

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

Review and updation of Mining Plan REPORT

Ranchi regional office

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

Mine code : 07BHR32009

- (i) Name of the Inspecting : **S001**) **B K SINGH**
Officer and ID No.
- (ii) Designation : Assistant Mining Geologis
- (iii) Accompanying mine : Sri A K SINHA ME,Hindalcao
Official with
Designation
- (iv) Date of Inspection : 13/10/2017
- (v) Prev.inspection date :

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
1b	Exploration over lease area for geological axis 1 or 2	No proposal of exploration was available in the last approved Scheme of Mining dated 19.12.2014 valid for the plan period 2014-15 to 2017-18.	The area covered under Proved (G1 level) is 10.5 Hc and the area covered under Probable (G2 level) is 0.875 Hc. Altogether previously, 21 nos. of boreholes were given in the entire lease area of 38.45 Ha out of which 09 boreholes were under the area applied for renewal (12.14 Ha) at a grid interval of 50m. Mx. depth of hole was 20m.	During 2016-17, further 01 no. of BH was given upto the depth of 18m and during 2017-18, 09 nos. of BHs have been given with total metrage of 149m having Min. depth of 15m, Max. depth of 18m and av. depth of 16.7m.
1c	Exploration Agencies and Expenditure in lakh rupees during the year	No proposal was available.	The exploration was carried out through core drilling and it was done previously by MECL (21 BHs) and later by GEOCON and HINDALCO (10 BHS). Total expenditure incurred for drilling of 10 nos. of BHs were Rs. 263025/- @ Rs. 1575/- per meter of drilling.	
1d	Balance area to be explored to bring Geological axis in 1 or 2	No further proposal for exploration has been given	Entire area was explored.	
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 as given below:- i. Proved Reserve(111): 205608 MT; and ii. Remaining Resource(211) : 37472 M	After depletion of production to the tune of 143253 MT during November, 2013 to March, 2017 the reserve/resource position as on 01.04.2017 was as given below:- i. Proved(111): 62355 MT (Al2O3-42% & SiO2- 5%); and ii. Remaining Resource(211): 37472 MT (Al2O3-42% & SiO2- 5%).	

1f	General remarks of inspecting officers on geology, exploration etc	There was no proposal of exploration as per approved Scheme of Mining dated 19.12.2014, valid for the plan period 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.	The inspection was for approval of Mining Plan. During 2017-18, nine (09) nos. of BHs have been given with total metrage of 149m having Min. depth of 15m, Max. depth of 18m and av. depth of 16.7m.
----	--	---	---	--

Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	During the year 2014-15 to 2017-18 it was proposed to develop Northern portion of quarry no. 2 and Southern portion of quarry no. 3A.	During 2016-17 and during current year, the development in Quarry no. 2 has not been carried out as per proposal made in the approved Scheme of Mining dated 19.12.2014. The backfilling in quarry no. 3 and 2 have not been carried out as per proposal of 2016-17. The same has been pointed out to the party in the form of violation letter.	
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, one in Top soil(1.5-2m), two in Morrum(1-1.5m) 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	As per approved Scheme of Mining dated 19.12.2014, valid for the plan period 2014-15 to 2017-18, the overall stripping ratio during the period was proposed to be 1:1.27. During 2016-17, the stripping ratio was proposed to be 1:1.19.	During the year 2016-17 the stripping ratio was 1:0.82. The production during 2016-17 was 44624 MT and simultaneous quantity of OB/Waste generation for the same period was 58400 MT (~36500 cu.m).
2d	Quantity of topsoil generation in m3	As per approved Scheme of mining dated 19.12.2014, the year wise proposed top soil generation during the period 2014-15 to 2017-18 is as given below:- i. 2014-15: 73196 cu.m; ii. 2015-16: 52307 cu.m; iii. 2016-17: 48765 cu.m; and iv. 2017-18: 26582 cu.m.	The year wise top soil generation was as given below:- i. 2014-15: 18610 cu.m; ii. 2015-16: 40978 cu.m; iii. 2016-17: 31797 cu.m.

