



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/41-ORI/BHU/2019-20

Date: 15.01.2020

सेवामे

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

विषय: Approval of Review of Mining Plan of Dubna-Sakradih Iron & Mn Mine along with Progressive Mine Closure Plan (PMCP), over an area of 1332.019 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. 20485/OMC/2019 dated 24.12.2019 received on 27.12.2019.
ii) This office letter of even no. dated 27.12.2019.
iii) This office letter of even no. dated 27.12.2019 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 10.01.2020 by Shri S R Mazumdar, Senior Mining Geologist. 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 Leo Christy A & Shri G R Kulkarni,
M/s V M Salgaoncar and Brother Pvt Ltd, Salgaocar House, Off Dr. F.L. Gomes Road, Vascoda
Gama, Goa, India-403802.

(हरकेश मीना)

क्षेत्रीय खान नियंत्रक

Scrutiny comment on Review of Mining Plan including PMCP in respect of Dubna-Sakradihi Iron & Manganese Mine of M/s OMC Ltd over an area of 1332.019 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. In the cover page, the lease expiry date has not been mentioned. Location of the mine in "Odisha" is a "state" and not "district". The term "Technically Qualified Persons" should be replaced with "Qualified Persons". Also, the Qualification of Qualified Persons should also be mentioned. The period of proposal has not been furnished in "financial year". Need to do necessary corrections in the cover page and at all relevant places in the document.
3. The validity of the lease period / lease expiry date authenticated from state government has not been submitted. Need to submit the same.
4. All the categories/grade of Ore above cutoff grade should be termed as "Ore" and between threshold value and cutoff grade as "Mineral Reject". Necessary corrections to be done at all places in text, table and plates.
5. "Consent letter/ Undertaking/ Certificate" from the applicant and "Certificate from Qualified Persons" are not in the format specified in IBM Manual of Appraisal of Mining Plan 2014. Need to do necessary corrections.
6. All the chapters as per the MP format should start from new page. Need to do necessary corrections.
7. In Para 3.1, the date of approved mining plan/review of mining plan etc. should be given in tabulated format.

Sl. No	Mining Plan / Review of Mining Plan/ Modified Mining plan/ FMCP etc.	Lease area/ Area (in Ha)	Submitted Under (Rule Reference)	Approval Letter No. & Date	Period of proposal	Valid up to

8. In Para 3.3, in the review of earlier approved proposal in respect of exploration, excavation, reclamation etc. the reason for deviation along with status of working of the mine have not been furnished in detail. ROM production should include mineral reject part of ROM. Need to do necessary corrections.
9. In Para 3.6, the information furnished should be omitted and should be mentioned as "Not Applicable" as this is review of mining plan.

PART-A: (1). GEOLOGY AND EXPLORATION:

10. The lease area explored under different category of UNFC norms as shown in table no 15 in page no 35 is incorrect and should be recalculated as per the provision of Part II point no.4 and part III of Minerals (Evidence of Mineral Contents) Rules, 2015 (MEMC Rules, 21015). The justification for area considered for G1/G2 etc. have not been furnished as per the provision of MEMC Rules' 2015. Further, the content made in the remarks column is not relevant and should be omitted. Necessary modifications to be done in at all relevant places of the document and resource estimation.
11. In para 1(e) (ii), in addition to the information submitted the details of already drilled boreholes to be submitted as per following format:

Year of drilling	Exploration Agency	Borehole No	UTM Coordinate		Collar mRL	Bottom mRL	Borehole Depth	Angle of drill	Diameter	Type of drill hole(Core/RC/DTH)
			Northing	Easting						

12. In Para 1 (f), future exploration proposal should be modified to the extent that area that falls under G2 category after complying the point no.10, should be converted to G1 level of exploration. As per rule 12(4) of MCDR 2017, in the case of existing mining leases detailed exploration (G1 level) over

the entire potentially mineralized area under the mining lease shall be carried out within a period of five years from the date of commencement of these rules. The proposal for exploration should be over the period of two years only i.e. 2020-21 & 2021-22. Necessary changes to be done in exploration proposal.

Year	No of Boreholes	Grid Interval	Total Meterage	No. of Pits, dimensions and volume	No. of trenches, dimensions and volume
2020-21					
2021-22					

The details of the proposed boreholes should be furnished in the following tabulated format.

