

**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 : **M008**) **J. MOHANTA**
Officer and ID No.
- (ii) Designation : Assistant Mining Engineer
- (iii) Accompanying mine : Shri R. Ambastha, Mining Engineer and Shri Tapas Goch
Official with
Designation
- (iv) Date of Inspection : 09/11/2017
- (v) Prev.inspection date : 13/01/2017

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** : **VILL.-CHIRO & KUKUD**
correspondance : **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
 JHARKHAND
 Phone: Mob- 941708929, 06526-224112/224015
 FAX : 06526-224118

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	:	Renewal under rule 24 MCR1960	17/05/2006
Plan/Scheme of Mining	:	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	There was no proposal of exploration in the modification in approved mining plan approved on 20/05/2016 for the period from 2015-16 to 2019-20.	No backlog of previous year exploration exist in the mine.	
1b	Exploration over lease area for geological axis 1 or 2	There was no proposal of exploration over lease area in the modification in approved mining plan approved on 20/05/2016 for the period from 2015-16 to 2019-20.	No exploration during 2016-17. There was a proposal of 110 BHs with a total meterage of 1320 mts in the M Scheme approved for the period from 2010-11 to 2014-15. During the previous MS period, lessee drilled 38 BHs (CK series) at 100m x 100m grid interval. Against the proposal of 110 BHs lessee drilled 159 nos. of BHs (CKH series) at 50m x 50m and 100m x 100m grid interval with a total meterage of 2138.2 mts during 2012-13. Thus total 197 BHs drilled covering an area of 80.87 ha in the ML area.	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	There was no proposal of exploration over lease area in the modification in approved mining plan approved on 20/05/2016 for the period from 2015-16 to 2019-20.	No exploration has been done during the year 2016-17 as proposed. The previous exploration of 159 BHs (CKH series) in the lease area were carried out by M/s "Geocon and Exploration Corporation" of Ranchi, Jharkhand, with total expenditure of Rs. 3528030/- @ Rs. 1650/- per meter. The 38 nos. of BHs (CK series) were carried out by the company itself. The expenditure incurred for 38 nos. of BHs are not available.	

1d	Balance area to be explored to bring Geological axis in 1 or 2	There was no proposal of exploration over lease area in the modification in approved mining plan approved on 20/05/2016 for the period from 2015-16 to 2019-20.	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 approved on 20.11.2014). Total 80.87 ha of area has been covered under exploration through drilling and 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 on 20/05/2016 for the period from 2015-16 to 2019-20, the Reserve/Resource as on 01.04.2015 was as given below:- i. Proved Reserve(111): 1151326 MT; ii. Probable Reserve(122): 1104813 MT; Avg. grade Al ₂ O ₃ -(+) 43.5% and SiO ₂ -(-) 3.69%.	After depleting the production of 1,81,860 MT for the period from 2015-16 & 2016-17, the Reserve position as on 01.04.2017 is given below:- i. Proved Reserve (111): 9,69,466 MT ii. Probable Reserve (122): 1104813 MT

1f	General remarks of inspecting officers on geology, exploration etc	Not applicable.	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 is:- i. OB, consisting of Soil, Morrum and Laterite: 5-6m; ii. Bauxite Ore: 3-5m; The Bauxite in the area was again underlain 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 exploration.
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Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	During the year 2016-17, it was planned to producebauxite from Quarry no. A-2 in between grid 805992.29E - 806131.06E & 2600027N - 2600256.98N at northern part of the lease area. One bench was proposed to develop in soil/morrum having thickness 5.6 mt followed by bauxite bench no. II & III.	Mining was carried out in the quarry no. A2 as per the proposal in the approved document.	

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 in the approved document. During 2016-17, it was proposed to develop one bench in OB and two benches in Bauxite 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 the Quarry no A2.
2c	Stripping ratio or ore to OB ratio	Proposed stripping ratio during 2016-17 was not available.	During the year 2016-17, production of bauxite was 87570 MT and generation of waste was 247885 MT. Thus the striping ratio or ore to OB ratio was 1:2.83.
2d	Quantity of topsoil generation in m3	As per approved document , proposed top soil generation during the year 2016-17 was 70875 cum.	As reported, 44265 cum topsoil was generated during the year.

