

**INDIAN BUREAU OF MINES
MINERALS DEVELOPEMMENT AND REGULATION DIVISION**

MCDR INSPECTION REPORT

Bhubaneshwar regional office

Mine file No : ORI/CR/JJP/MCDR-7/BBS

Mine code : 11ORI19001

- (i) Name of the Inspecting : **S010**) **SHRI G.C. SETHI**
Officer and ID No.
- (ii) Designation : Deputy Controller Mines
- (iii) Accompanying mine : Shri H. Behera, Qualified Person & Shri S. Mishra, Mi
Official with
Designation
- (iv) Date of Inspection : 13/10/2017
- (v) Prev.inspection date : 12/03/2015

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **BHIMTANGAR (SUKINDA)**
- (b) **Registration NO.** :
- (c) Category : A Mechanised
- (d) Type of Working : Opencast
- (e) Postal address
- State : ORISSA
- District : JAJPUR
- Village : BHIMTANGAR
- Taluka : SUKINDAGARH
- Post office : KALARINGATTA
- Pin Code : 755028
- FAX No. : 06726-268734
- E-mail : g.guin@tatasteel.com
- Phone : 06726-268763,268734
- (f) Police Station :
- (g) First opening date : 01/12/1960
- (h) Weekly day of rest : SUN
2. Address for : SUKINDA CHROMITE MINE(BHIMTANAGAR)
correspondance M/S TISCO LTD, P.O.KALARANGIATTA
DIST:JAJPUR, ORISSA-755028
3. (a) Lease Number : ORI0241
- (b) Lease area : 406
- (c) Period of lease :
- (d) Date of Expiry : 31/03/2020
4. Mineral worked : PYROXENITE Associated
CHROMITE Main

5. Name and Address of the

Lessee : TISCO
Bombay House 24, Homy Mody
Street Mumbai MUMBAI
(SUBURBAN) MAHARASHTRA
Phone:
FAX :

Owner : A.N.SINGH
C/O TISCO LTD SINGHBHUM
(EAST) JHARKHAND
Phone: 0657-431227
FAX :

Agent : G.NATH
AT/PO-KALARANGITTA JAJPUR
ORISSA
Phone: 06726-268734
FAX :

Mining Engineer

Name : A.DIXIT,Full Time
Qualification : B TECH MINING IIT KHARAGPUR
Appointment/ : 19/11/2002 06/06/2007
Termination date

Mining Engineer

Name : G.K.GUIN,Full Time
Qualification : B.TECH(MINING)
Appointment/ : 27/08/1992
Termination date

Geologist

Name : DIPAK BEHERA,Full Time
Qualification : M.SC GEOLOGY
Appointment/ : 07/10/2009
Termination date

Geologist

Name : B.K.DAS,Full Time
Qualification : M.Sc (GEO)
Appointment/ : 09/05/2005 18/11/2007
Termination date

Geologist

Name : K.C.GOSWAMI,Full Time
Qualification : M TECH(APPL. GEOLOGY)
Appointment/ : 20/06/2000
Termination date

Manager

Name : T.MAHAPATRA
Qualification : B.TECH(MINING)
Appointment/ : 01/04/1997 06/06/2007
Termination date

Manager

Name : A.GHOSH
 Qualification : B.E. (Mining)
 Appointment/ : 26/08/2005 06/06/2007
 Termination date

Manager

Name : S.PANDA
 Qualification : DIP. IN MINING ENGG WITH F.C.C.(REST)
 Appointment/ : 01/04/2004 06/06/2007
 Termination date

Manager

Name : SUSHANTA KUMAR MISHRA
 Qualification : BE MINING
 Appointment/ : 06/06/2007
 Termination date

6. Date of approval of Mining	:	Modif.approved Mining Scheme	05/07/2007
Plan/Scheme of Mining		Mining Scheme rule 12 MCDR1988	02/02/2009
		Renewal under rule 24 MCR1960	22/05/2012
		Modif.of approved Mining Plan	19/07/2016

