

## MCDR INSPECTION REPORT

**General**

S N	Particulars	Details
1	File no.	<b>MCDR-MiFLOCR/5/2022-BBS-IBM_RO_BBS</b>
2	Name of the Inspecting Officer	Shri. Vikram Deshpande, ACOM, BBSR
3	Name of the Mine	Sukinda Chromite Block
4	Total Lease Area (Ha) with breakup of non-forest and forest land	406 Ha. Forest: 404.669Ha. Non-Forest: 1.331 Ha.
5	Mine code	11ORI19028
6	Date of Inspection	27.09.2024
7	Name of official accompanying inspection	S/Shri Nihar Mitra, Mines Manager, Devraj Tiwari, Agent, Viraj Verlekar, Mining Geologist.
8	IBM Registration Number under rule 45 of MCDR, 1988	IBM/4376/2011/11ORI19028
9	Name of the lessee, Address, phone, email and fax number	Tata Steel Limited, Bombay House, 24 Homi Mody Street Fort, Mumbai
10	Village	Kalarangiatta
11	Taluka/Mandal	Sukinda
12	District	Jajpur
13	Pincode	755028
14	State	Odisha
15	Post office	Kalarangiatta
16	Nearest police station	Kaliapani
17	Nearest Railway station	Jajpur - Keonjhar Road (JK Road)
18	Date of Grant of Mining Lease	23.07-2020
19	Date of Execution	23.07-2020
20	Date of opening of Mine	21-09-2020
21	Date of first Renewal, if applicable and its period & expiry	NA
22	Date of second Renewal, if applicable and its period & expiry	NA
23	Date of submission of renewal application if Mining Operations are continuing under deemed extension	NA
24	Name of the Nominated Owner with Address, phone, email, fax number and date of appointment	Mr. T V Narendran Managing Director Tata Steel Limited, Bungalow No-5, C Road Jamshedpur, Jharkhand, 831001. Mobile: 022-66657274 Mail Id: gm.office@tatasteel.com With effect from: 01-11-2023
25	Name of the Mine Agent with Address, phone, email, fax number and date of appointment	Mr. Devraj Tiwari, B.Tech(Mining) with FCC. At/P.O.: Kalarangiatta, Dist: Jajpur, Orissa – 755028. Mobile: 8092000271. Date of appointment: 21.03.2024. Mail Id: devraj.tiwari@tatasteel.com
26	Name of the Mines Manager with Address, phone, email, fax number and date of appointment in mines	Mr. Nihar Ranjan Mitra. B.Tech. (Mining) with FCC(U/R) At/P.O.: Kalarangiatta, Dist.: Jajpur, Orissa – 755028. Mobile: 9238087107. Date of appointment: 01.07.2023. Mail Id: nihar.mitra@tatasteel.com
27	Name of the Mining Engineer & Geologist, Qualification and total experience	Mining engineer Qualification Date of appointment Address phone/email
		Mr. Nihar Ranjan Mitra. B.Tech. (Mining) with FCC(U/R) At/P.O.: Kalarangiatta, Dist.: Jajpur, Orissa – 755028. Mobile: 9238087107. Date of appointment: 01.07.2023. Mail Id: nihar.mitra@tatasteel.com
		Geologist Qualification Date of appointment Address phone/email
		Mr. Viraj A Verlekar. MSc Geology with 19 years of Exp. At/P.O.: Kalarangiatta. Dist.: Jajpur. Odisha – 755028. Ph no. 9204651665. Date of appointment: 29.07.2020
28	Whether Geologist and Mining Engineer appointed in mines satisfy the rule 42 & carrying out their duties as per rule 43 & 44.	Appointed.