2e	Quantity of overburden generation in m ³	As per approved document , there was no proposal of generation of hard overburden i.e laterite during the year 2016-17. However there was proposal of generation of 10774 cum of intercalated waste during the year having Al ₂ O ₃ <30% and SiO ₂ >5%.	As reported, 177061 cum overburden was generated during the year.
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	Not applicable.	Mining operation was carried out in quarry no. A2 as proposed in the approved document. The bauxite deposit in Chiro-Kukud mines are shallow in nature and boulder embedded in laterite matrix. Maximum depth of the work is 12 mt.

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
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- 3a Number of pit proposed for production
- During the year 2016-17, it was planned to produce bauxite from Quarry no. A-2 in between grid 805992.29E - 806131.06E & 2600027N - 2600256.98N at northern part of the lease area. One bench was proposed to develop in soil/morrum having thickness 5.6 mt followed by bauxite bench no. II & III.
- Mining was carried out in the quarry no. A2 as per the proposal in the approved document.
- 3b Quantity of ROM mineral production proposed
- As per modification in approved Mining Plan on 20/5/2016, proposed production during the plan period from 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 given below:-
 2012-13: 64847 MT
 2013-14: 52929 MT
 2014-15: 75631 MT
 2015-16 : 94290 MT
 2016-17 : 87570 MT
- 3c Recovery of saleable/usable mineral from ROM production
- 80% recovery of saleable/useable mineral from ROM production was proposed during the year 2016-17.
- During the year 2016-17, recovery of bauxite from ROM was 80%.

- 3d Quantity of mineral reject generation
 No proposal of mineral rejects generation was made in the approved document during the plan period from 2015-16 to 2019-20.
 No mineral reject generation was reported from the mine during the year 2016-17. The entire bauxite ore produced from the mine is used for captive consumption.
- 3e Grade of mineral rejects generation and threshold value declared.
 No proposal of mineral rejects generation was made in the approved document during the plan period from 2015-16 to 2019-20. The Threshold value of Bauxite is 30% Al₂O₃(Min) and <5% SiO₂.
 Not applicable as no mineral reject generation was reported from the mine during the year 2016-17.
- 3f Quantity of sub grade mineral generation.
 No proposal of sub grade mineral generation was made in the approved document during the plan period from 2015-16 to 2019-20.
 No generation of sub-grade mineral was reported from the mine during the year 2016-17. The entire bauxite ore produced from the mine is used for captive consumption.
- 3g Grade of sub grade mineral generation
 No proposal of sub grade mineral generation was made in the approved document during the plan period from 2015-16 to 2019-20.
 Not applicable as no sub grade mineral generation was reported from the mine during the year 2016-17.

