

**SCRUTINY COMMENTS ON EXAMINATION OF MODIFICATION IN THE APPROVED MINING OF PAKHAR BAUXITE MINE OF M/S MINERALS & MINERALS LTD., OVER AN EXTENT OF 15.577 HECTARES, LOCATED IN VILL/MOUZA PAKHAR, UNDER KISKO P.S OF LOHARDAGA DISTRICT OF JHARKHAND STATE, SUBMITTED UNDER RULE 12 OF MCDR, 1988.**

**TEXT:**

**1. The Geo-referenced mining lease map shall be the base for preparation of all statutory plans as required under Rule-28 of MCDR, 1988.**

**2.COVER PAGE:**i. Lease period has not been mentioned.

ii. The original lease area given in the lease deed is 121.00 Hect and the lease is under 2 nd renewal stage, area applied for renewal is 15.577 Hect which is still under consideration of the State Govt. of Jharkhand. The final decision is yet to come. In that case the lease area should be mentioned properly.

**3.LEASE DEED:** From the land schedule & submitted document it is not clear which plots were considered in renewal application over an area of 15.577 Hc. The area applied for renewal should be shown within the original area map showing all the plots clearly. The submitted lease map is not legible, a complete legible map should be submitted with original signature of authentication by the competent authority along with the plots considered for renewal application.

**4.INTRODUCTION:** The date of filing of 2 nd renewal application may be mentioned. In the fourth para the extended period of lease should be corrected as per para no. 3.

**5.CHAPTER- I- GENERAL:**

(a) Name of applicant/lessee: i. IBM Registration no. is missing.

ii. The name of Nominated owner should be given.

(b) Status of applicant/lessee: Copy of Board of Resolution should be furnished.

**6.CHAPTER-II- LOCATION AND ACCESSIBILITY:**

**a) Lease Details:**

**i. Date of grant of lease(Lease Period/Expiry date):** i. Date of grant of lease furnished is not correct. 28.04.1965 is the date of execution. Date of grant of lease should be furnished.

ii. Period/Expiry of lease: The date of filing of 2 nd renewal application should also be given. The validity of lease should be corrected as per item no. The extended lease period should be corrected as per item no. 4(Introduction) above.

iii. **Name of lease holder:** The name of Nominated owner should be given along with his e-mail id.

**(b) Details of applied/lease area with location map: (Existence of public road) –** (i)The distance of ML area from Lohardaga and from Pakhar village are required to be given along with the type of road.

(ii) The type of road (Metalled/Non-Metalled/Seasonal etc.) from lease area to railway siding (Richughuta& Tori) should also be mentioned under the para.

(iii) Whether Power Grid existing or not along with its distance from the mine/lease has not been mentioned.

(iv)**The manner of construction and upkeep of boundary pillars should be in accordance to item no. 4 of G.S.R. No. 710(E), dated 08.10.2014 (Ministry of Mines Notification).**

(v)Some of the boundary pillars are missing e.g BP 24, 28 etc. The missing pillars should be erected in its original place for reference in the field.

Photographs of boundary pillar no. 10, 11, 18, 25, 39, 42, 48, 49, 50, 51, 52 & 57 should be incorporated in the document as Annexure.

**c) General Location Map:**i. The Key Plan (Plate no. 1) does not bear Latitude and Longitude of the lease area. The access road to the lease area has also not been marked on the plan. In the Index of the Key Plan, the area of different Pakhar Bauxite Mine should be given. Further, the Pakhra Bauxite mine of Sri J.K.Bhagat has been repeated, the same needs to be corrected.

ii. An Area plan showing type of land existing in the lease area with plot no. and access route to the lease area may also be furnished. The access road should indicate major location on either end of the road.

iii. **The Surface Plan and Geological plan must show type of land existing in the lease area.**

**7.Chapter-III- DETAILS OF APPROVED MINING PLAN/SCHEME OF MINING:**

**Para 3.1: Date & reference of earlier approved MP/SOM:** Reference of 1<sup>st</sup> approved Scheme of Mining should also be given.

**Para 3.3: Review of earlier approved proposal (if any) in respect of exploration, excavation, reclamation etc.:-**

(i) **Exploration:** The BH log furnished in Annexure-6 should be revised and submitted in proper form giving Collar RL & location of each borehole on the top of every BH log separately. The BH log should incorporate length of each run, recovery length, litho unit encountered, its chemical analysis report etc.

Further, A concise BH log sheet of all the boreholes giving BH no., total depth of hole, recovery length, thickness of bauxite encountered (layer wise if exists), av. analysis of Bauxite with range.(e.g  $Al_2O_3$ - 42.3 - 45.6%,  $SiO_2$ - 2.3 - 3.1% etc.) and location of boreholes, may be submitted separately as Annexure.

Give bifurcation of grid wise boreholes drilled with maximum, minimum, average & total meterage drilled so far.

(ii) **Mine development & Production: (Proposal as per approved Scheme of Mining)**-The first sentence should be corrected as the mine worked as A-OTFM category.

