

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

MCDR INSPECTION REPORT

Bhubaneshwar regional office

Mine file No : ORI/BXT/RGD/MCDR-1/BBS

Mine code : 07ORI27001

- (i) Name of the Inspecting : **S010**) **SHRI G.C. SETHI**
Officer and ID No.
- (ii) Designation : Deputy Controller Mines
- (iii) Accompanying mine : Shri D.P. Mishra, GM (Geo)
Official with
Designation
- (iv) Date of Inspection : 06/01/2018
- (v) Prev.inspection date : 25/05/2015

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **BAPHLIMALI BAUXITE MINE**
- (b) **Registration NO.** :
- (c) Category : A Manual
- (d) Type of Working : Opencast
- (e) Postal address
- State : ORISSA
- District : RAYGADA
- Village : PAIK-KUPAKHAL
- Taluka : KASHIPUR
- Post office : MAI KUNCH
- Pin Code : 765015
- FAX No. : 06856-223278
- E-mail :
- Phone : 06856-224193
- (f) Police Station :
- (g) First opening date : 17/02/1998
- (h) Weekly day of rest : SUN
2. Address for : RANIGUDA FARM LANE
correspondance RAYAGADA - 765001
ORISSA
3. (a) Lease Number : ORI0676
- (b) Lease area : 1388.74
- (c) Period of lease : 30
- (d) Date of Expiry : 16/02/2028
4. Mineral worked : BAUXITE Main

5. Name and Address of the

Lessee : M/S UTKAL ALUMINA INTERNATIONAL LIMITED
 RANIGUDA FARM LANE RAYAGADA
 - 765001 ORISSA RAYGADA
 ORISSA
 Phone:06856-224193
 FAX :06856-223278

Owner : M/S UTKAL ALUMINA INTERNATIONAL LIMITED
 RANIGUDA FARM LANE RAYAGADA
 - 765001 ORISSA RAYGADA
 ORISSA
 Phone: 06856-224193
 FAX : 06856-223278

6. Date of approval of Mining	:	Mining Scheme rule 12 MCDR1988	01/11/2012
Plan/Scheme of Mining		Modif.approved Mining Scheme	03/09/2014
		MP modif under 17(3) MCR 2016	11/11/2016

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	In the year 2016-17, it was proposed to drill 116 nos. of bore holes as envisaged in the modification of approved scheme of mining.	During the year 2016-17, 83 nos. of bore holes were drilled.	For deviation in proposed exploration schedule during the year 2016-17, the violation under rule 11(1) of MCDR, 2017 has been pointed out to the party.
1b	Exploration over lease area for geological axis 1 or 2	G1 level (mineralised) : 962.00ha, G1 level (non-mineralised): 18.00ha & un-explored area: 408.740ha as per the review of mining plan, approved on 11.11.2016.	G1 level (mineralised): 962.00ha, G1 level (non-mineralised): 18.00ha & un-explored area: 408.740ha	Nil
1c	Exploration Agencies and Expenditure in lakh rupees during the year	The lessee M/s Utkal Alumina International Ltd is the exploration agency for the mine and there is no specific proposal for expenditure on account of exploration.	During the year 2016-17, 83 nos. of boreholes were drilled in the mine but the expenditure on account of such exploration is not available.	Nil

1d	Balance area to be explored to bring Geological axis in 1 or 2	As per the modification of approved scheme of mining, the balance area of 408.740ha has not been explored.	The balance area of 408.740ha to be explored.	Nil
1e	Balance reserve as on 01/04/20	In the modification of approved scheme of mining, the reserves/resources for Bauxite have been estimated as on 31.03.2016 and the same is as follows:- Proved reserves (111): 28.795 million tonnes, Probable reserves(122) : 129.557 million tonnes & total remaining resources of 46.273 million tonnes.	The reserves/ resources for Bauxite as on 01.04.2017 is as given below:- Proved reserves(111): 23.706 million tonnes, Probable reserves(122): 129.557 million tonnes & remaining resources of 46.273 million tonnes.	The production of iron ore as on 01.04.2017 has been depleted from the reserves estimated in the modification of approved scheme of mining.