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| 3h | Manual /
Mechanised
method adopted
for segregating
from ROM | As per
modification
in approved
Mining Plan
approved on
20/05/2016,
manual method
was proposed
for
segregating
from ROM. | The bauxite is mined out
manually from the
blasted material. Manual
sorting, sizing and
screening were done at
mine site for
segregation of bauxite
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
modification
in approved
mining plan
dated
20/05/2016. | 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	<p>As per modification in approved MP for 2015-16 to 2019-20 there was provision of drilling and blasting in hard surface of laterite and bauxite. Drilling was proposed by Wagon Drill of 100mm dia and depth ranges from 3 to 5m with burden and spacing at 2.5m X 3m and JH for secondary blasting. Explosive proposed are detonating fuse, ANFO, OD & safety fuse.</p>	<p>Drilling with Wagon drill (100 mm dia) and blasting were done as per proposal in the approved document under the strict supervision of mine foreman. Detonating cord relays are used to minimise ground vibration, fly rock & air blast.</p>	<p>Explosives are not stored in the magazine. Indent of explosives are done from supplier in advance. Received explosives are used in same day as the area is sensitive. blasting operation is conducted between 12.00 noon to 2.00 PM.</p>
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- 3k Provision of mining machineries in mineral benches
- The following machineries were proposed to be deployed in the mine as per approved Modification in Mining Plan:-
- i. Wagon drill (Crawler mounted): 01 no. (100 mm dia);
- ii. JH Drill: 01 no. (37mm dia);
- iii. Compressor: 01 no. (350 cfm);
- iv. Excavator: 01 no. (0.9 cu.m);
- v. Loader: 01 no. (2.6 cu.m);
- vi. Dumper: 04 nos. (4 cu.m)/10 tonnes;
- vii. Dumper: 04 nos. (6.5 cu.m)/16 tonnes;
- viii. Water tanker: 01 no. (10,000 Ltr).
- ix. Rock breaker (JCB): 01 no.
- The list of machineries reported to be deployed in the mine during the inspection of the mine were given below:-
- i. Wagon drill: 01 no. (100 mm dia);
- ii. JH Drill: 01 no. (38mm);
- iii. Air Compressor: 01 no. (450 Cu.m);
- iv. Shovel: 1 no. (0.9 cu.m);
- v. Loader: 01 no. (1.48 cu.m);
- vi. Dumper (18 MT): 04 nos.;
- vii. Water tanker: 01 no. (12,000 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 of the overburden benches varies from 3-4m while in bauxite, the bench height was maintained between 1.5-2m. The height and width 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, total area proposed to be covered under excavation during the plan period was 12.57 ha. The year wise proposal for area to be mined out was: 2015-16: 2.89 ha, 2016-17: 1.26 ha, 2017-18: 2.5ha, 2018-19: 2.04 ha and 2019-20: 3.88 ha.	As on 01.04.2017, about 16.30 ha area was reported to be covered under excavation.
3n	Ore to OB ratio for the pit/mine during the year.	As per the approved modification in mining plan, the proposed production during the year 2016-17 was 99118 MT and waste generation was 81649 m3. The proposed ore to OB ratio is 1: 0.82 MT/m3.	During the year 2016-17, the actual production of ore was 87570 MT and waste generation was 123942 cum. Thus the Ore to OB ratio during the year was 1:1.41MT/m3.

- 3o Total area put in use under different heads at the end of year
- As per approved Modification in Mining Plan for the period from 2015-16 to 2019-20, the area put in use under different heads was Quarry (including reclaimed area) 23.47 ha (20.44 ha), infrastructure: 0.45 ha, Road: 0.34 ha, Retaining wall/Garland drain: 0.52 ha.
- Existing utilisation of lease area as on 31/07/2017 as per annual return 2016-17 was: Area already exploited & abandoned by O/C mining- 16.30 ha, Area covered under current working- 1.680 ha, Reclaimed/rehabilitated- 14.620 ha & work done under PMCP-2.030ha.
- 3p Production of ROM mineral during the last five year period as applicable
- Proposed production schedule during last five years was given below:-
- The quantity of ROM mineral production during the last five year period were as given below:-
- i. 2012-13: 64847 MT;
 - ii. 2013-14: 52929 MT;
 - iii. 2014-15: 75631 MT.
 - iv. 2015-16 : 94290 MT
 - v. 2016-17 : 87570 MT
- i. 2012-13: 95181 MT;
- ii. 2013-14: 95277MT;
- iii. 2014-15: 95327 MT.
- iv. 2015-16 : 95056 MT
- v. 2016-17 : 99118 MT

3q	General remarks of inspecting officers on method of mining etc.	Not applicable.	A'- OTFM category of opencast mining method was adopted in the mine. The bench height in OB was maintained at 3m to 4m and in Ore it was maintained at 1.5 to 2m, which were within the proposed limit. The bauxite is mined out manually from the blasted material. Manual sorting, sizing and screening were done at mine site for segregation of bauxite from ROM. The laterite/morrum and intercaleted waste are used for backfilling the mined out areas for reclamation.
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Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	As per approved Modification in Mining Plan dated dated 20.05.2016, there was no proposal for separate dumping of top soil, OB (Morrum/Laterite) and reject material. There was proposal for simultaneous backfilling of OB (laterite / morrum) and the intercalated waste in the mined out areas and spreading top soil over the backfilled area for reclamation purpose.	There was no separate dump of top soil, OB (Morrum / Laterite)and mineral rejects within the lease area. The entire OB (laterite/morrum) and intercaleted waste are used for backfilling the mined out areas for reclamation.	

