



स्टील अथोरिटी ऑफ इंडिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
रॉ मटेरियल्स डिवीजन
RAW MATERIAL DIVISION
बोलानी ओर्स माइन्स
BOLANI ORES MINES

Letter No. : BOM/ENV/STMT/HD-1709A

Date : 17/09/2020

To

The Member Secretary,
State Pollution Control Board,
Paribesh Bhawan, A/118, Nilkantha Nagar, Unit – VIII,
Bhubaneshwar – 751 012, Odisha

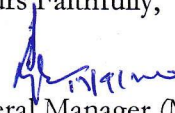
Sub: Submission of Environment Statement of 5.10 sq. miles ML of Bolani Ores Mines for the year 2019-20

Dear Sir,

Please find enclosed herewith the Annual Environment Statement of 5.10 sq. miles ML of Bolani Ores Mines for the period of Apr'19 to Mar'20 in Form-V as per the prescribed format of SPCB, Odisha. The report also contains the updated status of environmental monitoring reports for air and water pertaining to the above period.

Thanking you,

Yours Faithfully,


Chief General Manager (Mines)
Bolani Ores Mines

Encls. : As Above

मुख्य महाप्रबंधक (खान)/ Chief General Manager (Mines)
सेल-आर.एम.डी बोलानी-अयस्क खदान
SAIL-RMD-Bolani Ores Mines
बोलानी-758 037, क्योँझर, ओडीशा
Bolani-758 037, Keonjhar, Odisha

Copy to:

(1) Regional Officer, State Pollution Control Board, Keonjhar

स्टील अथोरिटी ऑफ इंडिया लिमिटेड, रॉ मटेरियल्स डिवीजन, बोलानी ओर्स माइन्स, पोस्ट- बोलानी- 758 037, जिला- क्योँझर, आडिशा
Steel Authority of India Ltd, Raw Materials Division, Bolani Ores Mines, Po.- Bolani - 758 037, Dist.- Keonjhar, Odisha
दूरभाष / Telephone : 06767-260211, फैक्स / Fax : 06767-260172, ई-मेल : E-mail : rmdbom@gmail.com, Website : www.sail.co.in

Regd. Office : Ispat Bhawan, Lodi Road, New Delhi- 110003, Phone : 01124367481-86, Fax : 01124367015

हर किसी की जिन्दगी से जुड़ा हुआ है सेल

There's a little bit of SAIL in everybody's life.



ENVIRONMENTAL STATEMENT

Year : 2019-20

5.10 Sq. Miles ML

BOLANI ORES MINES



STEEL AUTHORITY OF INDIA LIMITED

RAW MATERIALS DIVISION

BOLANI ORES MINES (BOM)

KHEONJHAR (DIST.)

ODISHA – 758037

September, 2020

FORM – V

Environmental Statement for the financial year ending 31st March 2020

PART – A

- (i) **Name and address of the owner/occupier of the industry operation or process.** : 5.10 sq. miles ML of Bolani Ores Mines
P.O- Bolani,
Dist. : Keonjhar
Pin- 758037, Odisha
- Occupier** : Shri A K Mishra
Chief General Manager(Mines), BOM
- Agent** : Shri P C Naik,
Executive Director (RP&E), RMD
- Nominated Owner** : Shri Harinand Rai,
Director (Tech.) with Addl. Charge of
Director (RM&L)
- (ii) **Industry category Primary - (STC code) Secondary - (SIC Code)** : Open Cast Iron Ore Mine
- (iii) **Production capacity** : Permitted capacity : 12 MTPA
Total ROM : 5,946,096 T
Lumps : 2,085,399 T
Fines : 3,840,488 T
Total Finished product : 5,925,887 T
- (iv) **Year of establishment** : 1960
- (v) **Date of the last environmental statement submitted** : 18.04.2019

PART – B

Water and Raw Material Consumption

(1) Water consumption	m³/day
Process	560
Cooling	371 (including dust suppression)
Domestic	888

<i>Name of Products</i>	<i>Process water consumption per unit of product output</i>	
	<i>During the previous financial year (2018-19)</i>	<i>During the Current financial (2019-20)</i>
(1) Washed Iron Ore	-	-

(2) Raw Material Consumption

<i>Name of raw materials</i>	<i>Name of products</i>	<i>Process water consumption per unit of product output</i>	
		<i>During the previous financial year (2018-19)</i>	<i>During the Current financial (2019-20)</i>
Diesel	-	2592921 ltr	2393498 ltr
Explosives	-	168296 kg	173014 kg
Electricity	-	18655872 kWh	19510068 kWh

This is an opencast mine producing iron ore. As such, no raw material from outside is required for processing of iron ore. Run-of-Mine (ROM) from the mine is processed to produce sized ore products. The ROM production during 2019-20 is 5.95 million tonnes and during 2018-19 is 5.65 million tonnes.

