

MCDR INSPECTION REPORT**General**

S N	Particulars	Details
1	File no.	MCDR-MiFLOFE/24/2022-BBS-IBM_RO_BBS
2	Name of the Inspecting Officer	Shri Vikram Prakash Deshpande, ACOM
3	Name of the Mine	Barsua Iron Mine
4	Total Lease Area (Ha) with breakup of Non-forest and forest land	Barsua Iron Mine part is having an area of 1054.367Ha. (Forest Land=1005.529 Ha. Non Forest Land=48.838 Ha.) out of the total Lease area of Amalgamated Lease of ML-130 & ML-162 i.e. 2564.323 Ha. (Forest land =2425.613 Ha., Non-forest land = 138.71 Ha.)
5	Mine code	30 ORI 13001
6	Date of Inspection	10.06.2024
7	Name of official accompanying inspection	Sri P. C. Barua, Mines Manager (BIM) Sri H Sahu, AGM (Geology) Sri K K Singh, Dy. Manager (Survey)
8	IBM Registration Number under rule 45 of MCDR, 1988	IBM/5662/2011
9	Name of the lessee, Address, phone, email and fax number	M/s. Steel Authority of India Ltd. Sri Atanu Bhowmick Director-in-charge Rourkela Steel Plant, SAIL Rourkela, 769011. Email: rsp.coc@gmail.com Fax: 0661-2511072
10	Village	Tensa
11	Taluka/Mandal	Koira
12	District	Sundargarh
13	Pincode	770042
14	State	Odisha
15	Post office	Tensa
16	Nearest police station	Lahunipara
17	Nearest Railway station	Barsua
18	Date of Grant of Mining Lease	06.01.1960
19	Date of Execution	Original Lease Deed : 06.01.1960 Supplementary Lease Deed : 13.11.2014 Amalgamated Supplementary Lease Deed : 30.03.2021
20	Date of opening of Mine	01.07.2016
21	Date of first Renewal, if applicable and its period & expiry	06.01.1990
22	Date of second Renewal, if applicable and its period & expiry	06.01.2010; Period 06.01.2010 to 05.01.2030
23	Date of submission of renewal application if Mining Operations are continuing under deemed extension	N.A.

24	Name of the Nominated Owner with Address, phone, email, fax number and date of appointment		Shri Atanu Bhowmick Director-in-charge Rourkela Steel Plant, SAIL Rourkela, 769011. Email: rsp.coc@gmail.com Fax: 0661-2511072 DoA: 11.02.2022
25	Name of the Mine Agent with Address, phone, email, fax number and date of appointment		Shri T Patnaik, General Manager I/c, Barsua Iron Mine, SAIL, At/PO- Tensa, Dist. Sundargarh, Odisha-770042. e-mail: gmofficebim@gmail.com Dt. of Appt.: 01.08.2022 Mob: 8895502365
26	Name of the Mines Manager with Address, phone, email, fax number and date of appointment in mines		Shri P.C. Barua M.Tech. (Mining) At/PO- Tensa, Dist. Sundargarh, Odisha-770042 pcbarua@gmail.com Mob:8895502359 DoA: 23.03.2023
27	Name of the Mining Engineer & Geologist, Qualification and total experience	Mining engineer Qualification Date of appointment Address phone/email	Shri S. Kumar, B. E (Mining) At/PO- Tensa, Dist. Sundargarh, Odisha-770042 15+ Years Experience Mob. No.-8986881534 DoA: 16.02.2019
		Geologist Qualification Date of appointment Address phone/email	Shri H Sahu, M. Sc. in Geology 15+ years Experience At/PO- Tensa, Dist. Sundargarh, Odisha-770042 Mob. No. 8895502456 DoA: 20 /04/2024
28	Whether Geologist and Mining Engineer appointed in mines satisfy the rule 42 & carrying out their duties as per rule 43 & 44.		Yes
29	Date of Approval of Review of Mining Plan/Modified Mining Plan with five-year period and specific condition in approval letter, if any.		01.04.2021 (Modification of Mining plan for 2021-22 to 2024-25)
30	Date of Approval of Scheme of Mining/Modified Scheme of Mining with five-year period and specific condition in approval letter, if any.		Review of Mining Plan 2020-21 to 2024-25: 08.11.2019 Modification of Review of Mining Plan 2020-21 to 2024-25: 03.02.2021
31	Mineral(s) granted in lease and proved for mining		Iron Ore (Hematite)
32	Method of Mining(Open cast, Underground)		Open cast
33	Category (Fully Mechanized, Others or Manual)		Fully Mechanized
34	Captive/Non Captive		Captive
			F.No.J-11015/351/2006-IAII(M)

