

ENVIRONMENTAL STATEMENT

Year: 2023-24

**Bolani Manganese & Iron Ore Mines
(6.90 Sq. Miles ML)**

BOLANI ORES MINES



**STEEL AUTHORITY OF INDIA LIMITED
ROURKELA STEEL PLANT
BOLANI ORES MINES (BOM)
KHEONJHAR (DIST.)
ODISHA – 758037**

FORM – V

Environmental Statement for the financial year ending 31st March 2024

PART – A

- (i) **Name and address of the owner/occupier of the industry operation or process.** : Bolani Manganese & Iron Ore Mines
(6.90 sq. miles ML)
Bolani Ores Mines
P.O- Bolani,
Dist. : Keonjhar
Pin- 758037, Odisha
- Occupier** : Bolani Ores Mines, RSP-SAIL
- Agent** : Shri Joydev Chattopadhyay
Chief General Manager(Mines), BOM
- Nominated Owner** : Shri Atanu Bhowmick,
Director I/c Rourkela Steel Plant
- (ii) **Industry category Primary - (STC code) Secondary - (SIC Code)** : Open Cast Manganese & Iron Ore Mine
- (iii) **Production Capacity** : **Permitted Capacity** : 15000 TPA
Total ROM : 2337.31 T
Ore : 1200 T
- (iv) **Year of establishment** : 1962
- (v) **Date of the last environmental statement submitted** : 28.07.2023

PART – B

Water and Raw Material Consumption

(1) Water consumption	m³/day
Process	No water utilized as Mining operations have not commenced yet.
Cooling	
Domestic	The details of domestic consumption included in the Env. Statement of adjoining 5.10 sq. mile ML

<i>Name of Products</i>	<i>Process water consumption per unit of product output</i>	
	<i>During the previous financial year (2022-23)</i>	<i>During the Current financial (2023-24)</i>
(1) Washed Iron Ore	Nil	Nil

(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 (2022-23)</i>	<i>During the Current financial (2023-24)</i>
Diesel	-	284574 Ltrs	311357 Ltrs
Lubricants	-	12412 Ltrs	15432 Ltrs
Explosives	-	-	-
Electricity	-	2355264 Kwh	2218442 Kwh
Gas	-	644 Cum	789 Cum
Grease	-	2538 Kg	2707 Kg

This is an opencast mine producing manganese ore. Run-of-Mine (ROM) from the mine is processed to produce sized ore products. The ROM production during 2023-24 is 2337.31 Tonne and during 2022-23 was 0.00 Tonne.

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> <u><i>Standard</i></u>
<p>1. Process Effluent: The Ore Beneficiation Plant within the adjoining 5.10 sq. miles ML of Bolani Ores Mines was not operational during 2023-24. Hence there was no discharge to the tailing pond existing in this ML.</p> <p>Accumulation of rain water from the upper hill areas has taken place in the tailing pond in this ML. Though there is no direct discharge from the Tailing Pond, seepage from dam body is accumulated in Eastern side in a small trough. The quality of the same is monitored. The annual average quality of tailing dam seepage is follows:</p>			
Location:- Tailing Pond Natural Nallah			
Test Parameters	Unit	Results	Desirable Limit
pH	mg/l	7.10	5.5 – 9.0
TSS	mg/l	26.2	500 mg/l
Oil & Grease	mg/l	BDL	10 mg/l
BOD	mg/l	1.8	30 mg/l
COD	mg/l	8.16	250 mg/l
<p>2. Domestic Effluents: The domestic effluent generated from the township within the ML area is directed to soak pits via intermediate septic tanks. The proposal for installation of STP is in tendering process.</p>			
<p>3. Workshop Effluents: No vehicle maintenance workshops are present within the ML area.</p>			

b) Air Environment

The annual average ambient air quality in and around the mines for the year 2023-24 is given below:

