



भारत सरकार GOVERNMENT OF INDIA
खान मंत्रालय MINISTRY OF MINES
भारतीय खान ब्यूरो INDIAN BUREAU OF MINES
क्षेत्रीय खान नियंत्रक के कार्यालय
OFFICE OF THE REGIONAL CONTROLLER OF MINES



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No. MP/FM/16-ORI/BHU/2017-18

Date: 03.10.2017

To

✓ Shri Sanjay Krishna Patel, General Manager & Power of Attorney Holder,
M/s NALCO Ltd, NALCO Bhawan, P/1,
Nayapalli, Bhubaneswar,
Odisha- 751013

Sub: Approval of Mining Plan of Pottangi Bauxite Mine along with Progressive Mine Closure Plan (PMCP), over an area of 697.979 ha in Koraput district of Odisha State, submitted by M/s NALCO Ltd under Rule 17 of MCR, 2016.

Ref: - i) Your letter No. NBC/P&T/511 dated 21.09.2017.
ii) This office letter of even no. dated 22.09.2017.
iii) This office letter of even no. dated 22.09.2017 addressed to Director of Mines, Government of Odisha copy endorsed to you.

Sir,

This has reference to the letter cited above on the subject. The draft of Mining Plan along with Progressive Mine Closure Plan (PMCP) has been examined in this office based on site inspection carried out on 24.09.2017 by Shri Ramkishan R, Senior Asst. Controller of Mines & Shri S R Mazumdar, Senior Mining Geologist. The deficiencies observed are enclosed herewith as Annexure I.

This to inform that the state Government has allowed time up to 31.07.2017 for submission of mining plan vide their letter No IV(Bx)SM-198/2015 4831/SM dated 05.06.2017 over an area of 1738.04 ha. However this mining plan has been submitted over an area of 697.979 ha. **Therefore you have to submit valid letter of intent over an area of 697.979 ha from the state Government along with precise area map duly authenticated by the state Government. Failing which, the document will not be processed further.**

You are advised to carry out the necessary modifications in the draft Mining Plan along with Progressive Mine Closure Plan in the light of the contents vide Annexure I 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 in Auto CAD compatible format or JPG format in resolution of 100x100 pixels on same CD) of the Mining Plan 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 of Mining Plan 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 Mining Plan along

with Progressive Mine Closure Plan. **It may be noted that no extension of time in this regard will be entertained** and the Mining Plan along with Progressive Mine Closure Plan 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

Copy for kind information and further necessary action to:

- (i) Shri Sripad Pujar, Shri B V R Achar & Shri Sujit Kumar Mohanty, Plot No. 32, Annapurna Badavane, Hospate, Dist- Ballari, Karnataka-583201
- (ii) The Director of Mines, Directorate of Mines, Government of Odisha, Heads of the Department Building, Bhubaneswar- 751001, Odisha.


(HARKESH MEENA)

क्षेत्रीय खान नियंत्रक / Regional controller of Mines

Scrutiny comments on examination of Mining Plan of Pottangi Bauxite Mine including PMCP over an area of 697.979 Ha in Koraput District of Odisha State of M/s NALCO

1. GENERAL:

- I. Mining Plan should be submitted under Rule 16 (1) of the Minerals (other than Atomic and Hydrocarbons Energy Minerals) Concession Rules, 2016. The same should be corrected in the cover page and text part.
- II. On the cover page submission of "Progressive Mine Closure Plan" under Rule 23 of MCDR 2017 should be mentioned.
- III. On cover page Company address, e-mail, phone and fax no. may be furnished along with the phone numbers of qualified persons. The email id should also be mentioned in the table provided in page 6 of the text.
- IV. "Mineral Conservation and Development Rules 1988" to be replaced with "Mineral Conservation and Development Rules 2017" in the content of different parts of the text. The reference quoted at MCDR 1988 may be replaced with relevant rules under MCDR, 2017.
- V. All the annexure and text to be properly indexed/ numbered/ paged and signed by qualified persons. All the certificates should bear dated signature.
- VI. Sequence of para as per IBM Manual appraisal MP 2014 has not been covered in text. All the headings as mentioned in the IBM Manual appraisal MP 2014 should be furnished in all chapters in the text.
- VII. It was observed during inspection that the mining lease boundary has not been demarcated by erecting pillars so the condition of erecting pillars in granted ML letter from Government of Odisha / CCOM circular no.2/2010 and its addendum regarding geo-referenced mining lease map and Mining Lease boundary pillars should be implemented.
- VIII. Copy for grant of approval for the application submitted for "Extension of time for submission of Mining Plan of Pottangi Bauxite Mine" dated 28.07.2017 (copy enclosed as Annexure-3) need to be furnished failing which document cannot be processed.

