (Management and Handling) Rules, 1989)

Hazardous Wastes	Total Quantity (Kg)	
	During the previous financial year	During the current financial year
(a) From process	52.076 MT (Hazardous Waste)	27.365 MT (Hazardous Waste)
(b) From pollution control facilities	Nil	Nil

PART E Solid Wastes

	Total Quantity	
	During the previous financial year	During the current financial year
(a) From process	Solid Waste - Ash (Fly Ash + Bottom Ash) 4400643 MT	Solid Waste - Ash (Fly Ash + Bottom Ash) 4087408 MT
(b) From pollution control facility	Nil	Nil
(c)(1) Quantity recycled or re-utilised within the unit	5276177.09 MT (Fly Ash)	4395172.83 MT (Fly Ash)
(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 both these categories of wastes Annexure uploaded. *Enclosed*

PART G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production Annexure uploaded. *Enclosed*

PART H

Additional measures/ investment proposal for environmental protection abatement of pollution, prevention of pollution Annexure uploaded. *Enclosed*

PART I

Any other particulars for improving the quality of the environment Annexure uploaded. *Enclosed*

Remarks : .

FORM – V
(See Rule 14)

Environmental Statement for the financial Year ending the 31st March 2023

PART- A

- i Name and address of the occupier of the industry operation or process : Mr. Arun Misra
Executive Director
Vedanta Limited,
2400 MW Thermal Power Plant (TPP)
Banjari, Jharsuguda – 768202
- ii Industry Category Primary (STC Code) : -
Secondary – (SIC Code)
- iii Production Capacity (Units) : 2400 MW (4 X 600)
- iv Year of Establishment : 2010
- v Date of the last Environmental Statement submitted : 23rd September 2022

PART – B

Water and Raw Material Consumption

(1) Water Consumption m³/Day

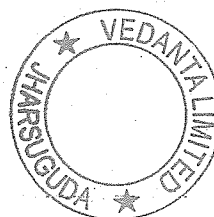
Process : 1416 m³/Day
Cooling & Boiler Feed : 76316 m³ /Day
Domestic : 2563 m³ /Day

Name of Product	Process Water Consumption per Unit of Product Output	
	During the previous year (2021-22)	During the current year (2022-23)
Power	2.12 m ³ /MWH	2.25 m ³ /MWH

(2) Raw Material Consumption

Name of Product	Name of Raw Materials	Unit	Consumption of Raw Material Per unit output	
			During the previous year (2021-22)	During the current year (2022-23)
Electricity (2400 MW TPP)	Coal	MT/MWH	0.735 (at GCV 3120.Kcal/Kg)	0.717 (at GCV 3150 Kcal/Kg)
	LDO	KL/MWH	0.00023	0.00028

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

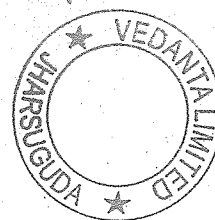


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PART – C

Pollution Discharged to Environment /Unit of Output (Parameters as specified in the consent issued)

Pollutants	Units & Parameters		Quantity of pollutants discharged (mass/day)	Concentration of pollutants in discharges (mass/volume)	% of variation from prescribed standards with reasons
a) Water			Zero discharge condition maintained	NA	NA
b) Air	UOM		Kg/Day	Mg/Nm3	Within the prescribed limits
	TPP Unit - 1	PM	1940.38	40.81	
		SOx	60529.40	1278.40	
		NOx	16705.81	352.50	
	TPP Unit - 2	PM	2455.29	44.45	
		SOx	67756.17	1230.08	
		NOx	19427.90	353.33	
	TPP Unit - 3	PM	2504.68	44.27	
		SOx	69484.75	1236.42	
		NOx	18820.16	335.08	
	TPP Unit - 4	PM	2216.66	42.27	
		SOx	65254.62	1242.09	
		NOx	18678.38	354.73	



PART-D

Hazardous Waste

{As specified under Hazardous Wastes (Management, Handling & Transboundary Movement) Rules 2016}

(a) From Process:

Sl. No.	Hazardous Wastes (Generation)	Total Quantity	
		Previous financial year (2021-22)	Current financial year (2022-23)
1	Used oil	51.02 MT	26.36 MT
2	Spent resins	0.0 MT	0.0 MT
3	Waste containing oil	1.056 MT	1.005 MT

PART - E

Solid Waste*

(a) From Process & (b) from Pollution Control Facilities

Sl. No.	Solid Waste (Generation)	Total Quantity	
		Previous financial year (2021-22)	Current financial year (2022-23)
1	Ash (Fly ash+ Bottom ash)	44,00,643 MT	40,87,408 MT

(c)

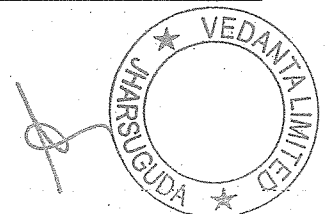
(1) Quantity recycled or re-utilized within the unit:

Sl. No.	Solid Wastes	Total Quantity	
		Previous financial year (2021-22)	Current financial year (2022-23)
1.	Ash (Fly ash+ Bottom ash)	1,61,730.160 MT (Inside) 51,14,446.930 MT (Outside in Brick, Cement plants, road making, Low lying filling)	43,95,172.83 MT (In Brick manufacturing industries, Cement plants, road making, and Low lying areas)

