



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. MS/FM/34-ORI/BHU/2017-18

Date: 01.12.2017

To

Mrs Nirupama Das, DGM (Geology),
Power of Attorney Holder,
M/s Odisha Mining Corporation Ltd.
OMC House, Bhubaneswar- 751001

Sub: Approval of Review of Mining Plan of Unchabali (Mahaparbat) Iron Ore Mine along with Progressive Mine Closure Plan (PMCP), over an area of 68.00 ha in Keonjhar district of Odisha State, submitted by M/s Odisha Mining Corporation Ltd under Rule 17 of MCR, 2016.

Ref: - i) Your letter No. 16175 dated 14.11.2017.
ii) This office letter of even no. dated 20.11.2017.
iii) This office letter of even no. dated 20.11.2017 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 Review of Mining Plan along with Progressive Mine Closure Plan (PMCP) has been examined in this office based on site inspection dated 28.11.2017 by Shri Ramkishan R, Sr. Assistant Controller of Mines. The deficiencies observed are enclosed herewith as Annexure I.

You are advised to carry out the necessary modifications in the draft Review of Mining Plan 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 27 of MCDR 2017 of the Review of 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 Review 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 final copies of the Review of Mining Plan. It may be noted that no extension of time in this regard will be entertained and the Review of Mining 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)

Regional controller of Mines

Scrutiny comments in respect of Review of Mining Plan of Unchabali (Mahaparbat) Iron Mines of M/s OMC Ltd in district Keonjhar of Odisha

Text:

GENERAL

1. The mineral included in the lease deed should be furnished as per the details in lease deed.
2. The details regarding, lease deed execution, FC EC, CTO and other statutory clearances obtained should also be furnished. The e-mail, phone & fax no. of lessee should furnish on cover page.
3. In the deviation of all proposed year wise programmes for the last review period should be given with proper justification. Last inspection carried out by IBM with violations if any should be furnished.
4. Summary of proposal at a glance should be furnished before "Introduction" chapter covering Exploration, Excavation, Area Utilization, Stacking, Environmental Protective Measures etc."
5. The extent and nature of surface right being held by the Lessee to carry out various mining activities should be indicated with documentary evidence. The details regarding the forest area permission obtained and applied for diversion should be furnished.
6. "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 should be replaced with relevant rules under MCDR, 2017.
7. The qualification and experience of QPs should be enclosed as per the rule 15 of MCR, 2016.

GEOLOGY AND RESERVE

8. Final presentation of estimation of reserves / resources by slice method in 3d ore body modelling was carried out using SURPAC. Cross validation report of the variogram analysis should be furnished. The detailed methodology followed in estimating the reserves/reources should be elaborated with relevant figures.
9. The cut off grade and threshold value considered should be explained properly. In page no 29 +45%-58% Fe grade bulk density considered as 2.7 t.cu.m. While estimating reserves and resources +55%Fe (saleable) bulk density considered as 3.0 t.cu.m. and +45%-55%Fe grade bulk density considered as 2.7 cu.m. without any test reports which is also contradicting with page no 23, it should also be clarified. The bulk density considered for sub grade and saleable ore should be justified with documentary evidence.

10. The details like potentially mineralized area for iron and its extent (coordinate in WGS 84), potentially mineralized area explored, remaining area, non-mineralised area, proposal of exploration to explore remaining potentially mineralized area to be given with justification of adequacy in accordance with MEMC 2015 rules.

11. Reporting of Mineral Resources in the format prescribed in Part IV-A of Minerals (Evidence of Mineral Contents) Rules, 2015 to be submitted. Recovery factor while estimating the iron ore reserves/ resources from mineralised zone should be dealt with.