35	Environment Clearance grant date & limit of EC	Date of Approval-28.04.2023 Limit of EC- 5.0 MTPA Validity:27/04/2053
36	CTO	No.19762/IND-I-CON-I(A) Date of Approval-14.12.2023 Limit of CTO - 5.0 MTPA Validity:31/03/2025

Exploration

S.N.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	Not Applicable	Not Applicable	All lease area covered under G-1.
1b	Exploration over lease area for Geological axis 1 or 2.	Not Applicable	Not Applicable	
1c	Exploration Agency & Expenditure in lakh Rupees during the year	Not Applicable	Not Applicable	Exploration completed in 2022-23 period.
1d	Balance area to be explored to bring Geological axis in 1 or 2	Nil	Not Applicable	Total lease area has been explored under G-1
1e	Balance reserves as on 01.04.2024 (in MT)	As on 31.10.2020 111: 104.529 121: 26.188 211: 77.024 221: 30.508 Total: 238.249	As on 01.04.2024 111: 95.882 121: 25.858 211: 77.024 221: 30.508 Total: 229.272	
1f	General remarks of inspecting officer on geology, exploration etc.	The Iron deposit strikes from N60 ⁰ E - S60 ⁰ W to N-S & N20 ⁰ W-S20 ⁰ E to E-W and dips 30 ⁰ to 80 ⁰ in western part and 10 ⁰ to 50 ⁰ in eastern part of the ML area. The complete lease area has been covered under G-1 category of exploration.		

Development

S.N.	Item	Proposals	Actual work	Remarks
2a	Location of development w.r.t. lease area	Area-3: 308680E to 309150 E, 2419400 N to 2420250 N Area-5: 307900 E to 308550 E, 2416900 N to 2417750 N	Area-3: 308712E to 308954 E, 2419500 N to 2420200 N Area-5: 307858 E to 308152 E, 2417214 N to 2417472 N	The excavation is not carried out as per proposal therefore violation of Rule 11(1) of MCDR 2017 pointed out to the lessee.
2b	Separate benches in topsoil, overburden and mineral (Rule 15)	Separate benches in, mineral and Overburden proposed.	Separate benches in, mineral and Overburden maintained.	Area-3: Overburden- 8 benches Mineral- 8 benches Area-5: Overburden- 3 benches Mineral- 3 benches
2c	Stripping ratio or ore to OB ratio (T/T)	1: 0.068	1:0. 269	No Significant change.
2d	Quantity of topsoil generation in m ³	Topsoil to a tune of 10300 Cu.m proposed to be generated during reporting year.	No topsoil generated during reporting year.	Area-5: 10300
2e	Quantity of overburden/waste generation in m ³	270405	702801.74	For excess waste generation violation of Rule 11(1) of MCDR 2017 pointed out to the lessee.
2f	General remarks of inspecting officer on development of pit w.r.t. type of deposit etc.	The mine working is confined to 2 pits. The work has not been carried out as per proposals in the approved modification of MP		

Exploitation

S.N.	Item	Proposals	Actual work	Remarks
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3a	Number of pits proposed for production	Two pits proposed for production.	Production carried out in 2 pits	Area-3 (1000mLx800mBx180mD) and Area-5 (600mLx300mBx60mD)
3b	Quantity of ROM production	3991049.5 MT	2607782.00 MT	For less achievement of targeted ROM Production violation of Rule 11(1) of MCDR 2017 pointed out to the lessee.
3c	Recovery of salable/usable mineral from ROM production	81.73%	100 %	
3d	Quantity of mineral reject generation	729022 T	204810 T.	
3e	Grade of mineral reject generation and threshold value declared	Grade: Fe >45% to <57% Tailing : Fe >45% to <57% Threshold: Fe 45%	Grade: Fe >45% to <57% Tailing: 53% to 56% fe Threshold: Fe 45%	
3f	Quantity of sub-grade mineral generation	729022 T.	204810 T.	
3g	Grade of sub-grade mineral generation	45-57% Fe	45-57% Fe	
3h	Manual / Mechanized method adopted for segregating from ROM	Mechanized method proposed for segregating from ROM	Mechanized method adopted for segregating from ROM	
3i	Any analysis or beneficiation study proposed & carried out for sub-grade mineral and reject.	Analysis proposed for sub-grade mineral and reject.	Analysis carried out for sub-grade mineral and reject.	Screening of subgrade materials carried out in departmental laboratory. The +10mm lump recovery varying between 30 to 40% with a quality of 52 to 55% Fe.
3j	Provision of drilling & blasting in mineral benches	Drilling and Blasting proposed in mineral benches.	Drilling and Blasting carried out in mineral benches.	Blast hole diameter: 150mm Blasting is done by using ANFO and slurry explosives with NONEL. Burden 3.5m Spacing:5.0m
3k	Provision of mining machinery in	Use of HEMMs is proposed in Mineral Benches.	Mechanized O/C mining is carried out with engaging	Mining is carried out by mechanized open cast mining in combination of backhoe(4.3 Cu.m) and Dumper (60T/100T

