

भारत सरकार
खान मंत्रालय
भारतीय खान ब्यूरो
क्षेत्रीय खान नियंत्रक का कार्यालय

No. MSM/FM/14-ORI/BHU/2016-17

Plot No. 149, Pokhariput
Bhubaneswar – 751 020

Date: 14.12.2016

To

Shri D K Mohanty, General Manager,
M/s National Aluminium Company Ltd
Panchpatmali Bauxite Mines,
Damanjodi, Dist- Koraput,
Odisha – 763008

Sub: Approval of modification of approved Scheme of Mining of Panchpatmali (South Block) Bauxite Mine along with Progressive Mine Closure Plan (PMCP), over an area of 528.262 ha in Koraput district of Odisha State, submitted by M/s National Aluminium Company Ltd under Rule 17 of MCR, 2016.

Ref: - i) Your letter No. NAL/MIN/GM(MINES)/2016/845 dated 05.12.2016.
ii) This office letter of even no. dated 07.12.2016.

Sir,

This has reference to the letter cited above on the subject. The draft of modification of approved Scheme of Mining along with Progressive Mine Closure Plan (PMCP) has been examined in this office based on site inspection carried out on 08.12.2016 by Shri Dilip Jain, Junior Mining Geologist. The deficiencies observed are enclosed herewith as Annexure I.

You are advised to carry out the necessary modifications in the draft modification of approved Scheme of Mining in the light of the contents vide Annexure 1 and submit **three (3) firm bound and two (2) soft copies of the document text in CD in a single MS Word file (the drawing/plates should be submitted in Auto CAD compatible format or JPG format in resolution of 100x100 pixels on same CD)** with financial assurance under Rule 23 F of MCDR 1988 of the Modification of Approved Scheme of Mining within 15 (Fifteen) days from the date of issue of this letter, for further necessary action. If the total page of annexures exceeds 50 (Fifty) then it should be submitted as separate volume. But reference of these annexures must appear in the modification of approved Scheme of Mining document. The plates are also to be submitted in separate volume.

The para-wise clarifications and the manner in which the deficiencies are attended should invariably be given while forwarding the modified copies of the modification of approved Scheme of Mining. It may be noted that **no extension of time in this regard will be entertained and the modification of approved Scheme of Mining will be considered for rejection if not submitted within above due date.** It may also be noted that if the deficiencies are not attended completely, the submission would be liable for rejection without further correspondence.

Yours faithfully,

(HARKESH MEENA)

क्षेत्रीय खान नियंत्रक / Regional controller of Mines

Scrutiny comments in respect of Review of Mining Plan of Panchpatmali Bauxite Mine, M/s NALCO in district Rayagada & Koraput, odisha

Text:

GENERAL

1. As present submission is submitted under rule 17(3) of MCR, 2016, hence nomenclature of the document may be revised to "Modification of Review of Mining Plan" instead of Modification of Scheme of Mining.
2. During site visit it is came to know that Supplementary lease deed has been executed for the extended period of the lease, if so, the document need to be submitted as Modification of Mining Plan under rule 17(3) of MCR, 2016 for extended period.
3. Annexure number mentioned in page 3 does not match with the annexure number mentioned in annexure. Further, all the pages of annexure to be numbered and signed by QP.
4. Page 4 and 8: The registered email id, name of the nominated owner and agent etc. to be mentioned. Further, registration number under rule 45 of MCDR, 1988 also to be mentioned on same page. Resolution of Board of Director in respect of nominated owner and agent to be submitted.
5. Date of extension of lease period in respect of North and central Block needs to be checked and rectified.
6. Page 7: Scheme of Mining is mentioned in place of Modification of review of Mining Plan. Verify and rectify.
7. Page 8: It is mentioned that Supplementary Lease deed has been executed; however, copy of same is not enclosed. Copy of same to be enclosed.
8. Page 9: Lease range may also be mentioned in UTM coordinate. Further, UTM coordinate also be mentioned in ML pillar coordinate table as shown in page 10 and 11.
9. Page 14: It is mentioned that preproduction drilling is carried out at 25 x 25 grid pattern, however, during site visit is observed that no mining activity has taken place in Lease area. Verify and rectify the statement.
10. Page 14: Production target of Bauxite has been mentioned for the year 2016-17 and 2017-18, however, no proposal of Bauxite was envisaged in the approved document. Verify and rectify.
11. In review chapter against proposed target, the compliance of same or remark to be mentioned for not achieving the target to be mentioned.
12. Para 3.6: Justification and reason of modification to be given.
13. Para 3.1, page-13, details of approved Mining Plan/SOM may be furnished in tabular form.