The sub-para "**Achievement during the SoM period**" should be corrected (page no. 9). The table showing actual year wise waste generation need not be given in the para as it has been given on page no. 13 under Waste Dump management.

(iv) **Afforestation programme:** The para on page no. 10 needs to be corrected.

(v) **Waste dump management:** The para no. needs to be corrected. The para needs to be corrected as per Scheme of Mining approved on the last occasion.(Page no. 11 & 12). The table showing proposed and actual waste generation should also include a separate column for waste generation figure in cu.m besides the figure given in MT.

(vi) **Land Reclamation & Rehabilitation:** The para no. needs to be corrected. The year wise area to be backfilled has not been given in a tabular form with corresponding achievement made. Hence the para needs to be recasted.

(vii) **Control of Dust:** The para no. needs to be corrected. There was no proposal regarding control of dust in the last approved Scheme of Mining.

(viii) **Noise Control:** The para no. needs to be corrected. There was no proposal regarding Noise in the last approved Scheme of Mining.

(ix) **Control of Vibration:** There was proposal for control of vibration but nothing has been mentioned in the para. **The para should be revised as nothing has been spelt about Extent of mechanization, Drilling & Blasting.**

**Para no.3.4:Compliance status of violation:** The information should be furnished in tabular form giving Sl.No., Violation letter reference with date, Rules pointed out, Reply submitted by the lessee with letter reference & date, Date of issue of Show Cause Notice, Reply submitted by the lessee Reply submitted by the lessee with letter reference & date, Remarks if any etc. The word "complied" should not be used as lessee is not authorized to take decision on compliance status.

**Annexure-17:** The copy of Show Cause Notice dated 05.11.2013 is incomplete. Complete document should be attached.

**Para 3.5: Suspension/Closure/Prohibitory order:** The Rule under which the prohibitory order issued may also be spelt with reason of the same.

## **8. PART-A**

### **1.0. GEOLOGY AND EXPLORATION:**

#### **a) Brief description of topography, drainage pattern, vegetation etc:**

(i) **Topography:** The para consists of topography of Pakharplateau, nothing has been spelt about topography of the lease area. The same may be given in brief. The highest and lowest RL of the lease area should reconciled properly with the submitted Surface Plan. The Forest density given should be rectified from the submitted Key Plan.

(ii) **Drainage :**The slope of the area needs to be rectified as it is not towards North.

(iii) **Vegetation:** The type of plantation done within the lease area should also be mentioned.

(iv) **Climate:** The meteorological data furnished is of way back in 2008. Recent data needs to be incorporated after procurement of the same from IMD.

**Temperature:**The maximum temperature during Winter season shall also be given. The maximum & minimum temperature during Summer season including duration of month, have not been furnished.

**b) Brief description of Regional Geology:** The thickness of the Bauxite deposit given as 1-18m needs to be rechecked. Name of the area may be spelt where 18m Bauxite deposit has been encountered.

In the generalized stratigraphic succession,the formation of Laterite, Bauxite & Lithomarge has been shown within Tertiary to Recent period, the same needs to be re-checked.

**c) Detailed description of Geology of the lease area:**

**Local Geology:** The first line of the para needs to be rectified as shape of the lease area is not rectangular. Size of the ore deposit should also be given.

To which HINDALCO's plant the material of Pakhar Bauxite mine (15.577 Hc) is sent may be spelt with its av. Grade. The specification of plant may also be spelt briefly with capacity of plant (both previous and present), input requirement with grade, output obtained with grade, year of commissioning, year of modification etc. How the material of Pakhar Bauxite Mine (15.577 Hc) is suitable for HINDALCO's plant should be justified.

**d) Name of prospecting/exploration agency:** Name of exploration agency who had carried out drilling work in the lease area with its required details may be submitted. If exploration had been carried out by the lessee himself then the exploration equipment such as drilling rig with its make and number available with the lessee may be given in this para. The exploration in the lease area was carried out by some external agency and not by Lessee. The para may be rectified.

**e) Details of prospecting/exploration already carried out:** The para needs to be modified as per guideline as given below:-

**i) Number of Pits & Trenches:** Nothing has been mentioned about the Trial Pits given in the area. The same should be given along with pit section.

**ii) Number of boreholes:** The BH log given in Annexure-6 needs to be rectified as per item no. 7(i) above for ease of reference.

During the year 2015-16, three BHs have been given in the lease area. Form-J submitted for the same should be incorporated in the document. **The GPS co-ordinates (Lat/Long) of these three BHs need also to be incorporated in the para.** The maximum, minimum & average depth of these three BH may be given in the para. The BH log for PBH1-PBH3 do not contain collar RL of BH. The depth of ore in PBH2 & PBH3 need to be rectified.

**A table showing concise BH log of all the 64 nos. of boreholes giving BH no. total depth of hole, thickness of Bauxite encountered, total recovery length of Bauxite and its complete analysis report showing all radicals including P<sub>2</sub>O<sub>5</sub>, V<sub>2</sub>O<sub>5</sub> & TiO<sub>2</sub> may be enclosed as a component of Annexure-6.**

**iii) Details of sample analysis:** None of the enclosed analysis report in Annexure-6 (Except of three samples given in Annexure-7) have been supported with chemical analysis from NABL accredited laboratory. Complete chemical analysis of Ore/Mineral should be furnished including that of TiO<sub>2</sub>, P<sub>2</sub>O<sub>5</sub> & V<sub>2</sub>O<sub>5</sub>.

