



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



BY REGD POST
Phone: 0674-2352463
Tele Fax: 0674-2352490
E-mail:
ro.bhubaneshwar@ibm.gov.in
Plot No.149, Pokhariput
BHUBANESWAR-751020

No. MP/A/43-ORI/BHU/2020-21

Date: 19.03.2021

सेवामे

The Managing Director & Nominated Owner,
M/s Odisha Mineral Exploration Corporation Ltd,
3rd Floor, Bayan Bhawan, Unit-3,
Bhubaneswar -751001

विषय: Approval of Mining Plan of Rengalibeda(NE) Iron Ore Block along with Progressive Mine Closure Plan (PMCP), over an area of 24.203 ha in Keonjhar district of Odisha State, submitted by M/s Odisha Mineral Exploration Corporation Ltd under Rule 16 of MCR, 2016.

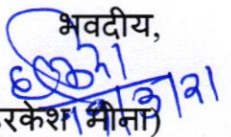
संदर्भ: - i) Your letter No. 3120/OMC/PMC/2021 dated 25.02.2021.
ii) This office letter of even no. dated 26.02.2021.
iii) This office letter of even no. dated 26.02.2021 addressed to Director of Mines, Government of Odisha copy endorsed to you.

महोदय,

This has reference to the letter cited above on the subject. The draft Mining Plan along with Progressive Mine Closure Plan (PMCP) has been examined in this office based on site inspection carried out on 18.03.2021 by Shri Ramkishan R, Senior Asst. Controller of Mines & 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 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 in USB Pendrive/Flash drive (text in a single MS Word file, Annexure in PDF and the drawing/plates in Auto CAD compatible format or JPG format in resolution of 100x100 pixels should be submitted on same USB Pendrive/Flash drive)** with financial assurance under Rule 27 of MCDR 2017 of the 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 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 Mining Plan. It may be noted that no extension of time in this regard will be entertained and the 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 मिश्रा)

क्षेत्रीय खान नियंत्रक

Copy for kind information and further necessary action to Shri Ashish Kumar Samantray, Shri Rabindra Mohanty, Shri Uday Shankar Pattanaik, M/s Odisha Mineral Exploration Corporation Ltd, 3rd Floor, Bayan Bhawan, Unit-3, Bhubaneswar -751001.

(हरकेश मीना)
क्षेत्रीय खान नियंत्रक

1/10/2023
M.C. P.T.

Scrutiny comments on examination of Mining plan with PMCP of Rengalbeda (NE) Iron Ore Block over an area of 24.203 Ha (as per DGPS survey) 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. All the text, tables and annexures to be properly indexed/ numbered/ paged and signed by qualified persons. The annexures have not been signed by qualified persons. Correct table reference number to be mentioned at all relevant places. All the certificates / annexures should bear dated signature. Need to do necessary corrections at all relevant places in the document.
2. In Para 2 (b), the information has not been furnished in the format specified in IBM Manual for Appraisal of Mining Plan 2014. Need to do necessary corrections.

GEOLOGY AND EXPLORATION:

3. **Geological Report:** It has been observed that entire set of Geological Report as supplied by the State Government has not been submitted as separate Annexure. The Plates of the Geological Report has not been submitted. Further, the summary of Mineral Block Summary has not been furnished along with geological report. Need to do needful.
4. In the Geological report of GSI, the iron ore deposit in the Rengalbeda (NE) block has been categorized as stratiform and tabular/folded deposit of irregular habit of UNFC category and the block has been explored at G2 stage. Further, it is observed that Borehole nos- OKR-1, OKR-2, OKR-4, OKR-5, OKR-6, OKR-7, OKR-8, OKR-9, OKR-11, OKR-12, OKR-14, OKR-17 and OKR-21 have been terminated in ore zone considering the threshold value of iron ore at 45% Fe (min). In view of above observations, following proposals should be made in the future exploration program under para (i).
 - a) As per rule 12 (3) of MCDR 2017, G1 level of exploration proposal has not been furnished. Need to propose the same.
 - b) As per CCOM Circular No.3/10 and rule 12 (6) of MCDR 2017, it is observed that resources has not been established up to the threshold value of iron ore as most of the GSI drilled boreholes as specified above have been terminated in ore zone (i.e. above threshold value of iron ore). Therefore, fresh proposal for drilling should be proposed in the locations of the above mentioned drilled holes that have been terminated in ore. Need to do necessary corrections.
 - c) Considering the irregular habit of iron ore deposit and present G2 level of exploration, proposal for G1 level of exploration at an grid of 50m or closer for irregular habit as per Exploration Norms specified in Part III of MEMC 2015 should be proposed.
 - d) The depth of the proposed boreholes should be 100m or till the end of mineralization and depth should be proposed considering the lateral and depth ward continuity of ore body along and across the section lines.
 - e) The exploration proposal has not been submitted as per the format specified in IBM Appraisal of MP. The exploration should be limited with first fours years of Mining Plan.
 - f) The details of the individual proposed borehole should be furnished in the following format.

