

**INDIAN BUREAU OF MINES
MINERALS DEVELOPMENT AND REGULATION DIVISION
MCDR INSPECTION REPORT
BHUBANESWAR REGIONAL OFFICE**

General:

SL. No.	Particulars	Details
1	Name of the Mine	South Kaliapani Chromite Mine
2	Date of inspection	10/11/2023
3	Name of inspecting officer	Prashant S Hegde, RMG
4	Name accompanying mine officials	S/Shri Jyoti Ranjan Moharana, QP, Subrat Kumar Behera, QP, Ashis kumar Samantray, AGM & Mines Agent, Ganeswar Bhuyan, Mines Manager, Santanu Kumar Aich Mining Engineer and other mine officials
5	Last date of Inspection & Officer	28/09/2022 Shri S.K.Mohapatra, SMG
6	Total Lease Area (Ha) with breakup of Non-forest and forest land	Total Lease area: 720.727 Ha. Forest area: 594.346 Ha. Non-Forest area: 126.381 Ha.
7	Minecode	11ORI19007
8	IBM Registration Number under rule 45 of MCDR, 2017	IBM/4269/2011
9	Name of the lessee, Address, phone, email and fax number	M/s Odisha Mining Corporation Limited, OMC House, Unit 5, Post Box- 34, Bhubaneswar- 751001 Ph-06742377401, Email: planningcellomc@gmail.com
10	Village	Kaliapani
11	Taluka/Mandal	Sukinda
12	District	Jajpur
13	Pincode	755028
14	State	Odisha
15	Post office	Kaliapani
16	Nearest police station	Kaliapani
17	Nearest Railway station	Tomka
18	Date of Grant of Mining Lease	22.01.1980
19	Date of Execution	22.01.1980
20	Date of opening of Mine	08.10.1980
21	Date of expiry	21.01.2030
22	Name of the Nominated Owner with Address, phone, email, fax number and date of appointment	Shri Balwant Singh, IAS, Managing Director of M/s Odisha Mining Corporation Limited OMC HOUSE, POST BOX NO-34, BHUBANESWAR, ODISHA-751001 PH:06742377401, E-Mail: md@odishamining.in

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23	Name of the Mine Agent with Address, phone, email, fax number and date of appointment	Sri Ashis Kumar Samantray, Regional Office, OMC Ltd, J K Road, Jajpur, Odisha Contact No:9937297144, E-mail: aksamantray@odishamining.in DOA: 30.09.2022
24	Name of the Mines Manager with Address, mobile no, email, fax number and date of appointment in mine	Sri Ganeswar Bhuyan, OMC Township, Kaliapani, Tq-Sukinda, Dist-Jajpur, Odisha Contact no: 9439854089, E-Mail: srmgr.omcsklp@gmail.com DOA:01/10/2022
25	Name of the Mining Engineer , Qualification and total experience with Address, mobile no, email, fax/phone number and date of appointment in mine	Sri Santanu Kumar Aich, B Tech in Mining Engg, Exp- 8 yrs OMC Township, Kaliapani, Tq-Sukinda, Dist-Jajpur, Odisha Contact no: 9483234320, santanu.aich@odishamining.in , DOA:19.12.2022
26	Name of the Geologist , Qualification and total experience with Address, mobile no, email, fax number and date of appointment in mine	Miss Tanya Sinha, M.Sc.(Geology), Exp- 9 yrs, OMC Township, Kaliapani, Tq-Sukinda, Dist-Jajpur, Odisha Contact No:7077967193, E-mail ID: tsinha@odishamining.in , DOA: 19.10.2021
27	Date of Approval of Mining Plan/Review of Mining Plan/ their modifications with five-year period and specific condition in approval letter, if any.	Modifications of approved Review of the Mining Plan No. BBS/JJP/CR/2165/MPM/2022-23 dated 12-05-2022 for the period 2022-23 to 2024-25
28	Mineral (s) granted in lease and proved for mining	Chromite
29	Method of Mining(Open cast, Underground)	Open cast
30	Category (Fully Mechanised, Others or Manual)	A – Fully Mechanized
31	Captive/Non Captive	Non-Captive
32	Present EC Capacity	1.4 Mtpa