**At least for 10% of total samples may be analyzed in accordance to BIS and reports from NABL accredited /Government laboratory (Ref. Part-A, Item no. 1.0(e)(iii) of Universal format for MP/SoM).**

**iv)** The Expenditure incurred in prospecting operation, has not been furnished as per guideline.

**f) Surface Plan (Plate no. 3): (i)** The manner of construction and upkeep of boundary pillars should be in accordance to item no. 4 of G.S.R. No. 710(E), dated 08.10.2014 (Ministry of Mines Notification).

**(ii)** Some of the boundary pillars are missing e.g BP 24, 28 etc. The missing pillars should be erected in its original place for reference in the field.

**(iii)** The dump shown on the Eastern edge of Quarry no. 2 needs to be corrected.

**(iv)** Three ground control points have not been marked on the plan.

**(v) The TBM has not been established in the field. The same has to be established and photograph of the same should also be incorporated in the document.**

**(vi)** The scarp line should be shown with proper symbol.

**g) Geological Plan (Plate no. 4): (i)** Item no. (i) to (v) mentioned above in Surface Plan may also be taken care of in this plan.

**(ii)** The BH no. 1, 2 & 3 have been considered for reserve/resource estimation (Annexure-6A), out of which BH no. 1 has not been shown on the Geological Plan (Plate no. 4), BH no. 3 has been shown as (-) ve BH. Further, BH no. 21 & 42 are also shown as (-) ve BH and around these two BHs development work has been proposed in succeeding years. The above deficiencies should be rectified.

**(iii)** The influence area considered for Measured Mineral Resource estimation should be spelt in the para.

**(iv)** Area explored under different level of exploration should be marked on the Geological Plan.

**(v)** The quarry no. has not been given on the plan.

**h) Geological Sections (Plate no. 4A): (i)** The UNFC code of area considered for different categories of reserve/resource estimation should also be marked on geological cross section.

(ii) All the sections should be reconciled properly with the plan in respect of RL of benches as well as quarry, quarry number, dump no. with its RL(top & bottom) etc. Both top and bottom RL of all the existing features should be given properly.

(iii) Section line 17-17', 24-24' & 25-25' have not been shown on the Geological Plan(Plate no. 4).

(iv) The (-)ve BH shown on the Plan has been shown as (+) ve BH on the Section. The same needs to be reconciled properly.

**i) Future exploration programme:The GPS co-ordinates for Lat& Long of PBH1, PBH2 & PBH3 (BH given recently) may be incorporated in the log sheet and in the para.**

**j) Reserve Resource as per UNFC:** Para no. (e)has been repeated, that should be avoided. The reserve furnished in the table has not been clarified whether it is Mineable or Insitu.

The table showing different categories of reserve/resource may be placed under item no. (L/1) below.

**The resource estimation based on threshold value has not been incorporated.** Further, the area covered under exploration for calculation of resource in context to threshold value may also be given.

Feasibility/Pre-feasibility study report along with financial analysis for economic viability of the deposit as specified under the UNFC field guideline has not been incorporated in the sub para“**Feasibility Study**”.

The heading of the table showing Balance Reserve on page no. 23 needs to be changed. It should be Balance Recoverable Reserve.

**k) Detail calculation of reserves/resources:**

**Method of estimation of reserve:** In the previous approved Scheme of Mining, 203689 MT was shown under Mineable Reserve but in present submitted document the same reserve has been shown as Geological Reserve. The same needs to be rectified.

The percentage of Al<sub>2</sub>O<sub>3</sub> mentioned in the chemical analysis given under the para on page no. 24 does not match with the chemical analysis given in **Annexure-7**. The same needs to be reconciled.

**Balance Reserve as on 01.04.2015(Page no. 25):** The “Recovered Reserve” should be substituted by “Recoverable Reserve” and the last column of the table should be “Balance Recoverable Reserve”.

**Additional Reserve established (Page no. 25):In Annexure-6A,** the recovery length should be taken into account for calculation of additional reserve not the total length of the run as no recovery factor has been taken into account. Hence the Annexure-6A should be revised. Further, due care should be taken in calculation (addition, subtraction etc.) part.

**The recoverable reserve should not be added with Mineable reserve while showing the net available Mineable reserve in tabular form.**

The calculation shown for deriving Tonnage Factor is not clear that needs to be revised.

**Measured Mineral Reserve for new BH**needs to be revised as per revised Annexure-6A and **accordingly Mineable reserve and Life of mine need to be revised.**

**l) Mineral Reserve/Resource: (i)** The table showing resource with respect to level of exploration may be modified slightly by including a column of area covered under level of exploration.

(ii) The table showing Reserve/Resource should be placed under this para as a last item after detailing all above items.

