

## MCDR INSPECTION REPORT

**General**

S N	Particulars	Details
1	File no.	
2	Name of the Inspecting Officer	Shri Vikram Prakash Deshpande
3	Name of the Mine	Kamarda Chromite Mine
4	Total Lease Area (Ha) with breakup of non-forest and forest land	Total lease area-107.240 Ha Forest Area-105.78 Ha Non-Forest Area-1.460 Ha
5	Mine code	11ORI19029
6	Date of Inspection	28.10.2024
7	Name of official accompanying inspection	S/Shri Priyadarsi Suvakant Padhi, Mines Manager, Deepak Acharya, Geologist
8	IBM Registration Number under rule 45 of MCDR, 1988	IBM/4376/2011
9	Name of the lessee, Address, phone, email and fax number	M/s Tata Steel Limited, Bombay House, 24 Homi Mody Street Fort, Mumbai. Gm.office@tatasteel.com/ ceo&mdoffice@tatasteel.com
10	Village	Kamarda
11	Taluka/Mandal	Sukinda
12	District	Jajpur
13	Pincode	755028
14	State	Odisha
15	Post office	Kansa
16	Nearest police station	Kaliapani
17	Nearest Railway station	Jajpur Keonjhar Road (JK Road)
18	Date of Grant of Mining Lease	26.06.2020
19	Date of Execution	26.06.2020
20	Date of opening of Mine	06.11.2020
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 Bombay House, 24 Homi Mody Street Fort, Mumbai. Date of appointment-01.11.2023, narendran@tatasteel.com.
25	Name of the Mine Agent with Address, phone, email, fax number and date of appointment	Mr. Naveen Shrivastava Head Mining Saruabil & Kamarda Tata Steel Limited, At/P.O.: Kalarangiatta, Dist : Jajpur, Orissa - 755028, Mobile: 6287090160, Date of appointment-01.07.2023, naveen@tatasteel.com
26	Name of the Mines Manager with Address, phone, email, fax number and date of appointment in mines	Mr. Priyadarsi Suvakant Padhi Area Manager (Mining) At/P.O.: Kalarangiatta, Dist : Jajpur, Orissa - 755028, Mobile: 8093038829, Date of appointment-12.08.2024, priyadarsisuvakanta.padhi@tatasteel.com
27	Name of the Mining Engineer & Geologist, Qualification and total experience	Mining engineer Qualification Date of appointment Address phone/email
		Geologist Qualification Date of appointment Address phone/email
		Mr. Priyadarsi Suvakant Padhi Area Manager (Mining) At/P.O.: Kalarangiatta, Dist : Jajpur, Orissa - 755028, Mobile: 8093038829, Date of appointment-12.08.2024, priyadarsisuvakanta.padhi@tatasteel.com
		Mr. Deepaka Kumar Acharya, MSc Geology. At/P.O.: Kalarangiatta, Dist : Jajpur, Orissa - 755028, Ph no. 8093029016, Date of appointment-16.10.2024, deepaka.acharya@tatasteel.com

28	Whether Geologist and Mining Engineer appointed in mines satisfy the rule 42 & carrying out their duties as per rule 43 & 44.	Yes (Appointed) Geologist: Mr. Deepaka Kumar Acharya Mining Engineer: Mr. Priyadarshi Suvakant Padhi
29	Date of Approval of Mining Plan/Modified Mining Plan with five-year period and specific condition in approval letter, if any.	<b>Approval of Mining Plan</b> MP/A/15-ORI/BHU/2020-21, Dated: 10/09/2020
30	Date of Approval of Scheme of Mining/Modified Scheme of Mining with five-year period and specific condition in approval letter, if any.	NA
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)	Mechanized
34	Captive/non-captive	Non-Captive
35	Environment Clearance grant date & limit of EC	08.06.2023 and 300000 Tonne.
36	CTO	06.11.2023 and 88000 Tonne.