1f	General remarks of inspecting officers on geology, exploration etc	In the year 2016-17, it was proposed to drill 116 nos. of bore holes as envisaged in the modification of approved scheme of mining.	The Baphlimali Bauxite deposit belongs to east coast bauxite deposit where the lateritisation was developed at expence of gneisses and schists. The dominant rock assemblage in the region comprises khondalite and its variants.. During the year 2016-17, 14 nos. of coring bore holes were drilled in the lease area as per the modification of approved scheme of mining. During the year 2016-17, 83 nos. of bore holes were drilled.	For deviation in proposed exploration schedule during the year 2016-17, the violation under rule 11(1) of MCDR,2017 has been pointed out to the party.
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Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	E/W 11422 - E/W 9082 & N/S 10060-N/S 11300.	E/W 11422 - E/W 9082 & N/S 10060-N/S 11300.	Nil
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Separate benches in topsoil, overburden & Bauxite zone are envisaged in the modification of approved scheme of mining.	Separate benches in topsoil, overburden and in bauxite ore zone are made in both the quarries available in the mine.	Nil
2c	Stripping ratio or ore to OB ratio	The proposed Ore:OB ratio is 1: 0.74 for the year 2016-17.	The actual Ore:OB ratio was 1: 0.44 for 2016-17.	Nil

2d	Quantity of topsoil generation in m3	Only 49633 cum. of topsoil generation was proposed in the modification of approved scheme of mining for 2016-17..	Only 365000 tonnes of top soil was generated during the year 2016-17.	Nil
2e	Quantity of overburden generation in m3	Only 2098136 cum of of Overburden material was proposed to be generated in the year 2016-17 as per the modification of approved scheme of mining.	During the year 2016-17, 2286567 tonnes of overburden material was generated.	Nil
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	No comments.	Concurrent backfilling of the mined out area is in practice as per the proposal.	Nil

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	Two nos. of quarries are proposed for production as per the modification of approved scheme of mining.	Two quarreies viz. Q-1 & Q-2 t were under operation during the year 2016-17.	Nil

3b	Quantity of ROM mineral production proposed	In the year 2016-17, 5000052 tonnes of Bauxite was proposed to be produced as envisaged in the modification of approved scheme of mining.	During the year 2016-17, 5089000 tonnes of Bauxite was produced.	Nil
3c	Recovery of sailable/usable mineral from ROM production	100%.	100%	Nil
3d	Quantity of mineral reject generation	In the year 2016-17, 157924 cum of mineral reject was proposed to be generated as envisaged in the modification of approved scheme of mining.	The mineral rejects generated was blended with the high grade to make them usable.	The mineral rejects generated was blended with the high grade to make them usable.
3e	Grade of mineral rejects generation and threshold value declared.	-40 % Al ₂ O ₃ & +5% R. SiO ₂ .	-40 % Al ₂ O ₃ & +5% R. SiO ₂ .	Nil
3f	Quantity of sub grade mineral generation.	304793 tonnes in 2016-17.	No separate generation of sub-grade was reported during the year 2016-17.	The sub-grade so generated was blended with the high grade to make them usable.
3g	Grade of sub grade mineral generation	+30-40%Al ₂ O ₃ & -5% R. SiO ₂	+30-40%Al ₂ O ₃ & -5% R. SiO ₂	Nil
3h	Manual / Mechanised method adopted for segregating from ROM	Mechanised.	The same practice is being followed in the mine.	Nil

3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	No beneficiation study has been proposed in the modification of approved scheme of mining.	No such study was carried out in the mine.	No such study was carried out in the mine.
3j	Provision of drilling and blasting in mineral benches	Provisions for drilling by wagon drills & blasting by putting explosives in the drilled holes in the mineral as well as in overburden benches are envisaged.	The drilling & blasting are being practised as per the approved document.	Nil
3k	Provision of mining machineries in mineral benches	Provisions for deployment of heavy earth moving mining machineries are proposed.	As per the annual return submitted by the party for the year 2016-17, a fleet of heavy mining machineries are deployed in the mine as per the requirement.	Nil
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	The height of the benches are 6m & width is more than the height are proposed.	The height & width of the benches are restricted to 6m & 12m respectively.	Nil
3m	Total area covered under excavation/pits	69.324ha.	64.066ha.	Nil
3n	Ore to OB ratio for the pit/mine during the year.	1:0.74	1:0.44.	Nil

3o	Total area put in use under different heads at the end of year	The item wise land use under different heads at the end of the year 2016-17 is as given below:- (i) Area to be excavated: 69.324ha. (ii) p: 25.712ha (iii) Mineral storage: 5.245ha (iv) Infrastructure : 9.22ha (v) Road: 16.355ha (vi) Green belt: 135.839ha & (vii) Peripheral barrier: 41.00ha.	As per the annual return submitted by the party for the year 2016-17, the land degradation status in different counts is as given below:- (i) Current opencast working: 64.066ha. (ii) Reclaimed/rehabilitated : 12.261ha (iii) Waste disposal: 26.666ha (iv) Occupied by plant, buildings etc. : 25.575ha & (v) Mineral storage: 4.316ha.	Nil
3p	Production of ROM mineral during the last five year period as applicable	The production proposed for the period from 2012-13 to 2016-17 is as given below:-2012-13: 775806 tonnes, 2013-14: 1346454 tonnes, 2014-15: 4500270 tonnes, 2015-16: 4500084 & 2016-17: 5000052 tonnes.	Actual production achieved during the period from 2012-13 to 2016-17 is as given below:- 2012-13: Nil, ,2013-14:1346314 tonnes, 2014-15: 3436090 tonnes 2015-16: 4499400 tonnes & 2016-17: 5089000 tonnes	Nil

