

To,  
The Member Secretary,  
Goa State Pollution Control Board,  
Dempo Towers, 1<sup>st</sup> Floor,  
EDC Patto Plaza,  
Panaji, Goa

*Ameel*  
*26/09/2018*

Date: 19.09.2018

Goa State Pollution Control Board  
Opp. Saligao Seminary  
Saligao, Bardez Goa.

Sub: Submission of Environmental Statement for the Financial Year 2017-2018 for  
Met Coke Division, Waste Heat Recovery Power Plant-1.

Ref:- Consent To operate No:-5/416/95-PCB/C2-1786 dated 14/07/2016, Met Coke  
Division, Waste Heat Recovery Power Plant-1.

With reference to above subject find enclosed herewith Environment Statement in Form V  
for financial year 2017-2018 for Met Coke Division & Waste Heat Recovery Power Plant-1  
for your perusal.

Kindly acknowledge the receipt.

Thanking you,

Yours Faithfully,  
**For Vedanta Limited**

*Handwritten signature*  
*24/09/2018*

**Saptesh Sardesai**  
**Head Met Coke Division**

Encl: as above

VEDANTA LIMITED

Value Added Business, Met Coke Division, Navelim, PO Sanquelim, Bicholim, Goa-403 505  
Tel +91-832 398 1400 | Fax +91-832 398 1575 | Web: [www.sesagoironore.com](http://www.sesagoironore.com)

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CIN: L13209MH1965PLC291394

## FORM V

### ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING 31<sup>st</sup> MARCH 2018

#### PART--- A

i	Name & address of the owner /occupier of the industry operation or process	Mr. G.R Arun Kumar The Occupier Vedanta Ltd. – Met Coke Division I & Waste Heat Recovery Plant Navelim Goa 403107
ii	Industry category	Major
iii	Production capacity	3,22,000 T / Year Met Coke Division . 33MW Generation of Power
iv	Year of establishment	April 1995.
v	Date of last environment statement submitted	24 <sup>th</sup> September 2017 for the financial year ending March 2017.

#### PART ---- B

Water and Raw Material consumption

(1) Water consumption m<sup>3</sup>/d

(a)	Process	Nil
	<b>Met Coke Division</b>	
(b)	Cooling	485 m <sup>3</sup> /day
(c)	Domestic (includes gardening)	95 m <sup>3</sup> /day
	<b>Waste Heat Recovery Plant</b>	
(b)	Boiler feed / Cooling water	1981 m <sup>3</sup> /day
(c)	Domestic (includes gardening)	2 m <sup>3</sup> /day

	Name of the product	Process water consumption per unit of product out put	
		During previous financial year 2016-2017	During current financial year 2017-2018
1	Metallurgical Coke	For Coke Quenching 0.65 m <sup>3</sup> / t Coke	For Coke Quenching 0.644m <sup>3</sup> / t Coke
2	Power from waste heat of COFG)	0.048 m <sup>3</sup> water for 1 MWhr Power	0.039 m <sup>3</sup> water for 1MWhr Power

(2) Raw Material consumption

Name of the Raw Material	Name of the Product	Consumption of Raw Material per unit	
		During previous Financial year 2016-2017	During current Financial year 2017-2018
Coking Coal	Metallurgical Coke	1319 Kg/T of product	1327.Kg/T of product
Waste heat of Coke Oven flue gas and blast furnace gas	Power from waste heat of COFG & BFG of Vedanta units PID & MCD	4.27 Mill Kcal for 1MWh generation	4.083 Mill Kcal for 1MWh generation

**PART-----C**

**POLLUTION DISCHARGED TO ENVIRONMENT / UNIT OF OUT PUT**

	Pollution	Quantity of pollutants discharged (mass/day)	Concentration of pollutants in discharge (mass/day)	Percentage of variation from prescribed standards with reasons
(a)	Water	No effluents discharged		No Variation
(b)	Air	Nil as flue gas is let out through waste heat recovery power plant (WHRPP) stacks.		Not Applicable
(a)	Water	Avg. Cooling Tower Blow down is 304.68 m3/day		Well within permissible limits
(b)	Air	Monitoring carried out as per Consent conditions and is within permissible limit, and results submitted to GSPCB		

