



स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
बोकारो इस्पात संयंत्र
BOKARO STEEL PLANT
एम.ओ.एम., चिड़िया
MOM, CHIRIA

Ref. No. MOM/PC/ 6/198

Date: 26-04-2023.

To,
The Member Secretary
Jharkhand State Pollution Control Board
Head office, HEC Complex
T.A. Building, Dhurwa
Ranchi-834004.

Sub: Environmental Statement for the year 2022-23.

Dear Sir,

Please find the enclosed herewith Environmental Statement for the year 2022-23,
in respect of Manoharpur Ore Mines, Chiria, for needful please.

Thanking you,

Yours faithfully,

(S. S. Rao)
DGM (Mining)

Copy to: The Regional officer, JSPCB, Jamshedpur.



ENVIRONMENTAL STATEMENT YEAR: 2022-23
Manoharpur Ore Mines, Chiria



Steel Authority of India Limited
Bokaro Steel Plant
Manoharpur Ore Mines, Chiria
West Singhbhum (Dist.)
Jharkhand – 833106

April, 2023

FORM-V
(See rule 14)
Environment Statement for the financial year ending 31st March 2023.

PART A

1. Name and address of the owner/occupier of the industry operation or process. : Manoharpur Ore Mine
P.O- Chiria,
Dist. : Singhbhum (West)
Pin- 833106, Jharkhand
- Agent** : Shri Kamal Bhasker,
Chief General Manager (Mines)
- Nominated Owner** : Shri Amarendu Prakash,
Director I/C, Bokaro Steel Plant
2. Industry Category - Primary, Iron Ore Mining
3. Production capacity - 0.75 Million tones / Annum
4. Year of establishment - 1916
5. Date of the last environment Statement submitted - 28.04.2022

PART B

Water and Raw Materials Consumption

I. Water Consumption KL/day:

Industrial

- (a) Cooling of Engine - 5 KL/day
(b) Water Spraying on haul road - 85 KL/day
& Crusher for dust suppression
(c) Miscellaneous - 21 KL/day

Domestic - 1350 KL/day

Name of product	<u>Process Water Consumption per unit of Product output.</u>	
	<u>During the previous financial year</u>	<u>During the current financial year.</u>
Iron Ore	0.386 KL/Te	0.085 KL/Te

Details of Water consumption for the year 2022-23.

Permission obtained from Water Resource Department, Govt. Of Jharkhand and agreement has been made with Water Ways Division, Chaibasa on 03.08.2017, for drawl of water from Hamsadagara Nalla to the tune of 0.62 MCM per annum for Manoharpur Ore Mines, Chiria.

As per the agreement, water charges are being paid to Executive Engineer, Water Ways Division, Chaibasa on monthly basis.

Industrial: There is no processing unit, but water is being used in diesel engine for cooling purpose & Water Spraying on haul road & Crusher for dust suppression. Water for mines and miscellaneous uses is varying from 97-111 KL.

Township, Drinking & Domestic

About 3951 persons have been provided water supply facility in the township. Water consumption for drinking and domestic purpose in the township is 1350 KL/Day.

2. Raw materials consumption

Name of Raw Material	Name of the product	Consumption of Raw material per unit(Te)	
		During the previous financial year 2021-22	During the current financial year 2022-23
Diesel lt/Te	Iron ore	0.855	0.198
Lubricants Lt/Te	Iron ore	0.009	0.002
Explosives in Kg/Te	Iron ore	0.229	0.089

PART C

Pollution discharged to Environment/Unit of output (Parameters as specified in the consent issued)

Environmental Lab has been set up at Manoharpur Ore Mines, Chiria with following equipment

- Respirable Dust Sampler, Model No- APM460 (BL),
- Fine Particulate Sampler, Model No- PM 550
- Gaseous Sampling Attachment, Model No- APM 411(TE)
- Sound Level meter, Model No- SLM-100
- Multi parameter Water Analysis Kit (pH, Conductivity, TDS & DO)
- Analytical Weighing Balance, Model No – CAI 65, Capacity – 60 g

Air, Water and Noise quality monitoring is being carried out regularly.

