vedanta
transforming elements

To,

Date: 18/09/2017

The Member Secretary,

Goa State Pollution Control Board,

EDC, Patto Plaza,

Panjim, Goa- 403001

Sub:- Submission of Environmental Statement for the Financial Year 2016-2017 for Vedanta Ltd. 0.54 MTPA Blast Furnace and 1 MTPA Sinter Plant

Ref:- 1) Consent to Operate under Water Act, Air Act and Hazardous Waste Authorization vide letter No. 5/4462/09-PCB/ C2-1613 dated 13/05/2016 valid up to 14/02/2018 issued to Vedanta Ltd. 0.45 MTPA blast furnace and 1MTPA Sinter plant.

2) Amendment in Consent to Operate for increasing the capacity from 0.45 MTPA to 0.54 MTPA vide letter No. 5/4462/09-PCB/CI-2573 dated 20/02/2017.

Sir,

With reference to the above Consent to operate under Water Act & Air Act, please find enclosed herewith environmental statement in Form V of Vedanta Ltd- Mini Blast Furnace and Sinter Plant for the financial year ending 31st March 2017 for your perusal.

Hope you will find the same in order.

Thanking you

Yours faithfully

For Vedanta Ltd

Nitesh Nirala

Head -Pig Iron Division

Goa State Pollution Control Board
Patto, Panaji Goa
Date: 21/09/17 Time.....
Inward no.:.....
Receivers signature:.....

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CIN: L13209GA1965PLC000044

FORM V

ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING 31ST MARCH 2017.

PART--- A

i	Name & address of the owner /occupier of the industry operation or process	**Mr. G.R. Arun Kumar The Occupier Vedanta Limited – 0.45 MTPA Blast Furnace &1 MTPA Sinter Plant Navelim Goa 403107**
ii	Industry category	Major
iii	Production capacity	5,40,000 T / Year Pig Iron & 1 MTPA Sinter Plant
iv	Year of establishment	2012
v	Date of last environment statement submitted	22nd September 2016

PART ---- B

Water and Raw Material consumption

(1) Water consumption m^3/d

(a)	Process	Nil
(b)	Cooling*	2072.26 m^3 / Day
(c)	Domestic**	61.1 m^3 / Day

	Name of the product	Process water consumption per unit of product out put	
		During previous financial year 2015-16	During current financial year 2016-17
1	Pig Iron	Process Water – NA Cooling Water *- 1.54 m^3/t of Pig Iron	Process Water – NA Cooling Water *- 1.68 m^3/t of Pig Iron

*Cooling water is inclusive of slag granulation, pig cooling, O2/N2 cooling; BF stove cooling, dust suppression and Sinter plant usage.

** Domestic consumption is a combined figure for 0.54 MTPA Blast Furnace and for Sinter Plant.

***Cooling water for the year is inclusive of both Blast Furnace and Sinter Plant. Earlier values for cooling tower water is different as it was calculated separately for Blast Furnace and Sinter plant as CTO was different for BF and Sinter plant. But due to the merger of CTO`s for BF and Sinter plant the values of Cooling tower water has changed

as the whole consumption is divided only by Pig Iron Production for obtaining specific values.

(2) Raw Material consumption

Name of the Raw Material	**Name of the Product**	**Consumption of Raw Material per unit**	
		During previous Financial year 2015-16	**During current Financial year 2016-17**
a) Metallurgical Coke	**Pig Iron**	506.4 Kg/T of product	485 Kg/T of product
b) Lumpy High Grade Ore		408 Kg/T of product	412 Kg/T of product
c) Limestone		5.9 Kg/T of product	0.5 Kg/T of product
d) Dolomite		8.4 Kg/T of product	3.6 Kg/T of product
e) Manganese Ore		0 Kg/T of product	0 Kg/T of product
f) Siliceous ore/Quartz		59.0 Kg/T of product	34 Kg/T of product
g) Sinter		1302 Kg/T of product	1278 Kg/T of product
h) Pulverized coal		102.4 Kg/T of product	111 Kg/T of product
a) High Grade Low Mn Iron Ore Fines	**Sinter**	77 Kg/T of product	40 Kg/T of product
b) Low Grade Iron Ore Fines		848 Kg/T of product	921Kg/T of product
c) Coke Breeze		62 Kg/T of product	67 Kg/T of product
d) Limestone		108 Kg/T of product	107 Kg/T of product
e) Dolomite		63 Kg/T of product	71 Kg/T of product
f) Limestone & Dolomite Fines		2 Kg/T of product	2 Kg/T of product

g) Pig Iron 10/-50 mm Goli & -10mm Goli		19 Kg/T of product	9 Kg/T of product
h) Quick Lime		26 Kg/T of product	26 Kg/T of product
i) Sinter Dust & Sinter Fines (-5mm)		27 kg/T of product	1 kg/T of product
j) Flue dust from Blast Furnace		25 Kg/T of product	14 Kg/T of product
k) Mill Scale		25 Kg/T of product	1 Kg/T of product

Note:

