

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

MCDR INSPECTION REPORT

Ranchi regional office

Mine file No : JHK/GML/BX/252/RRO

Mine code : 07JHK09004

- (i) Name of the Inspecting : **B001**) **SAGAR BODRA**
Officer and ID No.
- (ii) Designation : Assistant Mining Geologis
- (iii) Accompanying mine : S/Shri P.K.Mahapatra, GM (Gelogy), Vidhya Sagar mines
Official with
Designation
- (iv) Date of Inspection : 11/06/2015
- (v) Prev.inspection date : 09/03/2015

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **KUJAM - I BAUXITE MINE(80**
- (b) **Registration NO.** : **IBM/935/2011**
- (c) **Category** : **A Other than Fully Mech.**
- (d) **Type of Working** : **Opencast**
- (e) **Postal address**
- State : **JHARKHAND**
- District : **GUMLA**
- Village : **KUJAM**
- Taluka : **BISHNUPUR**
- Post office : **JOBHIPAT**
- Pin Code : **835207**
- FAX No. : **06526-224118**
- E-mail :
- Phone : **06526-224015, 224112, 22311**
- (f) **Police Station** : **BISHUNPUR**
- (g) **First opening date** :
- (h) **Weekly day of rest** : **SUN**
2. **Address for** : **AT- COURT ROAD, LOHARDAGA,**
correspondance **PO - LOHARDAGA,**
DIST - LOHARDAGA (JHARKHAND).
3. (a) **Lease Number** :
- (b) **Lease area** :
- (c) **Period of lease** :
- (d) **Date of Expiry** :
4. **Mineral worked** : **BAUXITE** **Main**

5. Name and Address of the

Lessee : M/S HINDALCO INDUSRIES LTD.
 COURT ROAD, LOHARDAGA,
 LOHARDAGA JHARKHAND
 Phone:06526 - 224012 & 224118
 FAX :06526-224112, 224016 & 0651- 2330782

Owner : A.K. AGARWALA
 HINDALCO INDUSTRIES LIMITED
 AT-RENUKOOT, P.O.-RENUKOOT
 DIST. SNOEBHADRA, U.P
 SONBHADRA UTTAR PRADESH
 Phone: 05446-252084, 2
 FAX : 05446-252107

Agent : B.K.JHA
 M/s HINDALCO INDUSTRIES
 Ltd. AT-BAGRU HILL COLONY,
 PO& DIST -LOHARDAGA(JHK)
 LOHARDAGA JHARKHAND
 Phone: Mob- 941708929, 06526-224112/224015
 FAX : 06526-224118

Geologist
 Name : BIPLAB MUKHERJEE, Full Time
 Qualification : M.Sc(GEOLOGY)
 Appointment/ : 25/01/2012
 Termination date

Manager
 Name : JITENDRA KUMAR
 Qualification : DIP-IN-MIN & MINE SURVEYING
 Appointment/ : 01/12/2013
 Termination date

6. Date of approval of Mining Plan/Scheme of Mining : Fresh under rule 22 MCR1960 12/04/2005

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	As per approved document, there is no specific proposal of exploration	Intially altogrther 54 boreholes were given in the entire leasehold area during the period from 1970 to 1975 by Geological Survey of India. The maximum depth of the hole was 19.65m. Later, the entire leasehold area had again been explored by putting 85 no. of boreholes at grid interval of 100mx100m with total meterage of 917.75m in the year 2006 by the lessee. Thereafter, intermittant boreholes of 60 nos had been given at a gorid interval of 50mx50m with atotal meterage of 730.60m.	
1b	Exploration over lease area for geological axis 1 or 2	There is no exploration proposal in the approved document.	Intially altogrther 54 boreholes were given in the entire leasehold area during the period from 1970 to 1975 by Geological Survey of India. The maximum depth of the hole was 19.65m. Later, the entire leasehold area had again been explored by putting 85 no. of boreholes at grid interval of 100mx100m with total meterage of 917.75m in the year 2006 by the lessee. Thereafter, intermittant boreholes of 60 nos had been given at a gorid interval of 50mx50m with atotal meterage of 730.60m.	
1c	Exploration Agencies and Expenditure in lakh rupees during the year	As per approved document, no exploration was proposed during the year 2014-15	The Gelogical Survey of India and Lessee. The expenditure incurred towards exploration is not available.	