OBSERVATIONS/COMMENTS OF INSPECTING OFFICER:**1)Exploration:---**

SL.No	Item	Proposals (FY 2022-23)	Actual work	Remarks
1a	Backlog of previous year	FY-2022-23: 62 core BHs With 19,300 meterage	57 nos core boreholes drilled with 13,109 meterage	Draft modified RMP submitted on 19/10/2023 with revised proposals.
1b	Exploration over lease area for Geological axis 1 or 2.	Exploration proposed to	G-1: 214.5 Ha, G-2: 64.25Ha	Entire potentially mineralized area

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		prove ore body at depth and non-potential mineralized area.		explored under G-1
1c	Exploration Agency & Expenditure in lakh Rupees during the year	NA	1)Maheshwari Mining Private Ltd; (2) M/s Jemco Kati Exploration Pvt. Ltd and (3)OMC Total expenditure: 513 Lakhs	_____
1d	Balance area to be explored to bring Geological axis in 1 or 2	NA	Entire potentially mineralized area explored under G-1; Exploration to be carried out on additional non-mineralized area of 168.948 Ha for dumping OB.	_____
1e	Balance reserves as on 01.04.2023	NA	As on 1/4/23 reserves in tonnes : 111: 4,762,189 tonnes (>10 % Cr2O3);	Based on valid approved modified RMP dated 12.05.2022.
1f:	General remarks of inspecting Officer on Geology, exploration etc.	<p>ML is a part of chromite bearing Sukinda ultramafic complex. Regional chromite band No : Band-I,II, III & IV, are exit in this ML. Entire potentially mineralized area explored under G-1; As per approved MP/RMP, the shape/ dimension of Ore bands as follows.</p> <ol style="list-style-type: none"> 1) Band-I:1250mX20-25mX153m 2) Band-II: 2400mX7-8mX89m 3) Band-III:650mX2-3mX43m 4) Band-IV:2150mX7-10mX91m <p>Based on recent exploration, the mineralization Ore Band-I & IV has been proved upto -767mRL & -253mRL respectively.</p>		

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2)Development:--

SL. No.	Item	Proposals (FY 2022-23)	Actual work	Remarks
2a	Location of development w.r.t. lease area	Band I: 373463E to 374443E & N-2327370 to 2328378N Band II: 374145E to 374894E & N-2327840 to 2328564N Band IV: 373929E to 375069E & N-2325790 to 2326777N	Broadly within the proposed location.	_____
2b	Separate benches in topsoil, overburden and mineral	Separate benches in overburden and minerals	As per proposals	_____
2c	Stripping ratio or ore to OB ratio	1:10.88	1:12.46	Ratio in tonnes; Draft modified RMP submitted on 19/10/2023 with revised proposals
2d	Quantity of topsoil generation in m ³	87,800	85,322	_____
2e	Quantity of overburden generation in m ³	10,072,200 m ³	8,310,960 m ³	(BD: 1.5) Draft modified RMP submitted on 19/10/2023 with revised proposals
2f	General remarks of inspecting Officer on development of pit w.r.t. type of deposit etc	Developments of pits are being carried out as per the approved modified RMP. Draft modified RMP submitted on 19/10/2023 with revised proposals with U/G development for Ore Band-I.		