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	Nil	Nil	No bore was proposed during the year 2016-17.
1b	Exploration over lease area for geological axis 1 or 2	G1 level- 26.98ha & Non-mienralised- 379.02ha as per the review of minig plan approved on 09.11.2017, for the years 2018-19 & 2019-20.	G1 level- 26.98ha & Non-mienralised-379.02ha	Nil
1c	Exploration Agencies and Expenditure in lakh rupees during the year	Not Specified.	No explorarion during 2016-17 & 2017-18 and the expenditure on account of exploration is not available.	Nil
1d	Balance area to be explored to bring Geological axis in 1 or 2	Nil	Out of the entire leased out area of 406ha, an extent of 26.98ha has been explored upto G1 level and an extent of 379.02ha is found to be non-mienralised.	Nil

1e	Balance reserve as on 01/04/20	Reserve for chromite for opencast excavations as on 01.07.2017 is 5.886 million tonnes and Remaining Resource of 4.062 million tonnes. The same for Pyroxinite is for 0.555 million tonnes & 11.820 million tonnes as envisahed in the review of mining plan approved on 09.11.2017.	Reserve for chromite for opencast excavations as on 01.07.2017 is 5.886 million tonnes and Remaining Resource of 4.062 million tonnes. The same for Pyroxinite is for 0.555 million tonnes & 11.820 million tonnes.	Nil
1f	General remarks of inspecting officers on geology, exploration etc	No comments.	The Sukinda chromite mine is located in southern part of funnel shaped Sukinda valley,which extends from east to west with the open end facing west. The topography of Sukinda valley is controlled by by lithology as the resistant quartzities from deep scrap faces and the yonger ultramafics from synclinal valley flat.The underground mining proposal envisaged in the review of mining plan could not be excuted due to certain administrative issues.	Nil

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	Development planned in two quarries: OB X Quarry (Friable Ore) & OB II Quarry (Lumpy Ore)	OB X Quarry (Friable Ore) & OB II Quarry (Lumpy Ore)	Nil
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Separate benches in overburden and ore zone has been proposed but no topsoil generation was proposed during 2016-17.	Separate benches in overburden and ore zone are made but no topsoil was generated during 2016-17.	Nil
2c	Stripping ratio or ore to OB ratio	1: 3.60 (cum/t) for 2016-17.	1: 7.055 (cum/t) for 2016-17.	The actual stripping ratio is in higher side due to more overburden handling even if the actual production reported during 2016-17 is in lower side.
2d	Quantity of topsoil generation in m3	Not Proposed	Nil	Nil
2e	Quantity of overburden generation in m3	OB generation planned for 5441984 cum during 2016-17.	During 2016-17, only 11570498 tonnes was generated.	Nil
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	No comments.	Development of OB X Quarry (Friable ore) & OB II Quarry (Lumpy Ore) was proposed during 2016-17 and both the quarreus were under operation during the aforesaid year.	Nil

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
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3a	Number of pit proposed for production	OB X Quarry & OB II Quarry.	OB X Quarry & OB II Quarry.	Nil
3b	Quantity of ROM mineral production proposed	Chromite: OB X Quarry-1800000 tonnes, Pyroxenite-110000 tonnes Chromite: OB II Quarry-48095 tonnes, Pyroxenite: Nil	Chromite: OB X Quarry & OB II Quarry -1640004 tonnes, Pyroxenite:11053 tonnes during 2016-17.	The actual production of chrome ore and pyroxenite was in lower side of the proposed quantities due to the intermitent stoppage of mining operations.
3c	Recovery of sailable/usable mineral from ROM production	95% of Friable ore & 85% of Lumpy Ore.	95% of Friable ore & 85% of Lumpy Ore.	Nil
3d	Quantity of mineral reject generation	OB X Quarry-380 tonnes, OB II Quarry-3336 tonnes IN 2016-17.	During 2016-17, only 454632 tonnes of mineral reject was generated.	Nil
3e	Grade of mineral rejects generation and threshold value declared.	MR: 6-10% of Cr2O3	MR:13.85% of Cr2O3	Nil
3f	Quantity of sub grade mineral generation.	Nil	Nil	Nil
3g	Grade of sub grade mineral generation	Not applicable.	Nil	Nil
3h	Manual / Mechanised method adopted for segregating from ROM	Both Manual & Mechanized	Both Manual & Mechanized	Segregation is being done by sorting manually and & sizing of boulders with machineries.
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	Not Proposed	Nil	Nil

