



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

REGD WITH A/D

Phone: 0674-2352463

TeleFax: 0674-2352490

E-mail: ro.bhubaneswar@ibm.gov.in

Plot No.149, Pokhariput

BHUBANESWAR-751020



No. MPM/FM/07-ORI/BHU/2019-20

Date: 09.10.2019

सेवामे

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

विषय: Approval of modification of Mining Plan of Bangur Chromite Mine along with Progressive Mine Closure Plan (PMCP), over an area of 139.94 ha in Keonjhar district of Odisha State, submitted by M/s Odisha Mining Corporation Ltd under Rule 17 of MCDR, 2017.

संदर्भ: - i) Your letter No. 14951/OMC/PMC/19 dated 20.09.2019 received on 24.09.2019.  
ii) This office letter of even no. dated 24.09.2019.  
iii) This office letter of even no. dated 24.09.2019 addressed to the Director of Mines, Govt. of Odisha, copy endorsed to you.

महोदय,

This has reference to the letter cited above on the subject. The draft modification of Mining Plan along with Progressive Mine Closure Plan (PMCP) has been examined in this office based on site inspection carried out on 27.09.2019 by Shri Kewal Krishan, Regional Mining Geologist and 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 modification 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 Modification 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 modification 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 modification of Mining Plan. It may be noted that no extension of time in this regard will be entertained and the modification 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,

(हरकेश मोना)

क्षेत्रीय खान नियंत्रक

Copy for kind information and further necessary action to Shri Ghanashyam Sahoo & Shri Shreekanta Kumar Nayak , M/s Odisha Mining Corporation Ltd, OMC House, Bhubaneswar - 751001.

(हरकेश मीना)

क्षेत्रीय खान नियंत्रक



**Scrutiny comment on Modification of Mining Plan including PMCP in respect of Bangur Chromite Mine of M/s OMC limited over an area of 139.94 Ha in Keonjhar District, Odisha**

**GENERAL:**

1. Sequence of paragraph, formats and its numbering as per IBM Manual Appraisal MP 2014 has not been covered in text. All the headings, formats as mentioned in the IBM Manual Appraisal MP 2014 should be furnished in all chapters in the text.
2. The Qualification of Qualified Person should also be mentioned. The mine code should be mentioned on cover page.
3. The surface right area granted should be furnished with documentary evidence. Present status of all statutory clearances viz., EC, CTO, etc., should be furnished with referring to documentary evidences as annexures.
4. The copy of the qualification & experience certificate in respect of the QP to be enclosed as per Rule 15 of MCR, 2016.
5. All the new chapters should start from new page.
6. The period of proposal should be mentioned as year 2020-21 to 2024-25 on cover page.
7. 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

8. In Para 3.3, review of earlier approved proposal in respect of exploration, excavation, reclamation etc. should be furnished. Reason for deviation should be justified. The proposal figures of ROM production and achievement should be rechecked and corrected.

**GEOLOGY AND EXPLORATION:**

9. Under chapter 3.3, details of reserves/resources as approved in the earlier document are also to be mentioned.
10. Under heading, details of prospecting /exploration already carried out on page no 20. The details of exploration/prospecting carried out earlier are to be discussed in details, by mentioning quantum of work done etc. It is to be mentioned there also that based of exploration carried out, the earlier documents are approved.
11. Exploration carried out in the last scheme period ie 2014-15 to 2018-19 is to be discussed separately and the details of boreholes drilled during the said period are to be furnished ie BH no, RL, Bearing, total depth drilled, and co-ordinates etc.
12. Copy of Form I and Form J of boreholes drilled during the scheme period 2014-15 to 2018-19, along with analysis report of these boreholes from NABL are to be enclosed properly in serial manner with the document as an annexure.
13. Under heading, reassessments of resources for the present modified plan on page no 23. It is mentioned that the reassessment has been done based on the MEMC rule 2015. The reassessment made in the present document is to be elaborated properly by discussing the details of boreholes drilled earlier by different agencies and the data of borehole drilled during the last scheme period. Similarly, the parameters considered for calculation of reserves/resources are to be discussed in detail also.
14. As the boreholes drilled earlier are to be considered for fresh calculation of reserves/resources. The boreholes logs along with their analysis, drilled earlier are to be enclosed as an annexure.
15. On page no 31, bulk density of reject, sub grade and sale ore is given. . Documentary proof regarding the same from NABL lab is to be enclosed.