Year of drilling	Section No	Proposed BH no	Core/ RC/ DTH	Northing	Easting	Collar RL	Borehole Inclination	Proposed Depth	Forest area/ Non forest area/ diverted forest area	Area having surface right/ non-surface right area

5. All the geological information furnished has to been furnished as per the Geological report approved by state government along with documentary evidences. Need to do necessary corrections.
6. Considering the G2 level of exploration over the lease area and prefeasibility report submitted by the lessee, the UNFC codes furnished for reserves and resources are incorrect. The reserve and resource under G2 level of exploration should be categorized as "122" and "222" respectively. Accordingly, the UNFC codes for reserves and resources should be rechecked and modified at all relevant places in the document. Need to do necessary corrections.
7. In page 26, the table showing "lease area exploration status" furnished is incorrect and should be corrected considering the G2 level of exploration carried out in the lease area. Further, the term "ROM" mentioned in the table should be omitted. Need to do necessary corrections.
8. All the parameters considered for like recovery factors, bulk densities etc., for estimation of reserves/should be as per the Geological report. Need to justify the recovery factor considered. Need to do necessary corrections.
9. The detail calculation for revised estimation of reserves and resources for different UNFC codes should be based on the updated geological plans and sections which were submitted along with the Geological Report. Need to recheck calculation and do necessary corrections at all relevant places in text/tables as the reserve and resources estimated does not match with the resources estimated by GSI in the Geological report. Need to

estimate reserves and resources under different UNFC categories considering the bulk density as per Geological Report by cross sectional method. Need to do necessary corrections.

10. The section wise reserve/resource calculated in page 19-23 is incorrect as in Geological report resources has been estimated as "Indicated Resource (332) category. Therefore, the detail calculation of resources under "332" category and after application of modifying factors the categorization of indicated resource to reserve "122" and remaining resource "222" should be calculated by cross sectional method and the same should be furnished. The Ore and Mineral reject under different UNFC codes should be furnished accordingly. Need to do necessary corrections.
11. Justification of UNFC codes "122" and "222" as per UNFC guidelines should be furnished. Need to do necessary corrections.

MINING:

12. Justification for site selection for mining during the proposed plan period has not been furnished. Proposed method of mining has not been furnished in light of development proposal i.e. annual production capacity, nos. of pits proposed for production, site of waste dump and other mine design parameters. The site selection for waste dumping has not been justified for devoid of mineralization and outside UPL. Need to do necessary corrections.
13. It is observed during inspection that few hutments are present within the lease area. The same has not been shown in Surface Plan. Further, blasting induced vibration study by any scientific institution to be proposed immediately after opening of the mine and accordingly optimum charge per delay and most suitable drilling and blasting design along with initiation/firing pattern should be considered. Accordingly, necessary modifications may be made in the proposal for drilling and blasting. Need to do necessary corrections.
14. Selection of mining machinery should be considered in view of limited area constraints for safe movement of mining machineries, protection of environment, systematic and scientific development of the proposed quarries. Need to do necessary corrections.
15. In the extent of mechanization, the capacity and quantity (in nos) have not been furnished. Need to do necessary corrections.
16. The area proposed for establishment of stationary crushing and screening plant, infrastructure, mineral reject stack yard etc. have not been justified and should be explored through drilling and proved for non-mineralization before setting up the plants and related facilities. Further, the site selected should not restrict the mine development. Need to do necessary corrections.
17. Conceptual Mine planning should be modified taking into consideration of the production from in-situ excavations, available reserves after ensuing plan period describing the excavation, recovery of ROM, Disposal of waste, backfilling of voids, reclamation and rehabilitation showing on a plan with few relevant sections. Need to do necessary corrections.
18. Conceptual land use patterns details have not been furnished. Need to furnish the same. The basis of calculation of furnished powder factors figures should be furnished. The details regarding the blasting should be elaborated.
19. In pursuant to the order dated 14.01.2020 passed by MoM, Gol, consequent up on the order dated 08.01.2020 of the Hon'ble Apex Court passed in W.P.(C) No. 114/2014, the lessee shall carryout "regrassing in mining area after closure of mines". Accordingly proposal has not been submitted in conceptual planning, conceptual plan and sections.