1d	Balance area to be explored to bring Geological axis in 1 or 2	As per approved document, no exploration was proposed during the year 2014-15.	The entire lease hold area had already been explored by the lessee and G.S.I
1e	Balance reserve as on 01/04/20	As per approved document, reserve position as on 01.04.2010 is given below: Proved (111) - 1093491 Tonnes and Probable (121)- 1085004.	Reserve position as on 01.04.2010 is given below: Proved (111) - 1093491 Tonnes and Probable (121)- 1085004. After deducting production from 2010-11 to 2014-15 of 627848 Tonnes. The balance reserve as on 01.04.2016 is (1093491 - 627848) Tonnes = 465643 Tonnes.(proved) and 1085004 Tonnes (probable).
1f	General remarks of inspecting officers on geology, exploration etc	N.A	The bauxite of the area is massive and bouldary type. The avrage grade of the ore is Al2O3 - 40.19% and SiO2-4.5%,. The entire leasehold area had already been explored at a grid interval of 100mx100m. Subsequently, intermittant boreholes at a grid interval of 50mx50m also drilled in the area.

Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	As per approved document, eastern part of the area was propoed to be developed covering an area of 9000 sq.m, 8700 sq.m , 8520 sq.m and 8340 sq.m respectively.	On day of inspection, mining operation were being carried out in Qarry no. 4A and 4A4. The dimension of the quarries are: 90m x 600m x 4 .5m, 70m x 30m x 5m.	

2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Proposed benches in : topsoil - 1.5m x 1.5m, OB - 6m x 7.5m and ore - 1.5m x 1.5m.:	Quarry No. 4A: - OB Bench: one- 1.5m, Ore: one-3m, depth-4.5m, Quarry No. 4A4-Two-3m, Ore: one-1.5m, depth-5m.
2c	Stripping ratio or ore to OB ratio	As per approved document proposed ratio: 1:0.61	Actual ration achieved: 1:0.82
2d	Quantity of topsoil generation in m3	Quantity of topsoil generation proposed was 9000 Tonnes.	The quantity of topsoil generated during the year has not been reported.
2e	Quantity of overburden generation in m3	Quantity of overburden generation proposed was 41601 tonnes.	180989 cu.m overburden was generated during the previous year.
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	As per approved document, eastern part of the area was proposed to be developed covering an area of 9000 sq.m, 8700 sq.m , 8520 sq.m and 8340 sq.m respectively.	On day of inspection, it was reported that mining operation were being carried out in Quarry no. 4A and 4A4. The dimension of the quarries are: 90m x 600m x 4 .5m, 70m x 30m x 5m. The mining operation is being carried out by and large systematic and scientific manner.

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	No specific proposal is given in the approved document.	Only two pits were found in operation on the day of inspection.	
3b	Quantity of ROM mineral production proposed	As per approved document quantity of ROM proposed was 82815 Tonnes for the year 2014-15..	149590 tonnes of ore produced against above proposal. There is a deviation between proposed production and actual achieved production.	

3c	Recovery of sailable/usable mineral from ROM production	As per approved document proposed 90% recovery	Achieved around 90% recovery.
3d	Quantity of mineral reject generation	N.A	There is no generation of mineral rejects from the mine.
3e	Grade of mineral rejects generation and threshold value declared.	N.A	Whatever sub grade mineral is generated from the mine, is hand sorted, sized and suitably blended to ensure metal grade requirement of the plant. Also mechanical screening of the fraction above 1" in size is also utilised for blending.
3f	Quantity of sub grade mineral generation.	N.A	Whatever sub grade mineral is generated from the mine, is hand sorted, sized and suitably blended to ensure metal grade requirement of the plant. Also mechanical screening of the fraction above 1" in size is also utilised for blending.
3g	Grade of sub grade mineral generation	N.A	Whatever sub grade mineral is generated from the mine, is hand sized, sorted and suitably blended to ensure metal grade requirement of the plant. Hence, there is no sub grade mineral generation from the mine.
3h	Manual / Mechanised method adopted for segregating from ROM	Manual	Rigorous hand sorting is made at every stage of production.
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	N.A	There is no analysis or beneficiation of sub grade and rejects are carried out at mine site.

