

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

**MCDR INSPECTION REPORT**

**Ranchi regional office**

**Mine file No :** JHK/LTH/BX/251/RRO

**Mine code :** 07JHK19002

- (i) Name of the Inspecting : **S001** ) **B K SINGH**  
Officer and ID No.
- (ii) Designation : Assistant Mining Geologis
- (iii) Accompanying mine : SHRI VICTOR BASU, GEOLOGIST & R R Ambasta ME.  
Official with  
Designation
- (iv) Date of Inspection : 13/01/2017
- (v) Prev.inspection date : 22/08/2016

**PART-I : GENERAL INFORMATION**

1. (a) **Mine Name** : **CHIRO KUKUD BAUXITE MINE**
- (b) **Registration NO.** : **IBM/935/2011**
- (c) **Category** : **A Other than Fully Mech.**
- (d) **Type of Working** : **Opencast**
- (e) **Postal address**
- State : **JHARKHAND**
- District : **LATEHAR**
- Village : **CHIRO AND KUKUD**
- Taluka : **MAHUADANR**
- Post office : **CHIRO AND KUKUD**
- Pin Code :
- FAX No. : **06526- 224118**
- E-mail : **bijesh.jha@adityabirla.com**
- Phone : **06526-224016, 224112**
- (f) **Police Station** : **MAHUADANR**
- (g) **First opening date** : **29/01/1985**
- (h) **Weekly day of rest** : **SUN**
2. **Address for correspondance** : **VILL.-CHIRO & KUKUD**  
**TALUKA - MAHUADANR**  
**DISTT.- LATEHAR (JHK)**
3. (a) **Lease Number** : **BHR0229**
- (b) **Lease area** : **166.68**
- (c) **Period of lease** : **20**
- (d) **Date of Expiry** : **28/01/2005**
4. **Mineral worked** : **BAUXITE** **Main**

## 5. Name and Address of the

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

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  
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 Phone: Mob- 941708929, 06526-224112/224015  
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## Mining Engineer

Name : SRI R.R.P.AMBASTHA,Full Time  
 Qualification : B.E(MIN)  
 Appointment/ : 01/08/2006  
 Termination date

## Geologist

Name : SRI TAPAS GACHHAYAT,Full Time  
 Qualification : M.Sc(GEOLOGY)  
 Appointment/ : 01/04/2012  
 Termination date

## Manager

Name : Rajesh Ambashtha  
 Qualification : AMIE(Mining) with FCC  
 Appointment/ : 01/08/2006  
 Termination date

6. Date of approval of Mining Plan/Scheme of Mining	:	Renewal under rule 24 MCR1960	17/05/2006
		Mining Scheme rule 12 MCDR1988	17/08/2012
		FMCP under 23C(1)	20/11/2014
		MP modif under MCR 1960	20/05/2016

## PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

## Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	No Proposal was there in the Modification in approved mining plan dated 20.05.2016 for the plan period 2015-16 to 2019-20.	No backlog of exploration existed as on date of inspection.	No backlog of exploration existed as on date of inspection.
1b	Exploration over lease area for geological axis 1 or 2	During the plan period 2011-to 2015proposal was there to explore under G1 & G2 by drilling 110 boreholes .	Against the proposal, 159 nos. of BHs (CKH series) were given during 2012-13, initially at a grid interval of 100m X 100m and later by 50m X 50m, with total metrage of 2138.2 m. Previously 38 nos. of BHs (CK series) were given during 2008-09 to 2009-10, at grid interval of 100m X 100m, with total metrage of 326.11m. The CK series of BHs covered an area of 34.42 Ha and the CKH series of BHs covered an area of 46.45 Ha. Thus total 197 BHs were given in the Central part of lease area covering 80.87	Out of 197 BHs given in the area, 89 were +ve (71 nos. of CKH series and 18 nos. of CK series).
1c	Exploration Agencies and Expenditure in lakh rupees during the year	No such proposal was by drilling 110 there in the approved Scheme of Mining dated 17.08.2012, valid for the plan period 2010-11 to 2014-15.	The "GEOCON and EXPLORATION CORPORATION" of Ranchi, Jharkhand, carried out the exploration of 159 BHs in the lease area with total expenditure of Rs. 3528030/-. The rate of drilling was @ Rs. 1650/- per meter. The exploration agency for 38 nos. of BHs was M/s HINDALCO Industries Ltd itself. The figure of expenditure incurred for 38 nos. of BHs not available.	