3)Exploitation:--

SL.No.	Item	Proposals (FY 2022-23)	Actual work	Remarks
3a	Number of pits proposed for production	(1)Quarry-D (for Band-I) (2)Quarry-D (for Band-II) (3)Quarry-F (for band-IV)	As per proposals.	_____

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3b	Quantity of ROM mineral production proposed	1,400,000 tonnes	1,000,259 tonnes	_____
3c	Recovery of salable/usable mineral from ROM production	71.5 %	68.7 %	_____
3d	Quantity of mineral reject generation	4,00,000 tonnes	313,294 tonnes	_____
3e	Grade of mineral reject generation and threshold value declared	10 to <40 % Cr ₂ O ₃	10 to <40 % Cr ₂ O ₃	Threshold value of Chromite: +10 % Cr ₂ O ₃ ; MR of Grade 30 to 40 % Cr ₂ O ₃ are being utilized by blending.
3f	Quantity of sub-grade mineral generation	Same as para 3d		_____
3g	Grade of sub-grade mineral generation	Same as para 3e		
3h	Manual / Mechanised method adopted for segregating from ROM	Mechanized	Mechanized	_____
3i	Any analysis or beneficiation study proposed & carried out for sub-grade mineral and reject	Nil	NIL	_____
3j	Provision of drilling & blasting in mineral benches	115-150 mm diameter Drilling and controlled blasting (6.6 m Depth of drill Hole. 3.5 spacing and 3m burden)	As per proposals.	_____

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3k	Provision of mining machineries in mineral benches	Yes, mining by Excavators & Dumpers combination.		As per proposals.		_____																				
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	6m bench height with 11m to 15 m width and overall pit slope angle less than 30 degree.		Systematic development of benches were not carried out/properly maintained due to collapsed of OB waste materials at Quarry-F (South-Western part) and Quarry-D (Eastern part)		V/L issued on 4/12/23.																				
3m	Total area covered under excavation/ pits	224.197 Ha		204.325 Ha		Area covered under pits was not matching as compare to draft RMP submitted. V/L issued.																				
3n	Ore to OB ratio for the pit/mine during the year	1:10.88		1:12.46		Ratio in tonnes; Draft modified RMP submitted on 19/10/2023 with revised proposals																				
3o	Total area put in use under different heads at the end of year	<table border="1"> <thead> <tr> <th>Particulars</th> <th>Total Area(Ha) at the end of FY 2022-23</th> </tr> </thead> <tbody> <tr> <td>Area under Mining</td> <td>224.197</td> </tr> <tr> <td>Overburden/ Waste Dumping</td> <td>183.329</td> </tr> <tr> <td>Mineral Storage</td> <td>76.216</td> </tr> <tr> <td>Infrastructure (Occupied by plants buildings & roads</td> <td>116.259</td> </tr> </tbody> </table>		Particulars	Total Area(Ha) at the end of FY 2022-23	Area under Mining	224.197	Overburden/ Waste Dumping	183.329	Mineral Storage	76.216	Infrastructure (Occupied by plants buildings & roads	116.259	Broadly within the limit.		_____										
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3p	Production of ROM mineral during last five-years period, as applicable	<table border="1"> <tbody> <tr> <td>2018-19</td> <td>1,391,228</td> </tr> <tr> <td>2019-20</td> <td>1,391,228</td> </tr> <tr> <td>2020-21</td> <td>1,400,000</td> </tr> <tr> <td>2021-22</td> <td>1,000,000</td> </tr> <tr> <td>2022-23</td> <td>1,400,000</td> </tr> </tbody> </table>		2018-19	1,391,228	2019-20	1,391,228	2020-21	1,400,000	2021-22	1,000,000	2022-23	1,400,000	<table border="1"> <tbody> <tr> <td>2018-19</td> <td>1,050,513</td> </tr> <tr> <td>2019-20</td> <td>713,526</td> </tr> <tr> <td>2020-21</td> <td>965,736</td> </tr> <tr> <td>2021-22</td> <td>999,991</td> </tr> <tr> <td>2022-23</td> <td>1,000,259</td> </tr> </tbody> </table>		2018-19	1,050,513	2019-20	713,526	2020-21	965,736	2021-22	999,991	2022-23	1,000,259	Unit: In tonnes
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3q	General	Open-cast fully mechanised mining method is being carried as per																								