29	Date of Approval of Review of Mining Plan/Modified Mining Plan with five-year period and specific condition in approval letter, if any.	Review of Mining Plan: MP/A/15-ORI/BHU/2020-21 Dated: 10/09/2020. Period: 01.04.2020 - 31.03.2025. Modification of Mining Plan: BBS/JJP/CR/2172/MPM/2022-23. Dated: 22/07/2022. Period: 22/07/2022 - 31.03.2025.
30	Date of Approval of Scheme of Mining/Modified Scheme of Mining with five-year period and specific condition in approval letter, if any.	Not Applicable.
31	Mineral(s) granted in lease and proved for mining	Chromite.
32	Method of Mining (Opencast, Underground)	Opencast.
33	Category (Fully Mechanized, Others or Manual)	Fully Mechanized
34	Captive/Non-Captive	Non-Captive.
35	Environment Clearance grant date & limit of EC	J-11015/96/2011- IA. II (M) Date: 06.09.2013 Limit: 2.4 million tonnes.

### Exploration

S.N.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	Nil	Nil	Mineralized area fully covered under G1.
1b	Exploration over lease area for Geological axis 1 or 2.	Nil	Nil	
1c	Exploration Agency & Expenditure in lakh Rupees during the year	Not Applicable	Not Applicable	Mineralized area fully covered under G1.
1d	Balance area to be explored to bring Geological axis in 1 or 2	Nil	Nil	
1e	Balance reserves as on 01.04.2024 (in MT)	2174246	2600070	As per RMP. As per MMP Proposal: 2597777
1f	General remarks of inspecting officer on geology, exploration etc.	The Chromite deposits of Sukinda ultramafic field occurs as six more or less parallel bands in Serpentinite. These Chromite bands are locally named as Band 1,2,3,4,5 & 6 and are separated from each other by Serpentinite /Pyroxenite ranging in thickness 120 M to 600 M. The Chromite bands occur in Northern limb of the fold shows the strike E- W to ESE – WNW, dipping 100 – 500 towards south to SSW while those of Southern limb shows the strike NE – SW to WSW dipping 450 – 850 towards NW to NNW.		

### Development

S.N.	Item	Proposals	Actual work	Remarks
2a	Location of development w.r.t. lease area	369769E – 371729E 2324626N – 2326033N	369770E – 371596E 2324630N - 2325893	Development within the proposed limit.
2b	Separate benches in topsoil, overburden, and mineral (Rule 15)	Separate benches proposed in Overburden and Mineral.	Separate benches maintained in Overburden and Mineral.	
2c	Stripping ratio or OB to Ore ratio (Cum/T)	6.62	6.07	FY 2023-24 As per MMP Proposal:5.6 No Significant Change
2d	Quantity of topsoil generation in m <sup>3</sup>	No topsoil generation proposed during reporting year.	No topsoil generated during reporting year.	
2e	Quantity of overburden/waste generation in m <sup>3</sup>	4664620	3627841	FY 2023-24 As per MMP proposal: 3973675
2f	General remarks of inspecting officer on development of pit w.r.t. type of deposit etc.	The mine working is confined to 1 pit only. The work is being broadly carried out as per proposals in the approved document.		