GEOLOGY AND RESERVE

14. Para e: the details like total number of sample generated, samples analysed, number of check samples, highest and lowest drill depth, average drill depth etc. to be mentioned.
15. The number of BH shown in the Geo plan and Surface plan is less than that of the mentioned in text part of the document i.e 310 BH. Verify and rectify.
16. During site visit it is came to know that the BH samples are analysed at NALCO's own laboratory. Hence, few samples from different BH may be collected and to be analysed from NABL lab. A graphical representation of same showing R^2 value and the observation to be submitted in text part of the document. Further, the details like BH number, from to, lithology, Original sample number etc. for the sample collected to be enclosed.
17. As per text a total of 310 BH have been drilled, however, form K is submitted for only 178 BH. Form K for Remaining BH to be enclosed.
18. It is observed that some of the Mineralised area (Northern, Central and Southern Part) is yet to explored, hence, exploration proposal may be given as per the directive of Ministry of Mines.
19. It seems that the Conveyor Belt is a permanent feature and substantial amount of the Bauxite may be blocked in the safety Zone of same. Hence, safety Zone may be marked in Geology plan and other relevant plan and resource estimation may be revised accordingly.
20. It is observed that Bauxite resource has been estimated by using Surpac Software and also by X-sectional area method, which simply creates the confusion. Hence, either software or X-sectional area method to be adopted and accordingly other details may be given.
21. Few samples from different part of the lease area to be analysed for OB/laterite in respect of Al_2O_3 , R-silica, T-silica, P_2O_5 etc. and report to be submitted in present submission. Location of same to be shown on geo-plan.
22. Documentary proof for bulk density/ T.F. considered for reserve/resource estimation may be submitted. Few samples from different part of the lease area to be analysed for Density for Bauxite and Laterite/OB. It should be from NABL accredited lab. or Govt. lab.
23. The detail of correlation made between reactive silica and non-reactive silica to be given with document evidence. Further, section wise resource estimation for Geological and Minalable Bauxite to be given.
24. As some the mineralised area yet to be explored, hence, table, presented on page 25 may be revised.
25. Page 35: the analysis report of plant feed grade bauxite to be enclosed.
26. Page 36: The threshold value of Bauxite is 30% Al_2O_3 . It is mentioned that Resource of Bauxite is mentioned with +20 Al_2O_3 and -7% SiO_2 . While going through some of the BH data, it is observed that there is no bauxite zone having grade from 20 to 30% Al_2O_3 . Hence, mention of cut off as +20% Al_2O_3 needs to be justified.

27. The quantity of Aluminous Laterite to be estimated through X-sectional area Method. Further, heading of table of resource estimation to be given.
28. All details of exploration carried out as enclosed should be certified by the concerned geologist of the mine.

MINING

29. Page 45: it is mentioned that in the initial stages of excavation (2016-18) only OB will be removed, however, in subsequent pages excavation proposal of Bauxite is also given. Verify and rectify accordingly.
30. 33 KV power line is going very near to proposed excavation Block. Hence, adequate proposal of safety may be given.
31. The existing and proposed method of mining may describe properly with existing capacity of mine of plant feed grade, capacity of machinery, pit size etc. In existing method of mining, it should be mentions that thereis no mining activity in the block except conveyor belt, 33KV line, pond. Etc. Present land use may be given at this place also.
32. Justification for site selection of Mining has not been furnished in the Chapter-Part-A-2.0. Further the mining proposal should be modified to ensure scientific & eco-friendly mining. In view of above the proposal of mining may be given from one end to another to facilitate phased reclamation and rehabilitation of the land effected by mining operations. Necessary modifications in others relevant chapters may be carried accordingly.
33. OB dump is proposed partially over the mineralised area, which is not accepted. Hence, proposal of same may be revised. A separate dump plan and section may be given. Section to be drawn along few different directions.
34. Section wise excavation calculation for Soil and Aluminous laterite/OB to be given. Accordingly table on page 46 may be revised.
35. As there is no Old dump in the lease area, hence, Dump re-handling seems to be not applicable in present case.
36. Storage location of topsoil to be shown in relevant plan and sections. Further, proposed Haul road, length of the haul road, location of mineral storage, etc. to be shown in plan and sections.
37. As the bauxite of South block will be transported to North and Central Block crusher, hence, a undertaking that necessary permission will be obtained from competent authority needs to be enclosed.
38. On page period of scheme is mentioned as 2017-18 to 2021-22, whereas, modification is being done only for the period 2016-17 to 2018-19. Verify and rectify.
39. The stripping ratio should be tonne to tonnes to CuM to CuM. Accordingly verify and rectify.
40. The life of the mine may be revised as discussed. Further, 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.