Year of drilling	Section No	Proposed BH No	Northing	Easting	Collar RL	Core/RC/DTH	Proposed Depth of BH (in meter)	Inclination	Forest/ Non Forest/ Diverted Forest area	Surface Right/ Non-Surface right area	Surrendered area applied/ retained area

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.

13. In table no 22, the threshold value should be rechecked and corrected as per latest threshold value of minerals (Gazette Notification dated 25th April, 2018). Lateral influence should be rechecked and corrected considering the provision of Part II point no.4 and part III of Minerals (Evidence of Mineral Contents) Rules, 2015 (MEMC Rules, 2015). Justification of recovery factor has not been furnished. The reference of Bulk density test report has not been mentioned and should be corrected. Necessary corrections to be made at all relevant places.
14. Justification of UNFC codes in tabulated format as per UNFC norms has not been furnished. Feasibility report should be submitted separately as annexure to the document and should be removed from text. Need to do necessary corrections.
15. In Para 1 (L), in the parameters considered for resources/reserve assessment, cutoff grade and threshold value of the mineral both iron and manganese has not been defined properly. In page 54, it has been mentioned that resources/reserves have been estimated at 45% Fe cut off iron ore and 10% Mn cutoff grade of manganese ore which is incorrect. Mining method, recovery factor, mining losses, processing loss, ultimate pit depth proposed etc. have not been described. Method of resource/reserve estimation, section interval etc. have not been defined. Need to do necessary corrections.
16. Bulk density report for iron ore does not satisfy the grade of iron ore and manganese ore for which it is claimed in table no 26. Need to submit bulk density test report both ore type wise and grade wise from third party NABL accredited laboratory. Further, justification of recovery factor considered in table 26 & in table 27 have not been furnished. Determination of bulk density and recovery factor based on field test should be furnished. Need to do necessary corrections.
17. In table no 28, the resources under G3 category and its grade have not been shown. The total resources of iron ore in table 28 and table 32 does not match. In table 29, the grade mentioned is +10% Fe instead of Manganese. Table No 30 and Table No 31 are not necessary and should be omitted. In table no 32, the term "+35 siliceous range" and "Normal Ore" is irrelevant and should be omitted and instead the grade of Fe should be mentioned. Table No 32 is not in the format specified in IBM Manual of MP 2014. In table 33, it is mentioned that +45 Fe as cut off instead of threshold value of iron ore which is incorrect. Further, subgrade range mentioned is 45-55% Fe whereas saleable ore is +58% Fe which is incorrect to the extent that 55-58% Fe categorization has not been made. Need to correct cut off grade, threshold value and saleable ore grade.
18. Reserves and Resources have to be re-estimated as per the provision of MEMC Rules 2015 after complying the point no 10. In the Geological sections, only two categorization i.e. iron ore and

subgrade iron ore have been shown. These two categories of iron ore have defined bulk density of 3.0 gm/cc and 2.5 gm/cc respectively as shown in table 26. Therefore, different bulk densities shown in table 34 have not been justified. Detail calculation of section wise reserve and resource for UNFC code "121" at +55 % Fe and +45-55 % Fe have not been shown separately. Calculation at +62% Fe is not justified. Need to do necessary corrections and submitted justifications for the parameters considered.

19. Detail calculation of section wise resources of iron ore for UNFC code "334" have not been furnished. Need to submit the same.
20. Table no 37 is not as per the format specified in IBM Manual of MP 2014. Further, total reserves/resources of manganese ore under various UNFC codes inclusive of forest and non-forest area have not been furnished. The estimates of manganese above cutoff grade and between threshold value and cutoff grade under various UNFC codes have not been furnished. Detail calculation of section wise reserve and resource under different UNFC codes above cutoff grade and between threshold of Mn and cutoff grade of Mn have not been furnished. Need to do necessary corrections and submitted justifications for the parameters considered.
21. The average grade of reserve and resource under various UNFC categories in table no 32 and 37 have not been furnished. The summary of ore and mineral reject quantity along with grade under various level of UNFC should be furnished.