1) *The raw material consumption varies depending on the grade of the ore. Sinter produced through Sinter plant is used as raw material in the production of Pig Iron. Depending on quality of Sinter, fluxes like limestone & dolomite are added accordingly.*
2) *Pulverized Coal Injection was commissioned in April 2013*
3) *The O_2N_2 plant is set up to supply oxygen for blast enrichment and Nitrogen gas for sealing and purging purpose.*
4) *All flue dust, fines, etc generated at the Pig Iron Plant & Sinter Plant is used as a raw material in sinter Plant*

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 is discharged either from 0.45 MTPA Blast Furnace or Sinter Plant	No Variation
(b)	Air	Monitoring carried out as per Consent conditions, and results submitted to GSPCB	

Note: *During Monsoons, only the storm water is let out through storm water drains after achieving settling in the settling pond.*

PART---- D

HAZARDOUS WASTES

(As specified under Hazardous Wastes (Management, Handling & transboundary movement) Rules, 2008.

		During the previous Financial year (2015-16)	**During the current Financial year (2016-17)**
(a)	From process	N.A	N.A
(b)	From pollution control facilities	N.A	N.A

PART---- E

SOLID WASTES

		During the previous Financial year (2015-16)	**During the current Financial year (2016-17)**
(a)	From Process :	Nil	Nil
(b)	From Pollution Control Facility		
	Flue Dust	10166.07 T	9004.7 T
	Slurry	Nil	Nil
(c)	(1) Quantity recycled or re-utilized within the unit	Reused in Sinter Plant	Reused in Sinter Plant
	(2) Sold	NA	Nil
	Flue Dust	NA	Nil
	Slurry	NA	Nil
	(3) Disposed	NA	Nil

PART—F

1. **Hazardous Waste**: Occupier is authorized to handle used oil/Spent oil (Category 5.1) up to 15 MT /Annum; Oil soaked cotton rags/wastes (Category 5.2) up to 10 MT/year, and Used/Discarded Paint Tins (Category 33.3) up to 2 MT /year.

Total spent oil (Category 5.1) disposed for the financial year 2016-17 is 9889.9 Liters (8.9 MT).

Total oil soaked cotton waste (category 5.2) disposed for the financial year 2016-17 is 50 kg (0.05MT).

Used/Discarded Paint Tins (Category 33.3) disposed for the financial year 2016-17 is 410 nos.

The same quantity of spent oil and used containers are disposed off to authorized recycler.

Hazardous Waste Authorization is valid up to 14/02/2018.

Annual Returns in Form 4 submitted to GSPCB on 27/06/2017.

2. **Dust from de-dusting system & dry GCP** – The dust is collected and used as raw material to produce sinter at Sinter Plant. Also the slurry obtained from PCM is dried and used in sinter

PART—G

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

- We have installed facility to use PCI of 102 kg/T hot metal which will substitute some coke. This initiative has helped to conserve scarce coking coal & consequently reduce GHG emissions. PCI was commissioned in April'13.
- Around 85-90% sinter is charged in the blast furnace, which helps in reduction of coke rate and subsequently reduction of GHG emissions. Besides iron ore fines can be utilized conserving the lumpy iron ore.
- Hot Blast Stoves (HBS) are top fired, helping in higher blast temperature. Waste heat of flue gases is utilized in Air preheater (APH). These have accounted for reduction in coke rate and subsequent reduction in GHG emissions.
- Dry Gas Cleaning plant has helped in reducing water consumption.
- Rain guns are also installed in raw material yard to prevent the fugitive dust.
- De-dusting unit is installed at cast house and PCM area.

- De-dusting unit is installed at stock house.
- 15 KLD & 7.5 KLD Sewage Treatment Plant have been installed.
- Continuous Ambient Air Quality Monitoring System (CAAQMS) has been installed to monitor Particulate Matter (PM_{10} & $PM_{2.5}$).
- Also, air quality is monitored inside the plant area of blast furnaces, stock house, and dispatch yard.
- Geotextiles have been laid on the slopes at plant site.
- Windshields have been set up at the dispatch yard and raw material yard, along the boundary wall.

PART—H

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

- Online Gas (SO2) analyzer has been installed at Head End ESP chimney of Sinter Plant.
- It is proposed to install cameras at vital air/water emission points.
- A proposal to install drip irrigation for plantations at BF3 dispatch area is in place.

PART—I

Any other particulars for improving the quality of the environment.

- About 700 trees have been planted in 2016-17, in the premises common for 0.54 MTPA Blast Furnace & Sinter Plant. Plantation area is common for 0.54 MTPA Blast furnace & Sinter Plant.
- Some of the roads are concreted & the roads are sprayed with water for dust suppression regularly.
- Energy Conservation (ENCON) cell is actively engaged in creating the awareness among employees and adopting various measures for reduction in energy consumption. Some of the energy saving projects includes; Conveyor belt logic modification, optimization of low pressure water circuit, VFD for PCI angle conveyor, optimization of MAC air flow rate at O2N2 plant, power factor correction, etc.

- Stakeholder engagement is carried out, by virtue of which, various socio-economic programs on the front of education, health, infrastructure, agriculture & livelihood development for overall community development in Amona & Betki-Khandola villages have been taken.