- 2e Quantity of overburden generation in m³ As per approved Scheme of mining dated 19.12.2014, valid for the plan period 2014-15 to 2017-18, the year wise proposed OB generation was as given below:-
 i. 2014-15: 78120 cu.m;
 ii. 2015-16: 57339 cu.m;
 iii. 2016-17: 53638 cu.m;
 and
 iv. 2017-18: 30514 cu.m.
 The total OB generation during the plan period was 219611 cu.m which includes 200850 cu.m of Top soil.
- The year wise OB generation for last five years was as given below:-
 i. 2012-13: 34438 MT (21524 cu.m);
 ii. 2013-14: 48198 MT (30124 cu.m);
 iii. 2014-15: 32640 MT (20400 cu.m);
 iv. 2015-16: 72235 MT (45147 cu.m); and
 v. 2016-17: 58400 MT (36500 cu.m).
- 2f General remarks of inspecting officers on development of pit w.r.t. type of deposit etc As per proposal made in the approved Scheme of Mining dated 19.12.2014, during the year 2014-15 to 2017-18 it was proposed to develop Northern portion of quarry no. 2 and Southern portion of quarry no. 3A. Further, there was also proposal for backfilling of quarry no. 3 (Northern part) & 2 (Southern part).
- During 2016-17 and during current year, the development in Quarry no. 2 has not been carried out as per proposal made in the approved Scheme of Mining dated 19.12.2014. The backfilling in quarry no. 3 and 2 have not been carried out as per proposal of 2016-17. The same has been pointed out to the party in the form of violation letter, issued vide letter no. BIH/GLA/BX/204/RRO, dated 17.11.2017.
-

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	As per approved Scheme of Mining dated 19.12.2014, valid for the plan period 2014-15 to 2017-18, two pits viz. quarry no. 2 & 3 were proposed for development and production during the year 2014-15 to 2017-18.	Presently two (02) quarraries within the lease area were in operation viz. viz. Quarry no. 2 & 3. The production during 2016-17 was achieved from quarry no. 2 & partly from quarry no. 3 of Jalim-Sanai Bauxite Mine. The Quarry no. 2 has been divided in two parts. The dimension of quarries are as given below:- i. Q2 (Eastern Part): 100m X 70m X 6m; ii. Q2 (Western Part): 120m X 80-85m X 5-5.5m; iii. Q3: 180m X 25m X 3.5m.	
3b	Quantity of ROM mineral production proposed	As per approved Scheme of Mining dated 19.12.2014, 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:- i. 2014-15: 45307 MT; ii. 2015-16: 46296 MT; iii. 2016-17: 44839 MT; iv. 2017-18: 36180 MT.	The production achieved during last five years is given below:- i. 2012-13: 49505 MT; ii. 2013-14: 49445 MT; iii. 2014-15: 43675 MT; iv. 2015-16: 45589 MT; and v. 2016-17: 44624 MT.	

3c	Recovery of sailable/usable mineral from ROM production	As per approved Scheme of Mining dated 19.12.2014, valid for the plan period 2014-15 to 2017-18, the recovery of saleable Bauxite ore was proposed to be 90% of total ROM.	During 2016-17, the recovery of usable mineral from ROM production was around 43%.
3d	Quantity of mineral reject generation	There was no proposal for MINereal reject generation as per approved Scheme of Mining.	No mineral reject generation was 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 Al ₂ O ₃ - (+) 30% with SiO ₂ < 5%.	No mineral reject was reported to be generated hence grade of mineral reject is irrelevant. The threshold value declared is Al ₂ O ₃ - (+) 30% with SiO ₂ < 5%. The threshold value varies from 30-40% of Al ₂ O ₃ and <5% of SiO ₂ as cut-off grade of the mine was 40% Al ₂ O ₃ .
3f	Quantity of sub grade mineral generation.	As per approved Scheme of Mining dated 19.12.2014, there was no proposal for sub-grade mineral generation.	No sub-grade Bauxite production was reported from the mine, however, whatever sub-grade materials are generated from the mine were 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 no sub-grade material generation was reported from the mine during 2014-15 to 2016-17.

- 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 dated 19.12.2014, valid for the plan period 2014-15 to 2017-18, regarding analysis or beneficiation study for sub-grade mineral and reject. As no sub-grade and mineral reject generation has been reported from the mine hence no such analysis or beneficiation study of sub-grade mineral and reject has 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 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 2016-17, 848 kgs of loose Ammonium Nitrate, 575 nos. of OD, 1230 mts of Safety Fuse & 4081 mts of Detonating Fuse were used.