3j	Provision of drilling and blasting in mineral benches	Yes.	Deep hole Drilling & Controlled blasting is in practice.	Nil
3k	Provision of mining machineries in mineral benches	Yes	Yes	Nil
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Bench height of 10m proposed both in ob & ore zone..	Height of benches in overburden and mineral is suitable for the mine.	Nil
3m	Total area covered under excavation/pits	184.00ha	184.00ha	Nil
3n	Ore to OB ratio for the pit/mine during the year.	1: 3.60 (cum/t).	1: 7055 (cum/t).	Nil

30	Total area put in use under different heads at the end of year	No specific land degradation proposal for the year 2016-17. However, the land use in different counts from 01.04.2016 to 31.03.2018 has been furnished in the modification of mining plan, the same is as follows:- Mining - 169.540 ha., Dump-76.110ha, infrastructure - 4.77ha, roads- 19.050ha, green belt- 29.690ha, Tailing pond- 19.750ha, ETP- 0.320ha, Mineral separation plant- 18.380ha, & township- 36.18ha. Infrastructure & Road-4.228 Ha Green belt - 5.04 Ha Tailing pond - 0.70 ha ETP -0.60 Ha COB-1.47	Mining - 184.060 Ha Dump-62.190 Ha Reclamation/rehabilitation-29.5704 Ha Mineral storage-36.330Ha Infrastructure & Road- 92.850 Ha COB-1.47	Nil
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3p	Production of ROM mineral during the last five year period as applicable	2012-13 Q-1- 41040, Q-2- 56679 2013-14 Q-1- Nil, Q-2- 98070 2014-15 Q-1- Nil, Q-2- 98175 2015-16 Q-1- Nil, Q-2- 98700 2016-17 Q-1- 126192, Q-2- 89537	Chromite:- 2012-13:1275811 tonnes, 2013-14:1337269 tonnes, 2014-15: 275590 tonnes, 2015-16: 1019519 tonnes & 2016-17: 1640004 tonnes, Pyroxene: 2012-13:Nil, 2013-14: Nil,2014-15; Nil, 2015-16: Nil, 2016-17:11053 tonnes.	Nil
		Chromite:- 2012-13:1405361 tonnes, 2013-14:1636618 tonnes, 2014-15: 1743152 tonnes, 2015-16: 1740492 tonnes & 2016-17: 1848095 tonnes, Pyroxene: 2012-13:Nil, 2013-14: Nil,2014-15; Nil, 2015-16: Nil, 2016-17:949620 tonnes		
3q	General remarks of inspecting officers on method of mining etc.	No comments.	Both opencat & underground workings was proposed,whereas only open cast method of mining is practised due to some internal issues.	Nil

Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
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4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	Separate dumping of OB and Mineral Rejects has been proposed	Separate dump of OB and mineral reject has been maintained.	Separate dump of OB and mineral reject has been maintained
4b	Location of topsoil, OB and mineral reject dumps	No dumping for topsoil. Separate dump for overburden has been proposed. The mineral reject is beneficiable.	No dumping for topsoil. Separate dump for overburden has been proposed. The mineral reject is beneficiable.	Nil
4c	Number of dumps within lease area and outside of lease area	Lone active waste dump.	Lone active waste dump.	Nil
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	E/W3000-E/W4150 & N/S1000-N/S1500.	E/W3550-E/W4150 & N/S1000-N/S1500.	Nil
4e	Number of active and alive dumps.	One.	One.	Nil
4f	Number of dead dumps.	Nil	Nil	Nil
4g	Number of dumps established.	Nil	Nil	Nil
4h	Whether Retaining wall or garland drain all along dumps are there.	Yes	Yes	Nil
4i	Length of Retaining wall or garland drain all along dumps	Nil	Nil during 2016-17.	Nil
4j	Number of settling ponds	Not Proposed	Nil	Nil
4k	Specific comments of inspecting officer on waste dump management	No comments.	Scarcity of land for dumping and the party intends to acquire land for dumping beyond the lease area with the consent of competent authority of State Govt.	Nil

Solid Waste Management - Backfilling:

Sl.No.	Item	Propasals	Actual work	Remarks
5a	Status of part or full extraction of mineral from mined out area before starting backfilling.	Partly backfilling of OB II Quarry.	29.570ha	Nil
5b	Area under backfilling of mined out area	12.00ha	29.570ha	Nil
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	Not Proposed	Nil	Nil
5d	Total area fully reclaimed and rehabilitated	No such specific proposal.	Nil	Nil
5e	General remarks of inspecting officers on backfilling and reclamation etc.	No comments.	Backfilling has been done in OB II Quarry as per proposal.	Nil

Progressive Mine Clousre Plan:

Sl.No.	Item	Propasals	Actual work	Remarks
6a	Whether Annual report on PMCP submitted on time and correctly. Rule 23 E(2).	Annual return on PMCP has been submitted for 2016-17.	Annual return on PMCP has been submitted for 2016-17.	Nil
6b	Area available for rehabilitation (ha) .	No such specific proposal.	Nil	Nil
6c	afforestation done (ha).	No proposal.	Not reported.	Nil
6d	No. of saplings planted during the year	No specific proposal.	During the period 2016-17, 33000 nos of saplings have been planted within lease area.	Nil

6e	Cumulative no .of plants	Not Proposed	33000 nos of saplings have been planted during 2016-17.	Nil
6f	Any other method of rehabilitation	Not Proposed	Nil	Nil
6g	Cost incurred on watch and care during the year	Not Proposed	Not available.	Nil
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	No such specific proposal.	Nil	Nil
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	Nil	Nil	Nil
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on backfilled area	Not Proposed	Nil	Nil
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	Not Proposed	Not Applicable	Nil
6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	Backfilling by Retreat method.	Backfilling by Retreat method.	Nil

6m	Compliance of rehabilitation of waste land within lease (i)afforestation	Not Proposed	Nil	Nil
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	Not Proposed	Nil	Nil
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	Not Proposed	Not Applicable	Nil
6p	Compliance of environmental monitoring (core zone and buffer zone)	Quarterly environmental monitoring in core zone & buffer zone.	Quarterly environmental monitoring in core zone & buffer zone is being done. Air,Water,Soil,Noise,Dust fall tests done in every quarter as per SPCB & CPCB guidelines)	Nil
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	No comments.	Complied as per the modification of mining plan.	Nil

Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Not Specified	Dispatch of ROM after sorting and sizing in lump below 40% Cr2O3% .	Nil
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Manual/Mechanical	Manual/Mechanical	Nil

7c	Different grade of mineral sorted out at mines.	Only 10 - 40 % Cr2O3 grade is sorted out.	Only 10 - 40 % Cr2O3 grade is sorted out.	Nil
7d	Any beneficiation process at mines .	COBP at mines.	COBP at mines.	Nil
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	No comments.	There is no mineral conservation problems in the mine.	Nil

Environment:

Sl.No.	Item	Proposals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	Not Proposed	Not Applicable	Nil
8b	Concurrent use or storage of topsoil	Not Proposed	Not Applicable	Nil
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Separate dump of OB has been proposed	Separate dump of OB has been maintained.	Nil
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	No such proposal.	Nil	Nil

