

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

**MCDR INSPECTION REPORT**

**Goa regional office**

**Mine file No :** MAH/KLP/BX-14/GOA

**Mine code :** 07MSH13017

- (i) Name of the Inspecting : **J003** ) **JANGID G K**  
Officer and ID No.
- (ii) Designation : Deputy Controller Mines
- (iii) Accompanying mine : Shri V.K. CHOUHAN, Dy. GM  
Official with  
Designation
- (iv) Date of Inspection : 03/02/2016
- (v) Prev.inspection date : 20/12/2013

**PART-I : GENERAL INFORMATION**

1. (a) **Mine Name** : **DHANGARWADI**
- (b) **Registration NO.** : **IBM/935/2011**
- (c) Category : A Fully Mechanised
- (d) Type of Working : Opencast
- (e) Postal address :  
State : MAHARASHTRA  
District : KOLHAPUR  
Village : DHANGARWADI  
Taluka : DHANGARWADI  
Post office : SHAHUWADI  
Pin Code : 416514  
FAX No. : 02320-215301  
E-mail : mainak\_c@adityabirla.com  
Phone : 02320-202072
- (f) Police Station : SHAHUWADI
- (g) First opening date : 27/04/2009
- (h) Weekly day of rest : SUN
2. Address for : HINDALCO INDUSTRIES LIMITED  
correspondance : DHANGARWADI MINES, SHAHUWADI 416 212  
KOLHAPUR DISTRICT, MAHARASHTRA
3. (a) Lease Number : MSH0371
- (b) Lease area : 41.8
- (c) Period of lease : 30
- (d) Date of Expiry : 04/05/2038
4. Mineral worked : BAUXITE Main

## 5. Name and Address of the

Lessee : HINDALCO INDUSTRIES LIMITED  
P.O CHANDGAD, DISTRICT-  
KOLHAPUR, MAHARASHTRA  
KOLHAPUR MAHARASHTRA  
Phone:  
FAX :

Owner : A.K.AGARWALA  
INDIAN ALUMINIUM CO. LTD.  
1, PRAFULLA CHANDRA  
SEN, SARANI KOLKATA KOLKATA  
WEST BENGAL  
Phone: 033-2402210 / 2  
FAX : 033- 2403964 /2

Agent : MAINAK CHAKRABORTY  
HINDALO INDUSTRIES LTD Po.  
Radhanagari KOLHAPUR  
MAHARASHTRA  
Phone:  
FAX :

## Mining Engineer

Name : V.K.S. Chauhan, Full Time  
Qualification : B.Tech. Mining  
Appointment/ : 01/04/2013  
Termination date

## Geologist

Name : U,V.PAWAR, Full Time  
Qualification : M.Sc.Geology  
Appointment/ : 26/03/2012  
Termination date

## Manager

Name : VIJAYKUMAR SINGH CHAUHAN  
Qualification : B. Tech. Mining with FCC  
Appointment/ : 01/04/2013  
Termination date

6. Date of approval of Mining	:	Modif.of approved Mining Plan	25/03/2009
Plan/Scheme of Mining		Mining Scheme rule 12 MCDR1988	02/12/2013
		Modif.approved Mining Scheme	12/03/2015

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

## Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	There was no backlog at the start of year 2014-15.	Not applicable for the Backlog; however four holes were drilled during 2014-15 to cross-check earlier exploration result.	
1b	Exploration over lease area for geological axis 1 or 2	Additional exploration by means of boreholes over insitu plateau area and trail pits over float ore area was not proposed.	Plateau part is almost 18ha and remaining 23.8ha is slope part of hillock. Reserves of 15ha float area is estimated; however remaining 8.8ha is shown as float ore under 333 without exploration.	
1c	Exploration Agencies and Expenditure in lakh rupees during the year	Exploration by own equipments was proposed due to shallow 6-7m depth of bauxite.	Trial pits by backhoe and boreholes by DTH holes were drilled to convert G2 into G1 and prove float ore. Amount spent is not known; as it is not estimated for own equipments.	
1d	Balance area to be explored to bring Geological axis in 1 or 2	Nil	15ha float ore area is having 16 trial pits at specific contour level and not on grid pattern. It is having basalt exposures at various places; however shown as float ore in approved document.	
1e	Balance reserve as on 01/04/20	Balance reserves as on 01.04.2015 were 232020 tonnes in category 111 and 450930 tonnes in 121 and 46912 tonnes in 211 category. The modified scheme of mining was approved on 12.03.2015 with proposals from 2014-15 to 2017-18.	Balance reserves as on 01.04.2015 were 232020 tonnes in category 111 and 450930 tonnes in 121 for float ore and 46912 tonnes in 211 category.	