**Exploitation**

S.N.	Item	Proposals	Actual work	Remarks
3a	Number of pits proposed for production	One pit proposed for production	Work carried out in 1 pit as proposed	OB – X Quarry Avg. Length: 2485m Avg. Width: 690
3b	Quantity of ROM production (Tonnes)	834096	597963	FY 2023-24. As per MMP proposal:600254
3c	Recovery of salable/usable mineral from ROM production	100%	100%	
3d	Quantity of mineral reject generation	Nil	Nil	Mineral above Threshold value of 10% of Cr <sub>2</sub> O <sub>3</sub> is used.
3e	Grade of mineral reject generation and threshold value declared	< 10% Cr <sub>2</sub> O <sub>3</sub>	< 10% Cr <sub>2</sub> O <sub>3</sub>	Threshold value: 10% Cr <sub>2</sub> O <sub>3</sub>
3f	Quantity of sub-grade mineral generation	Nil	Nil	Mineral above Threshold value of 10% of Cr <sub>2</sub> O <sub>3</sub> is used.
3g	Grade of sub-grade mineral generation	Not Applicable	Not Applicable	
3h	Manual / Mechanized method adopted for segregating from ROM	Not Applicable	Not Applicable	Mineral above Threshold value of 10% of Cr <sub>2</sub> O <sub>3</sub> is used.
3i	Any analysis or beneficiation study proposed & carried out for sub-grade mineral and reject	No Beneficiation Study proposed	No Beneficiation study carried out.	
3j	Provision of drilling & blasting in mineral benches	Provision of drilling & blasting proposed in mineral benches	Drilling and Blasting Carried out as proposed.	Dia of DTH: 150 Mtrs. Spacing:3.5m Burden:3.0m.
3k	Provision of mining machinery in mineral benches	Use of HEMMs is proposed in Mineral Benches.	Mechanized O/C mining is carried out with engaging HEMMs in mineral benches.	Mining is carried out by mechanized open cast mining in combination of backhoe(3.0 Cu.m) and Dumper (30 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	Yes Height-10m Width-12m Same in Ore & OB	At few places not carried out as proposed	No violation is being pointed out as the Final Mine closure Plan has been approved on 09/10/2024
3m	Total area covered under excavation/pits	155.315 Ha.	155.315 Ha.	FY 2023-24.
3n	Ore to OB ratio for the pit/mine during the year(T/T)	15.23	13.95	FY 2023-24. Within the proposed limit.
3o	Total area put in use under different heads at the end of year	Mining-155.315 Ha. Waste disposal- 99.258 Ha. Mineral Storage-29.084 Ha. Township-32.852 Ha. Infrastructure-35.571 Ha. Roads- 8.46 Ha. Others- 45.46 Ha. Total- 406 Ha.	Mining-155.315 Ha. Waste disposal- 99.258 Ha. Mineral Storage- 29.084 Ha. Township-32.852 Ha. Infrastructure- 35.571 Ha. Roads- 8.46 Ha. Others- 45.46 Ha. Total- 406 Ha.	FY 2023-24.
3p	Production of ROM mineral during last five-year period, as applicable (MT)			
	Year- 2020-21	802603	801854	As per MMP proposal: FY 2020-21: 802603 FY 2021-22: 1364453 FY 2022-23: 1309746 FY 2023-24: 600254 Total: 4077056
	Year- 2021-22	1364453	1359986	
	Year- 2022-23	905246	1309744	
	Year-2023-24	834096	597963	
Total	3906398	4069547		
3q	General remarks of inspecting officer on method of mining etc.	Open-cast fully mechanised mining method with Backhoe-Dumper combination, with deep drilling and blasting is being broadly carried as per approved document. No violation is being pointed for maintaining benches more than proposed height and width as the Final Mine closure Plan has been approved on 09/10/2024.		



