

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

MCDR INSPECTION REPORT

Ranchi regional office

Mine file No : BIH/GLA/BX/204/RRO

Mine code : 07BHR32009

- (i) Name of the Inspecting : **C001**) **N.K.CHATERJI**
Officer and ID No.
- (ii) Designation : Assistant Mining Geologis
- (iii) Accompanying mine : **SRI A.UPADHYAY, MINING ENGINEER & VICTOR BASU, GEOLOG**
Official with
Designation
- (iv) Date of Inspection : 08/02/2016
- (v) Prev.inspection date : 23/08/2015

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **JALIM AND SANAI (38.447)**
- (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 : **JALIM & SANAI**
- Taluka : **BISHUNPUR**
- Post office : **BISHUNPUR**
- Pin Code :
- FAX No. : **06526-24118**
- E-mail : **N.A.**
- Phone : **06526-24016,24112,24446**
- (f) **Police Station** : **BISHUNPUR**
- (g) **First opening date** : **01/11/1983**
- (h) **Weekly day of rest** : **SUN**
2. **Address for** : **VILL-- JALIM & SANAI**
correspondance **PO-BISHNPUR**
DIST-GUMLA
3. (a) **Lease Number** : **BHR0248**
- (b) **Lease area** : **12.14**
- (c) **Period of lease** : **30**
- (d) **Date of Expiry** : **15/10/2004**
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 : K.N.BHANDARI
 M/s Hindalco Industries Ltd
 P.O. Renukoot Dist.
 Sonebhadra (UP) SONBHADRA
 UTTAR PRADESH
 Phone:
 FAX :

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

Mining Engineer

Name : SRI AKHILESH SINHA, Full Time
 Qualification : B.E(Min)
 Appointment/ : 17/05/2010
 Termination date

Geologist

Name : SHRI ABHISHEK KUMAR, Full Time
 Qualification : M.Sc (GEOLOGY)
 Appointment/ : 17/12/2008
 Termination date

Manager

Name : SRI TRIPURARI SINGH
 Qualification : MINES FOREMAN CERTIFICATE
 Appointment/ : 17/05/2010
 Termination date

6. Date of approval of Mining	:	Existing rule 11 MCDR1988	03/03/1993
Plan/Scheme of Mining		Mining Scheme rule 12 MCDR1988	30/03/2000
		Renewal under rule 24 MCR1960	03/12/2004
		Mining Scheme rule 12 MCDR1988	10/04/2012
		FMCP under 23C(1)	26/02/2013
		Mining Scheme rule 12 MCDR1988	19/12/2014

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	There is no proposal of exploration as per approved Scheme of Mining valid for the period 2014-15 to 2017-18.	There was no backlog of previous year exploration programme. Altogether 21 nos. of boreholes were given in the entire lease area of 38.45 Ha out of which 13 boreholes are under the area applied for renewal (12.14 Ha) at a grid interval of 100m.	Original lease area was of 38.45 Ha, out of which, 26.31 Ha area has been applied for surrender, comprising of Forest land of 20.46 Ha and 5.85 Ha of non-mineralised area. The FMCP for 26.31 Ha area has already been approved.
1b	Exploration over lease area for geological axis 1 or 2	No proposal is available in the last approved Scheme of Mining valid for the plan period 2009-10 to 2013-14 and 2014-15 to 2017-18.	The area covered under Proved (G1 level) is 9.25 Hc and the area covered under Probable (G2 level) is 0.875 Hc.	
1c	Exploration Agencies and Expenditure in lakh rupees during the year	No proposal available.	The prospecting operation through core drilling was done by MECL. Total expenditure incurred for drilling operation is not available with this office since it was carried out long back.	
1d	Balance area to be explored to bring Geological axis in 1 or 2	No further proposal for exploration has been given	As there is no balance area remained unexplored hence no further exploration carried out.	

1e	Balance reserve as on 01/04/20	As per approved Scheme of Mining valid for the plan period 2014-15 to 2017-18, the Reserve/Resource position as on 01.10.2013 was, Proved Reserve(111) was 205608 MT and Remaining Resource(211) was 37472 MT thus total Resource was 243080 MT.	After depletion of production to the tune of 53040 MT during November, 2013 to March, 2015 the reserve/resource position as on 01.04.2015 is as given below:- Proved(111): 152568 MT; Resource(211): 37472 MT.
1f	General remarks of inspecting officers on geology, exploration etc	There was no proposal of exploration in the lease area during the period 2009-10 to 2013-14 and 2014-15 to 2017-18.	The Bauxite deposit is associated with high-level Laterite occurring as thin, irregular and discontinuous lenses or tabular bodies within Laterite capping. The colour of Bauxite varies from Reddish brown to Metallic grey colour. Physically it varies from soft(in case of Gibbsite, Al ₂ O ₃ 3H ₂ O) to hard(in case of Bohemite Al ₂ O ₃ H ₂ O). Both the variety of Bauxite ore occur in the lease area. Altogether 21 nos. of BH had been carried out in the lease area on 100m grid interval.