### Exploration

S.N.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year (2020-21), (2021-22) & (2022-23)	5 nos., 90 m (2020-21) 15 nos., 710 m (2021-22) 4 nos., 400 m (2022-23) 0 no, 0 m (2023-24)	15 nos., 745 m (2021-22) 9 nos., 1557 m (2021-22) 9 nos., 1038 m (2023-24)	50m to 100 m Grid spacing
1b	Exploration over lease area for Geological axis 1 or 2.		G1 area: 75.39 Ha G2 area: 31.85 Ha	At the end of 2023-24
1c	Exploration Agency & Expenditure in lakh Rupees during the year	NA	M/s Prime Drilling Private Limited. Expenditure: INR 67.71 Lakh	For 2023-24
1d	Balance area to be explored to bring Geological axis in 1 or 2	4.038	4.038	The entire potential mineralized area has been covered under G1 after FY 2023-24.
1e	Balance reserves as on 01.04.2024 (in MT)		1,448,685 tonnes	
1f	General remarks of inspecting officer on geology, exploration etc.	This mine is a auctioned block of 2020, the mine is opened on 06.11.2020 after execution on 26.06.2020. The Kamarda Chromite block lies at the hinge of the large broad plunging (towards W) syncline ultramafic complex of Sukinda valley. The Ore bands within the leasehold area are also folded with closure towards E to NE. The chromite bands belonging to the Northern limb of the fold exhibit E-W strike having dip of 55 to 70 due South whereas the southern limb displays NE-SW strike having a dip of 55 to 75 due north. The whole lease area has been explored under G1 level.		

### Development

S.N.	Item	Proposals	Actual work	Remarks
2a	Location of development w.r.t. lease area	377696E-378495E/ 2329268N-2329268N	377879E-378547E/ 2329239N-2329664N	FY 2023-24
2b	Separate benches in topsoil, overburden and mineral (Rule 15)	Separate benches proposed in OB and Mineral.	Separate benches maintained in OB and Mineral.	
2c	Stripping ratio or OB to Ore ratio (m <sup>3</sup> /T)	1: 5.00	1: 6.11	FY 2023-24
2d	Quantity of top-soil generation in m <sup>3</sup>	No proposal of Top Soil generation during reporting year.	No Top Soil generated during reporting year.	
2e	Quantity of overburden/waste generation in m <sup>3</sup>	751000	349646	FY 2023-24
2f	General remarks of inspecting officer on development of pit w.r.t. type of	The lessee has carried out mining within the proposal for the reporting year but could not achieved the proposed generation of overburden.		

	deposit etc.	
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**Exploitation**

S.N.	Item	Proposals	Actual work	Remarks
3a	Number of pits proposed for production	1	1	There are a total of 4 pits in the lease. Pit 1 and 2 was observed to be waterlogged during inspection. Quarry 3 & 4 proposed for production
3b	Quantity of ROM production (MT)	150369	57223	Violation of Rule 11(1) of MCDR 2017 issued to the lessee for less production during FY 2023-24
3c	Recovery of salable/usable minerals from ROM production	100%	100%	Carried out as per proposal
3d	Quantity of mineral reject generation	NIL	NIL	Mineral above Threshold value of 10 % Cr2O3is used.
3e	Grade of mineral reject generation and threshold value declared	NA	NA	
3f	Quantity of sub-grade mineral generation	NIL	NIL	
3g	Grade of sub-grade mineral generation	NA	NA	
3h	Manual / Mechanized method adopted for segregating from ROM	NA	NA	
3i	Any analysis or beneficiation study proposed & carried out for sub-grade mineral and reject	No analysis or beneficiation study proposed	No analysis or beneficiation study carried out	
3j	Provision of drilling & blasting in mineral benches	Provision of drilling & blasting in mineral benches	Provision of drilling & blasting in mineral benches	Hole Dia-110mm with blasting using NONEL
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.	Use of HEMMs is proposed in Mineral Benches. Mechanized O/C mining is carried out with engaging HEMMs 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 and Dumper 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 6m	Broadly maintained as per proposal	It is suitable for method of mining proposed in MP for the height of the benches in overburden and mineral.
3m	Total area covered under excavation/pits	40.88 Ha	36.43 Ha	FY 2023-24
3n	OB to Ore ratio for the pit/mine during the year(m <sup>3</sup> /T)	5	6.11	FY 2023-24
3o	Total area put in use under different heads at the end of year	Mining-40.88Ha Dumps-45.72Ha Mineral Storage-2.97Ha Infrastructure-3.40Ha Roads – 5.85 Ha Others-8.392 Ha	Mining-36.43Ha Dumps-35.54Ha Mineral Storage-3.232Ha Infrastructure-3.458Ha	FY 2023-24