- IX. Precise area lease map of revised applied Mining Lease area over 697.979 Ha from allotted area of 1738.04 Ha duly authenticated by competent authority to be submitted failing which document cannot be processed.
- X. In page 8, para 3.6 reference of rule 22 (6) of the MCR 1960 for approval of modification to be mentioned and rectified accordingly.
- XI. Summary of proposal at a glance may be furnished before "Introduction" chapter covering Exploration, Excavation, Area Utilization, Stacking, Environmental Protective Measures etc."
- XII. In page no.3, the it has been mentioned that 697.979 ha area is fully mineralized where as in page no. 42 it is mentioned in the lease about 354.664 ha area is mineralized. The both statements are contradicting and same should be clarified and rectified elsewhere.
- XIII. Status of all statutory clearances obtained or to be obtained should be given in the chronological order in tabular form in 'Introduction' Chapter along with documentary evidence.
- XIV. The consent letter may be furnished in company's letter head.
- XV. The qualification and experience of QPs shall be enclosed as per the rule 15 of MCR, 2016.

2. GEOLOGY

- I. The details like potentially mineralized area and its extent (coordinate in WGS 84), potentially mineralized area explored (in forest etc.), remaining area with present level of exploration may be furnished.
- II. The UNFC boundaries as per the present status of exploration under MEMC rules 2015 may be demarcated over the Geological Plan and Sections.
- III. The lease area explored as per UNFC norms (in Ha) may be furnished in tabular format. The information for borehole grid interval and the meterage drilled under different level of exploration in the same table to be mentioned.

- IV. The geological section lines may be re-oriented in all the blocks as per the structural information (attitude of beds) available in geological maps of GSI and MECL.
- V. With the re-defined limits of UNFC boundaries, the mineral reserves and resources estimated under UNFC codes as tabulated in page -28 of text based on the level of exploration as per MEMC Rules 2015 with reference to threshold value of minerals declared by IBM has to be re-estimated and furnished with average grade as discussed in field along with proper justification of assigning codes under UNFC to the reserves and resources re-estimated.
- VI. The details of calculation of reserves/resources on the revised section lines under UNFC codes in different blocks from page 24-27 of the text may be re-estimated and furnished.
- VII. The prefeasibility report to be prepared in line with UNFC and the same should be enclosed.
- VIII. In the future exploration program, the Topographical survey and Geological Mapping to be proposed over the total mining lease area on 1: 2,000 or larger scale for detailed exploration (G1) stage.
- IX. With reference to Rule 12 (3) of MCDR, 2017, the future exploration program need to be revised so as to carry out detailed exploration (G1 level) over the entire potentially mineralized area under the mining lease, within a period of five years from the date of opening of the mine after execution of such mining lease. The grid spacing of boreholes for bauxite may be proposed at 100 meter or at closer interval as the bauxite ore deposit in the block characteristically have irregular habit. In the South Block and Central Block, few adequate number of check boreholes may be proposed over the potentially mineralized area at suitable grid interval. Besides the mineralized area, the rest area may be explored under G2

level of exploration with grid spacing of the proposed boreholes at 200m or at closer interval so that entire mining lease area is explored under G1/G2 level of exploration. Accordingly, the Geological plan and sections of individual blocks and composite geological and sections should be revised and updated.

- X. In the Geological sections, the UPL and benches should be drawn properly. The UNFC boundary/code may be shown properly.
- XI. The depth of the proposed boreholes should be adequate enough to justify the lateral and depth extension of the ore zone along and across the section lines up to the end of mineralization considering the geology and nature of ore deposit.
- XII. The proposal for revised future exploration program in different blocks should be furnished in tabular format indicating proposed borehole number, section line, coordinates, proposed depth, inclination, year of drilling etc.
- XIII. 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, the proposal should be given under future exploration programme.
- XIV. Reporting of Mineral Resources in the format prescribed in Part IV-A of Minerals (Evidence of Mineral Contents) Rules, 2015 to be submitted as annexure.