In addition to this, environmental quality monitoring is also being carried out by JSPCB on Half yearly basis.

- Water quality monitoring:** Water quality monitoring was done at different locations of Hamsadagara Nalla as well as spring water. Analysis report during the year 2022-23 is enclosed as **Annexure-A**
- Air quality monitoring:** Ambient air quality monitoring was done during the year 2022-23 at different locations is enclosed as **Annexure-B**.
- Noise Monitoring:** Noise monitoring was done at Different locations and analysis report during the year 2022-23 is enclosed as **Annexure-C**.

PART D

Hazardous Waste

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

Hazardous Waste	Total qty. in Kg.	
	During the Previous year 2021-22	During the current year 2022-23
(a) From process	83 Kg	47 Kg
	(Burnt or used oil)	(Burnt or used oil)
(b) Cotton Waste	----	---

PART E
Solid Wastes

	Total qty. in Kg.	
	During the Previous year (2021-22)	During the current year (2022- 23)
(a) From process (overburden)	121390.14 Te	81214.00 Te
(b) From pollution control Facilities	Nil	Nil
(c) Quantity recycled: Reutilized Within the Unit	Nil	Nil
(d) Solid	Nil	Nil
(e) Disposed	121390.14 Te	81214.00 Te

PART F

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

Used oil and Cotton waste are the hazardous waste generated at Manoharpur Ore Mines. The quantity of used oil and cotton waste is very negligible .However used oil stored temporarily stored in sealed drums for auction to registered recycler. The main solid waste generated from mining operations is OB & Waste which is dumped in the yard demarcated in the approved mining plan and leveled properly.

PART G

Impact of the pollution abatement measures taken on conservations of all resources and on the cost of production.

- 1465 saplings are planted at mines& township area in 2022-23.
- Fixed water pipe line of 360 mts has been laid in siding area wherein water tapes have been provided at 50 mts interval for spraying of water with flexible hose to prevent dust generation at railway siding area.
- 158 m length fixed water sprinklers were provided at Dhobil Mine haul road.
- Rooftop rainwater harvesting system at Chiria Guest House, Rain water harvesting pits at Railway siding and Mines was provided.
- Water sprayer arrangements to remove the dust on the leaves of the trees in the mines area and along the road.

PART H

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

1. Regular water spraying on haul roads has reduced generation of air borne dust from mining haul roads.
2. Afforestation at mines and town ship area.
3. Distribution of Ear plugs and dust masks to the employees who are engaged in the area where there is possibility of such pollution.
4. Periodical monitoring of Air, Water and Noise quality.

PART I

Expenditure on environmental control measures and studies during 2022-23 is given below:-

1. Cost of water spraying for dust suppression	: Rs 27.64 Lakh
2. Cost of afforestation of trees	: Rs 6.47 Lakh
3. CAAQM Station & Monitoring Air and water, Noise	: Rs 4.65 Lakh
4. Repair of Retaining wall, De-silting of Garland drain and Sump of Dumps	: Rs 3.0 Lakh
5. Environment Protection measures	: Rs 17.21 Lakh
Total	: Rs 58.97 Lakh
Iron ore production	: 341182.29 Te
Cost per tonne on environment Expenses	= Rs 17.28/-

Date : 26.04.2023



(Name of In-charge E&L Dept.)