1d	Balance area to be explored to bring Geological axis in 1 or 2	As per approved Scheme of Mining dated 17.08.2012, valid for the plan period 2010-11 to 2014-15, no such proposal was there. The Eastern part of lease area remained to be explored for G1 and G2 axis.	Out of total lease area of 166.68 Ha, lease renewal was applied for 152.57 Ha excluding 14.11 Ha of Forest area (FMCP submitted and approved on 20.11.2014). Total area covered under exploration was 80.87 Ha, through drilling hence about 71.70 Ha area remained yet to be explored on the Northern, Eastern and Southern part of lease area. The Eastern part of the lease area was very steep and not approachable easily.
1e	Balance reserve as on 01/04/20	As per modification in approved mining Plan approved dated 20/05/2016, the Reserve/ Resource as on 01.04.2015 was as given below:- i. Proved Reserve(111): 1151326 MT; ii. Probable Reserve(122): 1104813 MT;	After depleting the production of 94290MT during 2015-16, the Reserve position as on 01.04.2016 was as given below:- i. Proved Reserve(111): 1057036 MT ii. Probable Reserve(122): 1104813 MT

1f	General remarks of inspecting officers on geology, exploration etc	The Aluminium ore of the lease area was predominantly Gibbsite (Trihydrate). The Ore is overlain by Laterite and underlain by Lithomargic clay. Both the Laterite and Ore body have variable thickness. The laterite of the area has become soft & fragile due to weathering and was mixed with Morrum. The Laterite of the area contained less Iron.	Bauxite deposit of the area is mostly associated with laterite, occurs as irregular and discontinuous lenses or tabular bodies within the laterite capping. The thickness of different litho horizons observed in the quarry face was as given below:- i. OB, consisting of Soil, Morrum and Laterite: 5-6m; ii. Bauxite Ore: 3-5m; The Bauxite in the area was underlain again by a layer of Laterite followed by Lithomarge. Total 197 BHs were given in the area covering 80.87 Ha area for G1 and G2 level of ex
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Development :

Sl.No.	Item	Proposals	Actual work	Remarks
2a	Location of development w.r.t. lease area	During 2016-17 it was proposed to develop quarry noA2.	Mining was carried in quarry noA2.	

2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Separate benches in Overburden (Top soil, Morrurum and Laterite) and Ore were proposed to be developed., it was proposed to develop 01 bench each in Overburden and Bauxite Ore with dimension of 5m X 6m in OB and 6m X 6m in Ore.	Separate benches in Overburden (Top soil , Morrurum and Laterite) and Bauxite were developed in both the Quarries.
2c	Stripping ratio or ore to OB ratio	Proposed stripping ratio during 2015-16 was Not available	During 2015-16 Production of bauxite was 94290 MT and waste generation was 251079 MT :Striping ratio was 1:2.66.
2d	Quantity of topsoil generation in m3	As per approved Document , Proposed top soil generation was 96495 cum during 2015-16.	The Top soil generation figure was not available.
2e	Quantity of overburden generation in m3	As per modification in approved Mining Plan proposed generation of OB during 2015-16 was 119276 cum	The quantity of OB generated during 2015-16 was 251079 MT.
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	NA	During the plan period 2015-16 to 2019-20 it was proposed to develop quarry no-1 (A1-A5)

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### Exploitation:

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Sl.No.	Item	Propasals	Actual work	Remarks
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3a	Number of pit proposed for production	As per modification in approved Mining Plan only quarry no A1 was proposed to develop during 2015-16	During inspection quarry no A1 was under development.
3b	Quantity of ROM mineral production proposed	As per modification in approved Mining Plan Proposed production during the plan period 2015-16 to 2019-20 is given below: 2015-16: 95096 MT 2016-17 : 99118 MT 2017-18 : 99204 MT 2018-19 :99433 MT 2019-20 :99458 MT	The quantity of ROM mineral production during previous years were as given below:- i.2010-11: 19867 MT; ii.2011-12: 13706 MT; iii.2012-13: 64847 MT; iv.2013-14: 52929 MT; v.2014-15: 75631 MT. vi.2015-16 : 94290 MT
3c	Recovery of saleable/usable mineral from ROM production	The proposed recovery of saleable/useable mineral from ROM production was 80% during 2015-16.	During the period 2015-16 recovery of ore was 80%
3d	Quantity of mineral reject generation	No proposal available for mineral rejects generation during the period 2015-16 to 2019-20	No mineral reject generation was reported from the mine.