(iii) Mineral Resource with reference to the threshold value of the mineral should also be estimated based on level of exploration.

(iv)The recovery factor has not been taken into consideration while estimation of Reserve in Annexure-6A. **As per present guideline the recovery factor is to be established through field test.**

(v) The Feasibility Study need not be repeated under the para, it should be given under Para (j) above.

(vi) The Reserve/Resource figure furnished on page no. 27 under the para need to be revised.

## **2.0 MINING:**

**a) Existing method of Mining:** The third para of “INTRODUCTION” chapter has been repeated here. Repetition of para may be avoided. In the second para it should be “OTFM” instead of ‘OTMF’. The para does not speak about sequence of mining.

**Existing Status-** Under the para it has been mentioned that the quarries are partly reclaimed and rehabilitated, the statement does not match with the Geological Plan (Plate no. 4) and the field.

It should be rectified. Five (05) quarries have been mentioned in the table showing reclaimed status but those are not shown on the Geological Plan. On page no. 28, it has been mentioned that there are four dumps but on page no. 29, dimension of only two dumps have been given. The same should be rectified.

**Proposed method of mining-** The capacity of compressor need to be mentioned in all places wherever it has been mentioned. Item (e), Separation by hand..... Needs to be rectified. What is Forked Shovel? The equipment may be explained with photograph of the same. The location of stockyard may be given and shown on Surface Plan, Geological Plan, Development Plan etc.

**Mining Strategy-** The capacity of compressor VT-4 need to be given in the para.

**Bench design and Formation-** The dimension of Bauxite bench (height and width) mentioned on page no. 29 (last para) differs from that mentioned on page no. 30 (First para).

**b) Yearwise tentative excavation:**

**I. Insitu Tentative Excavation:** Quarry no. 2C to be developed during 2017-18 has not been marked on the Development plan for the referred year. Unit of Total ROM should be given. What constitutes Mineral Reject should be spelt clearly. The chemical analysis of Mineral Reject should be furnished. Calculation for ROM/Waste ratio should be revised and re-calculated as Mineral reject has been added with OB/SB/IB which is not correct as the waste does not include Mineral Reject. Hence the same needs to be modified.

**Details of quarry RL along with Section reference:** The utility of RL column in the given table is not clear further, it does not match with the Sections indicated.

**Year 2016-17, 2017-18 & 2018-19** - Section 17-17' has not been marked on the plan(Plate no. 6, 7 & 8).

**Year 2017-18-** Pit no. 2C has not been marked on the Plan. Section 24-24' should be shifted slightly further Northward for better visualization.

**II. Dump re-handling:** The volume of Dump1 during the year 2016-17 needs to be rectified and accordingly the total volume should be changed.

The information in the para is also to be submitted as per format given in the guideline in addition to the existing table given in the document. The para following the table (page no. 31) needs to be rectified.

**c) Individual year wise development:During 2015-16:** No. of benches to be developed should be reconciled properly with plan/section and that mentioned in the para.

**In Annexure-8,** during 2015-16, formation of bench no. IV in Laterite as per given BH log is not clear.

A temporary soil dump has to be created for stacking of top soil before spreading it over the backfilled area and that should be shown on the development plan (Plate no. 5).

**During 2016-17:** In Annexure-8, formation of bench no. IV in Laterite in quarry no. 2 as per given BH log is not clear.

**During 2017-18:** Quarry no. 2C has not been shown on the plan(Plate no. 7). The quarry no. and its advancement direction mentioned in the first line of description may be corrected. It should be Quarry no. 2C. In Annexure-8, formation of bench no. IV in Laterite and bench no. II in Bauxite in quarry no. 2C as per given BH log is not clear.

**During 2018-19:** The year & Plate no. should be corrected. In Annexure-8, quarry no. for Bauxite excavation should be corrected. It should be quarry no. 2A. Further, formation of bench no. II in Bauxite in quarry no. 2A as per given BH log is not clear.

In all the above year wise description bench height along with top & bottom RL of benches should be mentioned. The no. of benches to be developed in each year as mentioned under the para should be reconciled properly with the development plan/section(Plate no. 5,6,7 & 8).

**d) Salient features of proposed method of working:** In the third para(page no. 33) mention has been made of Shrengdag mine regarding availability of Compressor. This may be checked.

**e) Layout of mine working: Mine layout-** Item (e), Separation by hand..... Needs to be rectified as per para no. 2.(a) "Existing Method of Mining".

**Extent of Mechanization:Annexure-16 needs to be modified.**

**Drilling and Blasting:** In the sub para "Method of Blasting", the Burden & Spacing has been taken as 1m X 1.2m in case of JH drilling, whereas in the sub para "Blasting Parameters" the Spacing has been taken as 1.5m. Further, in the yield per hole, the volume of one hole has been multiplied by 2.2, where the tonnage factor for Bauxite has been taken as 2.3 as shown in Annexure-8. **The calculation for Powder Factor needs to be revised.**

**Storage of Explosive:** The Explosive License furnished in Annexure-13 does not speak about storage capacity of SG/PG, Detonator, Safety Fuse etc.