Name : S. S. Rao

Designation: DGM (Mining)

Manoharpur Ore Mines, Chiria



VISION EARTH CONSULTANCY (VEC)

(ENVIRONMENTAL LABORATORY DIVISION)

Accredited By: - Jharkhand State Pollution

Control Board (JSPCB) B-2062

Certified By: - ISO 14001: 2015, ISO 45001: 2018,



TEST REPORT OF WATER QUALITY

Test Report No. : VEC/RNC/22-23/54	Report Release Date : 29.03.2023
Application No. : 15767713	Work Order Date : 17.03.2023
CUSTOMER DETAILS	
Customer Name Address	MANUJHARPUR URE MINES, CHIRIA (DHOBIL) PO: CHIRIA-833106, WEST SINGHBHUM, JHARKHAND
SAMPLE DETAILS	
Sampling Date	: 18.03.2023 to 19.03.2023
Sample Received Date	: 20.03.2023
Type of Sample	: Surface Water
Source of Sample	: Hamsadagra Nalla (Up Strem)
Sampling Procedure	: VEC/DOC/SMPL/02
Sample Drawn By	: VEC
Sample Condition	: Sealed & Preserved
Plant Status	Operational
Period of Analysis	: 20.03.2023 to 29.03.2023

TEST REPORT

PARAMETER	Units	TEST PROTOCOL	RESULTS
Temperature	°C	APHA 23 rd Edition 2017, 2550B	28.5
pH (at 28.5 °C)	-	APHA 23 rd Edition 2017, 4500H ⁺ B	7.25
Total Dissolved Solids	mg/l	IS 3025 (Part -16):1984; RA2017	106
Total Suspended Solids	mg/l	IS 3025 (Part -17):1984; RA2017	44
Chloride	Mg/l	IS 3025 (Part -32):1988; RA2014	9.2
BOD	mg/l	IS 3025 (Part-44):1993; RA2014	2.2
COD	mg/l	IS 3025 (Part 58):2006; RA2017	16
Oil & Grease	mg/l	APHA 23 rd Edition 2017, 5520B	BDL(DL:0.1)
Iron	mg/l	IS 3025(Part 53):2003:2014	2.3

*****End of Report*****

1. Remarks: - All values are observed within the limit. (As IS:2296-1962)
2. Abbreviation: MDL: Minimum Detection Limit, BDL: Below Detection Limit
3. Environmental Condition of the Lab: Temperature: 27 ± 2°C, Relative Humidity: 33% to 45% in all testing areas as per IS 196:1996

KRISHNA KUMAR
(Quality Manager)

Krishna Kumar
Quality Manager

AJAY KUMAR SINGH
Issued By (Lab In-Charge)



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TEST REPORT OF WATER QUALITY

Test Report No.	: VEC/RNC/22-23/54	Report Release Date	: 29.03.2023
Application No.	: 15767713	Work Order Date	: 17.03.2023
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	MANOHARPUR ORE	Sampling Date	: 18.03.2023 to 19.03.2023
Address	MINES, CHIRIA (DHOBIL) PO: CHIRIA-833106, WEST SINGHBHUM, JHARKHAND	Sample Received Date	: 20.03.2023
		Type of Sample	: Surface Water
		Source of Sample	: Mansudagra Nalla (Down Stream)
		Sampling Procedure	: VEC/DOC/SMPL/02
		Sample Drawn By	: VEC
		Sample Condition	: Sealed & Preserved
Plant Status	Operational	Period of Analysis	: 20.03.2023 to 29.03.2023

TEST REPORT

PARAMETER	Units	TEST PROTOCOL	RESULTS
Temperature	°C	APHA 23 rd Edition 2017, 2550B	26.4
pH (at 24.6 °C)	-	APHA 23 rd Edition 2017, 4500H ⁺ B	7.29
Total Dissolved Solids	mg/l	IS 3025 (Part -16):1984; RA2017	104
Total Suspended Solids	mg/l	IS 3025 (Part -17):1984; RA2017	38
Chloride	Mg/l	IS 3025 (Part -32):1988; RA2014	6.46
BOD	mg/l	IS 3025 (Part-44):1993; RA2014	1.8
COD	mg/l	IS 3025 (Part-58):2006; RA2017	12
Oil & Grease	mg/l	APHA 23 rd Edition 2017, 5520B	BDL(DL:0.1)
Iron	mg/l	IS 3025(Part 53):2003:2014	1.3