3q	General remarks of inspecting officers on method of mining etc.	No comments.	The mining operations were carried out by fully mechanised open cast method with concurrent backfilling of mined out areas as per the proposal envisaged in the modification of approved scheme of mining.	Nil
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Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	Provisions for temporary stacking of top soil and partly dumping of OB/waste generated from the mine is proposed.	The topsoil generated was spread over the backfilled area and a part of the OB/waste were stacked in the designated site.	Nil
4b	Location of topsoil, OB and mineral reject dumps	The OB/waste has been proposed to be dumped in Dump -1 & dump-2.	The OB & waste generated was dumped in dump-1 & 2 as per the proposal. The topsoil so genetated was spread over the reclaimed/backfilled area during the year 2016-17.	Nil
4c	Number of dumps within lease area and outside of lease area	Two	Two	Nil
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	E/W 9170 -E/W 10700 & N/S 10100-N/S 10620	E/W 9170 -E/W 10700 & N/S 10100-N/S 10620	Nil
4e	Number of active and alive dumps.	Two	Two	Nil
4f	Number of dead dumps.	No such proposal.	Nil	Nil
4g	Number of dumps established.	Two	Two	Nil

4h	Whether Retaining wall or garland drain all along dumps are there.	No such proposal during 2016-17.	Not constructed during 2016-17.	Nil
4i	Length of Retaining wall or garland drain all along dumps	No such specific proposal.	The retaining wall of 1.5m height & 1.5m width have already constructed around the dump as found during the inspection.	Nil
4j	Number of settling ponds	No specific proposal.	No settling tank seen.	Nil
4k	Specific comments of inspecting officer on waste dump management	The waste dumping was proposed in dump-1 & 2 are as per the proposal.	Dumping is being done in dump-1 & 2 as observed during the inspection.	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.	Concurrent backfilling of mined out area has been proposed.	The same practice is being followed.	Nil
5b	Area under backfilling of mined out area	No specific extent of areaproposed for backfilling during 2016-17.	An extent of 12.261has been reclaimed/rehabilitated during 2016-17.	Nil
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	Spread over the reclaimed area for supporting plantation.	Spread over the reclaimed area for supporting plantation.	Nil
5d	Total area fully reclaimed and rehabilitated	No such proposal.	12.261ha during the year 2016-17.	Nil

5e	General remarks of inspecting officers on backfilling and reclamation etc.	No comments.	Concurrent backfilling is being done.	Nil
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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).	The party has to submit the annual report on PMCP under rule 26(2) of MCDR,2017.	The annual report on PMCP for the year 2016-17 has been submitted by the party.	Nil
6b	Area available for rehabilitation (ha) .	No such specific proposal.	Nil	Nil
6c	afforestation done (ha).	In the year 2016-17, there are 17,500 nos. of saplings were proposed to be planted over 7.00ha.	During the year 2016-17, 20000 nos. of saplings were planted within the lease area.	The actual plantation done during the year 2016-17 is in higher side of the proposed number of plantation.
6d	No. of saplings planted during the year	17500nos. of saplings are proposed for the year 2016-17.	20000 nos. of saplings were planted during the year 2016-17.	More plantation has been done during 2016-17 against the proposed number.
6e	Cumulative no .of plants	No such proposal.	Not avialable.	Nil
6f	Any other method of rehabilitation	No such proposal.	Nil	Nil
6g	Cost incurred on watch and care during the year	No such proposal.	Not available.	Nil
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	Nil	12.261ha of area has been reclaimed/rehabilitated.	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	Nil	Nil	Nil
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	No such proposal.	Nil	Nil
6l	Compliance on reclamation and rehabilitation by backfilling (v) any other specific means.	No any other specific proposal.	Not applicable.	Nil
6m	Compliance of rehabilitation of waste land within lease (i) afforestation	Nil	Nil	Nil
6n	Compliance of rehabilitation of waste land within lease (ii) Area rehabilitation (ha)	Nil	Nil	Nil
6o	Compliance of rehabilitation of waste land within lease (iii) Method of rehabilitation	No such proposal.	Nil	Nil