41. Blasting is not dealt with properly and blasting parameters has been considered for 2m bench height for top bench only. Optimum Charge per delay to be considered based on blast induced vibration study; accordingly most suitable drilling & blasting design along with initiation/firing pattern should be proposed.

MINE DRAINAGE

42. This chapter is not dealt with properly. Mine is situated at high altitude, having hilly & undulating terrain with large catchment area and, substantial quantity of rain water measured to flow through the lease area. Moreover, many villages, agricultural land, nalas, water course etc. are present at lower level near to lease area. However, adequate rainwater management plan i.e. drainage plan along with arrangement for arresting solid wash off is not incorporating with engineering details & material to be used for its erection/construction. Same to be given in the interest of protection of environment.

HANDLING OF MINERALS REJECT/ SUB-GRADE AND DISPOSAL OF WASTE

43. The generation and its utilization of Sub-grade, OB, Top soil, etc. to be shown as per the standard format.
44. Buildup of dumps from year to year to be given in text part of the document (in tabulated form with ref. to RL of individual terrace) with description of the method & manner of disposal of waste rock, designed capacity & height of dump and precautions envisaged for confinement of the dump.

PROCESSING of ROM AND MINERAL REJECT

45. Page84: The details of existing equipment in South Block to be given only. Further, details of ROM processing and Mineral reject etc. to be given only in respect of South Block.
46. Give a material balance chart with a flow sheet or schematic diagram of the processing procedure indicating feed, product, recovery, and its grade at each stage of processing.
47. 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 MINE CLOSURE PLAN

48. Adequate proposal of garland drain / retaining wall needs to be given for channelizing the rain water to pond (Northeast).
49. Environmental Base line information & EIA : It should be clarified that base line data collected & assessment done by which agency, period of data collection & assessment and whether it is conforming to the norms of MoEF.
50. Para 11.2 : mitigation measures of impacts associated with mining i.e. mainly related to air, water, noise, vibration, land, aesthetics etc. are not given properly. The same to be elaborated.
51. In Para "Risk Assessment", risk analysis of different mining operations and safety management plan needs to be given.

FEASIBILITY STUDY REPORT

52. In the UNFC feasibility study: Economic evaluation of the project is not carried out properly; following important parameters are not dealt with:-

Assessment of IRR (Internal Rate of Return) and NPV for the project life.

IRR based on operating cost, reclamation/ rehabilitation cost, closure cost and other important parameters as per UNFC guidelines for the life of the project on the basis of ore body geometry, i.e., depth, width, length etc. as estimated and considered for reserve/ resource estimate.

Cash flow statement for the period considered for assessment of IRR.

Sensitivity analysis on cash flow due to market changes, i.e., cost of operation, sale price etc.

Plates:-

General:

53. Wind direction may be shown through wind rose diagram at the top right corner of the relevant plans.
54. Approach road to ML area to be shown in all relevant plan and sections.
55. The nomenclature of UTM grid may be roundup as discussed in during site visit.
56. Contour value to be shown adequately in all the plans invariably.
57. **Surface Plan:** Forest/non-forest/private land to be shown clearly. Proposed, excavation block to be depicted on surface plan. Forest area diverted needs to be shown with different colour hatch.
58. **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.
59. The colour code/hatch given in the Geo plan should same in the section. Bauxite, Laterite, Soil etc. may be shown with some prominent hatch colour code for better understanding. Direction of sections to be mentioned along which x-section has been generated.
60. **Development plans and Sections:** Proposed and existing Bench mRL to be shown. 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.
61. **Key Plan:** Approach road from Damanjody to Mine site need to be shown properly on Key Plan. Location of environment monitoring station as per approved EIA and EMP of MoEF to be shown.
62. Authenticated Lease plan obtained from State Government to be submitted in instant document.
63. FA Plan: FA table may be depicted on FA plan.

ENCLOSURE:

64. The copy of letter of approved FMCP in respect of area surrendered of 1268.695 and 715.733 , land schedule of remaining area 528.262 Ha ,copy of Supplementary

Lease deed and copy of letter in which NALCO requested State Govt. to extend lease period as per rule 3 of Minerals (Mining by Government company) rule 2015, as mentioned on page 8 to be enclosed , also Photo id and signature proof of a legible copy of Nominated owner to be submitted with Few photograph of the Boundary pillars, present land use with Details like Name, residential and correspondence address, email address, contact number etc. of all the Directors of the company to be submitted.