



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. RMP/A/29-ORI/BHU/2019-20

Date: 24.10.2019

सेवामे

The Managing Director & Nominated Owner,  
M/s Odisha Mining Corporation Ltd.  
OMC House, Bhubaneswar- 751001

विषय: Approval of Review of Mining Plan of Gandhmardan-B Iron Ore Mine along with Progressive Mine Closure Plan (PMCP), over an area of 1590.8673 ha in Keonjhar district of Odisha State, submitted by M/s Odisha Mining Corporation Ltd under Rule 17 of MCR, 2016.

- संदर्भ: - i) Your letter No. 15520/OMC/PMC/19 dated 30.09.2019 received on 09.10.2019.  
ii) This office letter of even no. dated 09.10.2019.  
iii) This office letter of even no. dated 09.10.2019 addressed to Director of Mines, Government of Odisha copy endorsed to you.


महोदय,

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 carried out on 21.10.2019 by Shri Ramkishan R, Senior 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.

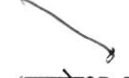
The para-wise clarifications and the manner in which the deficiencies are attended should invariably be given while forwarding the final copies of the Review of Mining Plan. It may be noted that no extension of time in this regard will be entertained and the Review of Mining Plan will be considered for 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.

भवदीय

  
(हरकेश मीना)

क्षेत्रीय खान नियंत्रक

Copy for kind information and further necessary action to Shri Sunil Kumar Kar & Shri Rabindra Mohanty, M/s Odisha Mining Corporation Ltd, OMC House, Bhubaneswar- 751001.



(हरकेश मीना)

क्षेत्रीय खान नियंत्रक

**Scrutiny comments on examination of Review of mining plan with PMCP of Gandhmardhan-B Iron Ore Mines over an area of 1590.8673 Ha in Keonjhar District of Odisha State of M/s OMC Ltd**

**GENERAL POINTS:**

1. Sequence of paragraph and its numbering 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.
2. The qualification of QP should be mentioned on cover page
3. All the text, tables and annexures to be properly indexed/ numbered/ paged and signed by qualified person. Correct table reference number to be mentioned at all relevant places. All the certificates/annexures should bear dated signature. The drawings index page should also mention the scale of plan/section prepared.
4. The term "subgrade" part of ROM should be replaced with "Mineral Reject" at all places in the document.
5. The details regarding supplementary lease deed executed to the period 10.07.2040 should be furnished with relevant document as enclosure.
6. MCDR, 1988 should be replaced with relevant rules of MCDR, 2017 as well as for MCR, 1960 with MCR, 2016.
7. New chapters should be started in next page.
8. Review of the period which was not covered in the last approved document only should be furnished under para 3.3. under para 3.4 all the violations and compliances which were not covered under last approved documents should only be furnished.
9. The information furnished under Para 3 should be in Para 3(1). In Para 3.1, the date of approved mining plan/review of mining plan should be given in tabulated format.

Sl. No	Mining Plan / Review of Mining Plan etc.	Submitted Under (Rule Reference)	Approval Letter No. & Date	Period	Valid up to

**Geology and Exploration**

10. In page no. 32 the exploration details for the year 2018-19 it is mentioned as not sampled and analyzed under samples drawn and analyzed information column. Check and rectify the same.
11. The table showing status of exploration under UNFC should be recalculated as per Part II point no.4 of MEMC Rules 2015. The justification for area considered for G1/G2/G3 etc. should be given w.r.t MEMC rules 2015. Revised UNFC boundaries have to be drawn. Necessary corrections to be done at all relevant places of the document (text and in plates). The depth of litho units should be taken up to the proven depth only, not beyond it. The regarding the explored areas should also be furnished in the following format.

Area	Lateral Extent in Ha	Remarks
Total Lease Area		



Explored area		Min. and Max. depth
Explored Area Under G1		Min. and Max. depth
Explored Area Under G2		Min. and Max. depth
Explored Area Under G3		Min. and Max. depth
Mineralized area under G1		Min. and Max. depth
Mineralized area Under G2		Min. and Max. depth
Mineralized area Under G3		Min. and Max. depth
Non Mineralized are under G1		Min. and Max. depth
Non Mineralized area under G2		Min. and Max. depth
Non Mineralized area Under G3		Min. and Max. depth
Unexplored lease area		Extent of Forest area and Non forest Area should be mentioned.