4b	Location of topsoil, OB and mineral reject dumps	As per approved Modification in Mining Plan dated 20.05.2016, there was no separate dumping of top soil, OB (Morrum/Laterite) and reject material. There was proposal for simultaneous backfilling of OB (laterite / morrum) and the intercalated waste in the mined out areas and spreading top soil over the backfilled area for reclamation purpose.	There was no separate dump of top soil, OB (Morrum / Laterite) and mineral rejects within the lease area. The entire OB (laterite/morrum) and intercalated waste are used for backfilling the mined out areas for reclamation.
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4c	Number of dumps within lease area and outside of lease area	As per approved Modification in Mining Plan dated 20.05.2016, there was no proposal for separate dumping of top soil, OB (Morrum/Laterite) and reject material. There was proposal for simultaneous backfilling of OB (laterite / morrum) and the intercalated waste in the mined out areas and spreading top soil over the backfilled area for reclamation purpose.	Not applicable as there was no dump within or outside the lease area.
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- 4d Location of dumps w.r.t. ultimate pit limit (Rule 16) As per approved Modification in Mining Plan dated dated 20.05.2016, there was no proposal for separate dumping of top soil, OB (Morrum/Laterite) and reject material. There was proposal for simultaneous backfilling of OB (laterite / morrum) and the intercalated waste in the mined out areas and spreading top soil over the backfilled area for reclamation purpose. Not applicable as there was no dump within or outside the lease area.
- 4e Number of active and alive dumps. As per approved Modification in Mining Plan dated dated 20.05.2016, there was no proposal for separate dumping of top soil, OB (Morrum/Laterite) and reject material within the lease area. Not applicable as there was no active and alive dump within the lease area.

- 4f Number of dead dumps. As per approved Modification in Mining Plan dated dated 20.05.2016, there was no proposal for separate dumping of top soil, OB (Morrum/Laterite) and reject material. Not applicable as there was no dead dump within the lease area.
- 4g Number of dumps established. As per approved Modification in Mining Plan dated dated 20.05.2016, there was no proposal for separate dumping of top soil, OB (Morrum/Laterite) and reject material within lease area. Not applicable as there was no dump within the lease area.
- 4h Whether Retaining wall or garland drain all along dumps are there. As per approved Modification in Mining Plan dated dated 20.05.2016, there was no proposal for separate dumping of top soil, OB (Morrum/Laterite) and reject material within lease area. Not applicable as there was no dump within the lease area.

4i	Length of Retaining wall or garland drain all along dumps	As per approved document, there was no proposal for separate dumping of top soil, OB (Morrum/Laterite) and reject material within lease area.	Not applicable as there was no dump within the lease area.
4j	Number of settling ponds	There was no such proposal for construction of settling pond.	No settling pond was created within the mining lease area as on date of inspection.
4k	Specific comments of inspecting officer on waste dump management	Not applicable.	There was no separate dump of top soil, OB (Morrum / Laterite) and mineral rejects within the lease area. The entire OB (laterite/morrum) and intercaleted waste are used for backfilling the mined out areas for reclamation. Hence no comments can be given.

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.	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 i.e simultaneous backfilling of OB and waste material along with top soil spreading over the backfilled mined out areas for reclamation.	Simultaneous backfilling of OB and waste material and spreading of top soil over backfilled 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 12.48 ha area. The proposed year wise area to be backfilled is given below:- 2015-16: 2.59 Ha 2016-17 : 1.676 Ha 2017-18 : 3.2 Ha 2018-19 : 2.01 Ha 2019-20 : 3.0 Ha	As on 01.04.2017, about 14.620 ha area was reported backfilled /reclaimed out of 16.300 ha of excavated area.