16. An updated , cross-section wise summary of resources/ reserves is to be furnished as an annexure by mentioning cross-section number, area of influence, area in sqm(cross-sectional area), volume in cum, tonnage, average assay percentage, level of exploration and bore holes considered for that section.
17. On page no 31 and onward, level –wise reserves /resources are given. This data is to be updated/modified based on the earlier boreholes drilled and the bores drilled during the last scheme period. Similarly, in the table, mineral reject is to be replaced by non- saleable or un -useable ore. Need correction.
18. Mineral resources may be estimated purely based on level of exploration carried out and threshold value of minerals declared by IBM and are to be mentioned as per following table. The same is to be shown after the table on page no 73.

Level of Exploration	Resources in MT	Grade
G1		
G2		
G3		
G4		

19. Classification/categorization of reserves/resources is to be discussed keeping in view the UNFC guidelines and also all the axes are to be elaborated properly, i.e. Economic Axis, Feasibility Axis and Geological Axis.
20. In category –wise summary of reserves / resources table on page no 74. The resources are shown under 211 and 221. As the feasibility factor is F1 , hence there will be no 221 category . Need correction.

**MINING:**

21. In page no. 75 it is furnished as Incline No.2 was planned, where as it was already made, so rectify the same.
22. Details regarding RL of collar of entry points to the mine in relation to higher flood level in the area should be furnished. The left out crown pillar from surface workings to the underground workings should be elaborated in detail with recommendations of scientific study reports.
23. In page no.75 para B.ii it is furnished as stoping permission from different statutory authorities obtained for north block between +30 to 0 mRL. The exact nomenclature for which block the stoping permission was obtained should only be furnished.
24. All the scientific study reports related to the geotechnical investigations carried out in the mine for design opting of a mining method, stoping method, stope dimensions, underground excavations dimensions and methodology of development and stoping should be furnished with enclosures of the same as annexures. In page no 76 it is furnished as study report is enclosed as annexure-30, but in annexures it is not enclosed. Check and rectify.
25. The detailed methodology of system of supporting of underground excavations of different size, like raise, drift, level drives, stope backs, should be furnished. The SSR as per MMR, 1961 should also be enclosed.
26. The details furnished in table for year wise area of stoping should be clearly demarcated on the underground plan and longitudinal and T- sections.
27. In page no.84 the ROM ore production should be mentioned as in tonnes and the waste should be in cu.m. Accordingly the same should be modified. The year wise production table should mention the quantity of ROM production, usable ore (+30% Cr<sub>2</sub>O<sub>3</sub>) and mineral reject (+10%-30% Cr<sub>2</sub>O<sub>3</sub>) in

tonnes, total ore (usable ore plus mineral reject) and waste segregated from ROM in tonnes as well cu.m. The exact percentages for calculation of waste quantity in ROM, mineral rejects quantity should be properly justified and furnished.

28. The back up calculation for the arrived tonnages of ore and waste quantities with Geological Section wise calculation of proposed ROM ore excavation quantity for very year should be provided for stoping as well as development which may be enclosed as annexure.
29. In page no.85 the figures furnished under stoped out volume, left out volume should be rechecked and rectified. The panel volume excavated should be mentioned as panel volume.
30. Conceptual workings should be planned till the end of leas period only. Accordingly plans and sections should be modified.

### **3. MINE DRAINAGE:**

31. The water pumped out from U/g workings to abandoned opencast workings after settling the water will be discharged to surface run off water course. it should be proposed that it will be ensured that the quality of water should be in the prescribed limits as per the relevant statue with regular monitoring mechanism before discharge.

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

32. The disposal of waste and mineral reject and soil to be furnished as per table furnished in IBM Manual appraisal MP 2014.
33. the year wise generation of mineral rejects (+10%-30% Cr<sub>2</sub>O<sub>3</sub>) quantity in tonnes and its disposal should be furnished.
34. Existing as well as proposed protective measures like retaining wall, garland drain, check dams etc., should be furnished in tabular format with details of location, length, dimensions etc., a separate table should be given showing the year wise construction of retaining wall, garland drain and settling tank having specific proposal. Details of year wise proposal for construction of retaining wall, garland drain, settling tank etc. to be given with their location. Proposal for protective measures have not been submitted around mineral reject dumps and waste dumps.

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

35. The grade range of desired products of chrome ore should be elaborated as mentioned in para a.

### **OTHERS:**

36. Information in respect to the existing and proposed manpower right from management level to unskilled labor both on role and contractual has to be mentioned separately in the text.