The future exploration program to be revised incorporating the following.

- (a) Additionally, new core boreholes to be proposed in the location adjacent to existing drilled boreholes that have been either terminated in the ore zone or closed prematurely without intersecting the proposed ore zone in depth within G1/G2 area.
  - (b) The depth of the proposed core boreholes should be around 300m or till the end of mineralization/discontinuance of ore body. The proposal to be mentioned.
  - (c) Adequate proposal of exploration to be given to explore lease area under G2 level of exploration as per MEMC, rule 2015 and also G1 level of exploration should be proposed in the mineralized area which should be completed in compliance to the rule 12 (3)&(4) of MCDR, 2017. Accordingly exploration proposal should be modified. only core type drilling of boreholes should be proposed. Some boreholes in the non mineralized area should also be proposed.
  - (d) As per MEMC Rules 2015, check analysis of at least 10% of samples may be analyzed from third party NABL accredited/or department of science & technology (DST) / BIS recognized laboratories or government laboratories for assessing the acceptable levels of accuracy. Accordingly, the proposal should be given under future exploration programme.
12. The type of waste whether it is IB or OB or SB should also be furnished. The figures furnished should be in line with the final estimated figures of UNFC table of reserve and resources.
  13. Parameters considered for reserve estimation should be further elaborated. Proper justifications of reserves/resources under various categories of UNFC as shown in the table

have to be submitted for different axis should be furnished in tabular format. The reserves and resources should be estimated up to the proven depth of boreholes only. No further influence of litho below the proven depth should be considered.

14. The basis of estimation for quantity saleable ore, mineral reject, waste quantities in total volume should be properly justified.
15. The copies of Form –I and particulars of boreholes drilled till date and recorded in Form –J as per the format specified in MCDR 2017 should be furnished and enclosed as annexures.

## **MINING**

16. Dump re-handling should only be proposed for the existing waste dumps / old mineral rejects dumps for recovery of mineral. This should also be rectified in the text part of the document wherever mentioned. Dump re-handling (for the purpose of recovery of mineral) should be submitted in format specified in IBM Appraisal of MP 2014 only for waste dumps. The recovery of ore and mineral reject should be properly justified.
17. Details of existing CLO and fines details may need not be furnished in the text.
18. In page no 72 the mineral rejects figures provided in the table should be rechecked and rectified. The justification for the percentage of ore and mineral rejects quantities furnished for the proposed years should be furnished viz., recovery of ore in ROM.
19. Justification for site selection for mining during the proposed plan period should be furnished
20. Excavation proposal table should be justified with back up calculation of tables showing. Section wise and mRL wise year wise excavation proposal of Ore, Mineral reject and Waste (OB/SB/IB) should be calculated showing section number, mRL considered, cross-sectional area, length of influence, volume, Bulk density and tonnage. Necessary calculation should be shown in tabular format.
21. Dump re-handling (for the purpose of recovery of mineral) should be submitted in format specified in IBM Appraisal of MP 2014 only for waste dumps. The Total ROM proposed for the years should be within EC limit, both combined from in-situ excavation and dump re-handling.
22. The mineral loading system after ROM processing/benefaction should be explained.
23. Conceptual Mine planning upto the end of lease period taking into consideration the present available reserves and resources describing the excavation, recovery of ROM, Disposal of waste, backfilling of voids, reclamation and rehabilitation showing on a plan with few relevant sections. The present plan period workings may not be required.
24. List of existing equipment with capacity with proposed new equipment should also be furnished.
25. The different products that are going to be produced from ROM should be furnished in page no.105.

### **Mine Drainage**

26. The water management system channeling the mine water, surface run off through check dams and protective measures in place should be described elaborately.

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

27. The table 4.4 furnished under page no.126 should be given for yearwise.
28. The description of the existing Waste dumps/ mineral rejects stacks should be given in tabular format which were furnished in mining chapter.