Development :

Sl.No.	Item	Propasals	Actual work	Remarks
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2a	Location of development w.r.t.lease area	During the year 2009-10 to 2013-14, there was proposal to develop quarry no. 3A while during the period 2014-15 to 2017-18 it was proposed to develop Northern portion of quarry no. 2 and Southern portion of quarry no. 3A.	Quarry no. 3A, located on the Northern part of the lease, has not been developed around B.H. no. JSM-2, 3 and 5 as per proposal of 2013-14, made in the approved Scheme of Mining. Subsequently, the proposed reclamation in quarry no. 3 during the year 2013-14 has also not been carried out. The proposed development was in progress in Northern portion of quarry no. 2, located on the Southern part of the lease, during 2014-15 to 2017-18.
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	It was proposed to develop 01 bench in OB comprising of soil & hard morrum/laterite and 02 benches in Bauxite during the plan period 2014-15 to 2017-18.	In quarry no. 3A, four benches were found to be developed, two in Top soil(1.5-2m), one in Morrum(1.5m) and one in Bauxite(1.5m). In quarry no. 2 also four benches were found to be developed, one in Top soil(1.0m), two in Morrum(1.5-2.0m) and one in Bauxite(2-2.5m).
2c	Stripping ratio or ore to OB ratio	The overall stripping ratio during the period 2014-15 to 2017-18 it has been proposed to be 1:1.27.	During the year 2014-15 the Ore to OB/Waste ratio was 1:0.47 and during the year 2015-16(upto January, 2016) the ratio comes to 1:1.22. The production upto January , 2016 was 36779 MT and simultaneous quantity of OB/Waste generation for the same period was 44920 cu.m.
2d	Quantity of topsoil generation in m ³	The proposed top soil generation during the period 2014-15 & 2015-16 is to the tune of around 73196 cu.m & 52307 cu.m respectively.	During the year 2014-15 & 2015-16(upto January, 2016) around 18610 cu.m & 40978 cu.m respectively of top soil have been generated.

2e	Quantity of overburden generation in m3	The proposed OB generation during 2014-15 & 2015-16 was around 78120 cu.m (including 73196 cu.m of soil) & 57339 cu.m (including 52307 cu.m of soil) while total proposed waste generation was about 4924 cu.m.	During the year 2014-15 & 2015-16 (upto Jan, 2016) the OB generation was to the tune of 20400 cu.m & 44920 cu.m respectively.
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	Not applicable.	Quarry no. 3A has not been developed around B.H. no. JSM-2, 3 and 5 as per proposal of 2013-14, made in the approved Scheme of Mining. Subsequently, the proposed reclamation in quarry no. 3 during the year 2013-14 has also not been carried out. The proposed development was in progress in Northern portion of quarry no. 2 during 2014-15 & 2015-16. Since the deposit is of bouldary and pocketey in nature and is not continuous hence there was some problem in the development of the mine.

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	Two pits viz. quarry no. 2 & 3A were proposed for development and production during the year 2014-15 to 2015-16.	The production during 2014-15 to 2015-16 was achieved from quarry no. 2 & 3A of Jalim-Sanai Bauxite Mine.	

- 3b Quantity of ROM mineral production proposed During the period 2014-15 to 2017-18, it has been proposed to produce 172622 MT of Bauxite ore from the mine. The year wise production schedule is given below:-
2014-15: 45307 MT;
2015-16: 46296 MT;
2016-17: 44839 MT;
2017-18: 36180 MT.
- The production achieved during the period 2014-15 & 2015-16 (upto Jan, 2016) is given below:-
2014-15: 43675 MT;
2015-16: 33049 MT(Upto Jan, 2016).
- 3c Recovery of sailable/usable mineral from ROM production The recovery of saleable Bauxite ore was proposed to be 90% of total ROM.
- In actual practice the recovery varied from 80-85% of total ROM production.
- 3d Quantity of mineral reject generation There was no proposal for MINereal reject generation.
- No mineral reject generation has been reported from the mine.
- 3e Grade of mineral rejects generation and threshold value declared. There was no proposal for mineral reject generation hence grade of mineral reject is irrelevant. The threshold value declared is Al2O3- (+) 30% with SiO2 < 5%. Thus the threshold value varies from 30-40% of Al2O3 with < 5% SiO2.
- No mineral reject has been reported to be generated hence grade of mineral reject is irrelevant. The threshold value declared is Al2O3- (+) 30% with SiO2 < 5%. The threshold value varies from 30-40% of Al2O3 and <5% of SiO2.