1f	General remarks of inspecting officers on geology, exploration etc	Nil	Additional exploration is required in float ore. Earlier boreholes KD-30, KD-24 and KD-25 were drilled for 10m depths before dumping of waste and again five boreholes AD-8 to AD-12 were drilled for 12-16m depth from top of dumps (dump 8-10m height) and bauxite at 9 to 10m depth from dump top is reported.	Detail given for KD series boreholes or AD series boreholes is incorrect.
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Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	Development was proposed at three locations near dump-1, south-western part and central part of lease for insitu bauxite production.	Development on south-western and western part is more than planned during 2014-15 and 2015-16 with no development for insitu working near dump-1.	
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Morrum & laterite is OB. Separate benches were proposed.	Separate benches are maintained in morrum and laterite.	
2c	Stripping ratio or ore to OB ratio	Ore to OB ratio was 1:0.77 as per modified SOM.	Ore to OB ratio is 3.	
2d	Quantity of topsoil generation in m3	Nil	Nil	
2e	Quantity of overburden generation in m3	309056 tonnes of OB generation was proposed.	103501t OB generation was reported during 2014-15; which is morrum & laterite.	
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	Nil	Width of OB bench is quite less than height of bench due to use of backhoe excavator.	

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Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	There is one continuous pit and development was proposed for insitu production at three locations i.e. near dump-1, south-western part and central part of lease.	Production from south-western and western part is more than planned during 2014-15 and 2015-16 with no production from pit near dump-1.	Dump-1 is not re-handled for usable ore recovery and advancement of pit.
3b	Quantity of ROM mineral production proposed	ROM production of 424586 tonnes was proposed from plateau area plus 28000 tonnes from dump working.	ROM production of 406500 tonnes was reported. Dump working was not reported during the year.	
3c	Recovery of sailable/usable mineral from ROM production	The recovery of ore from ROM was planned 100% after crushing & screening. However, -12mm fines having +45% Al <sub>2</sub> O <sub>3</sub> with 15% SiO <sub>2</sub> was anticipated as mineral reject/sub-grade mineral.	The recovery of ore from ROM was 100% after crushing & screening. The -12mm fines is being sold to M/s Ultratech Cement Limited during the year 2015-16.	
3d	Quantity of mineral reject generation	76737 tonnes of mineral reject i.e. -12mm fines was anticipated as mineral reject.	80452tonnes -12mm fines is reported as mineral reject.	
3e	Grade of mineral rejects generation and threshold value declared.	+32% Al <sub>2</sub> O <sub>3</sub> is planned as mineral reject.	Mineral reject is having 45% Al <sub>2</sub> O <sub>3</sub> , 15% SiO <sub>2</sub> , 10% Fe <sub>2</sub> O <sub>3</sub> & 5% TiO <sub>2</sub> .	
3f	Quantity of sub grade mineral generation.	Mineral reject is termed as sub-grade ore also.	Mineral reject is termed as sub-grade ore also.	
3g	Grade of sub grade mineral generation	Mineral reject is termed as sub-grade ore also.	At par with mineral reject.	

3h	Manual / Mechanised method adopted for segregating from ROM	Diesel operated mechanical crusher & screen plants were proposed.	Diesel operated mechanical crusher & screen plants (three numbers) are in use for grade wise production of bauxite. Alumina grade of +41 to -45% % Al <sub>2</sub> O <sub>3</sub> and cement grade of ore are produced.
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	Difference between Mineral reject and usable grade is size with more silica; but beneficiation study was not proposed.	Analysis is being carried out regularly for maintaining the usable ore grade and fines is sold to M/s Ultratech Ltd during 2015-16.
3j	Provision of drilling and blasting in mineral benches	Yes, 100m dia deep hole drilling & blasting is proposed for 6-7m depth in OB for shattering effect in hard laterite & morrum.	100m dia deep hole drilling & blasting is in use for 6-7m depth and spacing & burden at 2.5m & 3.0m.
3k	Provision of mining machineries in mineral benches	Yes, backhoe excavators were proposed for excavation of blasted OB and excavation of ROM material.	Backhoe excavators of 0.9m <sup>3</sup> bucket capacity were proposed for excavation of blasted material. 350cfm compressor are in use for drilling. 10 numbers 10t tippers are used for handling of ore upto mobile crusher.
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Yes, it is shallow depth mining maximum height of bench upto 6m. Two benches in OB i.e. 1m in soil and 6m in OB and one bench of 6m in bauxite was proposed.	Yes, it is shallow depth mining maximum upto 8- 12m with 5-6m overburden.
3m	Total area covered under excavation/pits	Total area proposed under pit was 9.00ha as per modified SOM.	Total area under pits was 9.00ha as on 01.04.2015 i.e. end of the year.