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	remarks of inspecting Officer on method of mining etc	approved modified RMP. V/L issued on 4/12/23 for non-proper systematic development of benches due to collapsed of OB waste materials. Now, the lessee has submitted draft RMP on 19/10/23 with revised O/C and U/G operation proposals.
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4)Solid Waste Management-Dumping:--

SL.No.	Item	Proposals (FY 2022-23)	Actual work	Remarks
4a	Separate dumping of topsoil, OB & mineral reject	Separate dumping of top soil, OB wastes and mineral reject is proposed.	Carried out as per the proposals.	_____
4b	Location of topsoil, OB & mineral reject dumps	Overburden- (i)WD-1(existing Dump): 2326427N to 2328510N & 373556E to 375400E (ii)WD-O (New Dump): 2324154N to 2325533N & 372578E to 375389E Mineral Reject – on existing stockyard only	Broadly as per proposals. Proposed New dumping was not carried out due delay in FC.	Draft modified RMP submitted on 19/10/2023 with revised proposals
4c	Number of dumps within lease area and outside lease area	One within ML	One within ML	_____
4d	Location of dumps w.r.t. ultimate pit limit	Dumping proposed over existing dump/new-dump which located outside of UPL	As per proposals.	_____
4e	Number of active & alive dumps	One active	One active	_____
4f	Number of dead dumps	NIL	NIL	_____
4g	Number of dumps stabilised	NIL	NIL	_____
4h	Whether Retaining	Retaining wall / garland drain all along dump	Retaining wall / garland drain constructed all along dump ;	V/L issued on 4/12/23.

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	wall or garland drain all along dumps are there	proposed earlier.	Maintenance of retaining wall / garland drain and stabilization of bottom terraces were not proper at some locations of Eastern and western part of existing dump.	
4i	Length of Retaining wall or garland drain all along dump	200 m Retaining wall & garland drain for new Dump	Nil as New dumping was not carried out due delay in FC;	_____
4j	Number of settling ponds	NIL	NIL	_____
4k	Specific comments of inspecting Officer on waste dump management	Overburden wastes and mineral reject management are being carried out as per the approved proposals. Maintenance of retaining wall / garland drain and stabilization of bottom terraces were not proper at some locations of Eastern and western part of existing dump. V/L issued on 4/12/23.		

5)Solid Waste Management-Backfilling:--

SL.No	Item	Proposals (FY 2022-23)	Actual work	Remarks
5a	Status on part or full extraction of mineral from mined out area before starting backfilling	No such proposals	NIL	_____
5b	Area under backfilling of mined out area	No such proposals	NIL	_____
5c	Concurrent use of topsoil for restoration or rehabilitation of mined out area	NA	Nil	_____
5d	Total area fully reclaimed & rehabilitated	NA	NIL	_____
5e	General remarks of inspecting Officer on backfilling and reclamation etc	Existing pits were not matured by backfilling as ore/mineral not exhausted.		

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6) Progressive Mine Closure Plan:---

SL.N.	Item	Proposals (FY 2022-23)	Actual work	Remarks
6a	Whether Annual report on PMCP submitted on time - Rule 26(2).	Before 1 st July of, 2022-23	Submitted on time	NIL
6b	Management of worked/ mined out benches/dumps i) Area available for rehabilitation (ha) ii) Afforestation done (ha) iii) No. of saplings planted during the year iv) Cumulative no. of plants v) Any other specific method of rehabilitation vi) Cost incurred on watch & care during the year	i)NA ii) 3.7 Ha(existing Dump) iii)9250 nos iv) NA v) NA vi)18.96 Lakhs	i) NA ii) 3.7 Ha(existing Dump) iii) 26,250 nos (Within ML) iv)1,50,909 nos so far (Within ML) v) Plantation vi)54.21 Lakhs	26,250 nos saplings planted within ML at dump slope during year 22-23.
6c	Compliance on reclamation and rehabilitation by backfilling i) Voids available for backfilling (L X B X D) ii) Void filled by waste/tailings iii) Afforestation on the backfilled area iv) Rehabilitation by making water reservoir v) Any other specific means	i) No such proposals ii) NA iii)NA iv) No such proposals v) No such proposals	i) Nil ii) Nil iii) Nil iv)Nil v) Nil	No backfilling proposals as pits matured for backfilling.
6d	Compliance of Rehabilitation of waste land within lease i) Afforestation ii) Area rehabilitated (ha) iii) Method of rehabilitation	i)NIL ii)NIL iii)NIL	i)NIL ii) NIL iii) NIL	_____
6e	Compliance of Environmental monitoring (core zone & buffer zone)	Environmental monitoring in Core zone and buffer zone will be as per	Environmental monitoring in Core zone and buffer zone was carried out as per the proposals	_____