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| 3f | Quantity of sub grade mineral generation. | There was no proposal for sub-grade mineral generation. | No sub-grade Bauxite production has been reported from the mine, however, whatever sub-grade materials are generated from the mine are blended with high grade material before despatch to the plant maintaining the required grade thus avoiding wastage of mineral and ascertaining mineral conservation aspect. |
| 3g | Grade of sub grade mineral generation | There was no proposal for sub-grade generation hence grade of the same is not applicable. | Not applicable as there is no sub-grade material generation has been reported from the mine during 2009-10 to 2013-14 and during 2014-15 (upto the date of inspection). |
| 3h | Manual / Mechanised method adopted for segregating from ROM | Since the mine was proposed to be worked in A-OTFM category hence manual method of segregating Bauxite ore from ROM was proposed. | The Bauxite ore, after blasting, is segregated manually from ROM. |
| 3i | Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects. | There was no proposal in the last approved Scheme of Mining regarding analysis or beneficiation study for sub-grade mineral and reject. | As there are no sub-grade and mineral reject generation have been reported from the mine hence no such analysis or beneficiation study of sub-grade mineral and reject have been carried out in the mine. |

- 3j Provision of drilling and blasting in mineral benches
- There was proposal for drilling and blasting in the last approved Scheme of Mining valid for the plan period 2009-10 to 2013-14 and 2014-15 to 2017-18.
- As per proposal, holes are done in hard formation by JH drill having diameter of 34-38mm. The holes are generally made upto 1.2m depth. Burden and spacing are maintained at 1m each. Each hole is charged with 500 gms of Ammonium Nitrate. Shot firing is done with Safety Fuse and OD. In general the blasting pattern is adopted with single row of 10 holes in one round. During 2014-15, 1446 kgs of loose Ammonium Nitrate, 2264 nos. of OD, 3960 mts of Safety Fuse & 8342 mts of Detonating Fuse were used.
- 3k Provision of mining machineries in mineral benches
- Since the quantum of OB removal is very less, the mining machinery was not proposed to be deployed on regular basis. As when based on requirement, the machinery was proposed to be provided from Shrengdag Bauxite mine of the lessee.
- During the year 2014-15, one Jack Hammer drill with 34-38mm dia, one JCB excavator with 0.3 cu.m of bucket capacity and one compressor of Atlas Copco were deployed in the mine. Since the mine is located in a very remote area, light heavy to heavy earth moving machinery can not reach the location. In this mine Shabbal is also used for drilling holes for blasting in place of JH drill as because explosives is a vulnerable item due to heavy insurgent activity in the area.

3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	As per approved Scheme of Mining the bench height and width in Ore and OB were proposed to be 3m X 3m and 6m X 6m respectively.	In actual practice, both the OB and Ore benches have been maintained at 3m X 3m in quarry no. 3. There are 2 nos. of OB benches, one of Top soil having 2m height followed downward by 1m of hard Morrum and 3m of Bauxite bench. So the height and width of benches formed are at par with that proposed in approved Scheme of Mining.
3m	Total area covered under excavation/pits	As per approved Scheme of Mining, total area proposed to be excavated during 2014-15 to 2017-18, is 10.83 Hect.	As on date of inspection 5.58 Hect area has been covered under excavation out of 38.44 Hect of original lease area including 1.37 Hect covered under excavation out of retained area of 12.14 Hect.
3n	Ore to OB ratio for the pit/mine during the year.	The proposed Ore to OB ratio during the year 2014-15 & 2015-16 was 1 : 1.72 and 1 : 1.24 respectively. The Ore to OB ratio during the period 2014-15 to 2017-18 has been proposed to be 1 : 1.27.	During the year 2014-15 the the ore to waste ratio was 1 : 1.22.