3e	Grade of mineral rejects generation and threshold value declared.	Since no mineral reject generation was proposed hence its grade is irrelevant. The Threshold value of Bauxite has been kept at 30% Al <sub>2</sub> O <sub>3</sub> (Min) and <5% SiO <sub>2</sub> .	The threshold value of Bauxite was maintained with stringent specification.
3f	Quantity of sub grade mineral generation.	No proposal for sub-grade mineral generation was available in the approved Scheme of Mining	No sub-grade generation was reported from the mine.
3g	Grade of sub grade mineral generation	No proposal available.	Not applicable.
3h	Manual / Mechanised method adopted for segregating from ROM	As per modification in approved Mining Plan, manual method was proposed for segregating from ROM.	Manual sorting, sizing and screening were done at mine site for segregation of useable part from ROM.
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	No analysis or beneficiation study was proposed for sub-grade mineral and reject material since no sub-grade and reject material was proposed to be generated from the mine as per approved Scheme of Mining.	No analysis or beneficiation study was carried out for sub-grade mineral and reject material as no sub-grade mineral and reject material was reported to be generated from the mine.



3j Provision of drilling and blasting in mineral benches

As per modification in approved Mining Plan valid for 2015-16 to 2019-20 there was provision of drilling and blasting in harder formation (Laterite and Bauxite). Drilling was proposed by Wagon Drill of 100mm dia upto the depth of 5.5m with Burden and Spacing at 2.5m X 3m. Drilling was also proposed by JH drill with burden and spacing at 1m X 1.2m. The holes were proposed to be charged with Slurry explosive and short firing was proposed with the help of OD and Safety fuse. About 10-20 holes were

Drilling with Wagon drill (100 mm dia) and JH drill along with blasting were done as per proposal in the mine during the period 2015-16 and 2016-17.

- 3k Provision of mining machineries in mineral benches
- The following machineries were proposed to be used in the mine as per approved Modification in Mining Plan:-
- i. Wagon drill(Crawler mounted): 01 no.(100 mm dia);
- ii. JH Drill: 03 nos. (37mm dia);
- iii. Compressor: 01 no. (350 cfm);
- iv. Excavator: 02 nos. (0.9 cu.m);
- v. Loader: 01 no. (2.6 cu.m);
- vi. Dumper: 04 nos. (4 cu.m);
- vii. Dumper: 04 nos. (6.5 cu.m);
- viii. Water tanker: 01 no. (10,000 Ltr).
- The list of machineries deployed in the mine during inspection (2015-16) were as given below:-
- i. Wagon drill: 01 no. (100 mm dia);
- ii. JH Drill: 01 no. (38mm);
- iii. Air Compressor: 01 no. (400 CUM/MN);
- iv. Shovel: 1 no. (0.9 cu.m);
- v. Loader: 01 no. (0.9 cu.m);
- vi. Dumper (10 MT): 03 nos.;
- vii. Water tanker: 01 no. (10,000 lts).
- 31 Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM
- As per approved Modification in Mining Plan it was proposed to maintain the height of benches in OB at 5m and in Mineral within 6m. Whereas the bench width was proposed to be maintained within 6m both in OB and Ore. The height and width was suitable for proposed 'A'-OTFM method of mining.
- The height of the benches in Top soil was maintained between 1-2m, in OB(Laterite/Morrum), it was maintained at 2m while in Bauxite, the bench height was maintained between 3-4m. The height of benches were in conformable with the 'A'-OTFM method of mining.