**f) Conceptual Mine planning:** The total area shall be covered under excavation with average dimension of quarry, reclamation/ backfilling and rehabilitation after conceptual period need to be mentioned separately. The overall RL of reclaimed area should be spelt in the relevant para. The type of species of plants to be planted with its approximate number may also be given. The area to be left void for water harvesting if any should also be spelt in the para.

**Anticipated life of the mine:** The para should be revised as per item no. (k) above under para “Detail calculation of reserves/resources”.

**Reclamation and Rehabilitation:**The information regarding Reclamation & Rehabilitation has not been shown in the table. The dimension of reclaimed and rehabilitated area should be given.

What constitutes Mineral Reject should be spelt clearly. The chemical analysis of Mineral Reject should be furnished as per para no. 2.(b)(I) “Insitu Tentative Excavation” furnished above. Total OB & Waste column has been repeated in the table. That should be rectified. **Total waste should not include Soil.** Accordingly the table needs to be corrected.

**Total Generation of Waste during the life of the mine:** The para needs to be corrected as few mistakes are there. The proposal of water reservoir should be supported with referred plan in the last line of the para. In the table following the para, the column of “Location of Co-ordinates” may be revised as “Location of co-ordinates of Backfilled area”. Quarry no. may also be referred under this column for ease of reference. During 2016-17, the location of East- co-ordinate need to be revised. The total OB & waste generation figure should be reconciled with the figure to be established on page no. 37(Reclamation & Rehabilitation). The area to be backfilled has been shown as 4.75 in the table whereas in the para “Land Use Pattern after Plan Period” the reclaimed area has been shown as 5.31 hc. The same needs to be reconciled.

**In the table showing “Land use pattern after plan period” the dump area has been shown as Nil, whereas in the development plan for the year 2018-19 and Reclamation Plan(Plate no. 12) two dumps have been shown. The same needs to be corrected in all related chapters and paras.**

**The dimension of dump should be incorporated under the para. The dump section should be incorporated in the document.**

**Environment:** The type of species of plants to be planted should be mentioned.

**Requirement of Green Belt:** The table showing plantation schedule should be justified with ground reality, it should not be hypothetical.

**3.0 MINE DRAINAGE:** The meteorological data furnished should be modified as per item no. 8(1)(iv) (Climate) above.

**The water accumulated in quarry no. 2A at conceptual stage should also be used as a source of drinking water for which a water treatment plant may be proposed as the plateau has scarcity of drinking water.**

In the last line of the para it has been mentioned that “garland channel around the quarry face will be developed”. The same has not been shown in any of the development plan(Plate no. 5 to 8).

**4.0 STACKING OF MINERAL REJECTS/SUB-GRADE MATERIAL AND DISPOSAL OF WASTE:**

**a) Top Soil, Morrum, OB/Waste and Mineral Rejects to be disposed off:** The given table should be modified as per item no. 2(f) Conceptual Mine Planning (Reclamation and Rehabilitation). The table required as per guideline has not been incorporated.

**b) Proposed dumping ground within lease area:** Para has not been incorporated.

**c) Note indicating manner of disposal of waste:**Para has not been incorporated.

**Waste dump/Backfill:** There are some mistakes in the para that need to be rectified. The Plan may be referred where reservoir with stone pitching in the backfilled area has been shown. The table following the para should be modified as per para (f) (**Total Generation of Waste during the life of the mine**)above.

**Sub-grade Mineral:** Mention the  $Al_2O_3$  percentage of the sub-grade material having more than 5%  $SiO_2$ .

**5.0 USE OF MINERAL AND MINERAL REJECT:** The Bauxite ore produced from the mine are not sold to M/s HINDALCO Industries Ltd. Further, M/s HINDALCO Industries Ltd. is not the Sister Concern of M/s Mineral and Mineral Ltd. The para may be corrected.

Before giving analysis report, following points may be strictly adhered to:

- i. Give complete analysis report of ROM and not only for  $Al_2O_3$  and  $SiO_2$ .
- ii. Give analysis report of sweetening material ( $Al_2O_3$ ,  $SiO_2$ ,  $Fe_2O_3$ ,  $TiO_2$ , LOI etc.).
- iii. Give complete analysis of material being transported to plant. &
- iv. Give complete analysis of feed grade material to be used by the plant at Renukoot or Muri.

**All the analysis report should be as per item no. 8.1(e)(iii) above.**

The requirement of end-use industry, specifically in terms of physical and chemical composition should be mentioned.

## **6.0 PROCESSING OF ROM AND MINERAL REJECT:**

The para may be revised as per item no. 5(Use of Mineral) above.

## **8.0 PROGRESSIVE MINE CLOSURE PLAN:**

**8.1 Environment Base Line Information :** The distance of Pakhar, Korgo, Banpur and Semardih villages from the lease area should be furnished.

The percentage of type of population i.e % of SC, ST & Others should be mentioned in the para.

The distance of Kisko area from the lease area may also be given.