PART-A: (2). MINING:

22. Justification for area proposed for mining has not been given with respect to exploration, targeted quantity and grade considering mineral conservation and grade.
23. In Para 2.A (b) (1), the total of in-situ excavation figs have not been furnished in the format specified in IBM appraisal of MP 2014 both in cum and in tones in separate table. All the calculations should be rechecked and corrected based on updated survey and updated Geological sections after re-estimation of reserves and resources based on MEMC rules 2015. The unit of measurement of stripping ratio has not been furnished in table no 43, 43 (A), 44 & 44(A). As there is no proposal for production enhancement therefore the ROM production quantity should be limited to 3.0 MTPA for iron ore and 0.05 MTPA for manganese ore as per TOR. The drilling and blasting proposal have not been described in detail. Need to do necessary corrections at all relevant places.
24. Detail calculation of section wise ROM quantity (Ore and Mineral Reject separately), OB/waste and soil quantity has not been furnished. Need to furnish the same.
25. Year wise development and production plan should be furnished in the following tabulated format.

Particular for the year...		
Bench Geometry	Height (in m)	
	Width (in m)	
	Individual bench slope angle	
Quarry Development	Location (Quarry Name)	
	Extent of Development (in UTM coordinate)	
	Sections considered for development	
	Number of benches	
	Benches considered for development with RL	
	Top RL	
	Bottom RL	
	Direction of advancement	
	Dimension of the quarry at the end of the year including existing benches	
	Area occupied (in sq.m)	
	Overall quarry slope angle	
	Production of Ore (in MT)	
	Generation of Mineral rejects ore from quarry (in MT)	
	Production of ROM (Ore+Mineral Reject) in MT	
Total Generation of waste (in cum)		

26. Life of mine should be recalculated based on re-estimated resources.

STACKING OF MINERAL REJECT /SUB GRADE MATERIAL AND DISPOSAL OF WASTE

27. In para 4 (a), the nature and quantity of top soil, overburden / waste and Mineral Reject to be disposed off has not been furnished in the following tabular format.

Year	Top Soil (cum)		OB/Waste (cum)		Mineral reject (in tonnes)	
	Resue/spreading	Storage	Backfilling	Storage	Blending	Beneficiation
2020-21						
2021-22						
2022-23						
2023-24						
2024-25						

28. Location of waste dumping with respect to non-mineralized area and outside the UPL have not been described and proposed. Proposal for dump rehandling has to be furnished in cases where waste dump is within the UPL. It has been proposed that backfilling will take place in 4th and 5th year but it is observed that mineral still exits at the end of 3rd year. Hence proposal for backfilling have to be modified to the extent that backfilling will only commence only after complete extraction of mineral and should be justified with year wise backfilling plans and sections showing subsurface lithology in the backfilling sections. Need to show separate proposal for iron ore and manganese ore. Need to do necessary modifications in the dumping & backfilling proposal and at all relevant places in the document and in plates.

29. 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. or their maintenance to be given along with their location. Proposal for protective measures have not been submitted around mineral reject dumps and waste dumps.

PROCESSING OF ROM AND MINERAL REJECTS:

30. A material balance chart with a flow sheet or schematic diagram of the processing procedure indicating feed, product, recovery, and its grade at each stage of processing has not been furnished. The arrived percentage of recovery of saleable ore and mineral reject should be justified properly with documentary evidence.

OTHERS:

31. 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:

32. 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.

33. 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.

34. In para 8.3.1, the proposal for reclamation and re-habilitation in the mined out area of quarry should be furnished in the following tabulated format.

Year	Name of the quarry	Mined out land (Ha) at the beginning of the year	Additional area (Ha) mined out during the year	Total Mined out area at the end of the year (Ha)	Area to be reclaimed (Ha)	Remaining area at the end of year (Ha)	Method of reclamation
2020-21							
2021-22							
2022-23							
2023-24							
2024-25							

35. In FA table the different heads should be kept as per the format specified in IBM manual appraisal 2014. Net area considered for FA calculation should be rechecked and corrected and equivalent financial assurance need 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.
36. Table 90, showing "SUMMARY OF YEARWISE PROPOSAL" is not as per the format specified in IBM Manual for appraisal of MP 2014. Cumulative nos of plantation under all relevant items have not been mentioned. In the rehabilitation of waste land, plantation has been proposed but area to be rehabilitated has not been mentioned. Under "other" the current proposal is not specific. Further, the proposal for construction and maintenance of protective measures have not been mentioned under item "others". All the proposals submitted in the said table have not been reflected in all the relevant plans and sections. Need to do necessary corrections at all relevant places in the document.
37. "Summary of proposals" has to be rechecked and corrected after complying the above scrutiny points.