5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	As per approved Modification in Mining Plan dated 20.05.2016, there was proposal for concurrent use of top soil for restoration / rehabilitation of the mined out areas. There was proposal for simultaneous backfilling of OB and intercalated waste in the mined out areas and spreading of top soil over the backfilled area for reclamation purpose. During the plan period 2015-16 to 2019-20, about 474510 Cu.m of top soil was proposed to be used for spreading over backfilled area.	Simultaneous backfilling of mined out areas with OB and waste and spreading of top soil over backfilled area was in practice. Quantity of top soil used during the year was not available.
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5e	General remarks of inspecting officers on backfilling and reclamation etc.	Not applicable.	Simultaneous backfilling of OB and waste material and spreading of top soil over backfilled areas were in practice in the mine after complete extraction of mineral from the active mining part of the lease. As on 01.04.2017, about 14.620 ha area was reported backfilled /reclaimed out of 16.300 ha of excavated area and as on date of inspection about 5.0 ha area has been rehabilitated through plantation over backfilled area.
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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 period from 2015-16 to 2019-20.	Lessee has submitted annual report on PMCP for the year 2015-16.	
6b	Area available for rehabilitation (ha) .	There was proposal for rehabilitaion of 4.66 ha area through plantation over backfilled area during plan period 2015-16 to 2019-20.	As on 01.04.2017, out of 16.300 ha of broken area, about 14.620 ha area has been reclaimed. During the year 2016-17, as reported, about 2.030 ha area was backfilled and about 0.650 ha area was rehabilitated by plantating 1750 plants.	

6c	afforestation done (ha).	There was proposal for plantation of 2208 plants over an area of 1.104 ha area during the year 2016-17 as per the modification in approved mining plan for the year 2015-16 to 2019-20.	As reported during the inspection, total area covered under plantation was about 4.390 ha by planting 10303 plants as on 01/04/2017.
6d	No. of saplings planted during the year	There was proposal for plantation of 2208 plants over an area of 1.104 ha area during the year 2016-17 as per the modification in approved mining plan for the year 2015-16 to 2019-20.	During the year 2016-17, the lessee covered about 0.650 ha area by planting 1750 plants over the backfilled area.
6e	Cumulative no .of plants	There was no proposal for cumulative plantation. However as per the approved modification in approved mining plan for the period from 2015-16 to 2019-20, there was proposal for plantation of about 9685 nos. of plants over an area of 4.66 ha.	As on 01.04.2017, about 4.390 ha area has been covered under plantation by planting 10303 plants.
6f	Any other method of rehabilitation	No other proposal was available in the approved document.	Only plantation has been reported over the backfilled area and no other method of rehabilitation was adopted.

6g	Cost incurred on watch and care during the year	No proposal of cost incurred on watch and care was available in the approved document.	No information available on the cost incurred on watch and care during the year.
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (L x B x D	As per modification in approved Mining plan for the year 2015-16 to 2019-20, there was proposal for reclamation of about 12.47 ha area during the plan period.	As on 01.04.2017, about 14.620 ha area has been reclaimed / rehabilitated out of 16.3 ha mined out area. About 2.030 ha area was reported to be backfilled during the year 2016-17.
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	As per modification in approved Mining plan for the year 2015-16 to 2019-20, there was proposal for reclamation of about 12.47 ha area during the plan period.	As on 01.04.2017, about 14.620 ha area has been reclaimed / rehabilitated out of 16.3 ha mined out area. About 2.030 ha area was reported to be backfilled during the year 2016-17. The quantity of OB/Waste material used for backfilling was not available.
6j	Compliance on reclamation and rehabilitation by backfilling (iii) Afforestation 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 01.04.2017, out of 16.3 ha broken area about 14.620 ha area has been reclaimed and about 5.00 ha area rehabilitated by planting 11503 saplings.

6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	As per modification in approved Mining plan, 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 in the approved document.	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	There was no recorded waste land within the lease area.	Not applicable.
6p	Compliance of environmental monitoring (core zone and buffer zone)	There was proposal for environmental monitoring 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.	Not applicable.	As on 01.04.2017, about 14.620 ha area was backfilled and reclaimed out of 16.300 ha of excavated area. During the year 2016-17, about 2.030 ha area was backfilled and reclaimed. As on date of inspection, about 5.000 ha area has been rehabilitated through plantation by 11503 plants. During 2016-17, about 0.650 ha area was rehabilitated through plantation by 1750 plants.
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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. However blending of high grade ore with low grade ore was done in the mine before material is despatched.	
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 modification in approved mining plan dated 20/05/2016. 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 of ore 40-45% Al ₂ O ₃ grade and the other of 45-50% Al ₂ O ₃ grade are properly blended at the mine site to meet the plant specification. There was no separate grade wise stacking of ore at the mine site.	