**Climatic Condition:** Latest meteorological data may be obtained from IMD.

**Temperature:** The maximum temperature during Winter season shall also be given. The maximum & minimum temperature during Summer season including duration of month, have not been furnished.

**8.2 Impact assessment:** The para should be revised as per guideline. The Vibration level has not been discussed in the para.

**Land environment: Land Scape-** The para needs to be modified.

**Soil and Land use pattern:** The type of Soil available in the area should be discussed.

Land use pattern after plan period- The dump area needs to be corrected as per item no. (f)

Conceptual Mine planning (Total Generation of Waste during the life of the mine). **Individual year wise Land Use Pattern should be furnished.**

**Land use pattern after the conceptual plan period:** The dump area needs to be corrected as two dumps have been shown on Eastern and Western part of the lease as shown in the Conceptual Plan (Plate no. 11). The same needs to be corrected in all relevant chapters and paras.

**Forest :** The forest area exists within 500m radius. The details of forest area should be given.

**Vegetation:** The different species of plants available within ML area and within core zone (500m radius) should be mentioned along with impact of mining over it.

**Agriculture:** The different agricultural product grown in the area should be mentioned along with impact of mining over it.

**Water Environment: Surface Water-** Mention should be made of the stream along with its distance from the lease area from where drinking water is obtained by the villagers.

**Ground Water:** The para may be corrected. As per item no. 2(Mining: Bench Design and Formation) the depth of mining activity may go up to 18m.

**Water quality:** The Environment Management Plan (Plate no. 10) do not show water monitoring station as mentioned. The same needs to be corrected.

**Air Environment: Noise and Air-** Both the para need to be corrected.

### **SOCIO-ECONOMIC ENVIRONMENT:**

**Social and Demographic profile:** The percentage of different types of population existing in and around the lease area should be discussed along with their literacy percentage.

Occupational Health and Safety: The para should be re-casted.

**Human settlement:** The human settlement in and around the lease area should be discussed.

**Recreational Facility:** The recreational facility provided by the lessee should be discussed in the para.

### **8.3. Progressive Reclamation Plan:**

**8.3.1. Mined out Land: Anticipated life of Mine-** The para should be revised as per item no. 8.1(k) above.

**Reclamation and Rehabilitation:** The table should be revised as per item no. 2.(f) Conceptual Mine Planning (Reclamation and Rehabilitation) above.

**Total Generation of Waste during the life of the mine:** The table should be revised as per item no. 2.(f) Conceptual Mine Planning above.

**8.3.2. Top Soil Management:** The para needs to be modified. Average thickness of Top Soil available in the area should be spelt along with its management like storage place, top soil dump dimension, total volume of top soil available, year wise utilization of top soil etc. The top soil dump should be shown on relevant plans. The OB, Waste & morrum need not be discussed under the para.

**Waste dump/Backfill:** The para needs to be corrected as per item no. 2.(f) Conceptual Mine planning: (Total Generation of Waste during the life of the mine) above.

**8.6 Financial Assurance:** The table indicating break up of areas for calculation need to be revised i.c.t item no. 1, 3 & 6.

Contd...8/.

## 9.0 PART- B:

The Consent letter/Undertaking/Certificate from the applicant has not been submitted as per Part-B of the **“Proposed Universal Format For Mining Plan/Scheme of Mining Including Progressive Mine Closure Plan”**.

## 10. PLAN/SECTION:

- i. The Index of the Development Plan/Section needs to be corrected regarding “Year of Working”.
- ii. In the Geological Plan some BHs have been shown as (-) ve while the same have been shown as (+) ve in the Development Plan/Section.
- iii. The Development Sections should be reconciled properly with the Development plans in context to Green belt barrier, Quarry no., Top & Bottom RL of quarry and bench, Road etc.

## ANNEXURES:

- i. NABL accreditation certificate in respect of ECO VENTURES PVT. LTD has not been incorporated in the document.
- ii. The chemical analysis report of NABL accredited laboratory does not indicate the location of samples collected from the mine. The location of sample should be mentioned and shown on the Geological Plan.

## GENERAL:

1. All the tables given in the document should be numbered for proper reference.
2. Repeatability of same information/table should be avoided, it should be referred only.
3. All the Plans must bear date of survey.

## MINING PART

(1) In the front cover & other places of the modification in the mining plan, the document has been submitted only for four years i.e. from 2015-16 to 2018-19 but the reasons for the same has not been given, which should be, otherwise the document should be submitted for five years period from 2015-16 to 2019-20.

(2) The DGPS surveyed map/plan submitted showing UTM data instead of GPS data in compliance to CCOMs circular No.2/2010 and its addendum dated 21.09.2011 & 11.06.2014 regarding geo-reference cadastral map has not been submitted. Moreover, the undertaking submitted in compliance to the CCOM’s circular No. 2/2010 is not acceptable at present.

(3) The extract minutes of meeting of the board of directors, dated 02.08.2011 has been enclosed after the undertaking submitted by the director cum nominated owner but on examination of the same, it is found that, the nomination of Shri I .J. Joshi as owner of Pakhar bauxite mine, over an extent of 15.577ha has not been clearly mentioned, thereby not acceptable in its present form. For information, unless a person has been nominated as the owner of the said mine, he cannot sign a document in his individual capacity or by designation. Therefore, the above resolution should be replaced by a fresh one, as required under the statute.