			Roads – 3.012 Ha Others-25.558 Ha	
3p	Production of mineral ROM during last five-year period, as applicable			
	Year- 2020-21	35070	34998	
	Year- 2021-22	80307	79998	
	Year- 2022-23	101829	87955	
	Year-2023-24	150369	57223	
	Total	<b>367575</b>	<b>260174</b>	
3q	General remarks of inspecting officer on method of mining etc.	This mine is a auctioned block of 2020, the mine is opened on 06.11.2020 after execution on 26.06.2020. Open-cast fully mechanised mining method with Backhoe-Dumper combination, with 6m high and width up to 10m and deep drilling and blasting is being broadly carried as per approved modified MP.		

### **Solid Waste Management-Dumping**

S.N	Item	Proposals	Actual work	Remarks
4a	Separate dumping of topsoil, OB & mineral reject (Rule 32, 33)	Dump-F and Dump-AB are proposed for OB disposal.	Dump-F and Dump-AB are being carried out for OB disposal.	
4b	Location of topsoil, OB & mineral reject dumps	378531E-377993/ 2328508N-2328923N	378531E-377993/ 2328508N-2328923N	OB Dump-F and Dump-AB are within the proposed limit.
4c	Number of dumps within lease area and outside the lease area	Within lease-5 Outside lease-0	Within lease-5 Outside lease-0	
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	Outside the UPL	Outside the UPL	
4e	Number of active & alive dumps	1(Dump-F)	1(Dump-F)	
4f	Number of dead dumps	Nil	Nil	
4g	Number of dumps stabilized	1(Dump-C)	1(Dump-C)	
4h	Whether Retaining wall or garland drain all along dumps are there	Yes	Yes	
4i	Length of Retaining wall or garland drain all along the dump	Retaining Wall-495m Garland Drain-448m	Retaining Wall- 495m Garland Drain-404m	<b>Cumulative up to FY 2023-24</b> Retaining Wall-1239m Garland Drain-1347m
4j	Number of settling ponds	0	0	<b>Cumulative up to FY 2022-23</b> <b>Settling pond-4</b>
	Specific comments of inspecting officer on waste dump management	Overburden 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	Backfilling in designated area of Pit-3&4 after achieving UPL.	Backfilling is carried out Pit-3&4 after achieving UPL.	
5b	Area under backfilling of mined out area	8.258 Ha	1.422 ha	<b>FY 2023-24</b>
5c	Concurrent use of topsoil for restoration or rehabilitation of mined out area (Rule 32)	NA	NA	
5d	Total area fully reclaimed & rehabilitated	NA	NA	Virgin area under green belt.
5e	General remarks of inspecting officer on backfilling, reclamation etc	The lessee has not able to achieve the target of backfilling during 2023-24 for which violation of Rule 11(1) of MCDR 2017 has been pointed out to the lessee.		

### **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 FY 2023-24 has to be submitted.	Annual report on PMCP for FY 2023-24 has been submitted.	
6b	Area available for rehabilitation (ha).	Nil	Nil	
6c	afforestation done (ha).	4.117	4.117	FY 2023-24
6d	No. of saplings planted during the year	6555	10800	FY 2023-24
6e	Cumulative no. of plants	15205	28142	Existing plantation Up to FY2023-24: 23290 Some portions of plantation were damaged due to dumping activity.
6f	Any other method of rehabilitation	NA	NA	
6g	Cost incurred on watch and care during the year	Rs 47.52Lakh	Rs 37.56 Lakh	
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 filled by waste / tailings	Nil	Nil	
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.	Plantation	Plantation	
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	NA	NA	
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	NA	NA	
6o	Compliance of rehabilitation of waste land within lease (iii) Method of rehabilitation	NA	NA	
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 of Noise, Water etc done.	Env. parameters were observed to be within the permissible limit. Monitoring is done by a third party called VISIONTEK
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	The lessee is regularly monitoring the Environmental Parameters. Proposal for backfilling could not be achieved has been made and lessee has planted around 28000 saplings.		