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	mineral benches		HEMMs in mineral benches	(tonne)with deep hole drilling and blasting.
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Height of the benches proposed to be maintained as 10m.	Height of the benches broadly maintained as proposed.	
3m	Total area covered under excavation/pits	191.55 Ha.	183.20 Ha.	
3n	Ore to OB ratio for the pit/mine during the year(T/T)	1: 0.068	1: 0.269	No significant change
3o	Total area put in use under different heads at the end of year	As per the proposal	Actual	
		Area under Excavation: 191.550 ha. Overburden Dump: 10.939 ha. Mineral storage: 78.228 ha. Others: 76.234 ha. Total area: 356.951 ha.	Area under Excavation: 183.20 ha. Overburden Dump: 7.702 ha. Mineral storage: 71.095 ha. Others: 44.65 ha. Total area: 306.647 ha.	
3p	Production of ROM mineral during last five-year period, as applicable			
	Year- 2019-20	3.49 MT	2.04 MT	For not achieving targeted production Violation of Rule 11(1) of MCDR 2017 pointed out to the lessee.
	Year- 2020-21	3.49 MT	2.41 MT	
	Year- 2021-22	3.49 MT	2.87 MT	
	Year-2022-23	3.99 MT	2.16 MT	
Year-2023-24	3.99 MT	2.61 MT		
3q	General remarks of inspecting officer on method of mining etc.	Open-cast fully mechanised mining method with Backhoe-Dumper combination, with 10 m high benches and deep drilling and blasting is being carried out.		

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Solid Waste Management-Dumping

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S.N	Item	Proposals	Actual work	Remarks
		Separate dumping of OB and Mineral reject	Dumping of OB in Back Filling at Area-3 Pit and	Dumping of OB in

4a	Separate dumping of topsoil, OB & mineral reject (Rule 32, 33)	proposed.	Area-1 Backfilled pit.	BWD-10 could not be done and hence Violation of Rule 11(1) of MCDR 2017 pointed out to the lessee.
4b	Location of topsoil, OB & mineral reject dumps	Waste Dump BWD-10: 2419540N to 2420090N; 309037E to 309290E Mineral Reject Dumps BSD-1 309298E-3 0 9 3 7 8 E 2419814N-2419642N BSD-2 308460E-3 0 8 6 6 4 E 2418211N-2418484N BSD-2&4 308204E-3 0 8 4 1 4 E 2417810N-2418100N BSD-3 308206E-3 0 8 2 8 8 E 2419124N-2419228N BSD-5 309290E-3 0 9 3 5 8 E 2420039N-2420083N BSD-7 308618E-3 0 8 7 8 6 E 2418912N-2418584N BSD-9 308876E-3 0 9 0 3 6 E 2419404N-242419562N	Waste Dump Not done Mineral Reject Dumps BSD-1 309298E-3 0 9 3 7 8 E 2419814N-2419642N BSD-2 308460E-3 0 8 6 6 4 E 2418211N-2418484N BSD-2&4 308165E-3 0 8 3 9 0 E 2417810N-2418100N BSD-3 308206E-3 0 8 2 8 8 E 2419124N-2419228N BSD-5 309290E-3 0 9 3 5 8 E 2420039N-2420083N BSD-7 308618E-3 0 8 7 8 6 E 2418912N-2418584N BSD-9 308876E-3 0 9 0 3 6 E 2419404N-242419562N	Dumping of OB in BWD-10 could not be done and hence Violation of Rule 11(1) of MCDR 2017 pointed out to the lessee.
4c	Number of dumps within lease area and outside the lease area	All waste dump and mineral reject dumps are within Lease area Waste Dump: 1 no. Mineral Reject Dump: 8 nos.	All waste dump and mineral reject dumps are within Lease area Waste Dump: Nil. Mineral Reject Dump: 8 nos.	