3n	Ore to OB ratio for the pit/mine during the year.	Ore to OB ratio was 1:0.77 as per modified SOM.	Ore to OB ratio was 1:0.25 during the year.
3o	Total area put in use under different heads at the end of year	Area under pit- 7.75ha, area under dump-3.20ha, roads - 0.75ha.	Area under pit- 8.75ha, area under dump-3.20ha, roads - 0.50ha at the end of 2014-15. The area occupied under four dumps was planned for re-handling to recover salable bauxite and reclamation of mined out area during 2015-16; however dump-2 and dump-3 were handled during 2015-16. Remaining two dumps yet to rehandle. Therefore, violation letter was issued.
3p	Production of ROM mineral during the last five year period as applicable	Proposed production was 230000t, 316000t, 600000t, 550000t, 424586t from 2010-11 to 2014-15 respectively.	Actual production was 1833t, 0t, 338706t, 429797t, 406500t from 2010-11 to 2014-15 respectively.
3q	General remarks of inspecting officers on method of mining etc.	Nil	Nil. Cement grade -12mm fines has been started to sell to M/s Ultratech Limited during 2015-16 and which was stacked without any sell during 2014-15.

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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)	Topsoil and OB dumps were not proposed.	Topsoil stack and OB dumps are not made. Dump-3 and 4 are re-handled and backfilled inside the pit during 2015-16.	
4b	Location of topsoil, OB and mineral reject dumps	Topsoil stack, OB dump & reject dump were not proposed.	Topsoil generation was not reported during 2014-15. Reject generated during 2014-15 stacked inside the pit at two-three locations.	

4c	Number of dumps within lease area and outside of lease area	Topsoil stack and OB dumps are not proposed within and outside the lease.	Two old dumps are still there over mineralised area and dump-3 & 4 are being re-handled during 2015-16.
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	Dumping was not proposed.	Two dumps are located adjoining to pit over mineralised area and have to be re-handled. Sub-grade stacks i.e. cement grade fines are located inside the pit.
4e	Number of active and alive dumps.	Four old dumps are there and were proposed to re-handle during 2014-15 & 2015-16.	Two morrum and laterite dumps are still there. Three stacks of cement grade mineral reject are made inside the pit.
4f	Number of dead dumps.	Nil	Nil
4g	Number of dumps established.	Nil	Nil
4h	Whether Retaining wall or garland drain all along dumps are there.	Retaining wall was not proposed.	Retaining wall was not made.
4i	Length of Retaining wall or garland drain all along dumps	Not applicable.	Nil
4j	Number of settling ponds	Nil	Nil
4k	Specific comments of inspecting officer on waste dump management	Nil	Nil

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Solid Waste Management - Backfilling:

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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.	Ten hectares area was proposed after complete mining of bauxite for relamation and rehabilitation by backfilling.	Two hectares area was backfilled after complete mining of bauxite for relamation and rehabilitation during 2013-14 and 2014-15.
5b	Area under backfilling of mined out area	Ten hectares area was proposed.	Two hectares area was backfilled.
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	Subsoil generation was not planned from plateau area.	Subsoil generation was zero from plateau area.
5d	Total area fully reclaimed and rehabilitated	Ten hectares area was proposed upto 2015-16. During 2014-15, 4.5ha was proposed for complete reclamation & rehabilitation	Two hectares area was backfilled after complete mining of bauxite for relamation and rehabilitation during 2013-14 and 2014-15. Further, 2.0ha was reclaimed & rehabilitated during 2015-16.
5e	General remarks of inspecting officers on backfilling and reclamation etc.	Nil	The quantity of waste material is almost 25% of total excavation over plateau area and current backfilling is upto 5-6m height; which is more than required to reclaim complete mined out area. Part of the mined out area is being used for stacking of -12mm fines i.e. cement grade bauxite. Backfilling upto 1.0m is sufficient to utilise total waste material for reclamation of 15.0ha plateau area.