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		MOEFCC and SPCB guidelines.	and parameters are within the limit.	
6f	General remarks of inspecting Officer on PMCP compliance & progressive closure operation etc	Lessee has implementing PMCP proposals as per approved modified RMP.		

7)Mineral Conservation:---

SL.No	Item	Proposals ((FY 2022-23)	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Grade wise sorting by within lease area.	As per proposals	NIL
7b	Method of grade-wise mineral sorting i.e. manual or mechanical	Mechanical	Mechanical	NIL
7c	Different grade of mineral sorted out at mines	Chromite Ore of following different size and grade proposed to be sorted out and dispatched (Below 40 % Cr ₂ O ₃ ;40 to 52 % Cr ₂ O ₃ and 52 % & above Cr ₂ O ₃) Mainly friable/fines ore only	As per proposals	NIL
7d	Any beneficiation process at mines	Wet beneficiation of Mineral reject (10 to 30 % Cr ₂ O ₃)	Not carried out because of delay in construction of tailing pond and new beneficiation plant commissioning is at final stage.	NIL
7e	General remarks of inspecting Officer on mineral conservation & beneficiation issues	Grade-wise soring & dispatches of ore/mineral to prospective buyers and there was no mineral conservation issue as stacking of mineral reject/sub-grade ore carried out as proposed.		

8)Environment:--

SL.No.	Item	Proposals (FY 2022-23)	Actual work	Remarks
8a	Separate removal and utilization of topsoil	87,800 m ³	85,322 m ³	Utilized for plantation.
8b	Concurrent use or storage of topsoil	Plantation.	Plantation.	_do_
8c	Separate dumps for overburden, waste rock, rejects and fines	Separate dumping of OB wastes/mineral reject	Carried out as per proposals.	Nil

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8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	No such proposals	NIL	Nil
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	NIL	NIL	_____
8f	Baseline information on existence of plantation & additional plantation done	9,250 nos plantation within ML on existing dump.	26250 nos saplings planted within ML on existing dump during year 2022-23. Total of 1,50,909 nos of saplings have been planted within ML, so far.	_____
8g	Survival rate	85 %	90%	_____
8h	Water sprinkling on roads to control airborne dust	Regular sprinkling of water on Haul roads, Waste dump using Water tanker to suppress the dust.	Carried out as per the proposals.	_____
8i	General remarks of inspecting Officer on aesthetic beauty in & around mines area.	Aesthetic beauty in & around mines area is good as lessee implementing the PMCP proposal and carried out plantation as per the proposals.		

9) Compliance of Rule 45

SL.No.	Item	COMMENTS		Remarks.
9a	Status of submission of Monthly and Annual returns	Regularly submitting the MRs/ARs on-time.		Nil
S.N.	Item	Details GIVEN in A.R.	Actual in field	_____
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Mines Manager: Sri Ganeswar Bhuyan, Mining Engineer: Sri Santanu Kumar Aich Geologist: Miss Tanya Sinha	Actual also the same.	_____
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	(1) Covered under current (O/C) Workings- 204.89 Ha (2) Used for Waste Disposal- 140.4 Ha (3) Occupied by plant,	Actual also as per AR except Pit area.	V/L issued on 4/12/23.