6p	Compliance of environmental monitoring (core zone and buffer zone)	Environmental monitoring in the leas area has been proposed.	The ambient air quality, water quality, noise level, vibration level etc. were being monitored in every quarter and found within the permissible limits.	Nil
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	No comments to offer.	As as as the mine development is concerned, the mining oprations are in a scientific line.	Nil

Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	5000052 tonnes, Grade Al2O3 +40% & R. SiO2-5%.	5089000 tonnes, Grade Al2O3 +40% & R. SiO2-5%.	Nil
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	The entire ROM is consumable.	The entire ROM is consumable.	Nil
7c	Different grade of mineral sorted out at mines.	Al2O3 +40% & R. SiO2-5%.	Al2O3 +40% & R. SiO2-5%.	Nil
7d	Any beneficiation process at mines .	No such proposal.	Not applicable.	Nil
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	No comment.	The entire ROM produced from the mining operations are consumable and there is no minerl conservation problem.	There is no mineral conservation problems in the mine.

Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
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8a	Separate removal and utilization of topsoil (Rule 32)	The topsoil generated was proposed to be spread over the backfilled area for supporting plantation.	The topsoil so generated was spread over the reclaimed area.	Nil
8b	Concurrent use or storage of topsoil	spreading over the backfilled area.	Spread over the backfilled area.	Nil
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Part of the over burden material generated was proposed to be dumped in dump-1 & 2.	During the year, the dumping was done in dump-1 & 2 as per the proposal.	Nil
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Concurrent backfilling.	Concurrent backfilling of the mine out area was done during the year 2016-17.	Nil
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Phased restoration was not proposed.	Concurrent backfilling was in practice.	Nil
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	There was a proposal to plant 17500 nos. of saplings during the year 2016-17.	During the year 2016-17, 20000 nos. of saplings were planted in the lease area.	The actual plantation done was in higher side of the proposed number given in the modification of approved scheme of mining.
8g	Survival rate	No specific proposal for survival rate of plantation.	The reported survival rate of plantation was about 70%	Nil

8h	Water sprinkling on roads to control airborne dust	Water sprinkling was proposed on the haul road to control the airborn dust.	Water sprinkling was a regular practice as reported during the field visit.	Nil
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	No comment.	Plantation over the concurrent backfilled area enhances the austhetic beauty of the area.	Nil

Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	The monthly and annual returns has to be submitted under rule 45 of MCDR, 2017.	The submission status of all the returns has been verified and found in order for the year 2016-17.	Nil
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	The employment status of mining engineer, geologist & mine manager have been furnished in the annual return submitted by the party for the year 2016-07.	The employment status of mining engineer, geologist & mine manager was verified in the field & found in order.	Nil

9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	The land use pattern in different counts furnished in the annual return 2016-17 is as given below:- (i) Covered under current (O/C) workings: 64.066ha (ii) Reclaimed/rehabilitated: 12.261ha (iii) Waste disposal: 26.666ha (iv) Occupied by plant, buildings etc.:25.575ha & (v) Mineral Storage.: 4.316ha	The land use pattern furnished is found to be in order.	Nil
9d	Scrutiny of Annual return on afforestation	As per the annual return 2016-17, 20000 nos. of saplings were planted in the lease area.	The same was verified and found in order.	Nil
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	The generation status of mineral rejects has not been furnished in the annual return. However, the grade of the Bauxite is about +40% Al ₂ O ₃ 42.50% & -5% R.SiO ₂ .	Not generated during 2016-17.	Nil

9f	Scrutiny of Annual return on ROM stock and/or graded ore	During the year 2016-17, 5089000 tonnes of Bauxite ore was produced from the mine for captive purpose.	The production figures of Bauxite urnished in the annual return 2016-17 is found in order.	Nil
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	The ex-mine price & cost of production for Buaxite is reported for Rs. 609.99 in the annual return submitted by the party for the year 2016-17.	The ex-mine price and cost of production furnished in the annual return is appears to be correct.	Nil
9h	Scrutiny of Annual return on fixed assets	The value of the fixed assets not specified for the mine.	The value of the fixed assets not specified for the mine.	Nil
9k	Scrutiny of Annual return on mining machineries	A good fleet of mining machineries were reported in the annual return for 2016-17.	The deployment status of mining machineries are found to be satisfactory.	Nil

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	
MCDR17	Rule 11(1)	12/01/2018	10/05/2018				

Date :

(SHRI G.C. SETHI)

Indian Bureau of Mines