(4) The contents for list of annexures are missing, which should be attached at the beginning of the text for ease in monitoring.

(5) The extent of lease area is mentioned to be 121.00ha as per the land schedule attached to the lease deed enclosed as annexure-3, whereas, the last scheme of mining was approved over an extent of 15.577ha. Therefore, the present status of the excluded area of 105.423ha should be furnished indicating the approval status of FMCP for ease in monitoring & mismatch in the extent of lease area should be reconciled.

(6) On examination of the Form J enclosed as annexure-3, it is found that, the renewal application was filed over an extent of 38.50 acres or 15.577ha, out of the original lease area of 121.00ha but no FMCP for the extent of 105.423ha has not been submitted to IBM, Ranchi for approval as on date.

(7) The list of board of directors has been enclosed as annexure-4 but the same has not been authenticated by the competent authority. Moreover, the phone/fax/e-mail id of none of the directors has been furnished. Therefore, a fresh list of the board of directors should be submitted incorporating the above information. Again, it is found that, the name of Shri D.K. Kohly has been indicated as one of the Director but he is not there in regular service with Hindalco Industries Ltd. as reported.

(8) The excavation planning for the years 2015-16 to 2018-19 has been computed & enclosed as annexure-8 but the length, width and RLs of benches proposed in topsoil/morrum, laterite & bauxite has not been furnished, which may be mentioned. Besides, the location co-ordinates & the cross sections considered for the purpose is missing, which should be furnished by adding more columns in the tabular annexure. Moreover, the recovery of bauxite ore is considered as 80% but the basis on which such recovery is considered should be justified with valid reasons. So, also the grade of the recoverable bauxite may be furnished supported by authenticated chemical analysis report for clarity. Likewise, percentage generation of waste is missing, which should be indicated and the basis for such

generation may also be furnished specifying the grade of such waste materials for more informative. Accordingly, necessary corrections/modifications may also be made in connected paras in the text.

(9) The photo copy of the bank guarantee valid upto 31.03.2016 has been enclosed as annexure-15 but the modification document has been submitted for the period from 2015-16 to 2018-19, thereby a valid bank guarantee matching to the ensuing modification period should be submitted replacing the enclosed one for clarity.

(10) Few photographs in support of working quarry, reclaimed area and boundary pillars has been enclosed as annexure-18 but no Photographs showing the existing status of exploration, dumping & afforestation etc. have been enclosed, which should be submitted for more informative.

(11) The photo I.D proof of the applicant has not been enclosed & the same should be submitted for clarity.

(12) A copy of the feasibility report of the mine has not been enclosed as annexure to the document, which should be submitted.

(13) The photo copy of the bank guarantee valid upto 31.03.2016 has been enclosed as annexure-15 but the modification document has been submitted for the period from 2015-16 to 2018-19, thereby a valid bank guarantee matching to the ensuing modification period should be submitted replacing the enclosed one for clarity.

(14) The existing reclamation & rehabilitation status of the mine has been given but nothing has been discussed about the existing method of mining practised in the mine so far, which should be briefed in detail for more informative. In addition to the above, the proposed method of mining furnished in the para under reference may also be revised by furnishing the proposed bench formation status both in overburden & in ore zone, dumping, reclamation & rehabilitation etc. for clarity. If the existing quarries are proposed to be developed /extended, the same may also be clearly mentioned. If the proposed workings are in the virgin area, the reasons for the same may also be furnished with valid reasons. In the light of the above, the para may be revised. [Para 2.0(A)(a)]

(15) Under the heading **Bench Design and Formation**, there is a mention that, the height of the topsoil benches are kept 3m & the same in overburden and bauxite zone are 6m but the name of the quarry(s) involved in the bench design are not furnished. Therefore, specific information/ data in the following account should be furnished: (i) Removal of OB benches have been proposed but nothing has been given about the lithology of such imaginary benches. (ii) Bench formation status on topsoil, morrum & laterite is missing and without any valid data for the same, the practical bench formation is not possible.

(iii) It is learnt that, out of some odd benches, there is only one bench in OB zone and the bottom one in bauxite zone & the version lacks scientific approach. Therefore, the lithology of the borehole data should be co-related with the bench design & formation for systematic and scientific mining. Unless the correct lithological data is ascertained, the practical bench formation is not possible. In view of the above, the accurate data for bench formation for each year of the development should be furnished, instead of furnishing generalised picture of one bench in OB & one bench in ore. So, the entire document should revise in such a manner that only the filtered data at appropriate places are available. (Page No.29)

(16) (i) Under the heading **Insitu Tentative Excavation**, the proposed status of overburden removal, generation of waste & production target for the period from 2015-16 to 2018-19 has been furnished in tabular form but the bench/RL of the excavation planning has not been given, which should also be furnished by adding one more column in the table. (ii) On an average, there are two nos. of quarries are proposed under excavation planning during the years 2015-16, 2016-17, 2017-18 & 2018-19, which should be justified with valid reasons or either only one quarry should be proposed. (iii) The recovery percentage of the bauxite & waste generation is missing, which should also be furnished. Accordingly, corresponding incorporations /modifications may also be made in connected paras in the text & relevant plates. [Para 2.0(b)(I)]