7c	Different grade of mineral sorted out at mines.	Manual sorting of Bauxite ore from OB/Waste material after blasting was proposed in the modification in approved mining plan dated 20/05/2016. 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 40-45% Al ₂ O ₃ grade and the other 45-50% Al ₂ O ₃ grade are properly blended at the mine site to meet the plant specification. There was no separate grade wise stacking of ore at the mine site.
7d	Any beneficiation process at mines .	There was no proposal for beneficiation of ore proposed at the mine site.	No beneficiation of ore was carried out at the mine site. The ROM grade obtained at the mines is up graded by blending better quality bauxite at the siding before transport.
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	Not applicable.	No beneficiation was carried out at the mine site. For Mineral Conservation aspect, the lessee has 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 was blended with high grade material before dispatch to the railway siding.

Environment :

Sl.No.	Item	Propasals	Actual work	Remarks
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 in the process of somultaneous reclamation.	

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.	The quantity of top soil generated is utilised by spreading over the backfilled area in the process of simultaneous reclamation.
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 approved plan period.	There was no separate dump of OB, waste rock and mineral reject / fines within the lease area. The entire OB, waste material generated during the process of mining was used for simultaneous backfilling of the mined out areas 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 no proposal for separate dumping of OB, waste rock and mineral reject. Simultaneous backfilling and spreading of top soil over it was proposed in the approved document during the plan period.	Simultaneous backfilling of OB, waste rock and mineral reject was done in the mine. As reported about 2,47,885 tonne of overburden removed during the year 2016-17 was utilised for simultaneous backfilling. During the year 2016-17 about 2.030 ha was backfilled. As on 01/04/2017, about 14.620 ha area has been rehabilitated out of 16.300 ha of excavated area.

8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Year wise backfilling proposal as per modification in approved mining plan dated 20/05/2016 was as under:- 2015-16: 2.59 ha 2016-17 : 1.68 ha 2017-18 : 3.2 ha 2018-19 : 2.01 ha 2019-20 : 3.0 ha. Thus total 12.47 ha mined out area was proposed to be backfilled/restored during the plan period.	Simultaneous backfilling of OB, waste rock and mineral reject was done in the mine. As reported about 2,47,885 tonne of overburden removed during the year 2016-17 was utilised for simultaneous backfilling. During the year 2016-17 about 2.030 ha was backfilled. As on 01/04/2017, about 14.620 ha area has been rehabilitated out of 16.300 ha of excavated area. As of date of inspection about 5.0 ha area has been rehabilitated by planting 11503 plants.
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 no. of saplings over an area of 4.66 ha.	As on 01.04.2017, total 11503 no. of plantation in the mining lease area was done covering an area of 5.0 ha.
8g	Survival rate	There was no specific proposal for survival rate during the plan period of 2015-16 to 2019-20.	As on date of inspection, 95% survival rate was reported.

8h	Water sprinkling on roads to control airborne dust	There was proposal of water sprinkling regularly on the haul roads as per modification in the approved mining plan dated 20.05.2016.	It was reported that regular water sprinkling arrangement was made on haul road to control the airborne dust.
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	Not applicable.	As on date of inspection, about 14.620 ha area has been backfilled / rehabilitated out of 16.300 ha of excavated area. Simultaneous backfilling of OB, waste rock and mineral reject was done in the mine. During the year 2016-17 about 2.030 ha was backfilled. As of date of inspection about 5.0 ha area has been rehabilitated by planting 11503 plants. Thus the aesthetic beauty in and around the mines area has been maintained by the lessee.

