INDIAN BUREAU OF MINES
MINERALS DEVELOPMEMT AND REGULATION DIVISION

MCDR INSPECTION REPORT

Ranchi regional office

Mine file No : JHK/GML/BX/253/RRO **Mine code : 07JHK09005**

(i) Name of the Inspecting Officer and ID No. : **B001) SAGAR BODRA**

(ii) Designation : Assistant Mining Geologis

(iii) Accompaning mine Official with Designation : SHRI VIDYA SAGAR SINGH MANAGER & RATIKANT BEHERA, GEO

(iv) Date of Inspection : 11/06/2015

(v) Prev.inspection date : 04/12/2014

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **KUJAM - II BAUXITE MINE**

(b) Registration NO. : **IBM/935/2011**

(c) Category : A Fully Mechanised

(d) Type of Working : Opencast

(e) Postal address

State : JHARKHAND
District : GUMLA
Village : KUJAM
Taluka : BISHNUPUR
Post office : JOBHIPAT
Pin Code : 835207
FAX No. : 06526-224112, 224015, 2231
E-mail : bijesh.jha@adityabirla.com
Phone : 06526-224118

(f) Police Station : BISHUNPUR

(g) First opening date : 01/07/2008

(h) Weekly day of rest : SUN

2. Address for correspondance : VILL -KUJAM & CHIRODIH,
PO & PS -BISHUNPUR,
DIST - GUMLA (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 INDUSTRIES LTD. AT - COURT ROAD, LOHARDAGA, LOHARDAGA JHARKHAND Phone:06526-22401112, 224446 & 224016. FAX :06526-224112 & 224445
Owner	:	A.K AGRAWAL M/S HINDALCO INDUSTRIES LTD. CENTURY BHAWAN, 3rd FLOOR, Dr. ANNIE BASANT ROAD, WORLY, MUMBAI(MH KOLKATA WEST BENGAL Phone: FAX :
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

Mining Engineer

Name	:	VIDYA SAGAR SINGH,Full Time
Qualification	:	B.Sc.(MINING)
Appointment/ Termination date	:	01/10/2013

Geologist

Name	:	RATIKANT BEHRA,Full Time
Qualification	:	M.Sc. (GEOLOGY)
Appointment/ Termination date	:	01/06/2013

6. Date of approval of Mining Plan/Scheme of Mining :

Fresh under rule 22 MCR1960	12/04/2005
Modif.of approved Mining Plan	22/07/2011
Mining Scheme rule 12 MCDR1988	21/11/2014

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	No exploration has been proposed in the approved document.	Initially nine (09) boreholes were drilled by the State Govt. Department of Geology. Altogether 170 no. of bore holes at 100m x 100m grid interval were drilled with a total metrage of 2261.95m. The maximum depth of 24.40m and a minimum depth of 5.30m.	
1b	Exploration over lease area for geological axis 1 or 2	No exploration has been proposed in the approved document.	Altogether 170 no. of bore holes at 100m x 100m grid interval were drilled with a total metrage of 2261.95m. The maximum depth of 24.40m and a minimum depth of 5.30m.	
1c	Exploration Agencies and Expenditure in lakh rupees during the year	Lessee himself.	State Government and Lessee. No exploration work has been carried out during the year.	
1d	Balance area to be explored to bring Geological axis in 1 or 2	N.A	The entire lease hold area has already been explored by giving 170 no. of bore holes at 100m x 100m grid interval with a total meterage of 2261.95m.	
1e	Balance reserve as on 01/04/20	As per approved scheme of mining, reserve position as on 01.04.2014 is given below: Proved (111) - 3883778 Tonnes.	Reserve position as on 01.04.2014 is given below: Proved (111)- 3883778 Tonnes. After deducting production of 2014-15. The balance reserve as on 01.04.2015 is (3883778 - 149685) Tonnes = 3734093 Tonnes.	

1f	General remarks of inspecting officers on geology, exploration etc	N.A	The bauxite of the area is mixed type with predominantly gibbsitic i.e. tri-hydrate alumina ($Al_2O_3 . 3H_2O$) in the range of 70% to 75% and balance 20% is Boehmite i.e. Mono-hydrate alumina. The avrage feed grade of the ore is Al_2O_3 - 41.6%, SiO_2- 4.6%, Fe_2O_3-20% and L.O.I- 22%.

Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	As per approved document, Quarry no. 3A(eastern part), quarry no. 3C (central part) and Quarry no. 4D (south-eastern part) of the lease area proposed to be developed during the plan period 2015-16.	Quarry no. 3A (eastern part): work not yet started, Quarry no. 3C (central part) Quarry no. 4D (south-eastern part): work was under progress.	
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Proposed bench height & width: 6m x 6m. Quarry no. 3A: Two benches, one each in OB and ore, Quarry no. 3C: Three benches, one in topsoil, one in OB and one in ore and Quarry no. 4D: Two benches, one each in OB and ore.	Work was under progress in quarry no. 3C and 4D whereas work in quarry no. 3A the work had not yet been started at the time of inspection.	