PART - C

Pollution discharged to environment / unit of output

a) Water Environment

<i>Pollutants</i>	<i>Quality of pollutants generated (mass/volume)</i>	<i>Concentrations of pollutants in discharges</i>	<i>Percentage of variation from prescribed standards with reason.</i> <i><u>Standard</u></i>
1. Process Effluent : The Ore Beneficiation Plant was not operational during 2019-20. However, the effluent generated from ore washing process was treated in thickeners. The clear water from the thickeners is recycled back and the under flow slurry is being discharged to the Tailings Pond in the adjoining 6.90 sq. miles ML of BOM.			
2. Domestic Effluents : No Domestic effluents are discharged to Natural Streams. The domestic effluent generated from the office area is directed to Soak pits via intermediate septic tanks.			
3. Workshop Effluents : Workshop effluents are treated in ETPs provided at respective sites. The overflow is utilized for vehicle washing and gardening purposes.			
(i) pH	-	6.7 at 25 ⁰ C	5.5 – 9.0
(ii) TSS	-	9.1 mg/l	100 mg/l
(iii) Oil & Grease	-	ND	10 mg/l
(iv) BOD	-	ND	30 mg/l
(v) COD	-	8.2 mg/l	250 mg/l
(vi) Iron (Fe)	-	0.24 mg/l	3 mg/l

b) Air Environment

This is an opencast mine and the air emissions are fugitive in nature mainly containing dust particles. The fugitive emissions are being controlled through various dust prevention and control measures. Hence, the quantity of air pollutants discharged in Kg/day cannot be ascertained. The annual average ambient air quality in and around the mines for the year 2019-20 is given below:

Unit: microgram/m³

	<i>Pollutants</i>	<i>Quality of pollutants generated (mass/volume)</i>	<i>Concentrations of pollutants in discharges (µg/m³)</i>	<i>Percentage of variation from prescribed standards with reason.</i> <i><u>Standard</u></i>
Buffer Zone	(1) Karo Guest House			
	i) PM _{2.5}	-	45.74	60
	ii) PM ₁₀	-	103.95	100
	(2) Mount Club Guest House			
	i) PM _{2.5}	-	22.33	60
	ii) PM ₁₀	-	42.49	100
Core Zone	(3) Near CISF camp			
	i) PM _{2.5}	-	23.78	60
	ii) PM ₁₀	-	58.20	100
	(4) Near Canteen			
	i) PM _{2.5}	-	11.24	60
	ii) PM ₁₀	-	51.37	100
	iii) SO ₂	-	8.78	80
	iv) NO _x	-	14.45	80

PART –D
Hazardous Wastes

Hazardous Wastes	Total Quantity(kg)	
	During the previous Financial Year (2018-19)	During the current Financial Year (2019-20)
a) From Process	Burnt Oil – 28.19 KLtr Oil Containing Wastes -1580 Kg	Burnt Oil – 28.35 KLtr Oil Containing Wastes –1590 Kg
b) From Pollution Control facilities	890 Kg slits from hazardous waste pits / oil catch trap	895 Kg slits from hazardous waste pits / oil catch trap

PART – E
Solid Wastes

Wastes	Total Quantity(Tonnes)	
	During the current Financial Year (2018-19)	During the current Financial Year (2019-20)
(a) From Process		
(1) Overburden / rejects	2,977,591 T	2,371,386 T
(2) Ore washing slimes	27,946 T	NIL
(b) From Pollution Control facilities	NIL	NIL
(c) (1) Quantity recycled or re- utilized within the unit		
(2) Sold	Disposed	Disposed
(3) Disposal		

PART –F

No Hazardous waste is generated from the mining process except used oil which is drained from Machineries / Equipment and auctioned to the CPCB authorized recyclers.