- 3m Total area covered under excavation/pits As per approved Modification in Mining Plan it was proposed the stripping ratio during 2015-16 with production 95096 MT and waste generation 119276 m<sup>3</sup> will be 1:2.54MT/m<sup>3</sup> As on 01.04.2016, about 13.21 Ha area was covered under excavation. During 2015-16, about 0.62 Ha area was covered under excavation.
- 3n Ore to OB ratio for the pit/mine during the year. As per the approved modification in mining plan, it was the proposed the stripping ratio during 2015-16 with production 95096 and waste generation 119276m<sup>3</sup> will be 1:2.54MT/m<sup>3</sup> During the year 2015-16 actual production of ROM was 94290MT and waste generation was 251079 MT with Ore: OB ratio 1:2.66/MT
- 3o Total area put in use under different heads at the end of year As per approved Modification in Mining Plan it was proposed During the plan 2015-16 to 2019-20 Area to be mined out 12.57 Ha, Area to be reclaimed - 12.48ha, Area to be rehabilitated by afforestation- 4.669 ha. Existing land use pattern as on 31/07/2015 was Mined out area-11.841 ha, Reclaimed area-9.842 ha, Rehabilitated by afforestation- 3.08Ha, OB dump- 00, Retaining wall and garland drain-0.52ha Total area-13.151 ha

3p	Production of ROM mineral during the last five year period as applicable	proposed production schedule during last five years as given below:- i. 2010-11: 19867 MT (Actual); ii. 2011-12: 90042 MT; iii. 2012-13: 95181 MT; iv. 2013-14: 95277MT; v. 2014-15: 95327 MT. vi.2015-16 : 95056 MT	The quantity of ROM mineral production during previous years were as given below:- i.2010-11: 19867 MT; ii.2011-12: 13706 MT; iii.2012-13: 64847 MT; iv.2013-14: 52929 MT; v.2014-15: 75631 MT. vi.2015-16 :94290 MT	Modification in approved mining plan was approved on 20.05.2016 for the plan period 2015-16 to 2019-20.
3q	General remarks of inspecting officers on method of mining etc.	As per approved Modification in Mining Plan it was proposed ,to work under 'A'-OTFM category of opencast mining with bench dimension of 5-6m X 6 (h X w).	A'- OTFM category of opencast mining method was adopted in the mine. The bench height in OB was maintained at 2m and in Ore it was maintained at 3-4m, which were within proposed limit.	

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Solid Waste Management - Dumping:

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Sl.No.	Item	Propasals	Actual work	Remarks
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- 4a Separate dumping of topsoil, OB and mineral rejects (Rule 32,33) As per approved Modification in Mining Plan it was proposed dated 20.05.2016, there was no proposal for separate dumping for Top soil and OB (Morrum/Laterite) material. There was proposal for simultaneous backfilling in sequential manner. The hard laterite was proposed to be dumped at first in the void followed by Morrum and finally top soil spreading over backfilled area. There was no dump of Top soil, OB (Morrum/Laterite) within the lease area. Also, there was no Mineral Reject dump within the lease area.
- 4b Location of topsoil, OB and mineral reject dumps There was no proposal for Top soil, OB(Morrum/Laterite) and Mineral reject dumping during the plan period 2015-16 to 2019-20. There was no Top soil and OB (Morrum/Laterite) dump within the lease area. Further, no Mineral reject dump existed within the lease area. There was no proposal for Top soil, OB(Morrum/Laterite) and Mineral reject dumping during the plan period 2015-16 to 2019-20.

4c	Number of dumps within lease area and outside of lease area	There was no proposal for Waste dumping within or outside the lease area during the plan period of 2015-16 to 2019-20.	There was no waste dump within or outside lease area as on date of inspection.
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	There was no proposal of dumping in the Modification in approved mining plan was approved on 20.05.2016 for the plan period 2015-16 to 2019-20.	There was no dump hence it was not applicable.
4e	Number of active and alive dumps.	There was no proposal of active dump in the approved Scheme of Mining.	No active dump was present within the lease area.
4f	Number of dead dumps.	There was no proposal of dead dump in the approved Scheme of Mining.	No dead dump was present within the lease area.
4g	Number of dumps established.	There was no proposal of dump within the lease area as per Modification in Approved Mining Plan dated 20.05.2016. hence dump establishment was not relevant.	There was no dump within the lease area hence its establishment was not relevant.
4h	Whether Retaining wall or garland drain all along dumps are there.	Not applicable.	No settling pond was created within the lease.