- 3o Total area put in use under different heads at the end of year
- As per approved Scheme of Mining valid for the period 2014-15 to 2017-18, the total area put to use after completion of 5 years working i.e at the end of 2017-18, was proposed to be 10.85 Hect. For Quarry (including backfilled area of 4.42 hect + plantation area of 0.32 hect)- 10.83 hect and for road- 0.02 hect.
- Upto 2014-15, the total area put to use was 10.13 Hect. The break up of land under different heads are as given below:-
 Quarry- 10.11 Hect (including Backfilled area- 5.58 Hect & Plantation over reclaimed area- 0.12 Hect);
 Road- 0.02 Hect.
 During the year 2015-16(Upto January, 2016), 1.37 Hect area has been covered under excavation including backfilled area of 0.4 Hect.
- 3p Production of ROM mineral during the last five year period as applicable
- As proposed in the last approved Scheme of Mining valid for the plan period 2014-15 to 2017-18, the production target for Bauxite is as given below:-
 2014-15: 45307 MT;
 2015-16: 46296 MT;
 2016-17: 44839 MT;
 2017-18: 36180 MT.
- The achieved production for the period 2014-15 to 2015-16 is as given below:-
 2014-15: 43675 MT;
 2015-16(upto Jan, 2016): 33779 MT.

3q	General remarks of inspecting officers on method of mining etc.	Not applicable.	The proposed method of mining as per approved document has been adhered with keeping the height of the benches within the proposed limit. The proposed method of mining was A-OTFM category. Other than few machinery deployment, the mining was mainly by manual means because heavy earth moving machinery can not reach the remote area. The actual development and production have been kept well within the proposed limit as per approved Scheme of Mining.
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Solid Waste Management - Dumping:

Sl.No.	Item	Proposals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	There was no proposal in the approved Scheme of Mining, valid for the plan period 2014-15 to 2017-18, for separate dumping of OB and top soil under Rule 32 & 33 of MCDR, 1988.	There are four temporary dumps located within the lease area, three (03) OB/Waste dumps and one (01) Top soil dump. Since there is no mineral reject generation hence stacking of mineral reject is irrelevant.	
4b	Location of topsoil, OB and mineral reject dumps	There was no proposal for top soil and OB dumping in the last approved Scheme of Mining valid for the plan period 2014-15 to 2017-18.	All the three (03) nos. of OB/Waste dumps and one (01) no. of Top soil dump are located near the quarry no. 2 & 3. The dimension of dumps are as given below:- 1. OB/Waste dump no. 1: 23m X 15m X 1m; 2. OB/Waste dump no. 2: 16.5m X 14m X 1.5m; 3. OB/Waste dump no. 3: 52m X 24m X 1m; and 4. Top Soil dump: 25m X 22.5m X 1.5m.	

- 4c Number of dumps within lease area and outside of lease area There was no proposal for dumping in the last approved Scheme of Mining valid for the plan period 2014-15 to 2017-18. All the three (03) nos. of OB/Waste dumps and one (01) Top soil dump are located within the lease area.
- 4d Location of dumps w.r.t. ultimate pit limit (Rule 16) There was no proposal for dumping in the last approved Scheme of Mining valid for the plan period 2014-15 to 2017-18. Location of dumps are presently within the ultimate pit limit. Since simultaneous/concurrent backfilling is under process, no external dump will be visible at the conceptual period of the lease.
- 4e Number of active and alive dumps. There was no proposal for dumping in the last approved Scheme of Mining valid for the plan period 2014-15 to 2017-18. All the four dumps (3 OB/Waste + 01 Top Soil) are active dumps.
- 4f Number of dead dumps. There was no proposal for dumping in the last approved Scheme of Mining valid for the plan period 2014-15 to 2017-18. No dead dump exists within the lease area.
- 4g Number of dumps established. Not applicable as there was no proposal for dumping in the last approved Scheme of Mining valid for the plan period 2014-15 to 2017-18. No dump has been established as all the dumps are active and simultaneous backfilling is also under process with concurrent spreading of top soil over the reclaimed area.

4h	Whether Retaining wall or garland drain all along dumps are there.	Not applicable as there was no proposal for dumping in the last approved Scheme of Mining valid for the plan period 2014-15 to 2017-18.	No retaining wall and garland drain have been constructed along the toe of the dumps.
4i	Length of Retaining wall or garland drain all along dumps	There was no proposal in the last approved Scheme of Mining.	Since no retaining wall and garland drain have been constructed along the toe of the dumps hence length of the same is irrelevant.
4j	Number of settling ponds	There was no proposal in the last approved Scheme of Mining.	Not applicable in this case.
4k	Specific comments of inspecting officer on waste dump management	Not applicable.	Lessee has created 04 nos. of temporary external dumps within the lease area, 03 of OB/Waste material and 01 of Top Soil. All the four dumps are of small dimension and are of low height of maximum 1.5m. Since all the four dumps are active and simultaneous backfilling is under way hence there is no problem in dump management as the height of the dump is also maintained within the manageable limit.