Description of Hazardous / Solid Waste	Temporary Disposal practice
Used Oil (Oil & Lubricants)	Centrally placed disposal yard with an enclosed shed and Concrete flooring having spillage containment facility, has been earmarked for storage of Used Oil sourced from various departments. 2 nos. of Oil collection systems are established, Oil is collected through pipe into barrels placed on the concrete floor, sealed properly and securely stored at the Site till further disposal through SPCB/CPCB authorized vendors.
Empty Oil barrels.	Empty MSD Oil drums collected from various departments after the auction of Used Oil to authorized vendor are stacked on concrete floor within shed inside scrap yard. They are auctioned to authorized vendors.
Wastes Containing Oil e.g. filters / jutes, sludge etc.	3 nos of impervious Pits have been constructed at Bottom Garage, CBRS and Electrical Workshop for disposal of oil containing wastes. 3.14 metric Tonnes of Wastes containing Oil filters, jutes etc has been disposed through Ramky Enviro Engineers Ltd. during 2017-18.
Used batteries.	Used batteries are shifted to the storage yard, as and when generated. These are sold by auction to authorized recyclers.
Overburden from mines.	Mostly lateritic in nature, Overburden (OB) generated from mines is used in back filling the excavated quarry of F- area and Panposh; and in G & D – areas, OB is dumped in earmarked OB dumps.
Tailings	Tailings / Slime are discharged to designated Tailing pond within adjoining 6.90 sq. miles ML of Bolani Ores Mines.
E-Waste	The E-waste report for the year 2019-20 has been submitted vide our letter No. C&IT/B-486 Dt.25/06/2020.

PART – G

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

1. Systematic and procedural mining operations are carried out.
2. Strict Blending Norms to cater to the needs of Steel Plants are in place for optimal utilization of low-grade Ore.
3. Separate storage of Sub-grade Mineral for later utilization.
4. Controlled Blasting Techniques for optimum Ore fragmentation are followed
5. Extensive Geological mapping and updating Resource/reserve charts by conducting regular Exploration programmes.
6. Mineral Conservation Awareness classes are conducted on regular basis at Mines Vocational Training Centre, Bolani.
7. Checkdams and Settling ponds are built across the nallah courses to mitigate the silt flow.
8. Plantation had been undertaken within ML area for carbon sequestration, Soil erosion control and trapping airborne dust.

PART-H

Environmental Protection Measures undertaken for abatement of pollution.

SL.	ISSUES	POLLUTION ABATEMENT MEASURES
i.	Top soil preservation & utilization	The top soil excavated till date has been utilized for reclamation & rehabilitation of dumps. The entire quantity of topsoil was utilized for plantation and nursery development. No top soil was excavated during 2019-20.
ii.	Reclamation of Mined out Land	Mineral Deposits have not been exhausted beyond the Cut-off point. Progressive Mine Closure/Back-filling has been taken up in F & Panposh Areas. The Backfilled portion of the mines has already been reclaimed by plantation of 25000 saplings over the years with 75% survival rate. No Backfilling undertaken in 2019-20.
iii.	OB/Fines Dump rehabilitation	Thysolaena Maxima grass variety has been transplanted over 0.5 ha OB dump slopes of Panposh and D-area in 2019-20.
iv.	Management of Run off from Dump areas	<ul style="list-style-type: none"> (i) Series of 03 nos. of RRM check dams have been erected across Balagoda Seasonal Nallah at a cost of Rs.17.03 lakhs (ii) The check dyke and Settling Pit near Panposh OB dump has been repaired and Desilted at a cost of Rs.1.51 lakhs (iii) Checkdam with spillway has been constructed over valley in the eastern side of Panposh area at a cost of Rs.15.78 lakhs. (iv) Masonry drain to collect and discharge Rain water has been constructed near DAV Public School at a cost of Rs.8.20 lakhs (v) Desilting of Washed out materials near Panposh at a cost of Rs.1.54 lakhs. (vi) Desilting of Balagoda nallah from CISF Magazine to Railway siding culvert has been taken up at Rs.4.78 lakhs
v.	Afforestation activities	3500 nos. of saplings have been planted over 1.5 ha of Degraded forest Lands in 2019-20.