2c	Stripping ratio or ore to OB ratio	Proposed ore to OB ration: 1:1.18	The production and OB removal for the year 2014-15 was 149685 Tonnes and 591018 Tonnes respectively. The ore to OB ration was calculated and it comes around 1: 1.25.
2d	Quantity of topsoil generation in m3	No specifie proposal for soil generation.	No separate top soil generated during the year 2014-15 has been reported. However, a total of 591018 tonnes of OB has been removed during the year.
2e	Quantity of overburden generation in m3	346934 cu.m OB proposed to be generated during the year 2014-15.	A total of 591018 tonnes of OB has been removed during the year.
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	Development of mine has been proposed by forming separate benches in O.B and ore.	The mining operation is being carried out by forming separate benches in O.B and Ore. By and large the bench height below 6m and width of 6m have been maintained. The mine is being developed systematic and scientific manner.

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	Two quarries viz quarry no. 3B and 4D.	Reported production during the year 2014-15 was 149685 tonnes.	
3b	Quantity of ROM mineral production proposed	293927 tonnes ROM production proposed.	Reported production during the year 2014-15 was 149685 tonnes.	
3c	Recovery of sailable/usable mineral from ROM production	90%	Around 90% ore are recovered.	
3e	Grade of mineral rejects generation and threshold value declared.	N.A	There is no generation of mineral rejects from the mine.	

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	Rigorious 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 beneficaition 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	Bench height is proposed about 6m.	The height of benches in overburden and mineral have been kept below 6m and there is no problem for raising the ore. Hence, the proposed method of mining in MS 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 8.18 ha.
3n	Ore to OB ratio for the pit/mine during the year.	Proposed ore to OB ratio is 1:1.18	The production and OB removal for the year 2014-15 was 149685 Tonnes and 591018 Tonnes respectively. The ore to OB ration was calculated and it comes around 1: 1.25.
3o	Total area put in use under different heads at the end of year	No specific proposal	The land use pattern as on date of inspection are : Already exploited & abandoned by opencast (O/C) mining - 25.67 ha, Covered under current (O/C) workings - 8.18 ha, Reclaimed/Rehabilitated- 17.49 ha, Used for waste disposal - 0.64 ha, Occupied by plant, buildings, residential, welfare buildings & roads -1.62 ha, Work done under progressive mine closure plan during the year - 5.86 ha.
3p	Production of ROM mineral during the last five year period as applicable	Proposed ROM production as per approved MS are given below: 2010-11: 103896 Tonnes, 2011-12: 111648 Tonnes, 2012-13: 241343 Tonnes, 2013-14: 302016 Tonnes & 2014-15: 293927 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: 149988 Tonnes 2011-12: 149080 Tonnes 2012-13: 149542Tonnes 2013-14: 149790 Tonnes 2014-15: 149685 Tonnes

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)	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 in the worked out area of quarry no. 3A, 3C and 4D.	
4b	Location of topsoil, OB and mineral reject dumps	No specific proposal has been proposed in the approved document.	As such no dumps have been observed within the lease area.	
4c	Number of dumps within lease area and outside of lease area	No specific proposal has been proposed in the approved document.	None.	
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	No specific proposal has been proposed in the approved document.	None.	
4e	Number of active and alive dumps.	No specific proposal has been proposed in the approved document.	None.	

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.	None.
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.

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 25.67 ha area already exploited & abandoned by opencast mining. Out of which reclaimed/rehabilaited area 17.49 ha and used for waste disposal area-0.64ha. Area covered under current (O/C) workings was 8.10 ha as on date of inspection.	

5b	Area under backfilling of mined out area	As per approved document 6.58 ha area was proposed to be backfilled during the year 2015-16.	A total of 17.49 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	As per approved document 5.61 ha has been proposed to be reclaimed during the plan period 2014-15.	An extent of 17.49 ha has already been reclaimed/rehabiliated at the end of the year.
5e	General remarks of inspecting officers on backfilling and reclamation etc.	Nil.	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
6a	Whether Annual report on PMCP submitted on time and correctly. Rule 23 E(2).	N.A	The lessee has submittied annual report on PMCP for the year 2014-15.	
6b	Area available for rehabilitation (ha) .	N.A	N.A	
6c	afforestation done (ha).	As per approved document 1000 nos. of saplings proposed to be planted over an area of 0.58 ha during the year 2014-15.	As on date of inspection about 10090 nos. of trees have been planted over an area of 5.8 ha within mining lease during the year 2014-15. Its survival rate is about 70%.	