**Solid Waste Management-Dumping**

S.N	Item	Proposals	Actual work	Remarks
4a	Separate dumping of topsoil, OB & mineral reject (Rule 32, 33)	Separate dumping of OB proposed	Separate dumping of OB carried out	Back filling in OB II quarry and NB2/ NB3 has been carried out for OB disposal.
4b	Location of topsoil, OB & mineral reject dumps	Location of OB II backfill: 371200E – 372265E 2324029N – 2324929N Location of NB2/NB3 backfill: 370309E – 370911E 2325000N – 2325429N	Location of OB II backfill: 371200E – 372265E 2324029N – 2324929N Location of NB2/NB3 backfill: 370476E – 370908E 2325163N – 2325427N	FY 2023-24. Within the proposed limit.
4c	Number of dumps within lease area and outside the lease area	5	5	Within lease area. Stabilized dumps: Dump 1A & 1B: N :2323965-2324778 E-370689-371400 Dump 2B: N-2324202-234525 E-369562-370600 Dump 3: N-2325915-2326094 E-371265-371542 Dead Dumps: Dump 2A: N-2324758-2325400 E-371414-372218 Dump 4: N-2324550-2324834 E-372146-372310
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	Outside of the UPL	Outside of the UPL	
4e	Number of active & alive dumps	Nil	Nil	Only Back filling in OB II quarry, NB2/NB3 & MB1 was proposed for OB disposal.
4f	Number of dead dumps	2	2	
4g	Number of dumps stabilized	3	3	Dump 1A & 1B: N :2323965-2324778 E-370689-371400 Dump 2B: N-2324202-234525 E-369562-370600 Dump 3: N-2325915-2326094 E-371265-371542
4h	Whether Retaining wall or garland drain all along dumps are there	Yes	Yes	Existing retaining wall: 1030m & garland drain maintained: 6362m.
4i	Length of Retaining wall or garland drain all along the dump	Retaining wall: Not proposed. Garland drain: Not proposed	Retaining wall: Not proposed. Garland drain: Not proposed	Existing retaining wall: 1030m & garland drain maintained: 6362m.
4j	Number of settling ponds	Not proposed	Not proposed	Existing: 10 Nos.
	Specific comments of inspecting officer on waste dump management	Overburden, mineral management is broadly as per proposal are being carried out as per the approved proposals.		

**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	Mineral proposed to be fully extracted up to UPL.	Mineral has been fully extracted up to UPL.	FY 2023-24
5b	Area under backfilling of mined out area	60.28 Ha.	57.46 Ha.	FY 2023-24. OB – II & NB2/NB3 Backfill.
5c	Concurrent use of topsoil for restoration or rehabilitation of mined out area (Rule 32)	No proposal of topsoil generation during reporting year	No topsoil generated during reporting year	
5d	Total area fully reclaimed & rehabilitated	12.7 Ha.	12.7 Ha.	Towards NW side of mining lease.
5e	General remarks of inspecting officer on backfilling, reclamation etc	Backfilling has been carried out but in less area as proposed.		

**Progressive Mine Closure Plan**

S.N.	Item	Proposals	Actual work	Remarks
6a	Whether Annual report on PMCP submitted on time and correctly. Rule 23 E (2).	Annual report on PMCP for FY2023-24 has to be submitted before 1 <sup>st</sup> July every year..	Annual report on PMCP for FY2023-24 has been submitted.	

6b	Area available for rehabilitation (ha).	Nil	Nil	Backfill area not matured for rehabilitation.
6c	afforestation done (ha).	2	2.02	FY 2023-24
6d	No. of saplings planted during the year	5000	5030	FY 2023-24
6e	Cumulative no. of plants	15000	15056	Up to FY 2023-24
6f	Any other method of rehabilitation	No other method of rehabilitation proposed	No other method of rehabilitation carried out	
6g	Cost incurred on watch and care during the year(INR in Lakh)	8.5	8.59	
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	60.28 Ha.	57.46 ha	
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	60.28 Ha.	57.46 ha	
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on backfilled area	2 Ha.	2.02 Ha.	FY 2023-24
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.	Monitoring as stipulated in Environment Clearance granted by MoEF & CC and Consent to Operate granted by SPCB is being carried out by third party VISIONTEK.	Env. parameters were observed to be within the permissible limit.
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.		

### Mineral Conservation

S.N.	Item	Proposals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Sorting has not been proposed.	Sorting is not being carried out.	
7b	Method of grade-wise mineral sorting i.e. manual or mechanical	Mechanical method of grade-wise mineral sorting proposed	Mechanical method of grade-wise mineral sorting carried out	
7c	Different grade of mineral sorted out at mines	Below 40% Cr2O3 40% to below 52 % Cr2O3 52% and above Cr2O3	Below 40% Cr2O3 40% to below 52 % Cr2O3 52% and above Cr2O3	
7d	Any beneficiation process at mines	No Beneficiation process proposed	No Beneficiation process carried out	
7e	General remarks of inspecting officer on Mineral conservation & beneficiation issues	No beneficiation is done.		