3. MINING

- I. The mine design parameters such as bench width & height, slope angles etc may be furnished with proper justification.
- II. The year wise production proposal in tabular format has not been furnished as per IBM manual for Appraisal of Mining plan 2014. So, it may be furnished.

- III. Quantum of production and development may be described year wise with no. of benches, mRL, depth of excavation, direction of advancement, location and cross-section area considered.
- IV. Bulk density of ore and recovery factor with justification may be furnished in tabular format.
- V. Ultimate pit limit should be depicted on all relevant plans & sections.
- VI. Justification for site selection for first five year mining may be furnished.
- VII. The proposal for backfilling with topsoil or with laterite may be justified properly. The use of laterite both for backfilling and production may be described properly. Before backfilling of the quarry as proposed it should be ensured the exhaustion of ore body in terms of their depth & extension in the interest of mineral conservation. It may be reflected in the relevant plans and sections.
- VIII. Back filling proposal has not been explained properly. Exhausted area to be backfilled by top soil to be specified with mRL and area on year to year basis with description of the method & manner of disposal of top soil.
- IX. The calculation for the powder factor of 3.5t/kg as mentioned in page 37 may be furnished.
- X. Handling of ROM produced from the mine to be dealt properly till its end use.
- XI. Village and hutments are there around the periphery of the mining lease area. Blasting induced vibration study by any scientific institution to be proposed immediately after opening of the mine and accordingly optimum charge per delay and most suitable drilling and blasting design along with initiation/firing patten should be considered.

4. MINE DRAINAGE

- I. Considering the topography of the mining lease area comprising of valleys, hillocks etc the rainwater management plan, mine water management plan i.e., drainage plan for arresting solid wash off is not incorporated with engineering details. Therefore adequate rainwater and mine water management plan should be prepared incorporating engineering details & material to be used for erection/construction.

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

- I. Before the proposed area is put in use for waste disposal, the area should be proved for non-mineralization. Also the site preparation works such as construction of retaining wall, check dam, plantation around proposed dump must be carried out and be completed well in advance. The area identified for waste disposal should be demarcated in relevant plans and sections.
- II. Further, Build-up of dumps from year to year to be mentioned in text w.r.t. designed capacity of dumps, bottom and top mRL of individual terrace, dump slope, individual terrace height and slope with description of method & manner of disposal of waste should be mentioned.
- III. Details of year wise proposal for construction of retaining wall, garland drain, settling tank etc. to be given with their location.

6. USE OF MINERAL AND MINERAL REJECT

- I. The chapter may be elaborately described.

7. PROGRESSIVE MINE CLOSURE PLAN

- I. Year wise proposal of reclamation and rehabilitation work in table provided in page 57 may be revised and filled with relevant details.

- II. Year wise land degradation under different heads may be furnished.
- III. Back filling proposal has not been explained properly. Exhausted area to be backfilled by OB/Waste to be specified with mRL and area on year to year basis with description of the method & manner of disposal of waste. The proposed backfilling bottom mRL, top mRL, quantity of backfilling etc. may be given.
- IV. Amount of financial assurance should be calculated as per rule 27(1) of MCDR-2017 and submitted accordingly.
- V. Organization chart to be furnished under Emergency Plan/Disaster Management
- VI. Environment baseline information may be elaborated.

8. PLATES (General):

- i) All plans and sections should comply with the provisions of Rule 32 of MCDR 2017.
- ii) The plans and sections submitted should bear the certificate that -the plans and sections are prepared based on the lease map authenticated by the state government.
- iii) In all plans true north should be mentioned or if it is magnetic north then magnetic meridian and degree of declination should be mentioned with date.
- iv) All plans and sections shall show a scale of the plan at least twenty five centimeters long and suitably subdivided. All plans & sections prepared shall follow the conventions mentioned under MMR 1961.
- v) Wind direction may show through wind rose diagram in key plan and environmental plan.
- vi) All plans and sections should be signed with date by certified Surveyor, Qualified Person, Mining Engineer and Mining Geologist.
- vii) The proposed bench mRL to be mentioned in the all plans and sections.
- viii) The UPL should be shown in red colour in all relevant plans and sections.