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

20. The year wise buildup of waste dumps has not been described in detail. The information should be furnished in the following table. No proposal should be submitted for stacking of mineral rejects over existing minerals rejects stacks/mineral reject dumps of previous lessee within the stipulated time frame as allowed by State Govt. to remove it in favor of earlier lessee as per rule. Need to do necessary corrections.

Year	Waste Generation (in m3)	Waste Dumped (in m3)	Dump Name	Location of Dump (coordinates)	Existing or new dump	Top RL of the Dump	No of terrace proposed.	Individual Terrace height	Slope of the terrace	Overall slope angle of dump

USE OF MINERAL and MINERAL REJECT:

21. The utilization of different end products produced from ROM processing of Iron ore viz., lumps and fines products, whether utilized in captive plant/sold in the open market should be mentioned clearly for individual different size and quality products.

PROCESSING OF ROM AND MINERAL REJECTS:

22. The material balance chart furnished is incorrect. 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 processing plant. The summary of the physical and chemical composition of feed material, grade and quantity

along with different output products with physical and chemical composition (with nomenclature of product) should be furnished with recovery percentages. The recovery percentage considered at each stage of processing should be justified properly. Accordingly, it should be corrected and modified.

PROGRESSIVE MINE CLOSURE PLAN:

23. Baseline information of the lease area has not been described as per guidelines. Further, base line information to be furnished for surrounding 500 meter form lease boundary. The monitoring of various environmental parameters as per the relevant statue should be proposed in the core and buffer zone the lease area. The details of monitoring stations should be marked on the environment plan.
24. The plantation proposal over matured waste dump slopes should be reviewed and furnish proposal accordingly.
25. In FA table the different heads should be kept as per the format specified in IBM manual appraisal 2014. The area under different heads of FA table should be properly shown in different hatching with present area and additional area in FA plan. Financial assurance in form of Bank Guarantee as per rule 27 of MCDR 2017 to be submitted. Need to do necessary corrections at all relevant places.
26. In the FA table, the details of the area put on use at the start of the plan period is incorrect as the degraded land due to pits/quarry, dump, kucha road have not been included in land use pattern. Accordingly, net area considered for FA calculation should be corrected. Need to do necessary corrections.
27. Year wise mining plan proposals and land use pattern should be submitted in soft copy in the format of .kml or .shp file along with document. Need to do necessary corrections.

PRE-FEASIBILITY REPORT

28. Prefeasibility Study report conforming to Part V of Minerals (Evidence of Mineral Contents) Rules, 2015 has not been submitted particularly with reference to Cost and revenue factors such as the derivation of, or assumptions made, regarding projected capital and operating costs, the assumptions made regarding revenue including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, etc., the allowances made for royalties payable, both Government and private, Basic cash flow inputs for a stated period, Yearly planned production, Net Present Value (NPV) and Internal Rate of Return (IRR) of the deposit, intrinsic value of the deposit based on annual projected production has not been furnished. Market sensitivity study has not been submitted. Accordingly, necessary corrections should be made at all relevant places.

PLATES (General):

29. 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. Need to do necessary corrections.
30. With reference to CCOM Circular No 2/2010 and its addendum, the geo-referenced mining leases map superimposed on latest high-resolution satellite data has not been submitted. Accordingly, necessary changes in the consent letter from the lessee should be made. Need to do necessary correction.
31. All plans and sections have not been signed with date by certified Surveyor, Qualified Person, Mine Manager, Mining Engineer and Mining Geologist. Date of survey has not been mentioned in the plans submitted. Need to do necessary corrections.