3j	Provision of drilling and blasting in mineral benches	Proposed for hard patches OB /Ore.	Hard patches of OB and ore are drilled by rock drill having diameter from 88mm to 100mm dia bit. The drill holes area charged with ANFO mixture and then blasted with the help of safety fuse and ordinary detonator.
3k	Provision of mining machineries in mineral benches	Rock drill, Shovel and dumper combination.	Rock drill, Shovel and dumer is used in mineral benches.
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Proposed bench height in various quarries are different from each other.	The height of benches in overburden and mineral have been kept below 2m and there is no problem for raising the ore. Hence, the proposed method of mining in MP is suitable.
3m	Total area covered under excavation/pits	No specific proposal is proposed in the approved document.	Reported area covered under current mining is about 7.76 ha.
3n	Ore to OB ratio for the pit/mine during the year.	Proposed ore to OB ratio is 1:0.61	The production and OB removal for the year 2014-15 was 149360 Tonnes and 673622 Tonnes respectively. The ore to OB ration was calculated and it comes around 1:082.
3o	Total area put in use under different heads at the end of year	No specifice proposal.	The land use pattern as on date of inspection are : Already exploited & abandoned by opencast (O/C) mining - 22.68 ha, Covered under current (O/C) workings - 7.76 ha, Reclaimed/Rehabilitated- 13.59 ha, Used for waste disposal - 1.01 ha, Occupied by plant, buildings, residential, welfare buildings & roads -1.01 ha.

3p	Production of ROM mineral during the last five year period as applicable	Proposed ROM production as per approved MP are given below: 2010-11: 67879 Tonnes, 2011-12: 82815 Tonnes, 2012-13: 82815 Tonnes, 2013-14: 82815 Tonnes & 2014-15: 82815 Tonnes There is no valid proposal in absence of approved document for the period 2013-14 & 214-15.	The actual production achieved during the last five years is given below: 2010-11: 30645 Tonnes 2011-12: 149570 Tonnes 2012-13: 149018 Tonnes 2013-14: 149255 Tonnes 2014-15: 149360 Tonnes	There is a deviation between proposed production and actual achieved production.
3q	General remarks of inspecting officers on method of mining etc.	The sequences of operations currently followed in the mine is (a) drilling of bench, using DTH drills in harder strata, (b) charging and blasting of holes, and (c) loading.	The sequences of operations currently followed in the mine is (a) drilling of bench, using DTH drills in harder strata, (b) charging and blasting of holes, and (c) loading after sized and sorted out of ROM. The curent method of mining adopted appears to be correct for systematic and scientific mining.	

Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	There is no specific proposa given the approved document. However, topsoil and OB are proposed to be dumped on non-mineralised ground.	One top soil dump is located near pit no. 2 having dimension 40mx 30mx 9m. No OB dump is in existence during the inspection of the mine.	

4b	Location of topsoil, OB and mineral reject dumps	No specific proposal is given in the approved document.	One top soil dump is located near pit no. 2 having dimension 40mx 30mx 9m. No OB dump is in existence during the inspection of the mine.
4c	Number of dumps within lease area and outside of lease area	No specific proposal.	On top soil dump was in existence at the time of inspection within lease area.
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	No specific proposal has been proposed in the approved document.	Near pit no. 2.
4e	Number of active and alive dumps.	No specific proposal has been proposed in the approved document.	One active dump.
4f	Number of dead dumps.	No specific proposal has been proposed in the approved document.	None.
4g	Number of dumps established.	No specific proposal has been proposed in the approved document.	one.
4h	Whether Retaining wall or garland drain all along dumps are there.	No specific proposal has been proposed in the approved document.	None.
4i	Length of Retaining wall or garland drain all along dumps	No specific proposal has been proposed in the approved document.	None.
4j	Number of settling ponds	No specific proposal has been proposed in the approved document.	None.

