



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/MAN/21-ORI/BHU/2017-18

Date: 11.10.2017

To

✓ Shri Ghanshyam Sharma, Managing Director,  
M/s Kanakdhara Mining & Minerals Pvt Ltd,  
Main Road, Barbil,  
Keonjhar, Odisha-758035

Sub: Approval of Review of Mining Plan of Bandhal Manganese Mine along with Progressive Mine Closure Plan (PMCP), over an area of 28.0207 ha in Sundargarh district of Odisha State, submitted by M/s Kanakdhara Mining & Minerals Pvt Ltd under Rule 17 of MCR, 2016.

Ref: - i) Your letter No. KMM/IBM/MS/1/25/09/17 dated 25.09.2017.  
ii) This office letter of even no. dated 28.09.2017.  
iii) This office letter of even no. dated 28.09.2017 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 Review of Mining Plan along with Progressive Mine Closure Plan (PMCP) has been examined in this office based on site inspection dated 03.10.2017 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 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 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 Bandhal Manganese Mine of M/s KM&M Ltd in district Sunderagrh of Odisha**

**Text:**

**GENERAL**

1. The e-mail, phone & fax no. of lessee may furnish on cover page.
2. All annexures & chapters should be properly indexed.
3. Photographs regarding achievement in reclamation and rehabilitation measures should be annexed.
4. All the consent and other undertakings should have date and reference.
5. Sequence of para as per IBM Manual appraisal MP 2014 has not been covered in text. All the headings and tables as mentioned in the IBM Manual appraisal MP 2014 should be furnished in all chapters in the text. No headings should be left blank all should be addressed properly.
6. Summary of proposal at a glance may be furnished before "Introduction" chapter covering Exploration, Excavation, Area Utilization, Stacking, Environmental Protective Measures etc."
7. "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.
8. The qualification and experience of QPs should be enclosed as per the rule 15 of MCR, 2016.

**GEOLOGY AND RESERVE**

9. The reserves estimated are taken 3 m below the proven depth which is not acceptable so reserves and resources should be re assessed up to the proven depth only.
10. The details like potentially mineralized area and its extent (coordinate in WGS 84), potentially mineralized area explored (Govt. land, Pvt. land etc.), remaining 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 manganese ore reserves/ resources from mineralised zone should be dealt with.

12. G2 level of exploration is not in page no 15 but while estimating the reserves and resources 222 category resources area shown, Clarify the same. So mineralised and non-mineralised area should be divided based on the current level of exploration only and area should be furnished with justification of level of exploration. The explored areas with mineralisation, non-mineralisation and unexplored areas should be categorised in to different land types which should also be reflected in relevant plan and sections. Final reserves and resources should be consolidated in only table as per UNFC.
13. The UNFC boundaries as per the present status of exploration under MEMC rules 2015 may be demarcated over the Geological Plan and Sections.
14. In the Geological sections, the UPL and benches should be drawn properly. The UNFC boundary/code may be shown properly. A summary of exploration conducted in the lease area as per UNFC norms should be furnished in the table.
15. In page no 22 recovery factor is mentioned as 80% of Mn where as in I page no 23 while calculating reserves it is mentioned as 15%. Clarify the same.
16. Recovery and bulk density mentioned during sorting of Manganese ore may be properly justified with documentary evidence.
17. 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.
18. The proposal for future exploration program should be furnished in tabular format so that the entire mining lease area should be explored under G1/G2 level of exploration indicating proposed borehole number, section line, coordinates, proposed depth, inclination, year of drilling etc. accordingly the proposal of future exploration programme may be modified.
19. The type of deposit for manganese as per MEMC 2015 rules may 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.
20. 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.

### **MINING**

21. It is reported that it is a manual mine so accordingly manner of extraction of ore and waste from the pit should be elaborated. Excavator and dumpers are proposed clarify the same.

22. Excavation proposal may be modified accordingly as per the revised reserves discussed during site inspection.
23. Stripping ratio may be furnished in t/cu.m format.
24. Ultimate pit depth is to be mentioned in all the working areas. Grid location of proposed working areas to be given for the proposed period.
25. 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. 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.
26. Geological Section wise of proposed ROM excavation quantity in for very year should be provided. Sections may be equally spaced so that the entire area proposed for excavation may cover.

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

27. The tables as per IBM Manual appraisal MP 2014 should be furnished.
28. Information on mineralisation or non-mineralisation proved in the underlying area of all the proposed and existing dumps should be furnished.
29. 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.

#### **PROGRESSIVE MINE CLOSURE PLAN**

30. Land use pattern of additional land requirement during scheme period may be provided yearwise.

#### **FINANCIAL ASSURANCE**

31. The area calculated for FA needs to be reviewed once and DWG file needs to be submitted.

#### **FEASIBILITY STUDY REPORT**

32. Feasibility study report should be enclosed considering the Capital cost, Cash-flow forecast, Investment cost, Inflation forecast, Operating cost, Sensitivity studies, RR, IRR, NPV for the project life,

#### **Plates:-**

##### **General:**

33. The extent lease area of the mine should be mentioned in the all plates. 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.

34. 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.

35. 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.

36. Date of survey should be given on all plans and sections and signature should bear date of signature.

**Surface Plan:**

37. 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 may be correlated with some permanent ground feature giving distance and direction.

38. Surface plan needs to be updated and all the drilled BH to be shown. Year wise proposed boreholes in relevant colors.

**Key Plan**

39. Approach road to the lease area should be shown.

40. Wind rose diagram should be shown

**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 different land types, drilled boreholes till date and year wise proposed boreholes in relevant colors and legends to be shown.

42. 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.

43. 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.

44. 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.

45. Data related to strike, dip, dip-direction etc. shown on the geological plans are inadequate. Some more data may be shown to understand the geology of the area.

46. The index of the Geological plan and sections to be revised indicating the index for year wise drilling proposal, mineralized and non-mineralized boundary.

#### Development plan and Sections

47. Each year development proposal for different blocks should be shown separately in different color. Composite development plan and section to be submitted.

48. The sections may be equally spaced according to the excavation area so that the sections will cover the entire excavation area proposed.

#### Conceptual plan

49. The sub grade dumps and waste dumps at the conceptual stage should be clearly marked with legend / name on the conceptual plan & sections.

#### Environment plan

50. 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.

51. The Environment Plan as prepared should be satisfy the provision as laid down rule 32(5) (b) of MCDR, 2017.

52. 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

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

#### ENCLOSURE:

54. Proper indexing of annexures needs to be done.