Solid Waste Management - Backfilling:

Sl.No.	Item	Propasals	Actual work	Remarks
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5a	Status of part or full extraction of mineral from mined out area before starting backfilling.	It was proposed in the approved Scheme of Mining that backfilling will start after complete extraction of mineral/ore from the quarry area.	During the year 2014-15 to 2015-16, simultaneous backfilling in quarry no. 2 on the Southern part of the lease has been carried out.
5b	Area under backfilling of mined out area	In the last approved Scheme of Mining valid for the plan period 2014-15 to 2017-18, a total of 1.7 Hect area was proposed to be backfilled is given below in year wise manner:- 2014-15: 0.62 Hc; 2015-16: 0.45 Hc; 2016-17: 0.42 Hc; 2017-18: 0.21 Hc. Total : 1.7 Hect. During the year 2014-15 & 2015-16, a total of 1.07 hect was proposed to be reclaimed.	The total area backfilled upto 01.04.2015 is around 5.58 hect (including Plantation area of- 0.12 hect). The year wise backfilling during the year 2014-15 & 2015-16 is as given below:- 2014-15: 0.6 Hc; 2015-16(upto Jan, 2016): 0.4 Hc.
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	There was proposal of concurrent backfilling and simultaneous spreading of top soil over the backfilled area in the approved Scheme of Mining (2014-15 to 2017-18).	Simultaneous spreading of top soil is under process over backfilled area.

5d	Total area fully reclaimed and rehabilitated	As per item no. 5(b) above.	As per item no. 5(b) above.
5e	General remarks of inspecting officers on backfilling and reclamation etc.	It was proposed in the approved Scheme of Mining that during 2014-15 to 2017-18 a total of 1.7 hect and during 2014-15 & 2015-16 a total of 1.07 hect area shall be reclaimed.	The total area backfilled upto 01.04.2015 is around 5.58 hect (including Plantation area of- 0.12 hect). The year wise backfilling during the year 2014-15 & 2015-16 is as given below:- 2014-15: 0.6 Hc; 2015-16(upto Jan, 2016): 0.4 Hc. Thus upto jan, 2016, 5.98 Hc area has been backfilled & Rehabilitated. The performance regarding backfilling is quite satisfactory inspite of frequent insurgent disturbance in the area.

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).	Not applicable.	Yes, the annual report on PMCP u/r 23E(2) was submitted by the party for the period 2014-15 and for the period 2015-16, it is yet to be submitted.	
6b	Area available for rehabilitation (ha) .	No proposal available. Only reclamation proposal is available for 1.7 hect area during the period 2014-15 to 2017-18. During 2014-15- 0.62 Hc; During 2015-16- 0.45 Hc. Total for the period 2014-15 to 2015-16 is 1.07 Hc.	Total area available for rehabilitation during 2015-16 is 0.62 Hc	

6c	afforestation done (ha).	<p>During the period 2014-15 to 2017-18 a total of 800 no. of plantation was proposed covering an area of 0.3227 hect. The year wise afforestation programme is given below:-</p> <p>2014-15: 200 plants covering 0.0813 Hc;</p> <p>2015-16: 200 plants covering 0.0812 Hc;</p> <p>2016-17: 200 plants covering 0.0801 Hc;</p> <p>2017-18: 200 plants covering 0.0801 Hc.</p>	<p>During 2014-15, 500 nos. of trees were planted covering an area of 0.31 Hc and during 2015-16 (upto Jan, 2016), 200 nos. of trees were planted covering 0.12 Hc. Cumulative as on 31.01.2016, total about 4200 nos. of trees have been planted covering 2.62 Hc area.</p>
6d	No. of saplings planted during the year	<p>During 2014-15 and 2017-18, 200 nos. of plantation within the lease area were proposed in each year as per approved Scheme of Mining valid for the plan period.</p>	<p>During the year 2014-15, about 500 nos. of plantation were done within lease area with 60% survival rate and during the year 2015-16, about 200 nos. of plantation were done over an area of 0.12 Hc within lease area with 60% survival rate. Cumulative plantation done so far is about 4200 within ML area and 1500 outside ML area covering an area of 2.62 Hc and 0.94 Hc respectively.</p>

