



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. MRMP/A/38-ORI/BHU/2019-20

दिनांक / Date: 12.12.2019

To

Shri C.S. Grewal, Proprietor,  
M/s National Enterprises,  
Post Box No-44, Barbil,  
Dist-Keonjhar, Odisha.

Sub: Modification of Review of Mining Plan of Raikela Iron Ore Mine over an area of 45.932 ha in Sundargarh district of Odisha of M/s National Enterprises submitted under Rule-17 (3) of MCR, 2016.

Ref: - i) Your letter no. NE/BBL/652/2019-20 dated 02.11.2019 received on 28.11.2019.  
ii) This office letter of even no. dated 28.11.2019.  
iii) This office letter of even no. dated 28.11.2019 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 Review of Mining Plan along with Progressive Mine Closure Plan has been examined in this office based on site inspection carried out on 06.12.2019 by Shri Dayanand Upadhyay, Sr. Assistant Controller of Mines and Shri Sudip Ranjan 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 Modification of Review 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 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 modified copies of the Modification of Review of Mining Plan. It may be noted that no extension of time in this regard will be entertained and the Modification of 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 / yours faithfully,

(HARKESH MEENA)

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

Copy for kind information and necessary action to:

1. Shri Himanshu Sekhar Biswal, Qualified Person, Sundara Basti, At/Post-Barbil, Dist-Keonjhar, Odisha-758035.

(HARKESH MEENA)  
क्षेत्रीय खान नियंत्रक / Regional Controller of Mines



**Scrutiny comments on examination of Modification of Review of Mining Plan along with PMCP of Raikela Iron Ore Mine of M/s National Enterprise over an area of 45.932 Ha in Sundergarh District of Odisha State**

**GENERAL POINTS:**

1. The content of the cover page is not as per format specified in the IBM appraisal of MP 2014. The period of proposals in financial year have not been specified separately. Further, spelling check has not been done. Necessary corrections to be done at all relevant places.
2. The 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.
3. All the annexure, text and tables in the text have not been properly nomenclature/indexed/ numbered/ paged and signed by qualified person. All the certificates/annexures should bear dated signature.
4. The reference of the "RQP" certificate need to be omitted and RQP certificate from the annexure need not be submitted.
5. In Para 1(b), the details of applicant have not been furnished.
6. The DGPS surveyed mining lease boundary has not been submitted. Need to submit the same.
7. In Para 3.1, the date of approved mining plan/review of mining plan/ modified mining plan/FMCP etc. along with lease area/area 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

8. In Para 3.3, review of earlier approved proposal in respect of exploration, excavation, reclamation, environment management etc. should be furnished for the period 2018-19 and till 31<sup>st</sup> Oct'19 for the period 2019-20. Compliance of waste generation has not been furnished in cubic meter. The reason for less generation of mineral reject generation than proposed has not been justified scientifically. Need to do necessary corrections.
9. In Para 3.6, reason and justification of modification of review of mining plan has not been furnished in accordance with Rule 17 (3) of MCR, 2016.

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

10. In par a1 (a), the topography along with maximum and minimum RL, drainage pattern, vegetation, climate and rainfall data of the mining lease area should only be furnished. In Para 1(b), the reference of established regional stratigraphy should be furnished and the younging direction of the lithounits has not been shown in arrow mark. In Para 1(c), the younging direction of the local stratigraphy has not been shown. In Para 1.e (iii), the summary of total samples collected and analyzed along with justification for 10% of total samples analyzed in accordance to BIS and reports from NABL accredited/other government laboratory have not been furnished.
11. Reporting of Mineral Resources as per MEMC Rules, 2015 as furnished in table 4.7 need not be submitted. The table needs to be omitted.
12. The reserve and resources calculated as on 01.11.2019 is incorrect and there is a significant variation from the reserves and resources estimated in the review of mining plan approved dated 10.11.2017. During field inspection it was observed that the mine bench position does not match with the surface plan. The lithology observed in mine benches do not corroborate with lithology shown in geological plan and sections. The locations of bore holes such as BH-32, 33 & 34 plotted is incorrect. The lithology shown in borehole logs does not corroborate with geological sections. The geological contact as observed in mine face has not been demarcated properly in the geological plan and sections. Need to carry out

fresh survey. Detail calculation of section wise reserves and resources based on fresh updated survey and updating the borehole information by cross sectional method for various categories of UNFC have not been furnished showing cross-sectional area, length of influence, volume, bulk density and tonnage has not been furnished. E.g. for UNFC code 111 have not been furnished. 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). Reserves and resources has to be re-estimated as per the provision of MEMC Rules, 2015. Need to do necessary corrections in text, tables and plates at all relevant places.

