

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

MCDR INSPECTION REPORT

Bhubaneshwar regional office

Mine file No : ORI/CR/JJP/MCDR-16/BBS

Mine code : 11ORI19022

- (i) Name of the Inspecting : **U11**) **DAYANAND UPADHYAY**
Officer and ID No.
- (ii) Designation : Sr. Asst. Contrl. Mines
- (iii) Accompanying mine :
Official with
Designation
- (iv) Date of Inspection : 18/01/2018
- (v) Prev.inspection date : 28/09/2016

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **KALARANGIATTA**
- (b) **Registration NO.** : **173**
- (c) Category : A Other Mechanised
- (d) Type of Working : Opencast
- (e) Postal address
State : ORISSA
District : JAJPUR
Village : KALARANGIATTA
Taluka : SUKINDA
Post office : KALARANGIATTA
Pin Code : 755028
FAX No. : 06784-2517842
E-mail : facormines@facor.in
Phone : 06784-250598
- (f) Police Station : Sukinda
- (g) First opening date : 01/01/2012
- (h) Weekly day of rest : SUN
2. Address for : KALARANGITTA CHROMITE MINE
correspondance FERRO ALLOYS CORPORATION LTD
KALIAPANI, SUKINDA, DIST- JAJPUR
3. (a) Lease Number : ORI0846
- (b) Lease area : 23.8
- (c) Period of lease : 30
- (d) Date of Expiry : 17/04/2038
4. Mineral worked : CHROMITE Main

5. Name and Address of the

Lessee : FERRO ALLOYS CORPN. LTD
Shri Rohit Saraf, Joint
Managing Director & Nomited
Owner Ostapal, Kathpal &
Boula Chromite M BHADRAK
ORISSA
Phone:06784-251312, 250598, 250311
FAX :06784-251782

Owner : FERRO ALLOYS CORPORATION LTD
LAXMI BHAWAN, KUANS
BHADRAKH JAJPUR ORISSA
Phone:
FAX :

Manager

Name : R.N. Jena
Qualification : B.E (MINING)
Appointment/ : 21/08/2017
Termination date

6. Date of approval of Mining : Mining Scheme rule 12 MCDR1988 28/03/2013
Plan/Scheme of Mining

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	Not proposed.	Not applicable.	As per approved scheme of mining in plan period of 2014-15, 2015-16 & 2016-17 no drilling was proposed.
1b	Exploration over lease area for geological axis 1 or 2	Not proposed.	Not applicable.	As per approved scheme of mining in plan period of 2014-15, 2015-16 & 2016-17 no drilling was proposed.
1c	Exploration Agencies and Expenditure in lakh rupees during the year	Not proposed.	Not applicable.	
1d	Balance area to be explored to bring Geological axis in 1 or 2	Not proposed.	Not proposed.	Total potentially mineralised area about 8.41 ha has been explored under G1 level of exploration.
1e	Balance reserve as on 01/04/20	Reserve & resources under 111, 122 & 121 category as per approved mining scheme is 5.709 Lakh T.	Balance reserves as on 31.03.2017 under 111, 122 & 121 category is 3.325 Lac T.	Reserves estimated as per scheme of mining approved on 28.03.2013
1f	General remarks of inspecting officers on geology, exploration etc		Total potentially mineralised area about 8.41 ha has been explored under G1 level of exploration. About 15.39 ha area found non mineralised after exploration.	Total potentially mineralised area about 8.41 ha has been explored under G1 level of exploration. About 15.39 ha area found non mineralised after exploration.

Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	Pit located between E 2200- 2600 and N 1300- 1700.	Pit is located between co-ordinates E 2200- 2600 and N 1300- 1700.	Opencast mining is concentrated in single pit.
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Separate benches in top soil, OB and ore with 6m height.	Separate benches in OB and ore with 6m height. No. of OB benches in eastern side-3 and in western side-04. Top RL-101 & Bottom RL-67.	Top soil generated during mining operation is stacked separately.
2c	Stripping ratio or ore to OB ratio	1:2.9	1:0.847	Due to more development in depth stripping ratio is less.
2d	Quantity of topsoil generation in m3	1200 cu.m	1250cu.m	Top soil generated during mining operation is stacked separately.
2e	Quantity of overburden generation in m3	145000 cu.m	45901 cu.m	Development work is concentrated in depth so overburden generation is less than proposal.
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc		Top soil generated during mining operation is stacked separately. Development work is concentrated in depth so overburden generation is less than proposal.	Development work is concentrated in depth to excavation of ROM against the approved proposal therefore violation has been pointed out against the lessee.