4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	BSD-1, 3, 4 & 5 BWD-8 are outside UPL & BSD-2, 2&4, 7 and 9 are within UPL	BSD-1, 3, 4 & 5 BWD-8 are outside UPL & BSD-2, 2&4, 7 and 9 are within UPL	
4e	Number of active & alive dumps	Mineral reject dump: 1 no. (BSD-2&4)	Mineral reject dump: 1 no. (BSD-2&4)	As per proposal
	Number of dead	Mineral reject dump: 6	Mineral reject dump:	As per

4f	dumps	nos. (BSD-1, 2, 3,4, 5, 7, 9)	6 nos. (BSD-1, 2, 3,4, 5, 7, 9)	proposal
4g	Number of dumps stabilized	Mineral reject dump: 7 nos. (BSD-1, 2, 3,4, 5, 7, 9)	Mineral reject dump: 7 nos. (BSD-1, 2, 3,4, 5, 7, 9)	As per proposal
4h	Whether Retaining wall or garland drain all along dumps are there	Retaining wall or garland drain proposed all along the dumps.	Not done.	-
4i	Length of Retaining wall or garland drain all along the dump	Retaining Wall of 1040m and Garland Drain of 1070m proposed.	Not done.	Violation of Rule 11(1) of MCDR 2017 pointed out to the lessee.
4j	Number of settling ponds	4	Nil	Violation of Rule 11(1) of MCDR 2017 pointed out to the lessee.
	Specific comments of inspecting officer on waste dump management	Overburden, mineral and mineral reject management is not as per proposal in the approved document.		

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Solid Waste Management-Backfilling

S.N.	Item	Proposals	Actual work	Remarks
5a	Status on part or full extraction of mineral from mined out area before starting backfilling	No such proposal	Not done	Back filling have been proposed after complete extraction of ore from lower benches of pit-3.
5b	Area under backfilling of mined out area	No backfilling proposed during reporting year.	During inspection it was observed that material from area 3 was being dumped over backfilled area of pit 3.	Violation of Rule 11(1) of MCDR 2017 pointed out to the lessee.
5c	Concurrent use of topsoil for restoration or rehabilitation of mined out area (Rule 32)	No such proposal	Not done	
5d	Total area fully reclaimed	Nil	Nil	

	& rehabilitated		
5e	General remarks of inspecting officer on backfilling, reclamation etc	During inspection it was observed that material from area 3 was being dumped over backfilled area of pit-3 for which Violation of Rule 11(1) of MCDR 2017 pointed out to the lessee.	

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Progressive Mine Closure Plan

Sl.N	Item	Proposals	Actual work	Remarks
6a	Whether Annual report on PMCP submitted on time and correctly. Rule 23 E(2).	As per rule 23E(2) of MCDR, 2017, the holder of mining lease shall submit to the competent authority a yearly report as per the format specified by the IBM, before 1 st day of July every year setting forth the extent of the protective and rehabilitative works carried out as envisaged in the approved mine closure plan, and if there is any deviation, reasons thereof.	Submitted to IBM vide letter dated 07.06.2024 for the year 2023-24.	
6b	Area available for rehabilitation (ha).	Nil	Nil	
6c	Afforestation done (ha).	0.25	0.50	
6d	No. of saplings planted during the year	625	1000	
6e	Cumulative no. of plants	625	2500	
6f	Any other method of rehabilitation	Nil	Nil	
6g	Cost incurred on watch and care during the year	Rs. 37500.00	Rs. 53000.00	
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	Nil	Nil	
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids	Nil	Nil	

	filled by waste / tailings			
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on backfilled area	Nil	Nil	
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	Nil	Nil	
6l	Compliance on reclamation and rehabilitation by backfilling (v) any other specific means.	Nil	Nil	
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	Nil	Nil	
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	Nil	Nil	
6o	Compliance of rehabilitation of waste land within lease (iii) Method of rehabilitation	Nil	Nil	
6p	Compliance of environmental monitoring (core zone and buffer zone)	Environmental monitoring in Core zone and buffer zone proposed as per MOEFCC and SPCB guidelines	Monthly and Quarterly monitoring of AAQ, Water Quality and Noise Level are being carried out by third party M/s Superintendence India.	All Environmental parameters found to be within permissible limits