**Note:**

- (i) *During Monsoons, only the storm water is let out through after achieving proper settling in settling pond.*
- (ii) *All 4 stacks of 43mtr height connected to the coke ovens .Clean power is generated using the sensible heat of this coke oven flue gas.*
- (iii) *During the normal operation, the coke oven stacks are closed with flap dampers*

**PART--- D**

**HAZARDOUS WASTES**

(As specified under Hazardous Wastes (Management, Handling & Transboundary movement) Rules, 2016)

		During the previous Financial year (2016-17)	During the current Financial year (2017-18)
(a)	From process	N.A	N.A
(b)	From pollution control facilities	N.A	N.A

**PART--- E**

**SOLID WASTES**

No Solid Waste is generated in Vedanta Ltd. Non Recovery type Coke Oven Process.

**PART-- F**

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

1. **Hazardous Waste:** (Met Coke Division)

Occupier is authorized to handle used oil/Spent oil (Category 5.1) upto 5,000 liters per year, Oil soaked cotton rags/wastes (Category 5.2) up to 20000kg/year, and Used/Discarded Paint Tins (Category 33.3) up to 2000 nos/year.

2. **Hazardous Waste:** (Waste Heat Recovery Power Plant)

Occupier is authorized to handle used oil/Spent oil (Category 5.1) upto 1,000 liters/year, Oil soaked cotton rags/wastes (Category 5.2) up to 1000kg/year, and Used/Discarded Paint Tins (Category 33.3) up to 1000 nos/year.

Total Spent oil was disposed off to authorized recycler for the financial Year - 5.95MT

Oil soaked cotton waste disposed for the financial year 2017-2018 -NIL

Paint tins disposed for year 2017-2018 - NIL

Form-4 submitted to GSPCB on 26/06/2018

### ***PART—G***

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

1. The water used for coke quenching is recycled & recirculated, after settling in the tanks.
2. Ambient Air Quality monitoring station installed at different places, monitoring is carried out twice a week for all 12 parameters as per NAAQS and reports are submitted to Pollution Control Board on monthly basis.
3. Dry fog systems installed for dust suppression in the coke handling area which has reduced the dust levels.
4. Roads are sprayed to avoid fugitive dust emissions.
5. At coke screening plant, transfer point, insertable type bag filters are installed.
6. Grit arrestors provided at quench tower.
7. Sewage treatment plant (30 KLD) is installed.
8. Continuous Ambient Air Quality Monitoring System (CAAQMS) has been installed at Navelim side to monitor Particulate Matter (PM<sub>10</sub> & PM<sub>2.5</sub>).
9. Sprinkling system are set up in coke yard
10. Windshields have been set up along the coke yard.
11. Waste Heat Recovery Power Plant utilizes waste heat from coke Oven Flue Gases (COFG) from Coke Plant & Blast Furnace (BFG) from Pig Iron Plant to generate clean power. This project is qualified as Clean Development Mechanism(CDM) under UNFCCC (Kyoto Protocol)
12. The excess Power Generated is evacuated to Goa Electricity (GED) which helps the state of Goa to meet part of Power Requirement.

### ***PART—H***

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

WHRPP utilizes waste heat from to produce clean Power. This helps in prevention of pollution and conservation of natural resources,

Flue gas from Non Recovery coke ovens are used to generate waste heat recovery power plant.

Waste Heat Recovery Based power plant is itself a Clean Process which generates power from waste heat.

*PART--I*

*Any other particulars for improving the quality of the Environment*

- Total of 620 saplings were planted in the plant premises of Met Coke Division, Coke Oven Plant (Expansion) & Power Plant for the year 2017-2018.
- Deployed Dulevo machine on transport road to extract dust in order to control dust emission.
- Stakeholder engagement, by virtue of which, various socio-economic programs on the front of education, health, infrastructure, agriculture & livelihood development for overall community development in Navelim village has been taken.