12. The UNFC boundaries as per the present status of exploration under MEMC rules 2015 should be demarcated over the Geological Plan and Sections. A summary of exploration conducted in the lease area as per UNFC norms shall be furnished in the following table.

| Total Lease area: | | | | | | | Remarks/Comments including reasons for not carrying out the exploration as per UNFC norms. |
|--|---|----------|----------|--|--|-----------------------|--|
| Item of information | Lease area explored as per UNFC norms (in Ha) as on dt. | | | | | Unexplored lease area | |
| | <i>Total Lease area = A+B+C+D+E</i> | | | | | | |
| | G1 Level | G2 Level | G3 Level | Explored and found non-mineralized with level of exploration (Remarks) | | | |
| A | B | C | D | E | | | |
| Area as per level of exploration | | | | | | | |
| No. of BH Drilled | | | | | | | |
| No. of BH considered for Resource Estimation. | | | | | | | |
| Meterage Drilled | | | | | | | |
| Grid Interval | | | | | | | |
| Scale of Mapping | | | | | | | |
| Reserve estimated after above exploration as on dated : | | | | | | | |
| Remaining Resource after above exploration as on dated: | | | | | | | |
| Total Reserve/Resource after above exploration as on dated: | | | | | | | |

13. 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.

Besides some boreholes should be proposed beyond the end of mineralisation also through the shale lithology to know the presence of ore zone below the shale in the whole lease area.

14. The proposal for future exploration program should be furnished in tabular format so that the entire mining lease area should be explored under G1 level of exploration indicating proposed borehole number, section line, coordinates, proposed depth, inclination, year of drilling etc. accordingly the proposal of future exploration programme should be modified.

15. The type of deposit for iron as per MEMC 2015 rules should be clearly defined like bedded, regular, irregular deposit etc. the strike and dip parameters should be mentioned in the text and relevant plans and sections should be drawn accordingly.

16. As per guideline of "IBM manual on appraisal of Mining Plan" at least 10% of total samples to be analyzed in accordance to BIS and reports from NABL accredited/Government Laboratory. Accordingly, the proposal should be given under future exploration programme.

MINING

17. ROM production should include the saleable ore and sub grade, so accordingly the production table should be modified in line with the IBM appraisal of Mining plan. The tables provided for iron ore production in cu.m and tonnes are not matching, so rectify the same.

18. Some mining activities like quarry development, trenches and dumps etc were reported to be before execution of lease deed as mentioned and also included in the lease deed. Those areas should be clearly marked on the surface and relevant plans and sections with extent of area.

19. The proposed development to be carried out of different quarries during review period should be furnished with information on benches, grid location, mRL, bench slope and ultimate pit slope etc. Ultimate pit depth is to be mentioned in all the working areas. Proposed development should be beyond safety zone area.

20. Stripping ratio should be furnished in t/cu.m format.

21. Quantum of production and development should be described year wise with no. of benches, mRL, depth of excavation, direction of advancement, location and cross-section area/slice considered. The mRL at the end of each scheme period should be mentioned in a tabular format for every pit area proposed with dimensions and no of benches with height and width and grid location.

22. ROM production of iron ore is proposed to be increased to 1 MTPA so undertaking should be given so that necessary statutory clearances will be taken to produce the said quantities.

23. Powder factor calculation for waste should be reviewed. Calculation details of machineries required for desired production should be reviewed as discussed during field inspection.
24. The procedure of generated lumps and fines after processing should be dealt in detail like their dispatch and stacking. Protective measures around stacked materials should be furnished.

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

25. The tables as per IBM Manual appraisal MP should be furnished.
26. Information on mineralisation or non-mineralisation proved in the underlying area of all the proposed and existing dumps should be furnished. If it is on the mineralised area undertaking should be given to rehandle the same.
27. Nature of top soil and waste should be elaborated with details. Protective measures around sub grade stacks and dumps should be proposed with justification.
28. Present and 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, grid location and slope with description of method & manner of disposal of waste should be mentioned. Nature of dumps whether temporary or permanent should also be mentioned.
29. Backfilling is proposed in the developed quarries after the complete extraction of iron ore. But it should be carried out after proving absence of ore zone after shale zone by drilling boreholes as discussed during field inspection, so accordingly proposal should be modified. Year wise position of dumps location and backfilling should be justified. RL of ore body with RLs of mined out quarries should be correlated for justifying the exhaustion of Iron ore.