29. The proposed waste and mineral rejects quantities that are going to be handled during the proposed plan period should be furnished with proper justification like present waste dumps, mineral rejects stacks holding capacities. The proposed dump heights should not be more than 60 m in height otherwise supported by a scientific study conducted by a reputed institute. The report should be enclosed.
30. The proposed waste dumping furnished in tables in page no.127 a column should be added for whether it is in outside UPL or within UPL, nature of dumping whether it is permanent or temporary and also whether it is mineralized area or non-mineralized area .
31. The above should also be furnished for mineral rejects stacks.
32. The proposal for dumping may be given in tabulated format as shown below : 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. The method of waste dumping should be in retreating manner. The year wise buildup of dump should be described in the following table. The table is for the waste quantity which is going to be stored in dumps.

Year	Waste to be dumped (in m3)	Dump Nomenclature	Location of dumping (coordinates)	Existing and Proposed area (m2)	Proposed dumping Terrace from and to mRL.	No of terrace proposed.	Individual Terrace height	Slope of the terrace	Overall slope angle of dump

a column should be added to the above table for whether it is in outside UPL or within UPL, nature of dumping whether it is permanent or temporary and whether it is in mineralized area or non-mineralized area.

33. The above should also be furnished for mineral rejects stacks also.

#### **USE OF MINERAL and MINERAL REJECT**

34. Describe briefly the requirement of end-use industry specifically in terms of physical and chemical composition of the mineral.
35. Give details of processes adopted to upgrade the ROM with in lease area including mineral reject if any to suit the user requirements in terms of physical and chemical compositions viz., like beneficiation processes adopted and also efforts for complete utilization of ROM produced from mines by blending of mineral, in mineral conservation point of view..

#### **PROCESSING OF ROM AND MINERAL REJECTS**

36. The material balance chart to be furnished. The ROM feed grade and tonnage with recovery%, grade and tonnage of product at each stage of processing may be shown in the flow sheet along with block diagram both for existing and the proposed plant.
37. The flow sheets, diagrams, of the existing and proposed plants should be furnished. Necessary legible flow sheets and diagram should be submitted.
38. The different output product sizes of different process practiced should be elaborated.
39. The proposed plant whether it will be installed and operated during the proposed plan period or in future should be furnished.

#### **OTHERS**

40. Information in respect to the proposed manpower both on departmental role and contractual has to be mentioned separately in the text for managerial level, supervisory level and others.

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

41. Existing base line information to be furnished on the basis of environment monitoring parameter carried out. The environment monitoring data of last one year to be enclosed for ready reference.

#### **PLATES (General):**

1. The plans and sections to be submitted as per the scale relaxations specified in approval letter by IBM and the part plans and sections should be prepared on 1:1000 scale.
2. Show a scale of the plan at least twenty-five centimeters long and suitably sub-divided. The conventions provided under the Metalliferous Mines Regulations, 1961, shall be used in preparing all plans and sections. All plans and sections should comply with the provisions of Rule 32 of MCDR 2017. 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. All plans and sections should be signed with date by Qualified Person. Date of observation of Magnetic meridian should be shown in all plans.
3. Along with local grid coordinates, UTM coordinates should also be provided in the grid lines and latitude/longitude coordinates should be mentioned adjacent to boundary pillars in all plans and sections.
4. The UPL has to be redrawn based on provision of UNFC boundaries as per MEMC Rules 2015 and should be shown in red color in all relevant plans and sections.
5. The existing and proposed bench positions clearly with mRL to be mentioned in the all plans and sections.
6. Date of survey should be given on plan and sections and the same should be signed by with date. Grid Lines to be shown in all sections - Geological Sections, Development Sections, Conceptual sections, Dump sections etc.
7. The lithology should be shown in all relevant sections.
8. Year wise development part plan and sections should be submitted in the scale of 1:1000
9. With reference to CCOM Circular No 2/2010, the geo-referenced mining leases map superimposed on latest high-resolution satellite data has not been submitted over the lease area by certifying the lease area over the plan. Lessee has submitted but it is not superimposed on satellite image.
10. All plans and sections should be signed with date by certified Surveyor, Qualified Person, Mine Manager, Mining Engineer and Mining Geologist

#### **Key Plan:**

11. The key plan should incorporate all features as mentioned Rule 32 5 (a) of MCDR 2017 and all features should be shown in index as well.
12. Approach road to lease area should be shown in key plan. The Latitude/longitude of the extreme ML pillar coordinates should be marked in key plan. Wind rose diagram should be depicted.