- ix) All the plans and sections should be prepared as per the permission granted to prepare the plans and sections on a scale other than prescribed under Rule 31 of MCDR 2017 (enclosed as annexure-9).
- x) Approach road to lease area should be shown in key plan.
- xi) Date of survey should be given on plan and sections and the same should be signed with date.
- xii) Plate No. I/b may be named as "Key plan".

8.1.Surface Plan:

- i) Surface plan needs to be updated with existing surface features as discussed in field. Information of boundary pillars in UTM coordinates as well as in Latitude and longitude of all ML boundary points should be depicted in tabulated form on surface plan.
- ii) Few pillars may be correlated with some permanent ground features giving distance and bearing/direction.
- iii) Surface plan needs to be updated and all the drilled BH to be shown. Year wise proposed boreholes in relevant colors.

8.2.Geological Plan & Section:

- i) In the Geological Plan UNFC boundaries, UNFC codes, explored area, unexplored area, forest area, drilled boreholes by GSI and MECL and year wise proposed boreholes in relevant colors to be shown.
- ii) The redefined UPL and UNFC boundaries along with UNFC code to be shown in Geological Plan and sections.
- iii) A separate plan showing the Lease area, Forest area, UNFC boundaries, explored area, unexplored area, mineralized and non-mineralized area, UPL, already drilled boreholes and year wise proposed boreholes in relevant colors at relaxed scale to be submitted.

- iv) The proposed boreholes to be plotted in dotted lines in Geological sections along with Collar Id, RL and proposed closing depth at the bottom of the borehole.
- v) In Geological plan, the contour shown is not legible. At suitable places, contour values may be furnished.
- vi) All the already drilled boreholes to be shown in all the relevant plans (Geological Plan, Surface plan, UNFC plan etc) and Geological sections. The year wise proposal for drilling to be shown in different contrasting color in both plans (Geological Plan, Surface plan, UNFC plan etc) and Geological sections. The year wise color of the boreholes proposed in Geological plan should match with the plotted proposed boreholes in Geological sections.
- vii) The UNFC codes in geological sections are not legible enough. Accordingly, the proper UNFC boundaries and UNFC code to be shown in Geological sections.
- viii) The index of Geological features should be same in both Geological Plan and Geological sections.
- ix) The index of the Geological plan and sections to be revised indicating the index for year wise drilling proposal, mineralized and non-mineralized boundary.
- x) In Geological Plan, cross section lines and longitudinal section line to be shown.

8.3. Development plan & Section:

- i) Each year development proposal for different blocks should be shown separately in different color. Composite development plan and section to be submitted.
- ii) The UPL may be redefined and benching pattern to be made in all development plans and sections.

- iii) Proposal for location of storage of top soil generated has not been shown in development plan and section.

8.4.Environment plan:

- i) The Environment Plan as prepared should be satisfy the provision as laid down rule 32(5) (b) of MCDR2017.
- ii) The particulars with regard to items (ii), (iv) and (v) of Rule 32(5) (b) shall be applicable only up to sixty meters beyond the boundary of lease area. The same should be demarcated in Environment plan.
- iii) The proposed environment protective measures to be shown in environment plan. The drainage pattern of the lease area also to be shown on the plan.

8.5.Financial Assurance Area Plan:

- i. In the Financial Assurance plan area of each individual land i.e. land degradation due to mining activity and processing unit etc at the end of plan period may be shown separately on this plan with highlighted boundaries and different colour codes for FA calculation.

8.6.Reclamation Plan:

- i. Reclamation plan has not been prepared as per guidelines. The necessary modification to be made as discussed in field during inspection.
- ii. Year wise progress of dumping, stacks, afforestation using different colour codes for easy understanding may be shown.

8.7.Conceptual plan:

- i. Conceptual plan may be prepared considering mineralization as revealed from the borehole logs. One longitudinal section may also be submitted. Direction of run off from the area based on surface contours may be shown on the plan and the sections.
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