

Scrutiny comment on Review of Mining Plan including PMCP in respect of BAPHLIMALI Bauxite Mine of M/s Utkal Alumina International Limited over an area of 1388.740 Hectare in Kalahandi and Raygada districts of Odisha State.

Date of Inspection: 20.10.2016

GENERAL:

- (1) As present submission is review of Mining Plan, hence, on cover page instead of Modification and Review of Mining Plan only "Review of Mining Plan" to be mentioned. Accordingly certificates submitted needs to be corrected.
- (2) Page 8: The UTM coordinated also to be given for lease range and boundary pillars.

GEOLOGY & RESERVES:

- (3) The present status of 33 number exploratory pits to be given considering the pits merged in the existing quarry and outside the quarry.
- (4) Few sample analysis of OB/laterite in respect of Al_2O_3 , R-silica, T-silica, P_2O_5 etc. to be submitted in present submission.
- (5) As per guideline of "IBM manual on appraisal of Mining Plan 2014" at least 10% of total samples to be analyzed in accordance to BIS and reports form NABL accredited/Government Laboratory. Accordingly, BH wise sample details comprising of BH number, Samples generated, Samples analyzed, Ore Zone, OB Zone etc. (to be annexed) to be given in tabulated form.
- (6) It is mentioned that 10% of total samples generated are analyzed from NABL lab, however, the correlation between original samples and check samples have not been carried out.
- (7) The documentary evidence in respect of expenditure incurred in exploration to be enclosed.
- (8) Documentary evidence in respect of considering Sub-grade as 7% of total OB to be enclosed.
- (9) The reason for wide barrier of 15 meter from plateau boundary to be given in detail. And resource blocked in this part and ultimate pit limit to be given clearly.
- (10) The revised threshold value also prescribes mineral content for Aluminous Laterite i.e. +20% Al_2O_3 . While scrutinizing the Bore Hole data submitted in Instant document, it is observed that a thick capping of Aluminous Laterite (+20% Al_2O_3) is present below soil cover. In view of revised threshold value as per CCOM circular 3/2010, the same should be estimated as Mineral Resource under UNFC.
- (11) The density considered seems to be in lower side, hence, few more analysis in respect of density, grade of sample, etc. to be submitted in present submission.
- (12) Sectional area mentioned in table of resource and reserve estimation does not match with sectional area presented in geological sections at places. Further, as per sectional calculation total resource of the bauxite is estimated to about 187.969 million tones, however, in table presented on page same has been mentioned as 197.684 million tonnes. Verify and rectify.

MINING:

- (13) The development should be proposed in such a sequence that simultaneous backfilling by re-handling of old dump not affected the development.
- (14) Retaining and garland drain to be proposed all along the top soil dump, waste dump-2, stack yard etc.
- (15) Plantation as proposed should be in the flat train on non-mineralized ground and reclaimed area. Reclamation of the pit should be matched with the uniform profile.

- (16) The backfilling of OB/Aluminous laterite in mine out area to be proposed only after leveling of mine out area. It is should also proposed to maintain the Grade, Quantity, plan and section of the back filled area for future reference.
- (17) Development proposal to be given from one end to another end year wise in the interest of scientific mining and protection of environment.
- (18) The detail section wise backup calculation of proposed excavation of Bauxite, Mineral reject, top soil etc. to be given along with development sections.
- (19) The enhancement of production of Bauxite to be justified in the light of rule 17 of MCR, 1960.
- (20) The grade of mineral reject to mention for mineral reject mentioned in table presented on page 56 and 57 etc.
- (21) In Conceptual Mine plan the details about total excavation, Disposal of waste, Sub-grade generation and its beneficiation/utilization, mine development, manpower and equipment requirement, conceptual exploration, land degradation, waste required and its availability for back filling the ultimate pit, depth of the back filling, reclamation and rehabilitation, Proposal of any expansion, etc. showing on a plan with few relevant sections to be given.
- (22) **Mine Drainage:** A drainage plan may be submitted showing the drainage pattern of the lease area. Accordingly, environment protective measures like retaining wall, garland drain, settling tank etc. may be proposed/revised.

STACKING OF MINERAL REJECT/SUB GRADE AND DISPOSAL OF WASTE:

- (23) As per table presented on page 88, sub-grade mineral supposed to be generated is proposed for blending, however, from development plan it is observed that Sub-grade stack has been proposed. It may be clarified.
- (24) It is observed that Mineral reject and top Soil dumps are proposed on the Mineralized Ground. These dumps should be proposed on the non-mineralized ground or purely temporary dumping for a short period to be proposed in mineralized area with technical constraints & justification.
- (25) A separate plan showing year wise back filling proposal along with relevant sections to be submitted. The section wise details like proposed backfilling bottom mRL, top mRL, quantity of backfilling etc. may be given.
- (26) Proposal of blending of Sub-grade/Mineral reject to be given in the interest of conservation of Mineral. Blending ratio also should be mentioned.