Key Plan:

32. The key plan has not been prepared as per the provision of rule 32 (5) (a) of MCDR 2017. Further, Plate No has not been mentioned in key plan. The key plan preferably should be prepared in the new toposheet having the index of toposheet no. The approach road to lease area should be shown. Need to do necessary corrections.

Surface Plan:

33. The Surface Plan should be prepared to satisfy the provision as laid down rule 32 (1) (a) of MCDR'2017. All the existing surface features as discussed during field inspection such as hutments etc. has not been shown. The village plot numbers may be omitted. Need to do necessary corrections
34. The kuccha roads present in the lease area have not been shown. Hutments have not been shown. Need to do necessary corrections.

Geological Plan & Section:

35. The Geological Plan should be prepared complying the provision as laid down rule 32 (1) (b), (c) and (d) of MCDR'2017. Since the plans and sections of the Geological report has not been submitted, the mineralized and non-mineralized area should be demarcated in Geological plan as per the information furnished in Geological Report. Need to do necessary corrections.

36. The litho index shown in Geological plan and index do not match/correlate. The Level of Exploration as per UNFC norms and as mentioned in Geological report has not been shown in plan. Need to do necessary corrections.
37. The revised exploration proposal as mentioned in scrutiny point should be incorporated in geological plan. The proposed boreholes to be shown 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. Need to do necessary corrections.
38. Considering most of the boreholes terminated in ore zone as mentioned in the scrutiny comments, the litho and ore body correlation in geological sections should be rechecked and corrected confirming to geological sections in Geological report. Need to do necessary corrections.
39. The UNFC codes should be rechecked and corrected in all plans and sections after complying above scrutiny points. The revised UPL and UNFC codes to be shown in sections. The blank portions of the sections above the UPL should be filled with relevant lithologies. Need to do necessary corrections.
40. The demarcation of ore and mineral reject should be rechecked and corrected justifying the calculations for reserve and resource estimation for the same by cross sectional method. Need to do necessary corrections.
41. In the Geological sections, the projection beyond the lease boundary needs to be omitted and reserves/resources should be re-assessed. The depth continuity of mineralization may be considered limited to the depth up to which direct evidence of mineralization is established. The RL has not been mentioned along the UPL. The coding of figures such as 63.0, 61.28 etc. in green and blue colour has not been explained through index.

Development plan & Section:

42. The development plans and sections should be prepared on updated geological plan and sections. Year wise mining plan proposals should be submitted in soft copy in the format of .kml or .shp file along with document. Need to do necessary corrections.
43. Year wise development plan and sections submitted should be rechecked and corrected. UPL has not been shown in development plans and sections. The development boundaries have not been shown in the plan and section and also in index. Need to do needful.
44. Quarry name, proposed year wise bench profiles, waste dumps, mineral reject dumps etc. to be shown in the development plans and sections including legend. The lithology of the area should be clearly shown in year wise development plan and sections in the area proposed for development. In development plan, proposed benches RL should be clearly depicted. Proposed infrastructure and waste dumping should be furnished year to year basis in different color codes. The nomenclature of existing and proposed dumps should be clearly marked. In development section progress of dumping and others protective measures should be clearly depicted. The UNFC codes should be rechecked and corrected after complying the above scrutiny points. Need to do necessary corrections
45. In first year development sections, the proposed bench RL has not been shown. In third year development section, the bench position at the end of 2nd year has not been shown, instead bench position at end of 1st year has been shown. There is no colour contrast of proposed year wise benches. In 4th year development section, the 3rd year proposed bench position has not been shown. In 5th

Environment plan:

46. The Environment Plan as prepared should be satisfy the provision as laid down rule 32 (5) (b) of MCDR'2017. The proposed environment protective measures to be shown in environment plan. Air, water and noise monitoring stations and wind rose diagram should be shown. Need to do necessary corrections.

Reclamation plan:

47. 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

48. 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.

Semazundar
19/3/21
(Sudip Ranjar Mazumdar)
Senior Mining Geologist

A. Darli
19/3/21
(Ramkishan R)
Senior Asst. Controller of Mines