6e	Cumulative no .of plants	As per proposal made in the approved Scheme of Mining, the proposed no. of plantation during the year 2014-15 to 2017-18 were 800 covering an area of 0.3227 Hc.	During the year 2014-15 about 500 nos. of saplings were planted covering an area of 0.31 Hc within ML area and about 300 nos. of saplings were planted covering an area of 0.19 Hc outside ML area. During the year 2015-16 about 200 nos. of saplings were planted covering an area of 0.12 Hc within ML area. Cumulative plantation done so far is about 4200 within ML area and 1500 outside ML area covering an area of 2.62 Hc and 0.94 Hc respectively.
6f	Any other method of rehabilitation	Other than plantation no further proposal available.	Only plantation has been reported as there was no other method proposed.
6g	Cost incurred on watch and care during the year	No proposal available.	No information has been reported by the lessee.
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	No proposal available.	Reclamation figure is available in terms of area only and not in dimension which has already been furnished in previous paras.

- 6i Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings
- It was proposed in the Scheme of Minming that backfilling will be done by waste material followed by spreading of top soil. In the proposal, no quantum of material to be utilized for backfilling was proposed only area to be covered under reclamation was proposed.
- During 2014-15, about 32640 MT of OB/Waste material was utilized for backfilling purpose with cumulative figure of 526403 MT of OB/Waste material utilized for backfilling.
- 6j Compliance on reclamation and rehabilitation by backfilling (iii) Afforestation on on backfilled area
- In the approved Scheme of Mining valid for the plan period 2014-15 to 2017-18, there was proposal for 800 nos. of plantation over reclaimed area of 0.3227 hect. Further, during the year 2015-16 there was proposal for 200 nos. of plantation over 0.0812 hect of reclaimed area.
- As per available record, 200 nos. of plantation have been done within ML area during the period 2015-16 over an area of 0.12 Hect. The cumulative figure of plantation upto 01.04.2015 is 4000 within ML area & 1500 outside ML area over an area of 2.5 Hect & 0.94 Hect respectively.
- 6k Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir
- In the last approved Scheme of Mining there was no proposal of making water reservoir as simultaneous backfilling was proposed.
- No water reservoir has been created, as there was no such proposal.

6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	There was no other proposal of rehabilitation by any other means except plantation.	Other than plantation no other means of rehabilitation has been carried out.
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	There is no waste land within the lease area hence there was no proposal of afforestation of waste land.	Not applicable as there is no waste land within the lease area.
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	No proposal available.	Not applicable.
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	No proposal available.	Not applicable as there was no such proposal in absence of Waste land within ML area.
6p	Compliance of environmental monitoring (core zone and buffer zone)	Regular monitoring of water, air, soil and noise within the lease area and core zone was proposed in the approved Scheme of Mining.	Regular monitoring of air, water, soi and noise is being carried out by the lessee through SGS India Pvt. Ltd and report of the same are being submitted to this office regularly on quarterly basis.
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	Not applicable.	Efforts are being made by M/s HINDALCO industries Ltd. to adhere with the proposal made in the approved Scheme of Mining in context to excavation schedule, production target, reclamation proposal, backfilling proposal, environmental monitoring proposal etc.

Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
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- 7a ROM Mineral dispatch or grade-wise sorting within lease area
- No proposal of mineral dispatch is available.
- Bauxite of this mine is predominantly Bohemitic i.e Trihydrate ($Al_2O_3 \cdot 3H_2O$), Gibbsitic variety i.e Monohydrate ($Al_2O_3 \cdot H_2O$) also occur. About 70-75% ore is Bohemitic and rest 30-25% is Gibbsitic. During the year 2014-15, a total of 41685.44 MT and during the year 2015-16 (upto Jan, 2016) 47573.46 MT of Bauxite was despatched from the mine to its captive plant at Renukoot or Muri. Manual grade wise sorting is done at the mine site before dispatch.
- 7b Method of grade-wise mineral sorting i.e. manual or mechanical.
- Manual sorting and blending to ensure the metal grade requirement of the plant was proposed in the approved Scheme of Mining.
- Manual grade wise sorting , manual screening (for fraction above 1" size) followed by blending with suitable grade is being practiced at the mine site. Thus all possible efforts like hand sorting, hand screening, bulk sampling followed by time to time chemical analysis are systematically followed to ensure that ore is not being mixed with the waste material.
- 7c Different grade of mineral sorted out at mines.
- No specific proposal was there in the approved Scheme of Mining.
- Generally two types of stacks are made within the mine site. One is of 40-42% Al_2O_3 and above grade material and the other of below 40% Al_2O_3 grade material. The low grade ore is blended with high grade material in appropriate calibrated proportion before dispatch to its captive plant.