8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	No such proposal.	Nil	Nil
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	No specific proposal.	33000 nos of sapling planted in 2016-17 within lease area.	Nil
8g	Survival rate	Not specified	80 %	Nil
8h	Water sprinkling on roads to control airborne dust	Water sprinkling on haul roads by water tanker in continuous manner.	Water sprinkling on haul roads made by water tanker & fixed sprinkler.	Nil
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	No comments.	Aesthetic beauty in and around mines has been maintained.	Nil

Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	As per the Rule 45 of MCDR,2017, the monthly and annual returns to be submitted to IBM.	The party has submitted all the monthly and annual rwtuens pertains to the year 2016-17.	Nil
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Graduate Mining Engineer: 9 Diploma Mining Engineer: 7 Geologist: 5	Details as per annual Return 2016-17: Graduate Mining Engineer:92 Diploma Mining Engineer: 7 Geologist:5	Nil

9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Lease area utilisation at the end of year 2016-17 is : 1. Area covered under current (O/C) works: 184.060 Ha 2. Reclaimed/Rehabilitated: 29.570 Ha 3. Area used for waste disposal: 62.190Ha 4. Area occupied by plant, buildings, residential, welfare building & roads: 92.850 Ha 5. Mineral storage: 36.330ha etc.	Found to be in order.	Nil
9d	Scrutiny of Annual return on afforestation	Number of sapling planted during the year 2016-17 within lease area is 7000 nos and outside lease area is 26000 nos.	Found to be in order.	Nil
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	Nil	Nil	Nil

9f	Scrutiny of Annual return on ROM stock and/or graded ore	1. Closing Stock of ROM as on 31.03.2017 is 198284.696 tonnes. 2. Closing stock of lump as on 31.03.2017 is: a. Lump below 40% Cr2O3% is 2062.352 tonnes b. Lump between 40% Cr2O3% to below 52% Cr2O3% is 81.025 tonnes 3. Closing stock of fines as on 31.03.2017 is: a. Fines below 40% Cr2O3% is 15829.323 tonnes b. Fines between 40% to below 52% Cr2O3 is 24089.269 tonnes c. Fines 52% Cr2O3 and above is 26885.046 tonnes 4. Closing stock of concentrates as on 31.03.2017 is 54447.377 tonnes.	Verified and found to be in order.	As per annual return for the period 2016-17.
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9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Ex-mine price of lump below 40% Cr2O3 is Rs 4800.00 per tonne 40% Cr2O3 to below 52% is 3770.00 per tonne. Like wise the ex-mine price for fines is as given below:- Fines below 40% Cr2O3 is Rs. 1747.00 per tonne Fines 40% to below 52% Cr2O3 is Rs. 8833.00 per tonne. and Fines 52% Cr2O3 and above is Rs. 12331.00 per tonne. 4. Closing stock of concentrates as on 31.03.2017 is 54447.377 tonnes.	Verified and found to be in order.	Nil
9h	Scrutiny of Annual return on fixed assets	Value of fixed assets is Rs. 1224650995.00 as furnished in annual return for the period 2016-17.	Not available for verification.	Nil

9k	Scrutiny of Annual return on mining machineries	1. Dumper (25 tonne capacity): 8 Nos. 2. Dumper (30 tonner):24 nos. Dumper (35 tonner):30 nos. 2. Dumper (50 tonne capacity): 8 Nos. 3. Backhoe : 3 Nos 4. Dozer: 12 nos 5. Front end loader: 6 nos. Hydraulic shovel: 15 nos. etc.	The machineries deployed in themine is found to be in order.	Nil
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Details of violations observed during current inspection and compliance position of violation pointed out

Violation observed		Show cause position	
Rule NO.	Issued on Compliance on	Rule NO.	Issued on Compliance on

Date :

(SHRI G.C. SETHI)

Indian Bureau of Mines