ANNEXURES:

1. All the annexed documents submitted are not legible. Need to submit the legible copies of same.
2. Order from the state government authenticating the validity of the lease period has not been submitted.
3. The current updated "List of Board of Directors" has not been enclosed. Need to submit the same.
4. Few photographs showing Land use of the lease area, environmental status of the area to be enclosed
5. Copies of analysis report from NABL accredited laboratory should be enclosed. Copy of quality of air, water, soil, noise and other environmental parameters monitoring report of the last year should be enclosed.
6. Copies of Form J of all drilled boreholes have not been submitted. The details of all the BH to be annexed year wise BH wise. The lithology of the borehole logs should match with the lithology shown in Geological sections. Indexing of borehole logs with page numbers have not been done in sequence.
7. RQP certificates need not be submitted. Educational certificate and professional experience certificate of all the qualified persons as per the provision of rule 15 of MCR 20016 have not been submitted. Need to submit the same.
8. Financial assurance in form of bank guarantee has not been submitted. The copy of bank guarantee should be submitted.

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.
2. The UPL should be shown in all relevant plans and sections and in same color.

3. **KEY PLAN:** The key plan on a scale of 1:50000 should incorporate all features as mentioned Rule, 32 (5) (a) of MCDR 2017. The approach road to the lease area, the adjoining area lying preferably within five kilometers thereof from the lease boundary has not been shown properly.
4. As per the approval from office of CCOM, Nagpur dated 29.03.2001, for "preparation of plans on a scale other than prescribed under rules" states that mining block in the lease area where excavation work is to be undertaken for next five years, surface plan and surface geological plans within the mining block should be presented in a scale of 1:1000 in addition to other plans. The longitudinal and cross sections should be on a scale of 1:1000. Need to do necessary corrections accordingly.
5. **SURFACE PLAN:** The Surface Plan should be prepared to satisfy the provision as laid down rule 32 (1) (a) of MCDR'2017. All the pits should be suitably nomenclature. Block boundaries have not been shown properly. Need to do necessary corrections.
6. **GEOLOGICAL PLAN & SECTION:**
- (i) The UNFC boundaries have to be redrawn as discussed during inspection as per the provision of MEMC Rules' 2015. UPL need to be redrawn eliminating the sharp edges.
 - (ii) Cross section lines with nomenclature have not been shown on the geological plan.
 - (iii) the Geological Plan should be prepared to satisfy the provision as laid down rule 32 (1) (b), (c) and (d) of MCDR'2017
 - (iv) Proposed boreholes should be shown in plan and sections. The proposed borehole should be shown in dotted lines in geological sections.
 - (v) In Geological plan, some of the areas have been shown as blank. In those areas, geology of the area should be shown. Longitudinal sections have not been submitted.
 - (vi) UNFC codes, UPL should be shown in Geological sections. The blank areas in geological sections should be filled with relevant lithologies
7. **DEVELOPMENT PLAN & SECTION:**
- (i) Individual year wise development plan and sections have not been submitted separately.
 - (ii) Year wise backfilling plan and sections have not been shown along with subsurface lithology in backfilling sections justifying complete extraction of mineral before backfilling.
 - (iii) The proposed and existing bench mRL to be shown clearly over year wise development plan and sections, dump plan and sections, backfilling plan and sections.
 - (iv) Geological information (lithology) to be furnished on development plan and sections. The area shown as blank should be filled with relevant lithologies.
 - (v) Existing and proposed protective measures and plantation should be shown in different colors around all waste dumps and mineral reject dumps. Index of safety zone boundary and surface right area should have distinct color.
8. **ENVIRONMENT PLAN:**
- The environment plan has not been prepared as per the provision laid down in rule 32 (5) (b) of MCDR'2017.
9. **RECLAMATION PLAN:** The nomenclature "progressive reclamation plan" to be replaced with "reclamation plan".
- Existing and proposed protective measures and plantation should be shown in different colors along all waste dumps and mineral reject dumps. Index of safety zone boundary and surface right area should have distinct color.
10. **FINANCIAL ASSURANCE AREA PLAN:**
- The area degraded due to mining and allied activity and waste dump sites to be considered in FA calculation. The existing area and additional area under different heads should be shown properly under different coloured hatching.

Sudip Ranjan Mazumdar
15/01/2020
(Sudip Ranjan Mazumdar)
Senior Mining Geologist