### **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 has not been carried out.	
7b	Method of grade-wise mineral sorting i.e., manual, or mechanical	NA	NA	
7c	Different grade of mineral sorted out at mines	Sorting has not been proposed.	Sorting has not been carried out.	
7d	Any beneficiation process at mines	NA	NA	
7e	General remarks of inspecting officer on	Cr2O3 above threshold	value of 10% is salable and no	

	Mineral conservation & beneficiation issues	beneficiation process except blending is carried out.
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### Environment

S.N.	Item	Proposals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	NA	NA	No top-soil generation being envisaged in the Plan period.
8b	Concurrent use or storage of topsoil	NA	NA	
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	OB disposal in Dump-F is proposed.	OB disposal in Dump-F is carried out	
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	OB disposal in Dump-F and Dump-AB are proposed.	OB disposal in Dump-F and Dump-AB are carried out	No proposal for mineral reject generation.
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc.)	Phased plantation in dumps is proposed.	Phased plantation in dumps is carried out.	
8f	Baseline information on existence of plantation & additional plantation done (Rule 41)	FY (2021-23) -8620 FY (2023-24)-6585 Total - 15205	FY (2021-23)-13120 FY (2023-24)-10800 Total - 28142	Existing plantation Up to FY2023-24: 23290 Some portions of plantation were damaged due to dumping activity.
8g	Survival rate	80%	85%	FY 2023-24
8h	Water sprinkling on roads to control airborne dust	Water sprinkling with the help of water tanker proposed.	Water sprinkling with the help of 18 KL water tanker carried out.	
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	The lessee has carried out substantial plantation. Regular water sprinkling is carried out hence minimizing the dust suspension in air. These efforts have helped in maintaining the aesthetic beauty in and around the mine.		

### Compliance of Rule 45

S.N.	Item	Observation of I/Officer	Remarks
9a	Status of submission of Monthly and Annual returns	Monthly Returns: Submitted upto October 2024 Annual Returns: Submitted for FY 2023-24 within time.	
	Item	Information as per AR	Observation
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Mine Manager: Shri Dibyendu Behera Mining Engineer: Shri Dibyendu Behera Geologist: Shri Rajkumar Gandhi	Mine Manager: Shri Priyadarsi Suvakant Padhi Mining Engineer: Shri Priyadarsi Suvakant Padhi Geologist: Shri Deepaka Kumar Acharya
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Mining-36.43Ha Dumps-35.54Ha Mineral Storage-3.232Ha Infrastructure-3.458Ha Roads – 3.012 Ha Others-25.558 Ha	Appears to be correct FY 2023-24
9d	Scrutiny of Annual return on afforestation	4.117 Ha	Appears to be correct FY 2023-24
9e	Scrutiny of Annual return on mineral reject generation (Grade & quantity)	Nil	Appears to be correct

9f	Scrutiny of Annual return on ROM stock and/or graded ore	57223 Tonnes	Appears to be correct	FY 2023-24
9g	Scrutiny of Annual return on sale value, Ex. Mine price & production cost	Ex-Mine price (Rs/T)-Below 40% Cr2O3 Lumps-3984.32 Below 40% Cr2O3 Fines- 6739.29 Cost of production (Rs/T)- 20784.26	Appears to be correct	FY 2023-24
9h	Scrutiny of Annual return on fixed assets	Rs.209008153	Appears to be correct	FY 2023-24
9i	Scrutiny of Annual return on mining machineries	Excacator (3.2 CuM) -1 Excacator (1.8 CuM) -1 Excacator (0.9 CuM) -1 Tipper (19.5 CuM) - 8 Dozer (200HP)-1 Grader (196HP)-1 Rock Drill (110mm)-1 Water Tanker (18KL)-1	Appears to be correct	