7d	Any beneficiation process at mines .	No proposal of Mineral beneficiation was made in the approved Scheme of Mining.	No mineral beneficiation is done, only manual sorting, screening and sizing is done at mine site. ROM produced is supplied to its captive plant at Renukoot and Muri having size fraction of (+) 10 mm to (-) 200mm.
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	Not applicable.	The mineral conservation aspect is skillfully achieved by the party (M/s HINDALCO) as sufficient nos. of workers (20 during 2014-15 and 2015-16 each) were available for sorting, sizing, screening etc. Further, there is no beneficiation issue as no beneficiation is carried out at the mine site.

Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	In the approved Scheme of mining valid for the plan period 2014-15 to 2017-18 the Top soil and Morrum removal proposal was as under:- 2014-15: 73196 Cu.m; 2015-16: 52307 Cu.m; 2016-17: 48765 Cu.m; 2017-18: 26582 Cu.m.	The top soil removed from quarry no. 2 & 3 (Amount of quantity not reported) was stored separately and utilized over backfilled area on the Southern side of quarry no. 2.	

8b	Concurrent use or storage of topsoil	There was proposal for concurrent use of top soil over backfilled area in the approved Scheme of Mining.	In general practice, the top soil removed from quarry no. 3 was temporarily stored separately for spreading over backfilled area on southern side of quarry no. 2.
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	There was no proposal in the approved Scheme of Mining, valid for the plan period 2014-15 to 2017-18, for separate dumping of OB and top soil under Rule 32 & 33 of MCDR, 1988 as concurrent reclamation has been proposed.	There are four temporary dumps located within the lease area, three (03) OB/Waste dumps and one (01) Top soil dump located near the quarry no. 2 & 3. Since there is no mineral reject generation hence stacking of mineral reject is irrelevant.
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Simultaneous backfilling of mined out areas by waste material was proposed in the approved Scheme of Mining.	Simultaneous backfilling of mined out areas by waste material are being practiced in the mine. During the year 2014-15 about 32640 MT (20400 Cu.m) and during 2015-16 (upto January, 2016) about 71872 MT (44920 Cu.m) of quarry waste generated were used for backfilling purpose.

8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	In the last approved Scheme of mining valid for the plan period 2014-15 to 2017-18 the year wise area to be reclaimed/back filled is as under:- 2014-15: 0.62 Hc; 2015-16: 0.45 Hc; 2016-17: 0.42 Hc; 2017-18: 0.21 Hc; thus totalling 1.7 hect.	As per available record, about 5.58 hect area (Reclaimed- 2.24 hect & Rehabilitated- 0.14 hect) was reclaimed/rehabilitated as on 01.04.2015 and about 0.4 hect area (including 0.12 hect of Rehabilitation) was reclaimed/rehabilitated during 2015-16. The performance regarding backfilling is quite satisfactory inspite of frequent insurgent disturbance in the area.
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	No existing plantation has been reported in the approved Scheme of Mining,. It was proposed that 800 nos. of plantation shall be made during 2014-15 to 2017-18 with 200 nos. of plantation in each year.	Within 500m of lease area Forest exists. As per available record, a total of 4000 nos. of plantation within ML area and 1500 nos. of plantation outside ML area were done upto 01.04.2015 covering a cumulative area of 2.5 hect and 0.94 hect respectively. During the year 2015-16 (upto Jan, 2016), 200 nos. of plantation has been done during the period over an area of 0.12 hect within ML area.
8g	Survival rate	In the approved Scheme of Mining no such survival rate was proposed. However, during previous year i.e 2014-15 the survival rate was proposed to be around 80%.	In actual practice, about 60% survival rate has been reported by the party during 2014-15 and 2015-16 through submitted Annual Return of respective year.