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	Single pit.	Single pit.	The working is concentrated in single pit.
3b	Quantity of ROM mineral production proposed	50000T	The ROM production for the year 2016-17 is 49315.161T.	The ROM production for the year 2016-17 is 49315.161T.

3c	Recovery of sailable/usable mineral from ROM production	100%	100%	Total ROM production has been utilised for its captive plant.
3d	Quantity of mineral reject generation	Not proposed.	Not applicable.	There is no generation of sub grade/ mineral reject.
3e	Grade of mineral rejects generation and threshold value declared.	Not proposed.	Not applicable.	There is no generation of sub grade/mineral reject.
3f	Quantity of sub grade mineral generation.	Not proposed.	Not applicable.	There is no generation of sub grade/ mineral reject.
3g	Grade of sub grade mineral generation	Not proposed.	Not applicable.	There is no generation of sub grade/ mineral reject.
3h	Manual / Mechanised method adopted for segregating from ROM	Mechanised.	Mechanised.	
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	Not proposed.	Not applicable.	There is no sub grade stock at mine site.
3j	Provision of drilling and blasting in mineral benches	Not proposed.	The benches of ROM has been excavated with the help of of excavator attached with rock breaker.	
3k	Provision of mining machineries in mineral benches	Excavator of 0.9cu.m capacity with dumper of 4.5 cu.m	Ore & OB are handled by excavator of 0.9cu.m capacity with dumper of 4.5 cu.m capacity.	Dozer is also used for road grading and one water sprinkler of 08KL capacity are used for water spraying.

3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Bench height 6m.	Bench height is suitably matched with the loading excavator.	Bench height is suitably matched with the loading excavator.
3m	Total area covered under excavation/pits	6.928 Ha.	Total area covered under pit 6.928 Ha.	Total area covered under pit 6.928 Ha.
3n	Ore to OB ratio for the pit/mine during the year.	1:2.9	1:0.847	Due to more development in depth stripping ratio is less.
3o	Total area put in use under different heads at the end of year	23.8 ha during scheme period.	Total area covered includes pit-6.903 ha, dump-2.871ha, road-0.918ha, infrastructure-0.057ha, mineral storage-3.558ha, ETP plant-0.265ha.	Total area covered includes pit-6.903 ha, dump-2.871ha, road-0.918ha, infrastructure-0.057 ha, mineral storage-3.558ha, ETP plant-0.265ha.
3p	Production of ROM mineral during the last five year period as applicable	2012-13: 50000T 2013-14: 50000T 2014-15: 50000T 2015-16: 50000T 2015-16: 50000T	2012-13: 49645T 2013-14: 49788T 2014-15: 48345.627T 2015-16: 49652.236T 2016-17: 49315.16T	Production of ROM is more or less equal to the proposed production.
3q	General remarks of inspecting officers on method of mining etc.		The ROM production has been proposed from regular opencast mining . The benches of ROM has been excavated with the help of of excavator attached with rock breaker. Excavator of 0.9 cu.m capacity are used of loading the tripper of 4.5 cu.mT capacity.	OB and ore is soft in nature therefore no drilling and blasting is practiced. Excavation has been carried out with the help of excavator.

Solid Waste Management - Dumping:

