



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. MPM/FM/24-ORI/BHU/2017-18

दिनांक /Date: 19.01.2018

To

Smt. Nirupama Das, DGM-Geology,
Power of Attorney Holder,
M/s OMC Limited, OMC House,
Bhubaneswar, Odisha – 751001.

Sub: Approval of Modification of Mining Plan of South Kaliapani Chromite Mines over an area of 552.457 ha in Jajpur district of Odisha of M/s Odisha Mining Corporation Limited submitted under Rule-17 (3) of MCR, 2016.

Ref: - i) Your letter no. 04/OMC/PMC/17 dated 01.01.2018.
ii) This office letter of even no. dated 02.01.2018.
iii) This office letter of even no. dated 02.01.2018 addressed to the Director of Mines, Govt. of Odisha, copy endorsed to you.

Sir,

This has reference to the letters cited above on the subject. The draft Modification of Mining Plan along with Progressive Mine Closure Plan has been examined in this office based on site inspection carried out on 05.01.2018 by Shri Ramkishan R, Sr. Asst. Controller of Mines and Shri Dilip Jain, Junior Mining Geologist. 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-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 and JPG format in resolution of 100x100 pixels on same CD)** with financial assurance under Rule 27 of MCDR' 2017 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 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.

भवदीय / yours faithfully,

(HARKESH MBENA)

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

Copy for kind information and necessary action to:

1. Shri A. K. Sahu, Qualified Person, RM & Mining Division, Mecon Limited, Ranchi-834002, Jharkhand.
2. Shri Sunil Kumar Kar, Qualified Person, M/s Odisha Mining Corporation Limited, OMC House, Post Box No.34, Bhubaneswar-751001, Odisha.

(HARKESH MEENA)

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

Scrutiny comment on Modification of Mining Plan including PMCP in respect of South Kaliapani Chromite Mine of M/s OMC Ltd. in Jajpur district of Odisha State.

Date of Inspection: 05/01/2018

1. General:

1. On cover page Mining Lease Number/TC Number/Lease Number if any, address of the Applicant/Mining Lease Holder along with registration number as allocated by IBM under rule 45 of MCDR, 2017 needs to be mentioned. Further, e-mail, phone number, fax number of the lessee may be furnished on cover page. Further, summery of the proposals to be given before the introduction page.
2. Page 9: In the reason of modification it is mentioned "modification of approved Scheme of Mining". However, on cover page same has been mentioned as Modification of Mining Plan. Verify and rectify.
3. The coordinates of the Boundary pillars may also be given in UTM.
4. Page 19: The details of the lease area (forest and non-forest etc.) to be given as table given in the IBM manual on appraisal of mining plan 2014.
5. Para 3.1: The details of all approved Mining plan and Review of Mining Plan from renewal period to be given in tabulated form.
6. Page 16 &17: Year wise consolidate figures of proposal and achievement to be given and reason of deviation, if any.
7. CCOM circular number 2/2010 and its addendum regarding geo-reference mining lease map and ML boundary pillars to be implemented.

2. Geology and Exploration:

8. 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, BH wise sample submitted to above laboratory to be given and 10% of total samples to be analyzed from NABL accredited/Government Laboratory.
9. Page 24, para e (ii): Year wise information of BH drilled to be submitted. Minimum depth of the BH may also be mentioned in the table presented on page.
10. It is mentioned that an amount of Rs. 2.95 Crore has been spend towards exploration. However, documentary evidence in respect of the same is not enclosed. Same to be enclosed.
11. Geological plan does not illustrate geological feature of the area such as lithology, orientation of ore zone, structural information like strike, dip, dip-direction etc. All these information should be reflected on geological plan and section.
12. The level of the exploration depicted on the plan is not as per the M(EMC) rule 2015. Isolated BH have been consider for G1 level of exploration. Same need to be rectified and should be as per M(EMC) rule 2015.
13. Proposal of the exploration given seems to be inadequate to explore entire lease area under G1 level of exploration. Accordingly proposal of the exploration may be revised to explore entire potentially mineralized area under G1 level of exploration as per rule 12(4) MCDR, 2017. Further, details of proposed exploration to be given in accordance to the land schedule i.e. number of BH proposed in forest/non-forest/diverted forest etc.
14. Proposal of exploration to be given in the first year of proposal for the area proposed for tailing disposal and waste dumping.
15. The details like potentially mineralized area and its extent (coordinate in WGS 84), potentially mineralized area explored (in forest and non-forest area, Govt. land, Pvt. Land etc.), remaining

area, proposal of exploration to explore remaining potentially mineralized area etc. to be given. The area explored under different exploration category to be given in the below table:

Item of information	Lease area explored as per UNFC norms (in Ha) as on dt.					Remarks/Comments including reasons for not carrying out the exploration as per UNFC norms.
	<i>Total Lease area = A+B+C+D+E</i>					
	G1 Level	G2 Level	G3 Level	Explored and found non-mineralized with level of exploration (Remarks)	Unexplored lease area	
	A	B	C	D	E	
Area as per level of exploration						
No. of BH Drilled						
No. of BH considered for Resource Estimation.						
Meterage Drilled						
Grid Interval						
Scale of Mapping						