3k	Provision of mining machineries in mineral benches	As per approved Scheme of mining dated 19.12.2014, the machinery was proposed to be provided from Shrengdag Bauxite mine of the lessee for removal of OB and Ore, as and when based on requirement, .	During the year 2016-17, one JCB excavator with 0.3 cu.m of bucket capacity was 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, the "Shabbal" is 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.
31	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 2m X 3m in quarry no. 2 and 3. In quarry no. 3, there were 2 nos. of OB benches, 1 no. of Top soil bench having 1m height followed downward by 1m of hard Morrum and 1.5m of Bauxite bench. In quarry no. 2(Eastern part), there were 3 nos. of OB benches, 1 of Top soil having 1m height followed by 2 nos. of Morrum bench of 1.5m & 1m respectively followed further downward by 1 Bauxite bench of 1.5m height.
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 about 19.32 Hect area has been covered under excavation out of 38.44 Hect of original lease area including 8.43 Hect covered under excavation out of retained area of 12.14 Hect. During 2016-17, about 1.04 Ha area was covered under excavation.

3n Ore to OB ratio for the pit/mine during the year. As per approved Scheme of Mining dated 19.12.2014, valid for the plan period 2014-15 to 2017-18, the overall Ore to OB ratio during the period was proposed to be 1:1.27. During 2016-17, the Ore to OB ratio was proposed to be 1:1.19. During the year 2016-17 the Ore to OB/Waste ratio was 1:0.82. The production during 2016-17 was 44624 MT and simultaneous quantity of OB/Waste generation for the same period was 58400 MT (~36500 cu.m).

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 out of total retained area. The proposed land use pattern was as follows:- i. Quarry (including backfilled area of 4.42 hect + plantation area of 0.32 hect)- 10.83 hect; ii. Road- 0.02 hect; iii. Total land to be used: 10.895 Hect; iv. Total unused land: 1.29 Hect out of total retained area of 12.14 Hect.	Upto 2016-17 the total area put to use out of 12.14 Ha of retained area was as under:- i. Quarry- 8.43 Ha (Including 1.45 Ha of backfilled area & 0.14 Ha of Plantation over backfilled area); ii. Road- 0.02 Ha; iii. O.B Dump: Nil; iv. Green belt: Nil; v. Total area put to use: 8.45 Ha; and vi. Total unused area: 3.69 Ha out of total retained area of 12.14 Ha.	Upto 2016-17, the total area put to use out of total lease area of 38.44 Ha was as given below:- i. Quarry- 19.32 Hect (including Backfilled area- 5.95 Hect & Plantation over reclaimed area- 0.12 Hect); ii. Infrastructure & Road- 0.5 Hect. iii. Total area put to use: 19.82 Ha; and iv. Total unused area: 18.62 Ha out of total lease area of 38.44 Ha. During the year 2016-17, about 1.04 Hect area has been covered under excavation including about 0.45 Hect of backfilled area.
----	--	---	--	--

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 was as given below:- i. 2014-15: 45307 MT; ii. 2015-16: 46296 MT; iii. 2016-17: 44839 MT; iv. 2017-18: 36180 MT.	The production achieved during last five years is given below:- i. 2012-13: 49505 MT; ii. 2013-14: 49445 MT; iii. 2014-15: 43675 MT; iv. 2015-16: 45589 MT; and v. 2016-17: 44624 MT.
3q	General remarks of inspecting officers on method of mining etc.	As per approved Scheme of Mining dated 19.12.2014 valid for the plan period 2014-15 to 2017-18, there was proposal to work under 'A'-OTFM category with bench height and width in Ore and OB were proposed to be 3m X 3m and 6m X 6m respectively.	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.

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 36 & 37 of MCDR, 2017.	There was no dump located within the lease area. Since all the OB/Waste material was being utilized for backfilling of excavated area. Further, there was no minereal reject generation reported from the mine hence stacking of mineral reject was 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.	There was no Top soil, OB and Mineral Reject dump located within the lease area since all the OB/Waste material are being utilized for backfilling of excavated area.
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.	There was no dump either within or outside 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.	Not applicable since no dump exists within the lease area. Also, there was no dump outside the lease area.
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.	Not applicable since no dump exists within the lease area.