Sl.No.	Item	Proposals	Actual work	Remarks
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4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	Separate dump for OB & top soil.	There is Separate dump for OB & top soil.	There is no mineral reject.
4b	Location of topsoil, OB and mineral reject dumps	OB: North side of lease area between co-ordinate E2450-2210 & N1680-1950. Top soil:Northern side near to OB between co-ordinate E2280-2310 & N1980-1915.	OB: North side of lease area between co-ordinate E2450-2210 & N1680-1950. Top soil:Northern side near to OB between co-ordinate E2280-2310 & N1980-1915.	There is no dump of mineral reject.
4c	Number of dumps within lease area and outside of lease area	Dump : North side of lease area.	Dump is located North side of lease area.	Dump does not fall under ultimate pit limit.
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	OB: North side of lease area between co-ordinate E2450-2210 & N1680-1950.	Dump is located North side of lease area between co-ordinate E2450-2210 & N1680-1950.	Dump is located North side of lease area between co-ordinate E2450-2210 & N1680-1950.
4e	Number of active and alive dumps.	Single dump.	There is single active dump.	There is no dead dump.
4f	Number of dead dumps.	Not proposed.	Not applicable.	There is no dead dump.
4g	Number of dumps established.	Not proposed.	Not applicable.	Slope of the dump has been stabilised by plantation.
4h	Whether Retaining wall or garland drain all along dumps are there.	Retaining wall around the waste dump.	Retaining wall has been constructed around the waste dump.	
4i	Length of Retaining wall or garland drain all along dumps	Retaining wall and garland drain of 280m length.	Retaining wall and garland drain about 283m length has been constructed by lessee.	
4j	Number of settling ponds	Not proposed.	There is a one settling tank near to the ETP plant.	

4k	Specific comments of inspecting officer on waste dump management	The slope of dump has been partially stabilized by plantation. Benching and terracing has been carried out in dump. The overall slope angle of dump maintained 27 degree.	The slope of dump has been partially stabilized by plantation.
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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.	Not proposed.	Pit is not matured for reclamation.	Mineralisation is continue and pit is not matured for reclamation.
5b	Area under backfilling of mined out area	Not proposed.	Not applicable.	Mineralisation is continue and pit is not matured for reclamation.
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	Not proposed.	Top soil generated during mining operation is utilised in plantation.	Mineralisation is continue and pit is not matured for reclamation.
5d	Total area fully reclaimed and rehabilitated	Not proposed.	Not applicable.	Mineralisation is continue and pit is not matured for reclamation.
5e	General remarks of inspecting officers on backfilling and reclamation etc.		Mineralisation is continue and pit is not matured for reclamation.	Mineralisation is continue and pit is not matured for reclamation.

Progressive Mine Clousre Plan:

Sl.No.	Item	Propasals	Actual work	Remarks
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6a	Whether Annual report on PMCP submitted on time and correctly. Rule 23 E(2).	Not specified.	Annual return on PMCP has been submitted.	Annual return on PMCP has been submitted.
6b	Area available for rehabilitation (ha) .	Not proposed.	Not applicable.	Mineralisation is continue and pit is not matured for reclamation.
6c	afforestation done (ha).	0.604 ha	In 2016-17 area covered for afforestation is about 0.856ha.	
6d	No. of saplings planted during the year	1510 nos of saplings.	2140 nos of saplings have been planted during 2016-17.	
6e	Cumulative no .of plants	Not specified.	Cumulative about 9295 nos. of trees has been planted by lessee.	Cumulative about 9295 nos. of trees has been planted by lessee.
6f	Any other method of rehabilitation	Not proposed.	Not applicable.	Mineralisation is continue and pit is not matured for reclamation.
6g	Cost incurred on watch and care during the year	Rs.1.0Lac	About Rs.2.0Lac incurred on watch and care during 2016-17.	
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	Not proposed.	Not applicable.	Mineralisation is continue and pit is not matured for reclamation.
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	Not proposed.	Not applicable.	Mineralisation is continue and pit is not matured for reclamation.
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on on backfilled area	Not proposed.	Not applicable.	Mineralisation is continue and pit is not matured for reclamation.

6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	Not proposed.	Not applicable.	Mineralisation is continue and pit is not matured for reclamation.
6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	Not proposed.	Not applicable.	Mineralisation is continue and pit is not matured for reclamation.
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	Not proposed.	Not applicable.	
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	Not proposed.	Not applicable.	
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	Not proposed.	Not applicable.	
6p	Compliance of environmental monitoring (core zone and buffer zone)	Quarterly monitoring.	Quarterly monitoring of air, water and noise level are being carried out.	Quarterly monitoring of air, water and noise level are being carried out.