Unit: microgram/m³

<i>Pollutants</i>	<i>Quality of pollutants generated (mass/volume)</i>	<i>Concentrations of pollutants in discharges ($\mu\text{g}/\text{m}^3$) except for CO(mg/m^3)</i>	<i>Percentage of variation from prescribed standards with reason.</i> <u>Standard</u>
Location :- Bolani Community Center			
PM10	-	70.4	100 $\mu\text{g}/\text{m}^3$
PM2.5	-	27.94	60 $\mu\text{g}/\text{m}^3$
SO ₂	-	14.11	80 $\mu\text{g}/\text{m}^3$
NO ₂	-	14.64	80 $\mu\text{g}/\text{m}^3$
CO	-	0.42	04 mg/m^3
Location :- DAV Public school			
PM10	-	75.24	100 $\mu\text{g}/\text{m}^3$
PM2.5	-	22.87	60 $\mu\text{g}/\text{m}^3$
SO ₂	-	14.32	80 $\mu\text{g}/\text{m}^3$
NO ₂	-	14.88	80 $\mu\text{g}/\text{m}^3$
CO	-	0.41	04 mg/m^3
Location :- Main gate			
PM10	-	85.38	100 $\mu\text{g}/\text{m}^3$
PM2.5	-	22.12	60 $\mu\text{g}/\text{m}^3$
SO ₂	-	14.94	80 $\mu\text{g}/\text{m}^3$
NO ₂	-	14.56	80 $\mu\text{g}/\text{m}^3$
CO	-	0.42	04 mg/m^3
Location :- Colony Nursery			
PM10	-	65.37	100 $\mu\text{g}/\text{m}^3$
PM2.5	-	19.04	60 $\mu\text{g}/\text{m}^3$
SO ₂	-	18.25	80 $\mu\text{g}/\text{m}^3$
NO ₂	-	14.61	80 $\mu\text{g}/\text{m}^3$
CO	-	0.53	04 mg/m^3
Location :- Nimtur Village			
PM10	-	58.7275	100 $\mu\text{g}/\text{m}^3$
PM2.5	-	23.655	60 $\mu\text{g}/\text{m}^3$
Location :- Karo Guest House			
PM10	-	47.7775	100 $\mu\text{g}/\text{m}^3$
PM2.5	-	19.45	60 $\mu\text{g}/\text{m}^3$

PART –D
Hazardous Wastes

Hazardous Wastes	Total Quantity(KG)	
	During the previous Financial Year (2022-23)	During the current Financial Year (2023-24)
a) From Process	Nil*	Nil*
b) From Pollution Control facilities	Nil*	Nil*

* No Hazardous waste generated during 2023-24

PART – E
Solid Wastes

Wastes	Total Quantity(Tonnes)	
	During the previous Financial Year (2022-23)	During the current Financial Year (2023-24)
(a) From Process (1) Overburden / rejects (2) Ore washing slimes	NIL	4285.60
(b) From Pollution Control facilities	NIL	NIL
(c) (1) Quantity recycled or re- utilized within the unit (2) Sold (3) Disposal	NIL	NIL

PART –F

No Hazardous waste generated during 2023-24 as there is no vehicle maintenance workshop in this ML.

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.

Bolani Ores Mines is an ongoing mining project which has been working for production and despatch of Iron Ore since 1960. The total mining complex spreads over composite area 12 sq. miles, which was once under a single lease, constitutes two adjoining Mining leases granted by the state Government in favor of Bolani Ores Ltd. viz. 5.1 Sq. Mile ML (executed on 11.04.1960) for extraction of Iron Ore & 6.9 Sq. Mile ML (executed on 13.11.1962) for extraction of Manganese ore along with the infrastructural facilities required for ancillary mining activities required for despatch of iron ore produced from Bolani 5.1 Sq. Miles ML to steel plants. The entire mining operation involving both the mining leases is fully mechanized with heavy earth moving equipment, Ore processing and beneficiation plant, Railway siding and other machineries and infrastructural facilities.