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 the Annual Return for the year 2016-17 covering Part-I of General information about mine and labour employment, Part-II about Employment & wages, Part-IIA 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, Dispatch & Stock and finally Part-VII consists of Cost of production.
- The lessee submitted the Monthly return and Annual Return regularly for the period 2016-17 within stipulated time.
- 9b Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager
- In Part-I of the Annual Return, for the year 2016-17, information regarding Mining Engineer and Geologist has been submitted under item no. 8 & 9.
- During inspection, the name of Mining engineer and Geologist, submitted in the Annual Return for the year 2016-17, were found to be correct. Sri Rajesh Ranjan Ambasta, Mining Engineer and Sri Tapas Gachhayat, Geologist of the mine were present during inspection.

- 9c Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc. In Part-I, item no. 12 of the Annual Return for the year 2016-17, information on land use pattern was furnished as given below:-
i. Exploited by O/C mining : 16.300 ha;
ii. Reclaimed/Rehabilitated : 14.629 ha;
iii. Current working : 1.680 ha;
iv. Waste disposal: Nil;
and
v. Others: Nil.
- Total area put to use as on 01.04.2017 was as given below:-
Total broken area : 16.300 ha;
Area backfilled/reclaimed : 14.620 ha;
Area rehabilitated through plantation : 4.390 ha;
- 9d Scrutiny of Annual return on afforestation As per Annual Return for the year 2016-17, the plantation done within ML area was shown as 2200 nos. with survival rate 70% . As on 01/04/2017, out of total broken area 16.300 ha, an area of 14.620 ha was reclaimed / rehabilitated and an area of 4.390 ha covered under afforestation with 10303 plants.
- 9e Scrutiny of Annual return on mineral reject generation (Grade and quantity) In Part-V, Sec 4 of the Annual Return 2016-17, the information on mineral reject generation was shown as Nil. No Mineral Reject generation from the mine was reported during the year 2016-17.
- 9f Scrutiny of Annual return on ROM stock and/or graded ore The ROM stock (opening balance) and Closing stock during the year 2016-17 was shown as given below:-
i. Opening stock : 40-45% Al2O3 grade: 26.480 MT;
ii. Closing stock : 40-45% Al2O3 grade: 93.190 MT;
- The figures given for opening and closing stocks were in conformable with the figures furnished through Monthly / Annual returns.

9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	The sale value, ex-mine price and production cost were shown in Part-VI and VII respectively of the Annual Return for the year 2016-17.	The sale value, ex-mine price and production cost were shown in Part-VI and VII respectively of the Annual Return for the year 2016-17. The ex-mine price was shown as Rs. 695.52/- per MT for 40-45% Al2O3 grade, the sale value was shown as Nil and the cost of production was shown as Rs. 695.52/- per MT.
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 2016-17 under Capital Structure.	The value of Fixed Assets of the lessee was shown as Rs. 2311,72,773/- in the Annual Return of 2016-17 under Part-IIA of the Capital Structure.
9k	Scrutiny of Annual return on mining machineries	In Part-V, Sec 5/6/8/9 of the Annual Return 2016-17, the machineries used were as given below:- i. Shovel: 1 no.(0.9 cu,m); ii. Dumper: 3 nos (10 MT) and 3 nos. (16 MT) iii. Air Compressor: 01 no. (450 CUM/MN). iv. Wheel loader : 01 (3.5 cum); v. Rock Drill : 01 (100 mm) vi. Water tanker: 01 no. (12,000 lts);	The list of machineries deployed in the mine during inspection were as given below:- i. Wagon drill: 01 no. (100 mm dia); ii. JH Drill: 01 no. (38mm); iii. Air Compressor: 01 no. (450 CUM/MN); iv. Shovel : 1 no. (0.9 cu.m); v. Loader: 01 no. (3.500 cu.m); vi. Dumper : 03 nos (10 MT) and 03 nos (16 MT). vii. Water tanker : 01 no. (12,000 lts);

Details of violations observed during current inspection and compliance position of violation pointed out

Violation observed			Show couse position		
Rule NO.	Issued on	Compliance on	Rule NO.	Issued on	Compliance on
MCDR17	Rule 33	15/11/2017	09/01/2018		

Date :

(J. MOHANTA)

Indian Bureau of Mines