4k	Specific comments of inspecting officer on waste dump management	No specific proposal has been proposed in the approved document.	Whatever topsoil, OB and mineral rejects are generated during the mining operation is used for backfilling of worked out areas.
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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.	No specific proposal has been made in the approved document.	A total of 20.68 ha area has already been broken by opencast mining. Out of which 13.59 ha area has been reclaimed/rehabilaited and which comes around 65.71 % of total broken area. The current mining area is about 7.76 ha, dupm area 1.01 ha , Road 1.01 ha and building 0.27 ha.	
5b	Area under backfilling of mined out area	No specific proposal has been made in the approved document.	A total of 13.59 ha area has already been reclaimed/rehabilaited till the end of the year.	
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	No specific proposal has been made in the approved document.	Whatever topsoil is removed during mining operation, is used for spreading over reclaimed area.	
5d	Total area fully reclaimed and rehabilitated	4.6 ha area has been proposed to be backfilled during the plan period 2014-15.	About 3.04 ha area against proposed area of 4.6 ha has been backfilled during the yea. A cumulative of 13.59 ha area has already been reclaimed/rehabilaited till the end of the year.	
5e	General remarks of inspecting officers on backfilling and reclamation etc.	No specific proposal is proposed in the approved document.	The backfilling and reclamation status of mined out area has been found by and large satisfactory.	

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).	N.A	The lessee has submitted annual report on PMCP for the year 2014-15.
6b	Area available for rehabilitation (ha) .	N.A	N.A
6c	afforestation done (ha).	1600 no of saplings proposed to be planted over an area of 0.65 ha	About 1400 saplings have been planted during the year against proposal. The cumulative figure of the plantation has not been reported by the lessee.
6d	No. of saplings planted during the year	1600 no of saplings proposed to be planted over an area of 0.65 ha	About 1400 saplings have been planted over an area of 0.625 ha during the year against proposal.
6e	Cumulative no .of plants	N.A	The cumulative figure of the plantation has not been reported by the lessee.
6f	Any other method of rehabilitation	N.A	Only through plantation.
6g	Cost incurred on watch and care during the year	N.A	It was reported that one labour is reguarly deputed for watch and care of planation. The cost incurred for purpose has not been reported.
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	N.A	An extent of 3.04 ha area has been backfilled during the previous year. As on date of inspection .02 ha area has been reclaimed out of 0.75 ha broken area.
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	N.A	N.A

6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on on backfilled area	Afforestation on 0.65 ha area was proposed.	1000 sapling have been planted over an area of 0.625 ha.
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	N.A	N.A
6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	N.A	N.A
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	N.A	N.A
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	N.A	N.A
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	N.A	N.A
6p	Compliance of environmental monitoring (core zone and buffer zone)	N.A	Plantation were made over reclaimed area of the lease area. Out side lease area natural species are available.
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	N.A	All possible efforts are being taken care of to comply the proposals made in the approved document.

Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
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7a	ROM Mineral dispatch or grade-wise sorting within lease area	N.A	The grade wise ore despatched from the mine head during the year 2014-15 : 148559 tonnes. The grade of the ore despatched to the plant is given as : Al ₂ O ₃ - 46%, SiO ₂ - 5%, Fe ₂ O ₃ - 17% and L.O.I.- 22%. There is no subgrade generation from the mine.
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Manual	There is no sub grade generation from the mine. However, manual hand sorting, screening and sizing is done in the mine site.
7c	Different grade of mineral sorted out at mines.	N.A	Only metal grade bauxite , Mineralogically the bauxite is predominantly bohenitic, is manually hand sorted, screened and sized at the mine site.
7d	Any beneficiation process at mines	N.A	No beneficiation is done at the mine site.
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	N.A	The entire production is meant for captive use. All produced ore despatched to their MuriRenukoot/Muri plant. All possible effort such as hand sorting, mechanical screening, bulk sampling followed time to time chemical analysis are done to ensure conservation of mineral.