In order to manage and monitor the environment Bolani Ores Mines have a setup of Environment Cell which looks after the compliance needs of both the ML areas jointly. The cost of environmental management for both the ML areas is accounted in the overall cost of Bolani Ores Mines. Accordingly the following environmental protection measures have been undertaken:

SL.	ISSUES	POLLUTION ABATEMENT MEASURES
i.	Top soil preservation & utilization	The entire quantity of topsoil generated during 2023-24 was utilized for plantation and nursery development.
ii.	Reclamation of Mined out Land	Mineral Deposits have not been exhausted beyond the Cut-off point. No Backfilling undertaken in 2023-24.
iii.	OB/Fines Dump rehabilitation	All the OB Dumps were active during 2023-24. Hence rehabilitation through plantation of any OB dump could not be done during 2023-24
iv.	Management of Run off from Dump areas	Necessary retaining walls with garland drains directed to settling pits have been provided for the ore stockpile at loading plant area.
v.	Afforestation activities	A total 11419 nos. of saplings have been planted over 21.5 ha of degraded forest land and causality replacement during 2023-24.
vi.	Air quality Management	<p>i. Job for installation of Dry Fog Dust Suppression system covering the entire loading plant including the stockpiles with a financial outlay of Rs.1.38 cores has been completed.</p> <p>ii. 02 nos. of 09 KL mobile sprinklers are used to control fugitive emissions near Loading Plant and Fines handling site.</p>

		<p>iii. High Pressure Fixed sprinklers installed at Feed hopper of 600 TPH plant.</p> <p>iv. Fixed water sprinklers are installed near 600TPH stock Yard, along the 600TPH plant and Panposh haul road.</p> <p>V. Wheel washing system with concrete road has been provided at the exit gate of fines handling area.</p>
vii.	Water Quality Management	The domestic effluent generated from the township within the ML area is directed to soak pits via intermediate septic tanks.
viii.	Hazardous Waste management	No Hazardous Waste Generated during 2023-24.
ix.	Noise	<p>(i) Plantation has been done around Loading plant and 600TPH plant to act as Noise Barriers</p> <p>(ii) Audiometric tests of all the employees conducted as a part of Personal Medical Examination (PME) indicates no abnormality.</p> <p>(iii) Provision of ear plugs to workers posted at high noise level sites.</p> <p>(iv) Regular maintenance of HEMMs .</p>
x.	Ground Vibration	No blasting was carried out in 2023-24
xi.	Forest Fire Prevention	10 nos. of forest watchers have been engaged for Forest fire prevention by fire line creation and maintenance during the months of Feb'24-Aug'24 at a cost of Rs.13.84 lakhs.
xii.	Environmental Monitoring	<p>AAQ, Fugitive Dust and Water Quality monitoring at Bolani Ores Mines were outsourced to M/s Ecomen Mining 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 the leases 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	Necessary biological surveys were conducted by expert committees and Wild Life Experts and based on the same,

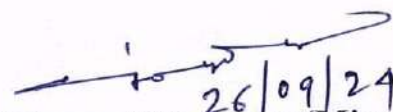
	Site Specific Wildlife Conservation Plan has been prepared and approved by the state Forest and Wildlife Department vide order no 10680/1WL-FC-Mrl-SSP-228/2018 Dt. 22.11.2018 with a total financial outlay of Rs.1088.431 lakhs. An amount of Rs.772.999 lakhs has already been deposited in CAMPA account of Forest Dept. for interventions in Project impact area.
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PART – I

Additional environment protection and abatement of pollution measures undertaken in 2023-24:

1. Creating awareness amongst employees and public regarding protection of environment by observing Vana Mahotsav week, Earth Day, World Environment day and Mines Environment & Mineral Conservation 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 Program by employees & school children in Mines Environment & Mineral Conservation week under the aegis of IBM.
4. Free distribution of over 10,000 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. 219.29 lakhs has been made for various Environmental management and related activities in 2023-24.

Date:


 26/09/24
Chief General Manager (Mines)
Bolani Ores Mines, RSP-SAIL

जयदेव चट्टोपाध्याय/Joydev Chattopadhyay
 मुख्य महाप्रबन्धक (खान) / Chief General Manager (Mines)
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