13. In table no 4.16, the quantity and grade of ore and mineral reject at different UNFC codes have not been furnished separately. Need to do the needful.
14. Justification of UNFC codes have not been furnished in tabulated format as per UNFC guidelines.

**PART-A: (2). MINING:**

15. Justification for area proposed for mining has not been given with respect to exploration, targeted quantity and grade considering mineral conservation and grade.
16. In page 75, para 5.4, the justification of equipment should be based on maximum excavation quantity to be handled in next three year excavation proposal. Necessary correction in the calculation need to be done. The details of existing and proposed list of mining machineries have not been furnished with its capacity. Need to do the needful.
17. The description of the existing pits/waste dumps/Mineral rejects stacks in the following table to be furnished. Their nomenclature should be also reflected in relevant plans and sections.

**Existing Pits:**

Block/ Pit	Location (Grid)		Size of Pit (in m)		Surface area covered (in Ha)	Top RL (m)	Bottom RI (m)	No of benches		
			Length	Breadth				Ore	MR	OB
	Northing	Easting								

**Existing Waste Dumps/Mineral reject dumps/stacks:**

Name of the waste dump/ mineral reject dump	Location (Grid)		Top RL (in m)	Bottom RL (in m)	No of terrace	Area Occupied (in Ha)
	Northing	Easting				

18. 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. Need to submit the same.
19. It has been observed during field inspection that middle quarry has been almost merge with Top-A quarry therefore nomenclature of quarry redefined accordingly.
20. The Bottom-B quarry has been proposed to backfilled from 2021-22 however it has been observed that Bottob-B quarry has not fully developed and not going to exhausted in 2021-22. There backfilling proposal may initiated from 2022-23 after complete exhaustion of south eastern part.
21. Exhausted area to be backfilled by OB/Waste to be specified with RL and area on year to year basis with description of the method & manner of disposal of waste. It should also be ensured that during backfilling original sequence of lithology of the lease area to be maintained.
22. In situ excavation of OB/IB/waste, Ore, Mineral reject have not been calculated based on last updated survey. All the calculation from page 49 to 74, 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 after complying scrutiny point no 13. The year wise and section wise detail calculation of Ore, MR and waste from page 50 to 74 does not match with the proposed production of ROM (Ore, Mineral reject) & waste shown in table 5.5. Need to do necessary corrections at all relevant places.

23: 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 (coordinates)	
	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)		

24. Life of mine should be recalculated based on re-estimated resources as mentioned in point no.13. Need to do necessary corrections.

### 3. MINE DRAINAGE:

25. In para 3 (b), the max and min depth of working should be given in following tabulated format.

Name of the Quarry	At the end of plan period (mRL)		At the end of conceptual period (mRL)	
	Top	Bottom	Top	Bottom

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

26. The nature/ type of mineral reject and waste material have not been described or classified. The heading of the table 7.1 is incorrect and should be corrected. The figures furnished in table 7.1 do not match with the year wise insitu excavation figures. The year wise generation of top soil has not been quantified. Quantity of waste to be generated and subsequently stored or backfilled should be rechecked and corrected. Since there is no proposal for beneficiation of mineral reject, therefore figures under beneficiation of mineral reject should be omitted and suitably incorporated under blending. Need to do necessary corrections. Necessary corrections to be done.

27. The stacking of mineral reject has not been proposed and marked over relevant plans and sections. Need to do necessary corrections.

28. The disposal of waste and mineral reject and soil to be furnished as per table furnished in IBM Manual appraisal MP 2014.