Environment :

Sl.No.	Item	Propasals	Actual work	Remarks
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8a	Separate removal and utilization of topsoil (Rule 32)	As per approved document 9000 tonne top soil proposed to be removed during the plan period 2014-15.	The top soil generation has not been reported for the year 2014-15.
8b	Concurrent use or storage of topsoil	No specific proposal has been made in the approved document.	The top soil is removed separately and concurrently used to cover the backfilled area.
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	No specific proposal has been made in the approved document.	Whatever, Overburden, waste rock and rejects are generated during mining operation are used for backfilling of worked out areas.
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	No specific proposal has been made in the approved document.	About 697300 cu.m cu.m waste materials have been used for backfilling up to end of previous year.
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	No specific proposal has been made in the approved document.	As on date of inspection 0.75 ha land has been broken and out of which 0.2 ha area reclaimed. During previous year, a total of 3.13 ha area broken and out of which 3.04 ha area reclaimed. The cumulative area broken as on date was 20.68 ha area and out of which 13.59 ha area has been reclaimed up to the end of plan period 2014-15.
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	1600 no of saplings proposed to be planted over an area of 0.65 ha	About 1400 saplings have been planted during the year against proposal. The cumulative figure of the plantation has not been reported by the lessee.
8g	Survival rate	No specific proposal has been made in the approved document.	Reported survival rate is around 40% of the total plantation.

8h	Water sprinkling on roads to control airborne dust	N.A	Water sprinkling is made on roads to control airborne dust during the mining operation.
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	N.A	In case of this mine 34.11 ha area has already been broken due to excavation, dumping and building roads etc of out of 157.38 ha lease area. Thus affecting only 22.94% of the total lease area. The area is covered with natural thin vegetation. The aesthetic beauty in and around mine area has not been disturbed due to mining activities. It is more or less the same as before. To maintain aesthetic beauty within ML, plantation were made over backfilled area.

Compliance of Rule 45:

Sl.No.	Item	Proposals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	All information furnished pertaining to General & labour, Employment & wages, Capital Structure, Consumption of materials, Consumption of explosives, General Geology & Mining, Production, Dispatch & Stock and Cost of production.	Party has submitted Monthly Return up to March, 2015 and Annual Return for the year 2014-15 in Form H-3. By and large the information furnished in the Annual return is found satisfactory.	
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Details of Mining Engineer, Geologist and Manager have been furnished.	This is a other than fully mechanised (F.M) mine and as per rule full time mine manager, mining engineer and geologist have been appointed.	

9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Land use pattern as furnished is given as under: (i) Area already exploited & reclaimed - 20.68 ha. (ii) Covered under current (O/C) workings- 7.76 ha. (iii) Reclamation/Rehabilitated - 13.59 ha (iv)Used for waste disposal - 1.01 ha (v) Occupied by plant, buildigs, residential, welfare buildings & roads -1.01 ha.	Details given in submitted annual return appears to be correct.
9d	Scrutiny of Annual return on afforestation	1600 nos. of trees have been planted over an area of 0.65 ha within lease area.	During the year 2014-15, 1400 trees have been planted over an area of 0.625 ha within lease area with a survival rate of 40%.
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	Mineral reject generation has been furnished as nil.	Whatever low/sub grade mineral is generated from the mine is blended with the high grade mineral. However, there is no mineral reject generation from the mine.
9f	Scrutiny of Annual return on ROM stock and/or graded ore	ROM ore produced has been furnished as 149360 tonnes.	Total ROM ore produced during the year 2014-15 has been furnished as 149360 tonnes.
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Sale value furnished as nil, ex- mine price furnished as nil and cost of operation furnished as Rs. 657.13 per tonne.	This a captive mine and details furnished as above appears to be correct.

9h	Scrutiny of Annual return on fixed assets	Value of fixed Apperas to be correct. assets has been furnished as Rs. 17283126/-	
9k	Scrutiny of Annual return on mining machineries	The mining machineries given in AR are: Shovel(hydraulic) (02) -0.9 cum, Wheel Loader)(01)-1.5 cum, Dunper (04) - 25 Tonne, Air compressor (01)-450 cum/mn and Rock Drill (01)-100 cum/mn.	The mining machineries used in mining operation are sufficient enough to run a mine.

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

Date :

(SAGAR BODRA)

Indian Bureau of Mines