4f	Number of dead dumps.	There was no such proposal in the last approved Scheme of Mining dated 19.12.2014, 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 dated 19.12.2014, valid for the plan period 2014-15 to 2017-18.	No dump has been established since no dump exists in the lease 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 so no retaining wall.	Not applicable.
4i	Length of Retaining wall or garland drain all along dumps	No such proposal	Not applicable.
4j	Number of settling ponds	There was no such proposal in the last approved Scheme of Mining.	No such settling pond has been constructed.

4k	Specific comments of inspecting officer on waste dump management	Since simultaneous backfilling was proposed hence no such proposal was there on waste dump management in the approved Scheme of Mining dated 19.12.2014 valid for the plan period 2014-15 to 2017-18.	Since no dump existed within the lease area hence comment on the same is not applicable.
----	--	---	--

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.	It was proposed in the approved Scheme of Mining that simultaneous backfilling will commence after complete extraction of Bauxite horizon from the earmarked area proposed for development and production.	During the year 2016-17, simultaneous backfilling in quarry no. 2 on the Southern part of the lease was carried out.	

5b	Area under backfilling of mined out area	<p>In the approved Scheme of Mining dated 19.12.2014, valid for the plan period 2014-15 to 2017-18, a total of 1.7 Hect area was proposed to be backfilled during the plan period is given below in year wise manner:-</p> <ul style="list-style-type: none"> i. 2014-15: 0.62 Hc; ii. 2015-16: 0.45 Hc; iii. 2016-17: 0.42 Hc; iv. 2017-18: 0.21 Hc. <p>Total : 1.7 Hect. During the year 2014-15 to 2016-17, a total of 1.49 hect was proposed to be backfilled.</p>	<p>The total area backfilled upto 01.04.2017 is around 1.45 hect (including Plantation area of- 0.12 hect) over total retained lease area of 12.14 Hect. The year wise backfilling during the year 2014-15 to 2016-17 is as given below:-</p> <ul style="list-style-type: none"> i. 2014-15: 0.6 Hc; ii. 2015-16: 0.4 Hc; and iii. 2016-17: 0.45 Hc. 	<p>The total area backfilled upto 01.04.2017 is around 5.95 hect (including Plantation area of- 0.12 hect) over total original lease area of 38.44 Hect.</p>
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	<p>There was proposal of concurrent backfilling and simultaneous spreading of top soil over the backfilled area in the approved Scheme of Mining dated 19.12.2014, valid for the plan period 2014-15 to 2017-18.</p>	<p>Simultaneous spreading of top soil was under process over backfilled area.</p>	

5d	Total area fully reclaimed and rehabilitated	In the approved Scheme of Mining dated 19.12.2014, valid for the plan period 2014-15 to 2017-18, a total of 1.7 Hect area was proposed to be backfilled during the plan period is given below in year wise manner:- i. 2014-15: 0.62 Hc; ii. 2015-16: 0.45 Hc; iii. 2016-17: 0.42 Hc; iv. 2017-18: 0.21 Hc. Total : 1.7 Hect. During the year 2014-15 to 2016-17, a total of 1.49 hect was proposed to be backfilled.	The total area backfilled upto 01.04.2017 is around 1.45 hect (including Plantation area of- 0.12 hect) over total retained lease area of 12.14 Hect. The year wise backfilling during the year 2014-15 to 2016-17 is as given below:- i. 2014-15: 0.6 Hc; ii. 2015-16: 0.4 Hc; and iii. 2016-17: 0.45 Hc.
----	--	--	---

5e	General remarks of inspecting officers on backfilling and reclamation etc.	It was proposed in the approved Scheme of Mining dated 19.12.2014 that during 2014-15 to 2017-18 a total of 1.7 hect and during 2014-15 to 2016-17 a total of 1.49 hect area shall be backfilled and reclaimed. Further, upto the plan period, i.e upto 2017-18, about 4.42 Ha area was to be backfilled within the retained area of 12.14 Ha.	The total area backfilled upto 01.04.2017 is around 5.95 hect (including Plantation area of- 0.14 hect) out of total lease area of 38.45 Ha and the total area backfilled upto 01.04.2017 is around 1.45 hect (including Plantation area of- 0.12 hect) over total retained lease area of 12.14 Hect.The year wise backfilling during the year 2014-15 to 2016-17 is as given below:- i. 2014-15: 0.6 Hc; ii. 2015-16: 0.4 Hc; and iii. 2016-17: 0.45 Hc.	Since backfilling was far beyond the proposal, the same was pointed out to the lessee in the form of violation letter, issued vide letter no. BIH/GLA/BX/204/RRO , dated 17.11.2017.
----	--	--	--	--

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).	No such proposal was there in the approved Scheme of Mining Plan, dated 19.12.2014, valid for the plan period 2014-15 to 2017-18.	The annual report on PMCP u/r 26(2) of MCDR, 2017 was submitted by the party for the period 2016-17.	