6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	The lessee has done adequate plantation and is regularly monitoring the Environmental Parameters.
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eral Conservation

S.N.	Item	Proposals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Grade wise mineral sorting within lease area.	Grade wise mineral sorting within lease area carried out.	Sorting done in two 45%Fe to 57% Fe and +57% Fe
7b	Method of grade-wise mineral sorting i.e. manual or mechanical	Mechanical method of mineral sorting proposed	Mechanical method of mineral sorting carried out	>57% Fe feed to crusher and partly subgrade materials/mineral reject blended with high grade ore.
7c	Different grade of mineral sorted out at mines	45% - 57% Fe and <57% Fe	45% - 57% Fe and <57% Fe	
7d	Any beneficiation process at mines	Beneficiation process proposed	Beneficiation process carried out.	Washing plant with 800tph capacity available in the Ore Handling Plant in the mine.
7e	General remarks of inspecting officer on Mineral conservation & beneficiation issues	Washing plant with 800tph capacity available in the Ore Handling Plant in the mine.		

ironment

S.N.	Item	Proposals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	Removal: 10300 M ³ Utilization: 10300 M ³	Removal: Nil Utilization: Nil	
8b	Concurrent use or storage of topsoil	Storage: Nil	Storage: Nil	
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Separate dumps for waste , rejects proposed	Separate dumps for waste , rejects made	Waste dump: BSD-8 Mineral reject dump: 8 nos. (BSD-1, 2, 2&4, 3, 4, 5, 7, 9)
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	No proposal for the year for reporting year.	Not done	
8e	Phased restoration, reclamation and rehabilitation of lands	No proposal for the year for reporting year.	Not done	

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	affected by mining operations (Pits, dumps etc.)			
8f	Baseline information on existence of plantation & additional plantation done (Rule 41)	625	1000	
8g	Survival rate		85%	

8h	Water sprinkling on roads to control airborne dust	Water sprinkling on roads to control airborne dust proposed.	Permanent sprinkling system is installed in haulage road and water tanker also routinely used. Regular water sprinkling is being done with one 12 KL & one 20 KL mobile water tanker used.	
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	Aesthetic beauty in & around mines area is well maintained. The lessee is implementing the PMCP proposal and has carried out adequate plantation. Sprinkling of water on Haul roads and transport roads using water tanker is done to suppress the dust.		

Compliance of Rule 45

S.N.	Item	Observation of I/Officer		Remarks
9a	Status of submission of Monthly and Annual returns	M.R. Submitted upto May, 2024 A.R. Submitted upto financial year 2023-24.		
	Item	As per AR	As Observed	
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Mines Manager- Shri P.C. Barua Mining Engineer- Shri S. Kumar Mining Geologist: Shri R.P. Mondal	Mines Manager- Shri P.C. Barua Mining Engineer- Shri S. Kumar Mining Geologist: Shri Harihara Sahu	
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Area covered under excavation: 183.20 Ha; Used for waste disposal: 7.702 ha. Infrastructure: 35.50 ha. Mineral Storage- 36.784	Broadly as per proposal	

9d	Scrutiny of Annual return on afforestation	7000 Saplings Planted	Appears to be correct	All within mining lease
9e	Scrutiny of Annual return on mineral reject generation (Grade & quantity)	66000, 55% Fe	Appears to be correct	Tailing : 53 to 56% Fe 204810 tonnes. All generated reject (including tailings) blended with production.
9f	Scrutiny of Annual return on ROM stock and/or graded ore.	ROM - 144536 tonnes	Appears to be correct	
9g	Scrutiny of Annual return on sale value, Ex. Mine price & production cost	Ex-Mine Price: Fines-Rs 1664 CLO-Rs 2240 Cost of Production is Rs 1792	The Ex-Mine Price for fines and CLO are not correct as for captive consumption the cost of production is the Ex-Mine Price.	For furnishing incorrect Ex-Mine price violation of Rule 45(7) of MCDR 2017 pointed out to the lessee.
9h	Scrutiny of Annual return on fixed assets	Value of fixed assets Rs. ₹ 4270263310 in respect of the Mine, mine work shop, power and water installation).	Appears to be correct	This asset is common for Barsua & Taldih Iron Mine.
9i	Scrutiny of Annual return on mining machineries.	Dumper-10 Water Sprinkler-02 Wheel Loader-02 Excavator-05 Dozer-04 Drill-02 Mobile crane-05	Broadly as per proposal	