4i	Length of Retaining wall or garland drain all along dumps	Not applicable.	Not applicable.
4j	Number of settling ponds	No such proposal was there for construction of settling pond.	No settling pond was created within the lease.
4k	Specific comments of inspecting officer on waste dump management	As per Modification in approved mining plan approved on 20.05.2016 for the plan period 2015-16 to 2019-20. there was no proposal for external dump within the lease area.	Since no dump was there within the lease area hence no comment on this aspect can be given.

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Solid Waste Management - Backfilling:

Sl.No.	Item	Propasals	Actual work	Remarks
5a	Status of part or full extraction of mineral from mined out area before starting backfilling.	As per modification in approved mining plan dated 20.05.2016 , there was proposal for full extraction of mineral from mined out area before starting backfilling of the void, i.e simultaneous backfilling along with top soil spreading were backfilled mined out areas.	Simultaneous backfilling and top soil spreading over backfilled mined out areas were in practice in the mine after complete extraction of mineral from the active mining part of the lease.	

5b	Area under backfilling of mined out area	As per modification in approved mining plan dated 20.05.2016 , there was proposal for backfilling of about 12.47ha,. The proposed year wise area to be backfilled is given below:- 2015-16: 2.59 Ha 2016-17 : 1.676Ha 2017-18 : 3.2 Ha 2018-19 :2.01 Ha 2019-20 :3.0 Ha	As on 01.04.2016, about 12.59 area was backfilled /reclaimed out of 13.210 Ha of excavated area.
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	During the plan period 2015-16 to 2019-20.about 474510 Cu.M of Soil was proposed to be used for spreading over backfilled area. There was no proposal for top soil dump within the lease area.	Simultaneous spreading of top soil was done over backfilled area of 12.59 Ha upto 01.04.2016. Quantum of top soil used was not available.
5d	Total area fully reclaimed and rehabilitated	During the plan period 2015-16 to 2019-20.about 12.47 Ha area was proposed to be backfilled and reclaimed and out of which 4.66 Ha was proposed to be rehabilitated through plantation.	As on 01.04.2016 about 12.59 Ha area was backfilled and reclaimed out of which about 3.19 Ha area was Rehabilitated through plantation over backfilled area.



5e	General remarks of inspecting officers on backfilling and reclamation etc.	During the plan period 2015-16 to 2019-20. about 12.47 Ha area was proposed to be backfilled and reclaimed and out of which 4.66 Ha was proposed to be rehabilitated through plantation.	As on 01.04.2016 about 12.59 Ha area was backfilled and reclaimed out of which about 3.19 Ha area was Rehabilitated through plantation over backfilled area..	As on 31.07.2015 Total reclamation was 9.842ha, Rehabilitation was 3.08ha by afforestation on backfilled area. total broken area was 13.151ha..
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Progressive Mine Clousre Plan:

Sl.No.	Item	Propasals	Actual work	Remarks
6a	Whether Annual report on PMCP submitted on time and correctly. Rule 23 E(2).	No such proposal was there in the Modification in approved mining plan approved on 20.05.2016 for the plan period 2015-16 to 2019-20.	Party has submitted annual report on PMCP on time.	
6b	Area available for rehabilitation (ha) .	There was proposal for rehabilitation of 4.66 Ha area through plantation over backfilled area during the plan period 2015-16 to 2019-20.	As on 01.04.2016 Area broken was 13.21ha, area reclaimed 12.59 ha, area rehabilitated 3.19ha by plantation.	
6c	afforestation done (ha).	As per modification in approved mining plan dated 20.05.2016 Proposal was there to plant 1710 plants over an area of 0.852haduring 2015-16	As on 01.04.2016 total area covered under plantation was 3.19ha by planting 8010plants.	

6d	No. of saplings planted during the year	As per modification in approved mining plan dated 20.05.2016 Proposal was there to plant 1710 plants over an area of 0.852ha during 2015-16	As on 01.04.2016 total area covered under plantation was 3.19ha by planting 8010plants.
6e	Cumulative no .of plants	There was no proposal for cumulative plantation. However, during the plan period 2015-16 to 2019-20. about 9685 nos. of plantation were proposed to be done.	As on 01.04.2016 total area covered under plantation was 3.19ha by planting 8010plants..
6f	Any other method of rehabilitation	No other proposal was available.	Only plantation has been reported over the backfilled area and no other method was adopted.
6g	Cost incurred on watch and care during the year	No proposal was available in the approved Scheme of Mining.	No information available.
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling ( L x B x D	There was proposal for rehabilitation of 4.66 Ha area through plantation over backfilled area during the plan period 2015-16 to 2019-20.	As on 01.04.2016 Area broken was 13.21ha, area reclaimed 12.59 ha, area rehabilitated 3.19ha by plantation.