6b	Area available for rehabilitation (ha) .	As per approved Scheme of Mining dated 19.12.2014, valid for the plan period 2014-15 to 2017-18, there was proposal for 0.3227 Ha of plantation over backfilled area of 1.7 Ha during the plan period. During 2016-17, about 0.0801 Ha area was proposed to be rehabilitated through plantation over 0.18 Ha of backfilled area.	Out of total 1.25 Ha of matured area for rehabilitation, about 0.14 Ha area was rehabilitated through plantation.
----	--	--	---

6c	afforestation done (ha).	<p>During the approved plan period of 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>i. 2014-15: 200 plants covering 0.0813 Hc;</p> <p>ii. 2015-16: 200 plants covering 0.0812 Hc;</p> <p>iii. 2016-17: 200 plants covering 0.0801 Hc;</p> <p>iv. 2017-18: 200 plants coveringn 0.0801 Hc.</p>	<p>During 2014-15 to 2016-17, out of 0.2426 Ha of proposed afforestation area, about 80 nos. of plantation were done over 0.14 Hc area during 2016-17, over backfilled area within the retained area of 12.14 Ha. Whereas over original lease area of 38.45 Ha, 2.74 Ha area was covered under plantaion. The backlog of afforestation over backfilled area was pointed out to the lessee in the form of violation, letter issued vide letter no. BIH/GLA/BX/204/RRO, dated 17.11.2017.</p>
6d	No. of saplings planted during the year	<p>During 2016-17, about 200 nos. of plantation within the lease area were proposed as per approved Scheme of Mining dated 19.12.2014, valid for the plan period 2014-15 to 2017-18.</p>	<p>During the year 2016-17, about 80 nos. of plantation were done within lease area. The backlog of plantation was pointed out to the lessee in the form of violation letter, issued vide letter no. BIH/GLA/BX/204/RRO, dated 17.11.2017. The actual figure of year wise plantation done was not available.</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.	The actual no. of plantation done so far is not available. During 2016-17, about 80 nos. of plantation were done within the lease over backfilled area.
6f	Any other method of rehabilitation	Other than plantation no further proposal was 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 in the approved Scheme of Mining dated 19.12.2014.	No information has been reported by the lessee.

6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (L x B x D	In the approved Scheme of Mining dated 19.12.2014, a total of 1.7 Hect area was proposed to be backfilled and 0.3227 Ha area was proposed to be rehabilitated through plantation over backfilled area during the plan period of 2014-15 to 2017-18. Further, upto the plan period of 2017-18, a cumulative of 4.42 Ha area was proposed to be backfilled and 0.3227 Ha area was proposed to be rehabilitated through plantation over backfilled area.	The total area backfilled upto 01.04.2017 is around 1.45 hect (including Plantation area of- 0.14 hect) over total retained lease area of 12.14 Hect. Further, the total area backfilled upto 01.04.2017 is around 5.95 hect (including Plantation area of- 0.14 hect) over total original lease area of 38.45 Hect. During 2016-17, about 0.45 Ha area was backfilled and 0.14 Ha area was rehabilitated through plantation over backfilled area.	The dimension of backfilled area (during 2016-17) was (i) Q2-6: 60m X 37m X 4m and (ii) Q3: 70m X 33m X 2m.
----	---	---	--	---

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. It was proposed that during the plan period of 2014-15 to 2017-18, about 219611 cu.m of OB (including 200850 cu.m of Soil & Morrum) shall be used for backfilling. The proposed year wise material to be used for backfilling is given below:-

i. 2014-15: 78120 cu.m;
ii. 2015-16: 57339 cu.m;
iii. 2016-17: 53638 cu.m; &
iv. 2017-18: 30514 cu.m.

The yera wise OB/Waste material used for backfilling is given below:-

i. 2014-15: 32640 MT;
ii. 2015-16: 72235 MT;
and
iii. 2016-17: 58400 MT
with cumulative figure of 657038 MT.