6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	Mine is not matured for reclamation & rehabilitation. All the surface run-off water from mines is channelised & treated to the ETP plant. In ETP plant online monitoring system has been installed and real time data of inlet & outlet water is being transferred to OSPCB server. Regular data of quarterly monitoring of air, water and noise level has been submitted to this office .	Mine is not matured for reclamation & rehabilitation. Regular data of quarterly monitoring of air, water and noise level has been submitted to this office .
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Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Gradewise sorting.	Gradewise sorting is being practiced.	Gradewise sorting is being practiced.
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Mechanised.	Mechanised.	
7c	Different grade of mineral sorted out at mines.	+40% cr2o3 and -40% cr2o3.	+40% cr2o3 and -40% cr2o3.	All the ROM of mine produced has been dispatched to the neighboring Ostapal mines of lessee for production of high grade concentrate.
7d	Any beneficiation process at mines	Not proposed.	Not applicable.	

7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	All the ROM of mine produced has been dispatched to the neighboring Ostapal mines of lessee for production of high grade concentrate.	All the ROM of mine produced has been dispatched to the neighboring Ostapal mines of lessee for production of high grade concentrate.
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Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	Separate stack of top soil.	Separate stack of top soil has been made.	Top soil generated during mining is being utilised for plantation.
8b	Concurrent use or storage of topsoil	Separate stack of top soil.	Separate stack of top soil has been made.	Top soil generated has been partially utilised for plantation.
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Separate dump for OB.	Separate dump for OB.	There is no dump of mineral reject.
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Not proposed.	Not applicable.	Mineralisation is continue and pit is not matured for reclamation.
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Not proposed.	Not applicable.	Mineralisation is continue and pit is not matured for reclamation.

8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	Plantation proposed along the slope of waste dump and safety zone.	Trees has been planted along the slope of waste dump safety zone..	As reported cumulative no. of trees planted by lessee is about 9295 nos. Total area cover under plantation is about 3.214 ha.
8g	Survival rate	Not specified.	Rate of survival is 75%.	
8h	Water sprinkling on roads to control airborne dust	One water sprinkler.	One water sprinkler 8000L capacity.	One water sprinkler 8000L capacity.
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area		Cumulative no. of trees planted by lessee is about 4990 nos. Total area cover under plantation is about 2.852 ha.	Aesthetic beauty in and around mined area is maintained. Cumulative no. of trees planted by lessee is about 9295 nos. Total area cover under plantation is about 3.214 ha.

Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	Monthly & Annual returns are being regularly submitted by lessee.	Monthly & Annual returns are being regularly submitted by lessee.	
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Graduate Mining Engineer-1, Geologist-1, Diploma holder-1	Graduate Mining Engineer-1, Geologist-1, Diploma holder-1	
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Pit-6.92ha, waste dump-3.264ha, Plant, building-1.622a, ETP & other-10.181ha	Pit-6.92ha, waste dump-3.264ha, Plant, building-1.622a, ETP & other-10.181ha	

9d	Scrutiny of Annual return on afforestation	2140 nos of saplings.	2140 nos of saplings.
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	Nil	Nil
9f	Scrutiny of Annual return on ROM stock and/or graded ore	Fines -40% cr2o3- 32389.572T and +40-52% cr2o3- 16925.589.	Fines -40% cr2o3- 32389.572T and +40-52% cr2o3- 16925.589.
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Ex mine price -40% cr2o3-Rs 899.43/- and +40-52% cr2o3- Rs1011.20/-	Ex mine price -40% cr2o3-Rs 899.43/- and +40-52% cr2o3- Rs1011.20/-
9h	Scrutiny of Annual return on fixed assets	Fixed assets- Rs 1015131000/-	Fixed assets- Rs 1015131000/-
9k	Scrutiny of Annual return on mining machineries	Excavator of 0.9cu.m capacity with dumper of 4.5 cu.m, Dozer, water sprinkler of 8KL.	Excavator of 0.9cu.m capacity with dumper of 4.5 cu.m, Dozer, water sprinkler of 8KL.

Details of violations observed during current inspection and compliance position of violation pointed out

Violation observed			Show couse position		
Rule NO.	Issued on	Compliance on	Rule NO.	Issued on	Compliance on
MCDR17	Rule 11(1)	05/02/2018			

Date :

(DAYANAND UPADHYAY)

Indian Bureau of Mines