16. As per the IBM MANUAL ON APPRAISAL OF MINING PLAN 2014, slice/level wise (6 meter level) detail calculation of reserve and resource estimation to be furnished. X-validation report for the resource estimation to be enclosed.
17. On page 35 total mineral resource have been estimated to 15.01 million tonnes, however, same has been furnished as 15.71 million tonnes on page 36. Verify and rectify.
18. Mineral resource in different category of exploration to be given in the following table:

Level of Exploration	Resources in million tons	Grade
G1 - Detailed exploration		
G2 - General Exploration		
G3 – Prospecting		
G4- Reconnaissance		

19. Mineral/ ore blocked dues to benches, UPL. barriers, pillars, road, railway, river, nala, reservoir, electric line and other statutory barriers etc, under forest, sanctuaries and non-forest etc. to be given separately.
20. A longitudinal vertical section as per MCDR, 2017 needs to be submitted showing different level of exploration and level of intersection of proposed BH. Proposal of exploration to be given in such a manner that entire Ore Body may be explored up to certain level.

MINING:

21. The details of Present and proposed method of excavation to be given separately. Further, as the year 2017-18 is already passed the proposal of excavation to be given for the period 2018-20. The details of existing pit to be given tabulated form comprising pit number, length, width, number of benches in waste and Ore, top and bottom RL of pit, UPL RL.
22. Page38: The grade wise details of the Chrome production may be given i.e. salable and Mineral Reject.
23. The reason of the modification has been given as “facilitating increase in ore production” , however, there is no proposal of enhancement of the production in submitted document. Verify and rectify.
24. The excavation details given in the table presented on the page 38 to be supported with detail backup section wise calculation.

25. Para e: Describe briefly the layout of mine workings, pit road layout, the layout of faces and sites for disposal of overburden/waste along with ground preparation prior to disposal of waste, reject etc.
26. The detail statement of the existing extent of mechanization along with additional requirement or proposed fleet of machineries to be given in tabulated form.
27. In Conceptual Mine plan the details about total excavation, Disposal of waste, Sub-grade generation and its beneficiation/utilization, mine development, manpower and equipment requirement, conceptual exploration, land degradation, waste required and its availability for back filling the ultimate pit details, depth of the back filling, reclamation and rehabilitation of pit and waste dump, Proposal of any expansion, etc. showing on a plan with few relevant sections to be given for conceptual period. Accordingly conceptual plan and section along with text to be revised.
28. Keeping in view of the development of Band IV, the proposed site of the tailing material disposal would be required to be re-handled in future in view of systematic and scientific development and mineral conservation. According, proposal of re-handling of tailing material to be included in conceptual plan.
29. Mine Drainage: Minimum and maximum depth of water table in the form of mRL based on observations from nearby wells and water bodies to be given. Form text it is observed that a substantial amount of rain water supposed to be passed from the lease area. Hence, a mine drainage plan to be submitted showing flow direction of the water, location final discharge, arrange of arresting of solid waste etc.
30. The details of water drawn from external source and arrangement of its recycling may be given for domestic and industrial purpose.

4. Stacking of Mineral Reject/Sub-grade and Disposal of Waste:

31. Para a: briefly described about the nature of the top soil, overburden/waste and mineral reject. The details of the top soil, waste and mineral reject generation to be given in the following table.

Year	Top Soil		Mineral reject		Waste (OB/SB/IB)	
	Reuse/spreading	Storage	Backfilling	Storage	Blending	Beneficiation
2018-19						
2019-20						
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32. Pare b: The extent/location of the proposed dumps to be given also to be mentioned whether within UPL or not. Also give the details of the existing dumps (top soil, waste dump, mineral reject dump) within the lease area in tabulated form comprising dump number, designed capacity, present quantity, remaining quantity, bottom RL and top RL.
33. From proposal it is observed that the height of the WD1 and WD2 dumps are proposed to 120 meter and 76 meter respectively. A proposal of scientific study for dumping upto such height form the institute of repute to be given and dumping of waste will only be done as per the recommendation of the study. Such proposal to be given and to be mentioned in the text part of the document.
34. From plan and section it is observed that a new area is proposed for development/excavation of chrome ore, however, no proposed and staking of top soil is given. Justification to be given.
35. Proposal of maintenance of all existing retaining wall, garland drain, settling pond and check dam to be given.

6. Processing of ROM and Mineral Reject:

36. Give 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 in text part of the document.
37. Para d: The details in respect of Quantity and quality of tailings /reject proposed to be disposed, size and capacity of tailing pond, toxic effect of such tailings, if any, with process adopted to neutralize any such effect before their disposal and dealing of excess water from the tailings dam etc. has not given.
38. Para e: Specify quantity and type of chemicals if any to be used in the processing plant. Accordingly para f to be revised.
39. Indicate quantity (cum per day) of water required for mining and processing and sources of supply of water, disposal of water and extent of recycling. Water balance chart may be given.