*****End of Report*****

1. Remarks: - All values are observed within the limit. (As IS: 2296-1962)

2. Abbreviation: - MDL: Minimum Detection Limit, BDL: Below Detection Limit

3. Environmental Condition of the Lab: Temperature: 27 ± 2°C, Relative Humidity: 65%
in all testing areas as per IS 196:1996

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TEST REPORT OF AMBIENT AIR QUALITY MONITORING

Test Report No. : VEC/RNC/22-23/54		Report Release Date : 29.03.2023				
Application No. : 15767713		Work Order Date : 17.03.2023				
CUSTOMER DETAILS		SAMPLE DETAILS				
Customer Name	MANOHARPUR ORE MINES,CHIRIA (DHOBIL) PO:CHIRIA-833106,WEST SINGHBHUM, JHARKHAND	Sampling Date	: 18.03.2023 to 19.03.2023			
Address		Sample Received Date	: 20.03.2023			
		Type of Sample	: Ambient Air			
		Sampling Procedure	: VEC/DOC/SMPL/01			
		Sample Drawn By	: VEC			
Plant Status	Operational	Period of Analysis	: 20.03.2023 to 28.03.2023			
METEOROLOGICAL INFORMATION						
1	Average Temperature (°C) : 27°C	2	Barometric Pressure (mmHg) : 755 mmHg			
3	Relative Humidity (%) : 56%	4	Weather Condition : Clear			
Parameters		Particulate Matter (PM10)	Particulate Matter (PM2.5)	Sulphur Di-Oxide (SO ₂)	Nitrogen Di-Oxide (NO ₂)	
Test Protocol		IS 5182 (P-23)	IS 5182 (P-24)	IS 5182 (P-2)	IS 5182 (P-6)	
Locations	Limits		100	60	80	80
	Time	Unit	µg/m ³	µg/m ³	µg/m ³	µg/m ³
Near General Office	10:15AM-2:14PM		78	44	18.8	36.1
	2:14 PM-6:21PM				17.2	35.6
	6:26PM-10:25PM		67		16.4	34.6
	10:25PM-2:28AM				19.8	35.8
	2:35AM-6:36AM		76		16.6	34.7
	6:36AM-10:37AM				18.1	33.6
Latitude: 22°18'29.28"N		Average	74	44	17.8	35.1
Longitude :85°16'19.96"E						
Near Chiria Hospital	10:15AM-2:19PM		76	46	19.8	33.2
	2:19PM-6:20PM				16.6	30.8
	6:25PM-10:24PM		64		18.7	34.9
	10:24PM-2:25AM				15.6	32.6
	2:30AM-6:31AM		72		17.2	32.3
	6:31AM-10:32AM				13.8	23.6
Latitude: 22°18'21.26"N		Average	71	46	16.9	31.2
Longitude :85°16'6.18"E						

Krishna Kumar
Quality Manager



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TEST REPORT OF AMBIENT AIR QUALITY MONITORING

Test Report No. : VEC/RNC/22-23/54	Report Release Date : 29.03.2023
Application No. : 15767713	Work Order Date : 17.03.2023

Parameters			Particulate Matter (PM10)	Particulate Matter (PM2.5)	Sulphur Di-Oxide (SO ₂)	Nitrogen Di-Oxide (NO ₂)
Test Protocol			IS 5182 (P-23)	IS 5182 (P-24)	IS 5182 (P-2)	IS 5182 (P-6)
Locations	Limits		100	60	80	80
	Time	Unit	µg/m ³	µg/m ³	µg/m ³	µg/m ³
Near Dhobil Mines	10:18AM-2:17PM	79	42	18.8	36.8	
	2:17PM-6:24PM			18.2	34.6	
	6:29PM-10:26PM	66		19.8	36.6	
	10:26PM-2:27AM			17.8	35.8	
	2:35AM-6:24AM	72		18.6	33.7	
	6:24AM-10:25AM			16.6	31.3	
Latitude: 22°15'32.96"N	Average	72	42	18.3	34.8	
Longitude :85°16'19.12"E						