**Environment**

<b>S.N.</b>	<b>Item</b>	<b>Proposals</b>	<b>Actual work</b>	<b>Remarks</b>
8a	Separate removal and utilization of topsoil (Rule 32)	No proposal of topsoil generation during reporting year	No topsoil generated during reporting year	
8b	Concurrent use or storage of topsoil	No proposal of topsoil generation during reporting year	No topsoil generated during reporting year	



8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Only Back filling in OB II quarry and NB2/NB3 was proposed for OB disposal.	Back filling in OB II quarry and NB2/NB3 has been carried out for OB disposal.	No proposal for Topsoil/mineral reject generation.
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Only Back filling in OB II quarry and NB2/NB3 was proposed for OB disposal.	Back filling in OB II quarry and NB2/NB3 has been carried out for OB disposal.	No proposal for Topsoil/mineral reject generation.
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc.)	Phased rehabilitation of waste dumps & pit through backfill of OB was proposed	Phased rehabilitation of waste dumps & pit through backfill of OB is being carried out as per proposal.	
8f	Baseline information on existence of plantation & additional plantation done (Rule 41)	FY 2020-21 to FY 2022-23: 4 Ha. FY 2023-24: 2 Total: 6	FY 2020-21 to FY 2022-23: 4 Ha. FY 2023-24: 2.02 Total: 6.02 Ha.	
8g	Survival rate	80%	85%	
8h	Water sprinkling on roads to control airborne dust	Water sprinkling on roads to control airborne dust proposed	Water sprinkling on roads to control airborne dust carried out	Fixed water sprinkling & Water tanker (18KL Capacity.)
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	Water sprinkling by high-capacity mobile water sprinklers of 18 KLD. 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	Monthly returns: Submitted till October 2024 Annual Return submitted on 28/06/2024		
	Item	Information as per AR	Observation	
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Mine Manager-Shri Nihar Ranjan Mitra Mining Engineer: Shri Nihar Ranjan Mitra Mining Geologist: shri Viraj Verlekar	Mine Manager-Shri Nihar Ranjan Mitra Mining Engineer: Shri Nihar Ranjan Mitra Mining Geologist: shri Viraj Verlekar	
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Mining-155.315 Ha. Waste disposal- 99.258 Ha. Mineral Storage-29.084 Ha. Township-32.852 Ha. Infrastructure-35.571 Ha. Roads- 8.46 Ha. Others- 45.46 Ha. Total- 406 Ha.	Appears to be correct.	FY 2023-24.
9d	Scrutiny of Annual return on afforestation	6.02Ha.	Appears to be correct.	
9e	Scrutiny of Annual return on mineral reject generation (Grade & quantity)	Nil	Nil	Mineral above Thresh hold value of 10% of Cr2O3 is used.
9f	Scrutiny of Annual return on ROM stock and/or graded ore	600254	597963	FY 2023-24
9g	Scrutiny of Annual return on sale value, Ex. Mine price & production cost	Ex-mine price Fines below 40% Cr2O3 per Tonne: Rs. 7851.26 Ex-mine price Fines 40% to below	Appears to be correct.	FY 2023-24

		52% Cr2O3 per Tonne: Rs. 19369.34 Ex-mine price Fines 52% & above Cr2O3 per Tonne: Rs. 22621.80 Production Cost/Tonne: Rs. 22259.13		
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9h	Scrutiny of Annual return on fixed assets	Value of fixed assets- Rs 285407495	Appears to be correct.	FY 2023-24
9i	Scrutiny of Annual return on mining machineries	Excavators-10 Dumpers-18 Tippers-25 Drill-2 Dozer-3 Garder-1 Water Tanker-4	Appears to be correct.	FY 2023-24