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. 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:**

30. In para 6 (b), consumption of subgrade mineral mentioned should be rechecked and corrected.
31. 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:**

32. 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:**

33. Page-118, Para-11.3 & 11.3.1, back filling proposal has not been explained properly. The proposed backfilling, reclamation and re-habilitation to be carried out should be furnished:
34. 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.
35. 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.
36. Under Para "Mined Out Land", the information furnished in table 11.12 is incorrect. There is currently no mined out area from where ore has been completely exhausted. Need to do necessary corrections in the table and at all relevant places.
37. In table 11.14 the species to be planted has not been mentioned.
38. The tables 11.15 to 11.17 showing year wise proposal should be corrected with respect to reclamation and rehabilitation by backfilling i.e., quantity of overburden/waste material to be backfilled has not been furnished, plantation details, cumulative plantation which is kept as blank. Further, information of protective measures (i.e., construction/maintenance of retaining wall, garland drain, settling pond etc.) to be undertaken has not been furnished in detail.
39. The table 11.18 showing the breakup of the areas in mining lease for calculation of financial assurance is not as per the format specified in IBM appraisal of MP 2014. Need to do necessary corrections.
40. In FA table the different heads should be kept as per the format specified in IBM manual appraisal 2014. As discussed during field inspection, there is no area under mining which can be considered as fully reclaimed and rehabilitated and same should be rechecked and corrected. Further, the area under waste dump sites should not be considered as fully reclaimed and rehabilitated. 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.

2. List of plates along with plate numbers have not been submitted.
3. The DGPS surveyed mining lease boundary has not been submitted. Need to submit the same.
4. **KEY PLAN:** Key plan have not been submitted. The key plan should incorporate all features as mentioned Rule 32 5 (a) of MCDR 2017. The approach road to the lease area and wind rose diagram should be shown.

5. **SURFACE PLAN:**

Date of survey has not been mentioned in surface plan. The mine bench position towards the western side of the lease boundary does not match as observed in field. Need to re-survey and update the surface plan. The borehole locations (e.g. BH-2, 33 & 34 etc.) are incorrect and need to do the necessary corrections. 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 should be rechecked and corrected as per DGPS survey.

6. **GEOLOGICAL PLAN & SECTION:**

- (i) The UNFC boundaries G1/G2 etc. to be shown in Geological Plan. The UNFC codes such as 331 etc. should be omitted from Geological Plan.
- (ii) The Geological Plan should be prepared to satisfy the provision as laid down rule 32 (1) (b), (c) and (d) of MCDR'2017
- (iii) During field inspection it was observed that the mine bench position does not match with the surface plan. The lithology observed in mine benches do not corroborate with lithology shown in geological plan and sections. The locations of bore holes such as BH-32, 33 & 34 plotted is incorrect. The lithology shown in borehole logs does not corroborate with geological sections. For e.g. in BH-27 & 28, the ore shown in lithology has been shown as shale in sections. The geological contact as observed in mine face has not been demarcated properly in the geological plan and sections. Thus lithological correlation in the geological sections furnished has not been done scientifically and is incorrect. Need to carry out fresh survey, update geological plan and sections and do correct lithological correlation conforming to borehole logs and lithology as observed in mine face, litho contacts etc. as per the provision of MEMC Rules, 2015.
- (iv) The x-axis coordinate sin geological sections have not been shown. UNFC code 331 should not be part of geological section and should be omitted.
- (v) UNFC code 331 should be omitted from Geological sections. UPL should be redrawn to extract the ore observed in BH-27, 28 etc.

7. **DEVELOPMENT PLAN & SECTION:**

- (i) Development plan and sections should be revised based on updated geological map and sections.
- (ii) Index of the UPL shown in plan and section and those shown in index is different.
- (iii) The proposed and existing bench mRL to be shown clearly over year wise development plan and sections.

- (iv) Geological information (lithology) to be furnished on development plan and sections. Plan and section should be drawn on same scale.
- (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.
- (vi) Year-wise development plan and section should be separately submitted on same scale.

**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 TO BE SUBMITTED INSTEAD OF ENVIRONMENT MANAGEMENT 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. It should be re-calculated complying the parameters mentioned in point no.37 and submitted accordingly. The existing area and additional area under different heads should be shown properly under different coloured hatching.

**ANNEXURES:**

1. List of annexures have not been page numbered. In the index page number of the annexure have not been furnished.
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. 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.
5. Copy of bank guarantee has not been enclosed. Photographs of boundary pillars should be enclosed.
6. Copies of Form I and Form J of all drilled boreholes have not been submitted.
7. The chemical analysis results of borehole samples from NABL accredited laboratory have not been submitted.
8. NABL accreditation certificate of the laboratory has not been furnished.
9. Indexing of borehole logs with page numbers have not been done in sequence

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