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		buildings, residential, welfare, buildings and roads- 30.41 Ha (4)Other Purpose (Mineral Storage etc)- 24.46 Ha																		
9d	Scrutiny of Annual return on afforestation	26,250 nos within ML (FY-22-23)	Actual also as per AR.	_____																
9e	Scrutiny of Annual return on mineral reject generation (Grade & quantity)	313,294 tonnes (30 % Cr2O3)	Appear to be correct.	_____																
9f	Scrutiny of Annual return on ROM stock and/or graded ore	As on 31.03.2023 tonnes Stock ROM: NIL tonnes. <table border="1"> <thead> <tr> <th colspan="2">Fines closing stock in tonnes</th> </tr> </thead> <tbody> <tr> <td>Below 40 % Cr2O3</td> <td>12,84,530</td> </tr> <tr> <td>40 to below 52 % Cr2O3</td> <td>2,22,798</td> </tr> <tr> <td>52 % and above Cr2O3</td> <td>1,34,762</td> </tr> <tr> <th colspan="2">Lumps stock in tonnes</th> </tr> <tr> <td>Below 40 % Cr2O3</td> <td>NIL</td> </tr> <tr> <td>40 to below 52 % Cr2O3</td> <td>NIL</td> </tr> <tr> <td>52 % and above Cr2O3</td> <td>NIL</td> </tr> </tbody> </table> Stock of Concentrates: 863 tonnes	Fines closing stock in tonnes		Below 40 % Cr2O3	12,84,530	40 to below 52 % Cr2O3	2,22,798	52 % and above Cr2O3	1,34,762	Lumps stock in tonnes		Below 40 % Cr2O3	NIL	40 to below 52 % Cr2O3	NIL	52 % and above Cr2O3	NIL	Appear to be correct.	_____
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9g	Scrutiny of Annual return on sale value, Ex. Mine price & production cost	Ex. Mine price in Rs per tonne <table border="1"> <tbody> <tr> <td>Fines Below 40 % Cr2O3</td> <td>5,797.91</td> </tr> <tr> <td>Fines 40 to below 52 % Cr2O3</td> <td>15,794.87</td> </tr> <tr> <td>Fines 52 % and above Cr2O3</td> <td>19,807.17</td> </tr> </tbody> </table>	Fines Below 40 % Cr2O3	5,797.91	Fines 40 to below 52 % Cr2O3	15,794.87	Fines 52 % and above Cr2O3	19,807.17	Appear to be correct	_____										
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		Production cost: Rs 10,915.96 per tonne		
9i	Scrutiny of Annual return on fixed assets	Value of Fixed of Assets: Rs 42,31,07,672	Appear to be correct	_____
9k	Scrutiny of Annual return on mining machineries	Shovel (3.1 cum) : 12 nos ; Shovel (1.6 cum) : 1 nos ; Dumpers (45 T):15 nos ; Dumpers (35 T):56 nos ; Water tanker: 6 nos; Pumps: 7 nos; Dozer: 8 nos Motor Grader: 2 nos. Blast Hole Drill: 1nos Front end Loader: 1 nos	Observed to be correct	_____

(10) Violation observed during current inspection and compliance position of earlier violation pointed out:

(a) Compliance position of earlier violation pointed out: During last inspection dated 28/09/2022, the violation of rules 11(1), 33, 34(A)(1) of MCDR 2017 were pointed out and subsequently, said rules complied on 14/12/22.

(b) During current inspection: The violations of Rules 11(1), 37 (2) & 45(7) of MCDR 2017 have been observed and the violation letter issued on 4/12/23.

(11) On-line validation of star rating of templates submitted under rule 35 (FY-2022-23) has been made on 4/12/23 for four star at RO level.

(12) The lessee has submitted DAI/drone survey data under rule 34A for FY 22-23 on 20/06/2023.

Date: 4/12/2023

(Prashant S. Hegde)
Regional Mining Geologist