vi.	Air quality Management	<ul style="list-style-type: none"> i. Dry Fog Dust Suppression system covering the entire Ore Crushing, Primary Stock Pile and Washing Plant circuit including the Primary Feed Hopper, has been installed at a financial outlay of Rs.2.16 crores. ii. All the Drill machines are equipped with Dust suppression and water injection systems. iii. Pre-wetting of blasting site is practiced to control blasting emissions. iv. 02 nos. of 28KL and 03 nos. of 09 KL mobile sprinklers are used to control fugitive emissions on haul roads v. High Pressure Fixed sprinklers installed at Feed hopper of 600 TPH plant. vi. Ore transferred through Covered conveyor gallery of 3200 m(approx..) from Hilltop Plant to Ore Dispatch site. vii. Fixed water sprinklers are installed near 600TPH stock Yard, along the 600TPH plant and Panposh haul road
vii.	Water Quality Management	<ul style="list-style-type: none"> i. There is a provision of recycling 50% of water used in Ore Processing by recirculating to system using 02(two) Thickeners. ii. 02(two) flow meters are installed to monitor industrial water usage. iii. 3 nos. of ETPs (Oil and Grease catch traps) have been provided at mechanical workshops and equipment washing junctions to collect and treat workshop effluent.
viii.	Hazardous Waste management	Facilities provided for temporary storage of hazardous wastes for centralized auction. Oil contaminated wastes disposed in impervious pits and Oil and grease catch traps have been provided at vehicle maintenance areas to prevent oil and grease pollution.


ix.	Noise	<ul style="list-style-type: none"> (i) Provision of ear plugs to workers posted at high noise level sites. (ii) Regular maintenance of HEMMs. (iii) Plantation has been done around Washing plant, Loading plant and Mining areas to act as Noise Barriers (iv) Audiometric tests of all the employees conducted as a part of Personal Medical Examination (PME) indicates no abnormality.
x.	Ground Vibration	<ul style="list-style-type: none"> (i) Use of SMS (slurry) explosives, (ii) Use of delay detonator (iii) Blasting only for loosening of the strata and explosive charge shall be reduced to avoid fly rocks. (iv) Restricting number of blast holes at any point of time to control ground vibration (v) Blast vibration monitoring is carried out by expert agency at regular interval.
xi.	Forest Fire Prevention	05 nos. of workers have been engaged for Forest fire prevention by fire line creation and maintenance during the months of Mar'20-June'20 at a cost of Rs.3.18 lakhs.
xii.	Environmental Monitoring	<p>Fugitive Dust and Water Quality monitoring at Bolani Ores Mines are outsourced to M/s Mitra S K Pvt. Ltd., a NABL accredited laboratory, in conformance with the stipulations in EC and CTO.</p> <p>04(four) nos. of CAAQMS stations were installed at a cost of Rs.1.75 (approx.) crores as per the directive of MS, SPCB and stipulation in CTO grant order.</p>
xiii.	Scientific Studies	A Biological Study to identify and preserve orchids within both 5.10 and 6.90 sq. miles MLs of BOM has been conducted and the report has been submitted to MoEF&CC vide no. BOM/ENV/HD-1707A Dt.17.07.2019 for technical approval of the said report.
xiv.	Wild Life conservation	Rs.53.49 lakhs have been expended for implementation of various Conservation measures within Leasehold area as specified in SSWCP during 2019-20.

PART – I

Additional environment protection and abatement of pollution measures undertaken in 2019-20:

1. Creating awareness amongst employees and public regarding protection of environment by observing Vana Mahotsav week, Earth Day, Environment day, Environment month and Environment week.
2. Display of Boards carrying environmental slogans. LED display boards for displaying environment monitoring data & environment care.
3. Celebration for Mass awareness by slogans, working models & Cultural Programmes by employees & school children in Mines Environment & Mineral Conservation week under the aegis of IBM.
4. Free distribution of over 75,000 saplings developed in Nursery of BOM, to local dwellers till date.
5. Bolani Ores Mines has also implemented Environment Management System (EMS) as per ISO 14001:2015 standard, Quality Management System (QMS) as per ISO 9001:2015 standard and Occupational Health and Safety Management System (OH&S) as per ISO 45001:2018 standard certified by BSI.
6. Environmental Management Cell and Sustainable Development Unit constituted that operate directly under the unit head, i.e., Chief General Manager, BOM.
7. An Expenditure of Rs.152.71 lakhs has been made for various Environmental and allied activities in 2019-20.

Date : 17.09.2020


Chief General Manager (Mines)
Bolani Ores Mines
मुख्य महाप्रबन्धक (खान) / Chief General Manager (Mines)
सेल-आर.एम.डी-बोलानी-अयस्क खदान
SAIL-RMD-Bolani Ores Mines
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Bolani-758 037, Keonjhar, Odisha