6d	No. of saplings planted during the year	As per approved document 1000 nos. of saplings proposed to be planted over an area of 0.58 ha during the year 2014-15.	A total of 10090 nos. of trees have been planted over an area of 5.8 ha during the year 2014-15.
6e	Cumulative no .of plants	1000 nos of trees proposed to be planted during the year 2014-15.	A cumulative of 10090 nos. of trees have been planted over an area of 5.8 ha within mining lease during the year 2014-15. The survival rate is about 70%.
6f	Any other method of rehabilitation	By plantation only.	About 5.8 ha area has been reclaimed during the year and where plantation were made.
6g	Cost incurred on watch and care during the year	N.A	N.A
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	An extent of the area 209mx158mx13m and 158mx146mx9.5m proposed to be backfilled during the year 2014-15.	An extent of 5.8 ha area has been backfilled during the year 2014-15.
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	332089 cu.m waste materials proposed to be backfilled during the year 2014-15.	A total of 591018 cu.m waste materils over an area of 5.8 ha have been backfilled.
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on backfilled area	1000 nos. of saplings proposed to be planted on backfilled area.	10090 nos. of saplings have been planted over an area of 5.8 ha on backfiled area during the year 2014-15.
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	N.A	Nil.

6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	N.A	None.
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	1000 nos. of saplings proposed to be planted on backfilled area within lease.	10090 nos. of saplings have been planted over an area of 5.8 ha on backfiled area within lease during the year 2014-15.
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	N.A	None.
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	N.A	None.
6p	Compliance of environmental monitoring (core zone and buffer zone)	N.A	Plantation were made in and around mining lease to maintain enviroment surronding the area. The survival rate is about 70%. A man has been deployed for caring, watering and manuring the planted species. The Notrthern and western side of the lease area is surrounded by the forest area.
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

7a	ROM Mineral dispatch or grade-wise sorting within lease area	N.A	The grade wise ore depatched from the mine head during the year 2014-15 : 2.1 tonnes (below 40% Al2O3) and 148931 tonnes (40% to below 45% Al2O3). 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.
7c	Different grade of mineral sorted out at mines.	N.A	Only metal grade bauxite , mainly gibsitic is manually hand sorted, screened and sized at the mine site.
7d	Any beneficiation process at mines .	N.A	No benefication 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 Renukoot/Muri plant. All possible effort is done to conserve the mineral.

Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	As per approved scheme of mining,312677 cu.m top soil & murrum proposed to be removed during the plan period 2014-15.	The topsoil is removed seapartely and used immediately to cover the backfilled area by laterite and murrum. The topsoil removed during the year has not been reported by the company.	
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.	There were two waste dumps made in the lease area. Dupm no. 1 is located near west quarry no.1 and Dump no.2 is located west quarry no. 3.
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 591018 cu.m waste materials over an area of 5.86 ha have been used for backfilling during the year.
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Quarry no. 4D and quarry no. 3B proposed to be backfilled during the year 2014-15.	A total of 25.67 ha land is affected by mining activity and out which 5.86 ha area has been reclaimed up to the end of plan period 2014-15. A cumulative of 17.49 ha has been reclaimed/rehabialitaed ti the end of the year.
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	1000 nos. of plants proposed to be planted during the year 2014-15.	A total of 10090 nos. of plants have been planted over an area of 5.86 ha during the year. Its survival rate is about 70%.
8g	Survival rate	Nil.	Reported survival rate is about 70%.
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 ths mine 20.68 ha area has already been broken due to excavation, dumping and building roads etc of out of 80.87 ha lease area. Thus affecting only 25.57 % 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	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	All information furnished perating 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 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 - 25.67 ha. (ii) Covered under current (O/C) workings- 8.18 ha. (iii) Reclamation/Rehabilitated - 17.49 ha (iv)Used for waste disposal - 0.64 ha (v) Occupied by plant, buildings, residential, welfare buildings & roads -1.62 ha (vi) Work done under PMCP during the year-5.86 ha.	Details given in submitted annual return appears to be correct.
9d	Scrutiny of Annual return on afforestation	10090 nos. of trees have been planted over an area of 5.86 ha within lease area with a survival rate of 70%.	During the year 2014-15, 10090 trees have been planted within lease area with a survival rate of 70%.
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 149685 tonnes.	Total ROM ore produced during the year 2014-15 has been furnished as 149685 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 assets has been furnished as Rs. 17283126/-	Apperas to be correct.
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
Rule 16(2)	11/05/2015	09/02/2016			

Date :

(**SAGAR BODRA**)

Indian Bureau of Mines