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Progressive Mine Clousre Plan:

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Sl.No.	Item	Propasals	Actual work	Remarks
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6a	Whether Annual report on PMCP submitted on time and correctly. Rule 23 E(2).	Proposed to submit by 1st July 2015.	Annual report on PMCP received on 15.06.2015.
6b	Area available for rehabilitation (ha) .	An area over 7ha was available for reclamation.	An area over 2.0ha has been reclaimed upto 2014-15.
6c	afforestation done (ha).	Fourteen ha area was proposed under afforestation.	6.5ha area has been used for afforestation including 1.5ha area outside the lease.
6d	No. of saplings planted during the year	Number of saplings were not specified in modified SOM.	Number of saplings is not given in annual report of PMCP.
6e	Cumulative no .of plants	Number of saplings were not specified in modified SOM.	Total 9650 saplings have been planted as on 2015-16 since commencement of mining operations in 2012.
6f	Any other method of rehabilitation	Nil	Nil
6g	Cost incurred on watch and care during the year	Total Rs. 68,75,000 was proposed during 2014-15.	Total Rs. 1576242 was spent on watch and care as per annual report.
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling ( Lx B x D	It was proposed that 8ha area will be put under mining and around 6ha area will be available for rehabilitation . The proposed available void was 900m X 650m X 6m.	An area of 9ha was degraded and partly used for stacking cement grade bauxite, partly under roads, mining machineries, further advancement of faces and around 2.0ha was reclaimed and rehabilitated. Office premises is shifted over rehabilitated area.
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	Available waste is morrum and laterite. It was proposed to backfill the waste with a height of 0.5m.	Total waste generated since beginning of mining operations was 301956t and it was dumped and partly used for reclamation of 2.0ha mined out land. An average 3.5m height was attained after backfilling of waste.

6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on on backfilled area	Yearly numbers of trees were not indicated, but proposed over reclaimed area and on existing dumnps.	Around 2500 trees were planted during 2014-15 over reclaimed area and cumulative plantation was 9650 trees.
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	NA	NA
6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	NA	NA
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	NA	NA
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	NA	NA
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	NA	NA
6p	Compliance of environmental monitoring (core zone and buffer zone)	Quarterly environment monitoring is required and report has to be sent to IBM Regional office.	Quarterly environment monitoring is carried out through private agency.
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	Nil	Reclamation and rehabilitation is lacking as per proposals approved in the mining plan and screen fines has been stacked inside the pit, blocking space/void for backfilling.

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 Mineral Conservation:
 

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Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Grade-wise sorting of ore is proposed within lease area.	Grade-wise sorting of ore is carried out within lease area during crushing & screening operation. Mineral is screened in -12mm size and +12mm size. Alumina grade is +12mm and cement grade is -12mm.	
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Mechanical diesel operated mobile screen plants are proposed.	Three mechanical diesel operated mobile screen plants are in use and backhoe excavator is directly feeding to plant from working face.	
7c	Different grade of mineral sorted out at mines.	The grades of bauxite estimated in the mining plan are +40-45% Al <sub>2</sub> O <sub>3</sub> , +45-50% Al <sub>2</sub> O <sub>3</sub> and +50-55% Al <sub>2</sub> O <sub>3</sub> .	The grades of 326048 tonnes bauxite reported in the annual return of 2014-15 are +40-45% Al <sub>2</sub> O <sub>3</sub> and 80452 tonnes of cement grade bauxite.	
7d	Any beneficiation process at mines .	No.	No, mechanical crushing and screening is carried out by three diesel operated mobile plants.	
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	Nil	The mining lease was granted for captive use; however cement grade bauxite has been sold to Ultratech Cement Limited located in Andhra State and Gulbarga district.	

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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)	Topsoil generation is not there on insitu plateau area.	Topsoil generation is not there on insitu plateau area. Float ore mining started during the year 2015-16 and topsoil is concurrently backfilled at the site of excavation after removal of embedded boulders of bauxite.
8b	Concurrent use or storage of topsoil	Nil	Nil during 2014-15. Topsoil generated during float ore mining in 2015-16 was used for concurrent use of restoration.
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Backfilling of waste generated during mining was proposed and old dumps were proposed to re-handle. Mineral reject i.e. cement grade fines stacking was not proposed.	Backfilling of waste is in progress and two dumps were re-handled and waste backfilled inside the mined out area.
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Backfilling of waste generated during mining was proposed to restore the mined out land. Total 5.50ha was proposed for re-storation.	Yes, overburden has been used for backfilling and restoration of mined out land. An area over 2ha has been restored by backfilling and plantation.
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Total 1.50ha area during 2013-14 and 4.50ha area during 2014-15 was proposed for re-storation.	Total 1.00ha area during 2013-14 and 1.0ha area during 2014-15 was re-stored by backfilling.