8h	Water sprinkling on roads to control airborne dust	No specific proposal was made in the approved Scheme of Mining valid for the plan period 2014-15 to 2017-18.	Water sprinkling is made over haul road and mine road from time to time to suppress the air borne dust during transportation. As the mining operation is not in major scale, the dust emission during other mining operation is negligible.
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	Not applicable.	The aesthetic beauty in and around the mine area has not been disturbed much due to mining operation as simultaneous backfilling along with plantation is carried out in the lease area to maintain the same. The lease area is marked with scanty vegetation, few nos. of Sal trees and isolated patches of bushes of Lantana are seen within the lease area. Within 500m of lease area forest exists having thick vegetation of Sal trees with tree density of 0.2 to 0.3.

Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
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9a	Status of submission of Monthly and Annual returns	The information furnished in Annual Return for the year 2014-15 covers Part-I of General information about mine and Labour employment, Part-II about Employment & wages, Part-II A about Capital Structure, Part-III consists of Consumption of materials, Part-IV about consumption of explosives, Part-V consists of General Geology & Mining under various sections, Part-VI about production, despatch & stock and finally Part-VII consists of cost of production.	Party has submitted the Monthly returns regularly within stipulated time in every month filling all the items of Part-I & II of the Return during the year 2014-15. Party has also submitted the Annual Return for the year 2014-15 within stipulated time.	The scrutiny of Annual Return was intimated to the party through Violation letter issued vide this office letter no. BIH/GLA/BX/204/RRO , Dated 18/02/2016 covering discrepancies observed in Part-V, Section 5/6/8/9 regarding machinery used. The same is yet to be complied with.
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	The name of Mining Engineer, Geologist and Manager submitted in the Annual Return are as follow:- Mining Engineer: Sri Akhilesh KUMar Singh; Geologist: Sri Abhishek Kumar & Manager: Sri S. S. Vashistha.	Since this is a A-OTFM mine, full time Mining Engineer & Geologist have been appointed under Rule-42(1)(c)(i) with due intimation of the same in Form-I under Rule-46 of MCDR, 1988.	

- 9c Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc. The land use pattern given in the Annual Return for the Year 2014-15 was as under:- Area already exploited: 16.51 Hect (As per original lease area of 38.45 Hect); Area Reclaimed/Rehabilitated: 4.98 Hect (As per original lease area of 38.45 Hect); Area occupied by infrastructure (Road etc): 0.5 Hect (As per original lease area of 38.45 Hect); As per existing retained area of 12.14 Hect the land use pattern as on date of inspection procured from the Mines Manager was as given below:- Area excavated: 11.48 Hect; Reclaimed/Rehabilitated: 5.98 Hect; Area occupied by infrastructure(Road etc): 0.02 Hect.
- 9d Scrutiny of Annual return on afforestation In Part-V, item no. 4.4 of the Annual Return(2014-15), it was given that 500 nos. of plantation was made within the ML and 300 nos. of plantation was made outside ML area during the year with 60% survival rate. Plantation was made as per approved proposal made in the Scheme of Mining.
- 9e Scrutiny of Annual return on mineral reject generation (Grade and quantity) In Part-V, Sec 4 of the Annual Return(2014-15), information on Mineral Reject generation was Nil as no mineral reject generation has been reported from the mine. No mineral reject generation has been reported from the mine.

9f	Scrutiny of Annual return on ROM stock and/or graded ore	In Part-VI, item no. 1 & 2(A) of the Annual Return 2014-15, the ROM stock (Opening balance) was shown as 15.680 MT and production of 40.42% Al ₂ O ₃ (Av.grade) was shown as 43675 MT.	The figure given for opening stock and production was in conformable with the figure furnished through Monthly returns.
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	In the revised Annual Return(2014-15), the Ex-Mine price was shown as Rs. 294.10/- in PartVI, item no. 2(A).	The figure furnished does not seem to be correct in comparison to Cost of Production furnished as Rs. 445.07/- per MT, in Part-VII. Since this is a captive mine hence no scrutiny comment was given in this context.
9h	Scrutiny of Annual return on fixed assets	The value of fixed assets was given as Rs. 131338832/- in Part-II A under Capital Structure.	The information given in support of the value of fixed asstes appears to be correct.
9k	Scrutiny of Annual return on mining machineries	In Part-V, Sec 5/6/8/9, the mining machinery used in the mine was given as one Air Compressor having 400 Cum/mn.	The machineries used in the mine are brought from other mine of the lessee as and when required. Since the area is very sensitive hence the machineries are not permanently kept at the mine site.

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
Rule 27(4)	18/02/2016	11/04/2016			
Rule 29	18/02/2016	11/04/2016			
Rule 45(7)	18/02/2016	11/04/2016			

Date :

(N.K.CHATERJI)

Indian Bureau of Mines