6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	There was proposal for backfilling/re habilitation of 4.66 Ha area through plantation over backfilled area during the plan period 2015-16 to 2019-20.	As on 01.04.2016 Area broken was 13.21ha,area reclaimed 12.59 ha,area rehabilitated 3.19ha by plantation.
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on on backfilled area	There was proposal for rehabilitation of 4.66 Ha area through plantation over backfilled area by planting 9685 saplings during the plan period 2015-16 to 2019-20.	As on 01.04.2016 Area broken was 13.21ha,area reclaimed 12.59 ha,area rehabilitated 3.19ha by planting 8010 saplings.
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	As per approved Scheme of Mining, there was no proposal for making water reservoir in the lease area.	No water reservoir was created within the lease area.
6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	There was no other proposal. Not applicable.	Not applicable.
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	There was no recorded Waste land within the lease area.	Not applicable.
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	There was no recorded Waste land within the lease area	Not applicable.

6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	Not applicable.	Not applicable.
6p	Compliance of environmental monitoring (core zone and buffer zone)	There was proposal for environmental monitoring for 3 seasons within core zone during the plan period 2015-16 to 2019-20. There was no proposal for buffer zone.	During the plan period 2015-16 to 2019-20. environmental monitoring was carried out regularly within the core zone through consultant.
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	NA	As on 31.07.2015 Total reclamation was 9.842ha, Rehabilitation was 3.08ha by afforestation on backfilled area. total broken area was 13.151ha..

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#### Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	As per modification in approved mining plan dated 20.05.2016 . There was no proposal for grade wise sorting within the lease.	There was no grade wise sorting within the lease area only blending of high grade ore with lower grade ore done and material despatched.	The ore of 40-45% Al2O3 was dispatched to its captive plant at Renukoot. The ore of 45-50% Al2O3 was used for sweetening the low grade material.

7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Manual sorting of Bauxite ore from OB/Waste material after blasting was proposed in the approved Scheme of Mining. There was no proposal for grade wise sorting of ore.	Manual sorting of Bauxite ore from OB/Waste material was done at the mine site. Grade-wise sorting of ore was done at the mine site. Two different grade stack of ore was there within the lease area, one of 40-45% Al <sub>2</sub> O <sub>3</sub> grade and the other of 45-50% Al <sub>2</sub> O <sub>3</sub> grade.
7c	Different grade of mineral sorted out at mines.	There was no proposal for grade wise sorting at the mine site.	Grade wise sorting of ore was done at the mine site for 40-45% grade material and 45-50% grade material
7d	Any beneficiation process at mines .	No proposal for beneficiation was available in the approved Scheme of Mining.	No beneficiation was carried out at the mine site.
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	As Modification in Approved Mining Plan dated 20.05.2016. , there was no specific proposal for beneficiation of mineral.	No beneficiation was carried out at the mine site. For Mineral Conservation aspect, the lessee had deployed suitable nos. of workers for manual sorting of ore from blasted material to avoid mixing of ore with deleterious material. The low grade ore (on visual perception) was blended with high grade material, before dispatch to the railway siding.

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Environment :

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Sl.No.	Item	Propasals	Actual work	Remarks
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8a	Separate removal and utilization of topsoil (Rule 32)	As per modification in approved mining plan dated 20.05.2016 separate removal and utilization of top soil was proposed.	The top soil removal figure was not available. The top so generated was not stored separately but utilized for spreading over backfilled area .
8b	Concurrent use or storage of topsoil	As per modification in approved mining plan dated 20.05.2016, the top soil was proposed to spread over backfilled area of 12.48 Ha.	Simultaneous spreading of top soil was done over backfilled area of 12.59Ha.
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	There was no proposal for separate dumping of OB, Waste rock and Mineral Reject. Simultaneous backfilling and spreading of Top soil was proposed during the valid plan period .	There was no dump of OB, Waste, Mineral Reject/Fines within the lease area, as entire OB/Waste material generated was used for simultaneous backfilling followed by spreading of top soil over it.
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	There was proposal for simultaneous backfilling of 12.48 for restoration of excavated .	Simultaneous backfilling was done over an area of about 12.59 Ha upto 01.04.2016.