8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	Mining operations were commenced in 2010-11 and 2500 saplings each were proposed during 2013-14 and 2014-15 over mined out area.	Total 9650 saplings have been planted as on date of inspection.
8g	Survival rate	Survival rate was planned as 80%.	Achieved survival rate is 75% due to hilly area having high wind speed and heavy rain fall during monsoon.
8h	Water sprinkling on roads to control airborne dust	Use of water tankers for water sprinkling was proposed.	Water tanker is being used to control the dust on haul roads.
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	Nil	Lease area is on top of the plateau having adjoining forest land. Kasarda lease of Padmavati Mining Company is within 2.0km distance. Area is having undulating topography and trees are visible on slope part of the hillcoks.

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Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	Annual return by 1st July every year and monthly returns by 10th of succeeding month.	Annual return of mine for year 2014-15 not submitted in online system; but submitted in hard copy on 27.04.2015. Monthly returns are submitted in online system upto from November 2015 to February 2016. Monthly returns in hard copy are regularly submitted within time limit prescribed.	

9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Appointment of Shri V. K. S. Chauhan as mining Engineer and manager of mines and Shri U. V. Pawar as geologist are reported in the A.R. of 2014-15.	Appointment of Shri V. K. S. Chauhan as mining Engineer and manager of mines and Shri U. V. Pawar as geologist are working in the mines.
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Area under current working pit- 9ha, already exploited & abandoned - 0ha, Reclaimed & rehabilitated - 2.50ha, Used for waste disposal - 3.20ha, Occupied by plant/building , residential, welfare building & roads - 1.25ha.	Information given in the annual returns looks correct. Area occupied by dumps has been reduced during 2015-16 after shifting dump-3 & 4, area reclaimed & rehabilitated has been increased to 4.5ha during 2015-16. Office building is shifted over minedout reclaimed area.
9d	Scrutiny of Annual return on afforestation	2500 nos trees planted over 1.0ha area are reported in the A.R.	Yes, trees are planted over mined out reclaimed area on southern part of plateau land.
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	Generation of 80452 t mineral reject of 45% Al <sub>2</sub> O <sub>3</sub> i.e. cement grade is indicated.	Almost 20-25% fines generation is there during crushing & screening operations and it is being sold to Ultratech Cement Ltd. during 2015-16.

9f	Scrutiny of Annual return on ROM stock and/or graded ore	ROM opening stock from opencast workings - Nil, Production - 406500t and closing stock - Nilt. Grade-wise opening stock of +40% Al2O3 - Nilt, Production - 326048t and closing stock - Nil. Grade-wise opening stock of cement grade - Nilt, Production - 80452t and closing stock - 80452t.	ROM and grade-wise production reported in A.R. is in order.
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Sale value is not applicable for captive consumption. Ex. mine price of 41% Al2O3 is Rs. 549.23/- and cement grade is Rs. 169.17/- . Production cost - Rs. 549.23/- .	Ex. mine price and production cost are same for +40% Al2O3 bauxite. Details of deduction i.e. transportation cost, loading/unloading charges, samplings etc are not given. The value of mineral reported by M/s Hindalco Industries Ltd. in Form-N by own mines is Rs.666/- and Rs.578/- in Dec2015 and Jan 2016 returns. The transportation cost from mines to Belgaum plant is around Rs.930 per tonne for 180kms distance and toll tax on NH road is around Rs.50/- .
9h	Scrutiny of Annual return on fixed assets	Fixed assets detail are given for roads, industrial building, plant & machineries, furnitures, office equipments etc.	It is observed that depreciation during the year is taken more than 90% of actual cost at the beginning of the year.



9k      Scrutiny of            Details of            Use of 4nos backhoe  
Annual return on mining      machineries is      excavators, six dumpers,  
mining                    not given in      two mobile crushing &  
machineries               the return by      screening plants, two  
                             stating that      compressors, two 100mm  
                             no own            DTH drills are not  
                             machineries is      reported in the return.  
                             deployed in  
                             the mines.

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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
Rule 13(1)	02/03/2016				
Rule 16(1)	02/03/2016				
Rule 45(5)(a )	02/03/2016				

**Date :**

**(JANGID G K)**

Indian Bureau of Mines