6j	Compliance on reclamation and rehabilitation by backfilling (iii) Afforestation 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 2016-17 there was proposal for 200 nos. of plantation over 0.0801 hect of backfilled area.	As per available record, about 80 nos. of plantation have been done within ML area during the period 2016-17 over an area of 0.14 Hect. The actual no. of cumulative plantation figure is not available.
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	In the approved Scheme of Mining dated 19.12.2014 valid for the plan period 2014-15 to 2017-18, 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, soil and noise are 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.	It was proposed in the approved Scheme of Mining dated 19.12.2014, that, out of total cumulative excavated area of 10.83 Ha upto the plan period 2017-18, about 4.42 Ha area will be backfilled. Further, 0.32 Ha area was proposed to be covered under Rehabilitation through plantation over backfilled area during the plan period 2014-15 to 2017-18.	Efforts were 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.	As on 01.04.2017, about 8.43 Ha area was covered under excavation against proposal of 10.83 Ha, about 1.45 Ha area was covered under backfilling against proposal of 4.42 Ha and about 0.14 Ha area was covered under rehabilitation through plantation against proposal of 0.32 Ha.

Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
--------	------	-----------	-------------	---------

7a	ROM Mineral dispatch or grade-wise sorting within lease area	No proposal of mineral dispatch was available.	Bauxite of this mine is predominantly Bohemitic i.e Trihydrate (Al ₂ O ₃ .3H ₂ O), Gibbsitic variety i.e Monohydrate (Al ₂ O ₃ .H ₂ O) also occur. About 70-75% ore is Bohemitic and rest 30-25% is Gibbsitic. During the year 2016-17, a total of 44621.94 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.	The year wise dispatch figure for last five years is given below:- i. 2012-13: 49549.8 MT; ii. 2013-14: 49454.82 MT; iii. 2014-15: 41685.44 MT; iv. 2015-16: 47573.46 MT and v. 2016-17: 44621.94 MT.
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 ₂ O ₃ and above grade material and the other of below 40% Al ₂ O ₃ grade material. The low grade ore is blended with high grade material in appropriate caliberated 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	It was proposed in the approved Scheme of Mining dated 19.12.2014, that, low grade Bauxite will be hand sorted and suitably blended to meet the metal grade requirement.	The mineral conservation aspect is skillfully achieved by the party (M/s HINDALCO) as sufficient nos. of workers (20 nos. during 2015-16 and 16 nos. during 2016-17) were available for sorting, sizing, screening etc. Further, there is no beneficiation issue as no beneficiation was 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 DATED 19.12.2014, valid for the plan period 2014-15 to 2017-18, the Top soil and Morrum removal proposal was as under:- i. 2014-15: 73196 Cu.m; ii. 2015-16: 52307 Cu.m; iii. 2016-17: 48765 Cu.m; iv. 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	As per approved Scheme of Mining dated 19.12.2014, there was proposal for concurrent use of top soil over backfilled area.	In general practice, the top soil removed from quarry no. 2 & 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 were no external dumps within the lease area as simultaneous backfilling was in progress. Since there was no minereal 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 were being practiced in the mine. During the year 2015-16 and 2016-17, about 72235 MT (45147 Cu.m) and 58400 MT (36500 cu.m) respectively of OB/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 approved Scheme of mining dated 19.12.2014, valid for the plan period 2014-15 to 2017-18, the year wise area to be reclaimed/back filled is as under:- i. 2014-15: 0.62 Hc; ii. 2015-16: 0.45 Hc; iii. 2016-17: 0.42 Hc; iv. 2017-18: 0.21 Hc; thus totalling 1.7 hect.	The total area backfilled upto 01.04.2017 is around 5.95 hect (including Plantation area of- 0.14 hect) out of total lease area of 38.44 Ha and the total area backfilled upto 01.04.2017 is around 1.45 hect (including Plantation area of- 0.12 hect) over total retained lease area of 12.14 Hect. The year wise backfilling during the year 2014-15 to 2016-17 is as given below:- i. 2014-15: 0.6 Hc; ii. 2015-16: 0.4 Hc; and iii. 2016-17: 0.45 Hc.