8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Year wise backfilling proposal as per approved Scheme of Mining was as under:- 2015-16: 2.59 Ha 2016-17 : 1.676Ha 2017-18 : 3.2 Ha 2018-19 :2.01 Ha 2019-20 :3.0 Ha. Thus totaling 12.48 Ha area was proposed to backfilled/restored during the plan period.	Simultaneous backfilling was done over an area of about 12.59 Ha out of 13.210 ha broken area and rehabilitation of 3.19 ha by planting 8010 saplings. upto 01.04.2016
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	During the plan period 2015-16 to 2019-20 it was proposed to plant 9685 saplings over an area of 4.66ha	As on 01.04.2016 total plantation was 8010 covering an area of 3.19ha
8g	Survival rate	There was no specific proposal for survival rate during the plan period of 2015-16 to 2019-20	The survival rate as on 01.04.2016 was 87%.
8h	Water sprinkling on roads to control airborne dust	No specific proposal was there As per modification in approved mining plan dated 20.05.2016	It was reported that during dry season, water sprinkling arrangement was made on haul road to control airborne dust.
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	NA	As on date of inspection Total broken area was 13.21ha, Area reclaimed- 12.59ha, area under afforestation 3.74 ha and toatal plantation- 9383saplings.

## Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	Lessee used to submit MR and AR regularly in time..	Lessee has submitted MR & AR regularly and timely.	
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	As per AR 2015-16, Sri Rajesh Ambasta was Mining Engineer and Sri Tapas Gachhayat is Geologist.	Sri Rajesh Ambasta was Mining Engineer and Sri Tapas Gachhayat Geologist were present during inspection.is.	
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	As per AR, 2015-16 information on land use pattern was furnished as given below:- i. Excavated quarries: 13.210 ha ii. Reclaimed/Rehabilitated: 12.59 Ha; iii. Road & Infrastructure : Nil; iv. Waste disposal: Nil; and v. work done under PMCP- 4.36ha.	Total broken area- 13.21ha, area reclaimed by backfilling- 12.59ha, area afforested- 3.19 ha.	
9d	Scrutiny of Annual return on afforestation	As per Annual Return for the year 2015-16 the plantation done within ML area was shown as 1750 nos. with survival rate 91% ..	As on date of inspection Total broken area was 13.21ha, Area reclaimed- 12.59ha, area under afforestation 3.74 ha and toatal plantation- 9383saplings.	
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	The information on Mineral Reject generation was shown as Nil.	No Mineral Reject generation from the mine was reported during the period 2015-16	
9f	Scrutiny of Annual return on ROM stock and/or graded ore	As per annual return 2015-16 OS-1245.22MT CS-95508 MT Despatch- 95508.7MT	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	Cost of production as per AR 2015-16 is Rs 714/-MT.	Cost of production as per AR 2015-16 is Rs 714/-MT.	Since it was a captive mine of M/s HINDALCO Industries Ltd, hence Sale value was not given.
9h	Scrutiny of Annual return on fixed assets	The value of Fixed Assets of the lessee was shown in Part-IIA of the Annual Return for the year 2015-16 under Capital Structure..	The value of Fixed Assets of the lessee was shown as Rs. 240254493/- in the Annual Return of 2015-16	
9k	Scrutiny of Annual return on mining machineries	As per AR2015-16 the machineries used were as given below:- i. Shovel: 2no.(0.9 cu,m; ii. Dumper: 3 nos (10 MT)& 16T-03; iii. Air Compressor: 01 no. (400 CUM/MN). iv.Wheel Loader-3.5cum-01 Water Tanker-12000L-01	List of Machineries deployed during 2015-16 was i. Shovel: 2no.(0.9 cu,m; ii. Dumper: 3 nos (10 MT)& 16T-03; iii. Air Compressor: 01 no. (400 CUM/MN). iv.Wheel Loader-3.5cum-01 Water Tanker-12000L-01	

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**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