(2) Sold: Nil

(3) Disposed:

Sl. No.	Solid Wastes	Total Quantity	
		Previous financial year (2021-22)	Current financial year (2022-23)
1.	Ash (Fly ash+ Bottom ash)	NIL	NIL



PART – F

(Specify the characterizations (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes

Characteristics of Solid Wastes

Fly ash - 40,87,408 MT

Parameter	Unit	Fly Ash
Aluminium	mg/kg	6530
Calcium	mg/kg	2878
Chromium as Cr	mg/kg	27.10
Magnesium	mg/kg	502
Manganese as Mn	mg/kg	93.42
Molybdenum as Mo	mg/kg	42.45
Nickel as Ni	mg/kg	8.23
Phosphates as P ₂ O ₅	%	0.89
Potassium	mg/kg	355
Silicon dioxide as SiO ₂	%	52.42
Sodium	mg/kg	76.38
Titanium as TiO ₂	mg/kg	504
Total Sulphur as SO ₃	%	0.08
Unburnt carbon	%	1.23

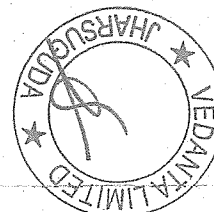
Disposal practice of Solid waste:

Disposal practice of Hazardous Waste:

Sl. No	Type of Hazardous Waste	Quantity of generation year (2022-23)	Quantity of Disposal year (2022-23)	Disposal practice
1.	Used oil	26.36 MT	50.76 MT	Sold to authorized re-processor
2.	Spent resins	0.0	0.0	Co-incineration in CPP
3.	Waste Containing Oil	1.005 MT	1.005 MT	Captive Incineration

(b) Disposal practice of Non-hazardous waste:

Sl. No	Type of Hazardous Waste	Quantity of generation year (2022-23)	Quantity of Disposal year (2022-23)	Disposal practice
1.	Ash (Fly ash + Bottom ash)	40,87,408 MT.	43,95,172.83 MT.	Disposal in ash pond- through HCSD system/Utilization in filling up of low-lying area/ Utilization in Cement/ Brick industry/road making



PART – G

Impact of the Pollution abatement measures taken on conservation of natural resources and on the cost of production

(A) Water Conservation Programmes

- Commissioning and Operation of 500 m³/ Hrs. ETP with RO system.
- Chemical Cleaning of boiler tubes to decrease evaporation losses.
- Regular preventive maintenance of Effluent Treatment Plants and RO system to achieve desired Norms. Treated water is being reused in the process.
- Revamping of firefighting water pipeline and service water line from underground to overground.

(B) Energy Conservation Initiatives

- U#1 APH, Duct, ESP & FF leakage arrested to reduce ID fan loading – 52165.5 GJ
- U#1 condenser cleaning & NDCT Fills replacement – 280344.2 GJ
- U#1 HP/IP cylinder refining – 84103.3 GJ

PART – H

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

(A) Additional Measures:

Air Pollution Control:

- 3 Nos. of Mist cannons installed at truck tippler to arrest fugitive emissions.
- Yard spray line effectiveness improved to control yard dust emission
- Truck tippler area DS system effectiveness improved to control dust emission.
- IOT transmitter installed in Unit 1 baghouse for proper monitoring of differential pressure.
- Flow and temperature analyser installed in Unit 1.
- Bag filter inspected and replaced in all silo top to control emission.
- Fabric Filter bag replaced in unit 1 & 4.
- Mist cannon installed in front of silo 1.
- Secondary Over fired Dampers (SOFA) installed in Unit 1 and Unit 4 to reduce NO_x emissions.
- IOT Transmitter installed in Baghouses for proper monitoring of differential pressure in Unit 1.
- Flow and Temperature analyser installed in Unit 1



Water pollution Control:

- STP system cleaning and revival of Mechanical Screener
- Cleaning of CMB to enhance the capacity and reuse of Continuous Monitoring Basin water post treatment.
- Laying of Siriapali ash pond return water line
- Inline pump installed to arrest leakage in service water line
- Regular preventive maintenance of Effluent Treatment Plants and RO system to achieve desired Norms. Treated water is being reused in the process.
- Chemical cleaning of Unit 1 & 4 condenser tubes to decrease evaporation losses

Solid Waste Management:

- Achieved around 107.53% ash utilization in various avenues such as highway projects, cement plants, brick manufacturing etc.

(B) Investment Proposals:

- Installation of sprinkler at coal yard to reduce fugitive emission.
- Revival of Bunker DE system
- DS system effectiveness improvement by pump and line modification
- Installation of mist cannon at silo no 2, 3 & 4.
- Replacement of Fabric Filter bags in Unit 2 & 3.

PART – I

Any other particulars for improving the quality of the environment

- Implemented Integrated Management System (IMS) across 2400 MW Thermal Power Plant for better quality, pollution control and improve health of people working in the plant.
- All important Environmental Days Celebrated to build up Environmental awareness among employees and community.
- Distribution of tree saplings among community members for developing greenery.