7. Progressive Mine Closure Plan:

40. Page 57: The existing land use pattern given does not match with land use given on page 65. Base line information in respect of water regime, quality of air, ambient noise level, flora, climatic conditions etc. to be given along with the analysis data of Air quality, noise, ground vibration, water quality, etc. at least of last one year.
41. It is observed many of terraces of the existing dump is matured and there is no proposal of further waste dumping. Hence, a massive planation proposal on matured area may be given for early rehabilitation of matured area. Accordingly proposal of plantation, coir matting/geo textile etc may be revised/given.
42. The location and schedule of measurement of environment protective measure to be given in text. Further, the cost for watch and care to be given in table presented on page number 87.
43. Para 8.3.5: Information i.r.o. Surface subsidence mitigation measures through backfilling of mine voids or by any other means and its monitoring mechanism is not furnished in submitted document. .

8. Plates:

44. General: All the latest plan and section to be submitted (by the end of Dec 2017). Accordingly all the tables may be modified. The date of survey to be mentioned in relevant plans. In general the size of the plan and section are not easy to handle. Hence, the scale of plans and section are required as per the rule 31 (d)(ii) of MCDR, 2017 other than the plans for the permission has been obtained.
45. The direction of the sections to be mentioned in all the sections along which the sections have been generated. Further, Color code given for different features in plans and sections to be same.
46. Further, UTM or WGS84 grid as per DGPS map may also be super-imposed in relevant plans for better comprehension.
47. Surface Plan: Forest/non-forest/private land to be shown clearly. Index has not been given for Sub-grade stack/stack yard etc. Indexing of all the features depicted on plan to be given.
48. Geological Plan & Section: All the proposed BH to be shown on Geo-section along with collar mRL, BH id and proposed depth at the end. The index in geological plan and section should be same. The exploration level has not been depicted as per M(EMC) Rule 2015. Rectify as discussed during the filed visit. Coordinate of proposed BH may also be given in UTM. Index to be given for area under different exploration category. Geological information as per drilled BH to be depicted on sections.
49. Geological Section: The submitted geological section does not illustrate the disposition of the chrome ore body. Further, it is observed that the section have been without considering any information of surface geology, BH logs, pit exposure etc. Hence, complete recast of the geological section is required. Further, the scale of the section should be same as of geological plan. All the sections should be from boundary to boundary.

50. Both the sections Geological and development to be given separately. All the sections should have present bench mRL and Proposed bench mRL.
51. Development Plan and Section: The legend for crest and toe of the bench and dump terrace to be shown in relevant plan. Existing and proposed bench and terrace mRL to be mentioned.
52. Waste dump plan and section: The location of the proposed dump with respect to the lease area could not be ascertained, hence, as discussed during the inspection entire lease area to be shown on the plan (not to the scale), showing enlarged area of dumping. The legend for different proposal (year wise) has not been given in plan and section.
53. From dump section it is observed that systematic benches have not been proposed. Dumping to be done in systematic manner. Also from section it is not clear about the status of the present dumping and proposed dumping. Year wise proposed dumping to be shown in different color in plan and section. Proposed and existing terrace mRL to be mentioned invariably in plans and sections. Further, few more sections may be generated across the dumps for better representation of dumps.
54. Existing and proposed protective measures to be shown with different legend and to be shown in the dump plan and section. Further, the details like length, width, location, etc. of the existing protective measures like retaining wall, garland drain and check dam, settling dam etc. to be given in text.
55. Reclamation plan: all the proposed features in PMCP to be depicted year wise in the plan. The color code for existing and proposed feature should be different. Accordingly, reclamation plan to be revised. All the proposed features in tabulated manner may be depicted on the plan.
56. Environment plan: Few features as mentioned in rule 32 (5)(b) of MCDR, 2017 has not been shown. Verify and rectify. Features as indicated in the rule to be extended upto the boundary of 60 meters.
57. FA Plan: During inspection it is observed that financial assurance has not been estimated correctly. Hence, actual degraded and to be degraded area due to mining and allied activity to be considered for financial calculation. Accordingly FA plan and table may be revised.
58. Financial assurance to be recalculated as discussed in the file considering the area degraded due to mining and allied activity.

9. Enclosures:

59. CONSENT LETTER/ UNDERTAKING/ CERTIFICATE FROM THE APPLICANT to be signed by nominated owner. Accordingly certificate may be revised. The language of the certificate should be as the prescribed format, only rule position may be changed as per existing rules and Act.
60. Certificate from the lessee should also include: The information furnished in the Modification of Mining Plan and Progressive Mine Closure Plan is true and correct to the best of our knowledge and records.
61. From certificate of incorporation it is observed that the name of the company is "ORISSA MINING CORPORATION LIMITED". However, on cover page same has written as 'ODISHA MINING CORPORATION LTD. Necessary modification or document evidence to be enclosed.
62. BH wise information of the BH drilled to be given in tabulated form indicating Year, type (Core/DTH), diameter, spacing, inclination, collar RL, depth, whether mineralized or non-mineralized etc.
63. The copy of form I and J in respect of the BH drilled during the last scheme period to be enclosed. The same should be signed by the Geologist appointed under Rule 47 and 48 of MCDR, 2017.

In view of above, wherever necessary correction required to be made.

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