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

37. The air, water and noise monitoring stations and their frequency of monitoring have not been furnished in tabulated format. All water discharge points from lease area to external should be monitored. Accordingly, monitoring proposal to be submitted.
38. All the paragraphs should be addressed in detail under PMCP chapter as per IBM Manual Appraisal MP 2014. The present land use pattern should be furnished as per the format of FA table of different heads.
39. In page no.103 it is proposed to be filled void of opencast workings by waste generated from mine and waste quantity available in the dump-3. So the proposed quantities of void filling volumes should be in line with the available waste quantity in dump-3 and year wise generation of waste from U/g workings. Rectify the same.
40. Under para 8.3.1 the details regarding the reclamation and rehabilitation measures for the mined out land should be furnished as the abandoned opencast working are proposed to be backfilled.
41. The yearwise backfilling from and to mRLs should be mentioned in the text and relevant plans and sections.
42. Uner para 8.3.5. Subsidence mitigation measures carried out should be elaborated in detail.

43. In FA table the different heads should be kept as per the format specified in IBM manual appraisal 2014. Therefore, net area considered for FA calculation should be rechecked and corrected and equivalent financial assurance to be submitted. The area under different heads of FA table should be properly shown in different hatching with present area and additional area in FA plan.

#### **PLATES (GENERAL):**

1. Magnetic Meridian and date of observation should be given on all relevant plans. Date of survey should be given on all plans and sections and signature should bear date of signature. All plans & sections prepared should follow the conventions mentioned under MMR 1961. All plans and sections shall show a scale a scale of the plan at least twenty five centimeters long and suitably subdivided. 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. The index should be kept same in all the plans 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.
2. **KEY PLAN:** The key plan should incorporate all features such as mentioned Rule 32 5 (a) of MCDR 2017. The approach road to the lease area and wind rose diagram has not been shown.
3. With reference to **CCOM Circular No 2/2010**, the geo-referenced mining leases map superimposed on latest high-resolution satellite data has should be submitted.
4. **SURFACE PLAN:** The index of surface right area should be shown with demarcation. The Surface Plan should be prepared to satisfy the provision as laid down rule 32 (1) (a) of MCDR'2017. The DGPS surveyed latitude-longitude and UTM coordinates of all the boundary pillars have not been furnished in tabulated format.
5. **GEOLOGICAL PLAN & SECTION:**
  - a) Boreholes drilled during the last scheme period ie 2014-2015 to 2018-19 and boreholes drilled earlier are to be marked distinctly.
  - b) Area under G1/G2/G3 is to be marked on the plan.
  - c) Contour lines are to be shown properly in the mining lease area.
  - d) Plate no to be marked.

**Geological Sections**

  - a) Geological cross section, almost in all the geological cross- sections, the influence of ore body taken on the both side of boreholes is not justified. Need correction on all the sections and all other places in the document.
  - b) Updated sections based on the based on the production made during the last scheme period are to be shown distinctly.
  - c) Photographs of core logs and boreholes drilled, during the last scheme period are to be enclosed.
6. **UNDERGROUND PLAN & SECTION:**
  - (i) The legends of different type of excavations in underground workings and other conventions should be followed as per MMR, 1961.
  - (ii) The sections lines should be properly shown on the plans and the relevant sections should also be prepared.
  - (iii) Underground working plan should be submitted as per the latest survey.
  - (iv) Year wise underground development plan and L-sections, T-Sections should be separately submitted for the proposal period. So that all the year wise proposal should be depicted on the pland and sections.
  - (v) Composite underground plan and L- sections should be submitted.
  - (vi) Stopped out area of panel-B should be shown on plan and sections.



(vii) Ventilation plan showing the air quantities for the proposed year wise development workings with a section should also be submitted.

**7. ENVIRONMENT PLAN:**

The environment plan has not been prepared as per the provision laid down in rule 32 (5) (b) of MCDR'2017.

**8. RECLAMATION PLAN:**

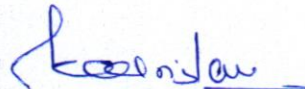
Existing and proposed protective measures and plantation should be shown in different colors along all waste dumps and mineral reject dumps.

**9. FINANCIAL ASSURANCE AREA PLAN:**

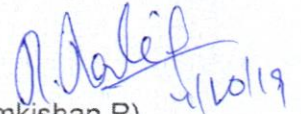
The existing area and additional area under different heads should be shown properly under different coloured hatching.

**ANNEXURES:**

1. The updated list of all the directors to be enclosed. The latest copy of board resolution about nominated owner to be enclosed.
2. Copy of quality of air, water, soil, noise and other environmental a parameters monitoring report of the last year should be enclosed.
3. All the annexure to be properly numbered/paged and relevant annexure to be signed by qualified person etc. It is observed that many of the annexures are not legible. A legible copy of same to be enclosed.
4. Copy of bank guarantee has not been enclosed. Photographs of boundary pillars should be enclosed.
5. Proper indexing of annexures with page nos. should be carried out.



(Kewal Krishan)  
Regional Mining Geologist



(Ramkishan R)  
Senior Asst. Controller of Mines