(17) Re-handling of two existing dumps are proposed during the years 2016-17 to 2018-19 in the table given in the para under reference but the location co-ordinates of such dumps are missing, which should be furnished by adding one more column right to the table. Moreover, the proposed utilisation status of the re-handled materials may also be specified. If the re-handled waste material is intended to be utilised for backfilling/reclamation, the location co-ordinates & dimension of the void proposed for backfilling may also be indicated. [Para 2.0(B)(II)]

(18) The name of the quarry(s)/location co-ordinates of the proposed workings should be furnished indicating the direction of advancement of quarry faces. Besides, the tentative dimension of the benches proposed to be made in topsoil, laterite/morrum & bauxite ore zone may also be specified. All should be presented in tabular form. In the light of the above, the information furnished in para 2.0(e) may also be revised. [Para 2.0(d)]

(19) Detailed calculations of drilling & blasting matching to the excavation planning have not been furnished, which may be submitted. Besides, OMS & powder factor of the explosives may also be computed & furnished. (Page No. 34)

(20) The para is meant for conceptual mine planning, whereas, no information regarding the same has been furnished. Therefore, the excavation planning beyond the proposed modification period should be furnished on account of development, production, dumping, reclamation, rehabilitation & afforestation up to the end of the lease period. Besides, it is also found that, the occurrence of bauxite is found below the lairs of topsoil, morrum/laterite but the same has not been discussed in the refer para. Therefore, the factual information about the topsoil, morrum/laterite is required to be furnished indicating, the quantities of topsoil, morrum/laterite proposed to be generated by end of the conceptual period supported by calculations for more informative. [Para 2.0(f)]

(21) The land use after the plan period has been furnished in 2<sup>nd</sup> table given in the page under reference; instead the extent of area proposed to be degraded in each year of the ensuing modification period should be furnished in separate tables. Accordingly, corresponding changes may also be made at other places of the document. (Page No.38)

(22) The quality of water encountered in the area is missing, which should be furnished for ease in monitoring. [Para 3.0(c)]

- (23) The quantities of soil proposed to be generated in each year of the ensuing modification period has been furnished in 2<sup>nd</sup> column of the 1<sup>st</sup> table given in the para under reference but the location co-ordinates/cross sections considered for the purpose is missing, which should be furnished by adding one more column right to the table. [Para 4.0(a)]
- (24) The location co-ordinates and size/capacity of the old dumps should be furnished for ease in monitoring. [Para 4.0(b)]
- (25) Under the heading **Sub-Grade Mineral**, the proposed generation status of sub-grade material in each year of the ensuing modification period is missing, which should be computed & furnished and the para may be revised accordingly. [Para 4.0(c)]
- (26) Under the heading **Employment Potential**, a 1<sup>st</sup> class mine manager as required under MMR,1961 has not been proposed, which should be incorporated. Besides, the manpower requirement on account of unskilled, semiskilled & skilled has also not been given, which should be furnished. (Page No. 48)
- (27) Quarry wise extent of area proposed to be degraded in each year of the ensuing four year period should be furnished. Besides, quarry wise rehabilitation & afforestation for each year of the aforesaid period may also be furnished. All should be furnished in tabular form and rest of the things should be erased. (Para 8.3.1)
- (28) Dimension (L x B x D) of the void available for backfilling has been furnished in 3<sup>rd</sup> row of the tables furnished in the pages under reference but the names of the quarries involved is missing, which should be furnished. (Page No. 60 to 63)
- (29) Updated status of bank guarantee should be furnished under the heading **Computation of financial assurance** and necessary corrections may also be made accordingly. (Page No. 66)
- (30) Plate-3 (Surface Plan): (i) 7.5m barrier zone has been excavated along the grid line N-800 and in between the grid lines N700-N900 & E2300-E2400 but the aforesaid excavated area has not been reclaimed, which should be done and photographs in support of such reclamation should besubmitted. (ii) There are many scattered small dumps are marked on the plan & the same have not named/numbered for their identification. (iii) The pillar numbers BP-50, BP-51,BP-52 & BP-25 are considered as ground control points, which is not correct. Therefore, at least three permanent ground control points situated outside the lease area should be selected and latitude & longitude of these ground control points may be furnished. Besides, these ground control stations need to be linked with the boundary pillars.
- (31) Plate. 5 (Development Plan & Section 2015-16): The lithology depicted for different items shown on thedevelopment sections are not matching with that of the development plan. Therefore, necessary modifications/incorporations may be made not only on this plate but also on other relevant plates submitted along with the document. In the light of the above, the plates submitted for environment management plan, conceptual plan & sections, reclamation plan and financial assurance plan may also be revised.

**All the pages of annexures enclosed with the document should be attested by the RQP.**

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