PROCESSING OF ROM AND MINERAL REJECT:

- (27) Indicate quantity (cum per day) of water required for mining and processing and sources of supply of water, disposal of water and extent of recycling. Water balance chart may be given.

PROGRESSIVE RECLAMATION PLAN:

- (28) **Disaster Management and Risk Assessment:** Briefly describe about emergency plan proposed for quick evacuation or measures to be taken during high risk accidents like landslides, subsidence flood, inundation in underground mines, fire, seismic activities etc. The capability of lessee to meet such eventualities and the assistance to be required from the local authority may also be described. The name of officials along with telephone number may be given; responsible to take appropriate action during such eventualities.
- (29) Year wise proposed location of plantation to be mentioned in tabulated form in text part of the document and same to be depicted in reclamation plan.

FEASIBILITY STUDY REPORT:

- (30) Financial analysis is not carried out as per UNFC guidelines. It should be carried out based on real time cost involved. Viability of the project should be analyzed up to the ultimate depth considering following points:
Capital cost, Cash flow forecast, Investment cost, Inflation forecast, Operating cost, Sensitivity studies, RR, IRR, NPV for the project life, cost of operation, Closure cost and Rehabilitation cost etc.

PLATES:

General:

- (31) It is observed that some of the drawings are not prepared at prescribed scale (1:2000) as specified in rule 27 of MCDR, 1988. This seems to be done to fit large area within A0 size paper. Hence, permission of scale reduction may be obtained from competent authority as per rule 27 of MCDR, 1988.
- (32) All plans and sections should be signed with date by certified Surveyor, Qualified Person, Mine Manager, Mining Engineer and Mining Geologist as per provisions of Rule 30 of MCDR, 1988 and Rule 66 of MMR, 1961.
- (33) Wind direction may be shown through wind rose diagram at the top right corner of the relevant plans.
- (34) Approach road to ML area to be shown in all relevant plan and sections.
- (35) Forest area, Non Forest area, Surface right acquired area etc. should be marked clearly over all Map/Plan & Surface plan.
- (36) Color code given for different features in plans and sections to be same. Further, Contour value to be shown in all the plans invariably.
- (37) Date of observation of Magnetic Meridian should be given on all plans except Khasra Plan.
- (38) **Surface Plan:** Forest/non-forest/private land to be shown clearly. Further, no bauxite zone, conveyor belt, contour are not indexed. Proposed, Five year excavation block has not depicted as per Scale permission letter from CCOM dated 21/05/2016.
- (39) **Geological Plan & Section:** A separate BH plan may be submitted showing UNFC boundary (G1, G2 etc.), Proposed BH, Drilled BH, Geology of the area, Section line, Grid, Existing quarry, Safety Zone etc. for better geological understanding.
- (40) The grades mentioned in sections are not legible at places, verify and rectify. Further, Bauxite Zone is not indexed in sections. Direction along which geological section have been drawn to be depicted on the sections. Bauxite Zone may be hatched for better understanding.
- (41) Development plans and Sections: ORE, OB and Top Soil excavation and proposed backfilling to be shown in different color. Proposed and existing Bench mRL to be shown. Existing backfilled area to be indexed. Direction of section to be marked along with the sections has been created. Font Size of the BH title may be reduced as it is overlapping at places. Contour value has not depicted in development plans.
- (42) The proposed and existing environment protective measures to be shown in environment plan. The drainage pattern of the lease area also to be shown on the plan. The flow direction of the water also to be shown.
- (43) FA Plan: FA table may be depicted on FA plan.

ENCLOSURE:

- (44) Resolution in respect of nominated owner Sri S.K. Mishra seems to be incomplete, hence, a fresh resolution in this regard to be submitted or id proof and signature proof of company secretary to be submitted.
- (45) Photo id and signature proof submitted in respect of Nominated owner is obscure, a legible copy same to be submitted.
- (46) CTO submitted is valid up to 31.03.2016, hence, copy of latest CTO to be submitted.
- (47) Letter of competent authority for working in Broken up area to be enclosed.
- (48) Few photograph of the Boundary pillars, present land use to be attached.
- (49) Details like Name, residential and correspondence address, email address, contact number etc. of all the Directors of the company to be submitted.

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