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 over an area of 0.3227 Ha with 200 nos. of plantation in each year.	Within 500m of lease area Forest exists. During 2014-15 to 2016-17, out of 0.2426 Ha of proposed afforestation area, about 0.14 Hc area was covered under afforestation over backfilled area within the retained area of 12.14 Ha. Whereas over original lease area of 38.45 Ha, 2.74 Ha area was covered under plantaion. During the year 2016-17, about 80 nos. of plantation were done over an area of 0.14 hect within ML area. The actual figure of year wise plantation done was not available.
8g	Survival rate	In the approved Scheme of Mining no such survival rate was proposed.	In actual practice, about 40% survival rate has been reported by the mine management during 2016-17 through submitted Annual Return of respective year.
8h	Water sprinkling on roads to control airborne dust	In the approved Scheme of Mining no such survival rate was proposed.	In actual practice, about 40% survival rate has been reported by the mine management during 2016-17 through submitted Annual Return of respective year.
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	No specific proposal was made in the approved Scheme of Mining dated 19.12.2014, valid for the plan period 2014-15 to 2017-18.	Water sprinkling was made over haul road from time to time to suppress the air borne dust during transportation. As the mining operation was not in major scale, the dust emission during other mining operation was also negligible

Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
--------	------	-----------	-------------	---------

- 9a Status of submission of Monthly and Annual returns
- The information furnished in Annual Return for the year 2016-17, 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 filling all the items of Part-I & II of the Return during the year 2016-17.
- 9b Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager
- As per Annual Return 2016-17 the name of Mining Engineer and Manager are: Sri Akhilesh Kumar Sinha; Geologist: Sri Abhishek Kumar.
- Mining Engineer and Manager are: Sri Akhilesh Kumar Sinha; Geologist: Sri Abhishek Kumar.

- 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 2016-17 was as under:-
 i. Area already exploited: 13.95 Hect (As per original lease area of 38.45 Hect);
 ii. Area under current working: 5.37 Ha (As per retained lease area of 12.14 Hect);
 iii. Area Reclaimed/Rehabilitated: 5.95 Hect (As per original lease area of 38.45 Hect);
 iv. Area occupied by infrastructure (Road etc): 0.5 Hect (As per original lease area of 38.45 Hect); and
 v. Area covered under PMCP: 0.45 Ha.
- Upto 2016-17 the total area put to use out of 12.14 Ha of retained area was as under:-
 i. Quarry- 8.43 Ha (Including 1.45 Ha of backfilled area & 0.14 Ha of Plantation over backfilled area);
 ii. Road- 0.02 Ha;
 iii. O.B Dump: Nil;
 iv. Green belt: Nil;
 v. Total area put to use: 8.45 Ha; and
 vi. Total unused area: 3.69 Ha out of total retained area of 12.14 Ha.
- 9d Scrutiny of Annual return on afforestation As per Annual Return 32016-17, it was given that 200 nos. of plantation were done within the ML and 100 nos. of plantation were done outside ML area during the year with 40% survival rate.
- As per available record, about 80 nos. of plantation were done within ML area during the period 2016-17 over an area of 0.14 Hect. The backlog of plantation was pointed out to the lessee in the form of violation letter, issued vide letter no. BIH/GLA/BX/204/RRO, dated 17.11.2017..

9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	As per Annual Return(2016-17), information on Mineral Reject generation was Nil .	No mineral reject generation has been reported from the mine.
9f	Scrutiny of Annual return on ROM stock and/or graded ore	As per Annual Return (2016-17), the ROM stock (opening balance) and Closing stock were shown as below:- Opening stock-Metal grade(40-45% Al2O3): 20.78 MT; Closing Stock-Metal grade(40-45% Al2O3): 22.84 MT.	The figures given for opening and closing stocks were in conformable with the figures furnished through Monthly returns.
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	As per Annual Return(2016-17),, the Ex-Mine price was shown as Rs. 462.58/-, Cost of production was shown as Rs. 462.58/-.	Since this is a captive mine hence no comment is given in this context.
9h	Scrutiny of Annual return on fixed assets	The value of fixed assets was given as Nil in Part-II A under Capital Structure.	The information given under the item does not seem to be correct and the same was pointed out to the lessee along with other discrepancies observed in the Annual Return 2016-17, in the form of violation letter, issued vide letter no. BIH/GLA/BX/204/RRO, dated 17.11.2017, for rectification.

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 Shovel.	During the year 2016-17, one JCB excavator with 0.3 cu.m of bucket capacity was 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, the "Shabbal" is 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.	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

Date :

(B K SINGH)

Indian Bureau of Mines