PROCESSING OF ROM AND MINERAL REJECT

30. Flow chart should be furnished with explanation about the processing of ROM.

PROGRESSIVE MINE CLOSURE PLAN

31. Land use pattern of additional land requirement during scheme period should be provided year wise. In the mining chapter it is mentioned that 17.616 ha is in the land schedule in the form of quarries and trenches and in the FA calculation area under excavation is taken as 1.843 ha only. Clarify the same. FA calculation should also need to be reviewed as discussed during site inspection.
32. Top soil generated should be stacked in the designated areas for future use so the location should be shown on the relevant plans.
33. Planation should be proposed in the safety zone broken area due to mining near pillars F1, C & A1

OTHER

34. Contractual and departmental manpower should be specified. Existing and future employment should be elaborated like mine manager, mining engineer, geologist, skilled and semi- skilled etc.,

Plates:-

General:

35. The extent lease area of the mine should be mentioned in the index of all plan and sections. 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 MCDR, 2017 and MMR, 1961. All plans & sections prepared should follow the conventions mentioned under MMR 1961.
36. All plans and sections should show a scale a scale of the plan at least twenty five centimeters long and suitably subdivided. True and magnetic north should be depicted in all plans with date and variation.
37. 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. Date of survey should be given on all plans and sections and signature should bear date of signature.
38. Authenticated lease plan of ML area issued by State Gov.t of Odisha signed by competent authority should be submitted besides to DGPS map (precise area map).

Surface Plan:

39. Surface right area should be shown on surface plan. Power transmission lines to be shown in the plan. All boundary pillars coordinate in UTM, Latitude and longitude to be shown in tabulated form on surface plan. Few pillars should be correlated with some permanent ground feature giving distance and direction.
40. Surface plan needs to be updated and all the drilled BH to be shown. Year wise proposed boreholes in relevant colors.

Geological Plan & Section:

41. In the Geological Plan and sections UNFC boundaries, UNFC codes, explored area, unexplored area, mineralised area, non-mineralised area should be divided in forest, non forest areas and forest diverted area, drilled boreholes till date and year wise proposed boreholes in relevant colors and legends to be shown.
42. Lithology has not depicted with proper legend in sections. Modify the sections with full details of lithology.
43. 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.

44. A separate plan called UNFC plan showing the Lease area, Forest-Non-forest and Diverted Forest boundary, UNFC boundaries, Surface right area, explored area, unexplored area, mineralized and non-mineralized area, UPL, already drilled boreholes in black color and year wise proposed boreholes in relevant color is to be submitted.
45. All the already drilled boreholes are 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.
46. Data related to strike, dip, dip-direction etc. shown on the geological plans are inadequate. Some more data should be shown to understand the geology of the area. Section along 2420500N between 336700E and 336900 E to be modified with legend as per the lithology.

Key Plan

47. Approach road to the lease area should be shown.
48. Wind rose diagram should be shown

Development plan and Sections

49. Each year development proposal for different pits should be shown separately in different color. Composite development plan and section to be submitted.
50. Dumps should be shown on relevant sections.

Environment plan

51. 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.
52. The Environment Plan as prepared should be satisfy the provision as laid down rule 32(5) (b) of MCDR, 2017.
53. The particulars with regard to items (ii), (iv) and (v) of Rule 32(5) (b) should be applicable only up to sixty meters beyond the boundary of lease area. The same should be demarcated in Environment plan.

Reclamation plan/Environment Management plan

54. Year wise progress of dumping, stacks, afforestation using different colour codes for easy understanding should be shown.