*****End of Report*****

1. Remarks: - All values are observed will within the limit.
2. Abbreviation:- MDL: Minimum Detection Limit, BDL: Below Detection Limit.
3. Environmental Condition of the Lab: Temperature: $27 \pm 2^\circ\text{C}$, Relative Humidity – $65\% \pm 5\%$ in all testing areas as per IS 196:1996

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TEST REPORT OF NOISE QUALITY MONITORING

Test Report No. : VEC/RNC/22-23/54	Report Release Date : 29.03.2023
Application No. : 15767713	Work Order Date : 17.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name Address	MANOHARPUR ORE MINES, CHIRIA (DHOBIL) PO: CHIRIA-833106, WEST SINGHBHUM, JHARKHAND	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sample Drawn By	: 18.03.2023 to 19.03.2023 : 20.03.2023 : Noise : VEC/DOC/SMPL/01 : VEC
Plant Status	Operational	Period of Analysis	: 20.03.2023 to 29.03.2023

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27 °C	2	Barometric Pressure (mmHg)	: 755 mmHg
3	Relative Humidity (%)	: 56%	4	Weather Condition	: Clear

TEST REPORT

LOCATION	Units	TEST PROTOCOL	RESULTS			Regulatory Limit
Railway Siding	dB(A)	IS 9989:1981, RA 2001	L _{Min}	L _{Mid}	L _{Max}	75 dB(A) Day Time & 70 dB(A)
Latitude: 22°21'46.81"N			67.3	37.4	62	
Longitude: 85°11'21.56"E						
Near Crushing area	dB(A)	IS 9989:1981, RA 2001	L _{Min}	L _{Mid}	L _{Max}	
Latitude: 22°15'26.43"N			69.3	41.5	63	
Longitude: 85°16'21.27"E						
Ankua Chowk	dB(A)	IS 9989:1981, RA 2001	L _{Min}	L _{Mid}	L _{Max}	
Latitude: 22°18'28.98"N			63.8	40.2	60	
Longitude: 85°15'48.09"E						

*****End of Report*****

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TEST REPORT OF NOISE QUALITY MONITORING

Test Report No. : VEC/RNC/22-23/54	Report Release Date : 29.03.2023
Application No. : 15767713	Work Order Date : 17.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	MANOHARPUR ORE MINES, CHIRJA (DHOBIL)	Sampling Date	: 18.03.2023 to 19.03.2023
Address	PO: CHIRJA-833106, WEST SINGHBHUM, JHARKHAND	Sample Received Date	: 20.03.2023
		Type of Sample	: Noise
		Sampling Procedure	: VEC/DOC/SMPL/01
		Sample Drawn By	: VEC
Plant Status	Operational	Period of Analysis	: 20.03.2023 to 29.03.2023

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27 °C	2	Barometric Pressure (mmHg)	: 755 mmHg
3	Relative Humidity (%)	: 56%	4	Weather Condition	: Clear

TEST REPORT

LOCATION	Units	TEST PROTOCOL	RESULTS			Regulatory Limit
Near General Office	dB(A)	IS 9989:1981, RA 2001	L _{Max}	L _{Min}	L _{eq}	75 dB(A) Day Time & 70 dB(A)
Latitude: 22°18'29.28"N			68.3	38.6	64	
Longitude: 85°16'21.96"E						
Near Chiria Hospital	dB(A)	IS 9989:1981, RA 2001	L _{Max}	L _{Min}	L _{eq}	
Latitude: 22°18'21.26"N			72.3	37.5	65	
Longitude: 85°16'6.18"E						
Middle of Dhobil Mines	dB(A)	IS 9989:1981, RA 2001	L _{Max}	L _{Min}	L _{eq}	
Latitude: 22°15'37.32"N			66.4	36.8	62	
Longitude: 85°16'22.06"E						

*****End of Report*****

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