#### **Surface Plan:**

13. UTM coordinates to be mentioned along with local coordinates along the grid lines. The features shown in the index is not distinguishably shown in the plan. Diverted forest area to be shown in the plan as well as marked in the index of the map. The UPL should be shown over the plan and in index. Necessary corrections to be done.
14. Surface right area and forest, non -forest area, diverted forest area should be shown
15. Few boundary pillars should be correlated with some permanent ground features giving distance and bearing/direction. Nomenclature of the existing waste and mineral reject dumps along with fines stack should be mentioned.
16. The Surface Plan should be prepared to satisfy the provision as laid down rule 32 (1) (a) of MCDR'2017.

**Geological Plan & Section:**

17. In the Geological plan, the UTM coordinates should be mentioned along with local coordinates along the grid lines. The part plan and sections should cover the entire lease area.
18. Geological Plan should be updated with revised boreholes proposal as mentioned under future exploration program. The redefined UNFC boundaries and UPL along with UNFC code should be prominently shown in Geological Plan and sections. Necessary corrections to be done in all the sections.
19. The proposed boreholes to be plotted in dotted lines in Geological sections along with proposed borehole number, RL and proposed closing depth at the bottom of the borehole. The year wise proposal for drilling to be shown in different contrasting color in both Geological Plan and Geological sections. The year wise color of the boreholes proposed in Geological plan should match with the plotted proposed boreholes in Geological sections.
20. The color of the UPL should be same in all plans and sections. In the Geological sections, the revised UPL and benches should be drawn properly. The blank area shown in geological sections above UPL should be filled with relevant lithology.
21. The Geological Plan should be prepared to satisfy the provision as laid down rule 32 (1) (b), (c) and (d) of MCDR'2017.

**Development plan & Section:**

22. Quarry name, existing and proposed bench profiles, waste dump, backfilling proposal, mineral reject dumps etc. to be shown in the development plans and sections.
23. The lithology of the area should be clearly shown in year wise development plan and sections in the area proposed for development.
24. Each year development proposal for different blocks should be shown separately in different color. The UPL may be redefined and benching pattern of existing and proposed to be made in all development plans and sections. The UPL should be shown in Red color which should contrast to the year wise development proposal color shown in development plan and sections. The existing and the proposed quarry positions year wise should be properly demarcated.
25. The RL of the benches should be clearly shown in year wise development plan and sections. The profile of development sections should match with the contour of the respective plans.
26. Development sections should be equally spaced in the proposed development year wise plan and accordingly the respective sections should be submitted.



## **CONCEPTUAL PLAN SECTIONS**

27. The conceptual plan should depict workings keeping in view of the validity of the lease period as proposed in the text. Conceptual longitudinal and T- sections representing the entire lease area should be submitted. dumps are shown in the mined out land i.e mining quarries. Whether it is backfilled or dumped should be clarified.

### **Environment plan:**

28. The Environment Plan as prepared should be satisfy the provision as laid down rule 32 (5) (b) of MCDR'2017.
29. 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. Air, water and noise monitoring stations to be shown in the plan. Wind rose diagram should be shown with predominate wind direction

### **Reclamation plan**

30. Reclamation plan should be submitted as per IBM appraisal of mining plan describing the proposals to be implemented for reclamation and rehabilitation of mined-out land including the manner in which the actual site of the pit will be restored for future use. The proposals may be supported with yearly plans and sections depicting yearly progress in the activities for land restoration/ reclamation/rehabilitation, afforestation, protective measures etc.

### **FA Plan/PMCP**

31. The area under different heads of FA table should be properly shown in different hatching with present area and additional area in FA plan. The FA table should be furnished.

## **ANNEXURES**

32. All the annexure to be properly numbered/paged and relevant annexure to be signed by Geologist/surveyor/QP etc. It is observed that many of the annexures are not legible. A legible copy of same to be enclosed.
33. Copy of bank guarantee should be enclosed. Photographs of boundary pillars should be enclosed.
34. Copy of quality of air, water, soil, noise and other environmental a parameters monitoring report of the last year should be enclosed.
35. The copy of the qualification & experience certificate in respect of the QP to be enclosed as per Rule 15 of MCR, 2016
36. Forest clearance documents should be annexed.
37. Scale relaxation approval letter from IBM should be annexed.