



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/45-ORI/BHU/2019-20

Date: 24.01.2020

सेवामे

Shri T V Narendran, Managing Director & Nominated Owner,  
Tata Steel Ltd,  
At/P.o- Jamsedpur,  
Dist – East Singbhum,  
Jharkhand - 831001

विषय: Approval of Review of Mining Plan of Joda East Iron Ore Mine along with Progressive Mine Closure Plan (PMCP), over an area of 671.093 ha in Keonjhar district of Odisha State, submitted by M/s Tata Steel Ltd under Rule 17 of MCR, 2016.

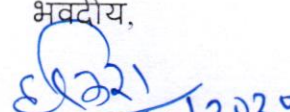
- संदर्भ: - i) Your letter No. GM/PL/445/56/2019 dated 24.12.2019 received on 14.01.2020.  
ii) This office letter of even no. dated 14.01.2020.  
iii) This office letter of even no. dated 14.01.2020 addressed to Director of Mines, Government of Odisha copy endorsed to you.

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 earlier site inspection carried out on 20.10.2019 by Shri Ramkishan R, Senior 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 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 मिश्रा)  
24/1/2020

क्षेत्रीय खान नियंत्रक

Copy for kind information and further necessary action to Shri Sanjit Kumar Adhya, Tata Steel Ltd, At/P.o- Jamsedpur, Dist – East Singbhum, Jharkhand - 831001.

(हरकेश मीना)

क्षेत्रीय खान नियंत्रक

**Scrutiny comments on examination of Review of mining plan with PMCP of Joda East Iron Ore Mines over an area of 671.093 Ha in Keonjhar District of Odisha State of M/s TATA Steel Ltd**

**GENERAL POINTS:**

1. Submission rule mentioned on cover page should be rectified and lease execution date, period should be rechecked and modified.
2. 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. The surface right area granted should be furnished with documentary evidence.
4. All the text, tables and annexures to be properly indexed/ numbered/ paged and signed by qualified person. Correct table reference number to be mentioned at all relevant places. All the certificates/annexures should bear dated signature. MCDR, 1988 should be replaced with relevant rules of MCDR, 2017 as well as for MCR, 1960 with MCR, 2016.
5. The copy of the qualification & experience certificate in respect of the QP to be enclosed as per Rule 15 of MCR, 2016.

**Geology and Exploration**

6. The table showing status of exploration under UNFC should be recalculated as per Part II point no.4 of MEMC Rules 2015. The justification for area considered for G1/G2/G3 etc. should be given w.r.t MEMC rules 2015. Revised UNFC boundaries have to be drawn. Necessary corrections to be done at all relevant places of the document (text and in plates).
7. The geological sections doesn't corroborate with the borehole log data chemical analysis and litho mentioned. Check and rectify the same. Also litho has been shown on unexplored lease area to a significant depth. Litho should be shown in sections where it is established by boreholes or other exploratory work.
8. The future exploration program to be revised incorporating the following.
  - (a) Additionally, new core boreholes to be proposed in the location adjacent to existing drilled boreholes that have been either terminated in the ore zone or closed prematurely without intersecting the proposed ore zone in depth within G1/G2 area.
  - (b) The depth of the proposed core boreholes should be around 300m or till the end of mineralization/discontinuance of ore body. The proposal to be mentioned.
  - (c) Adequate proposal of exploration to be given to explore lease area under G2 level of exploration as per MEMC, rule 2015 and also G1 level of exploration should be proposed in the mineralized area which should be completed in compliance to the rule 12 (3)&(4) of MCDR, 2017 (i.e. with in 2020-21). Accordingly exploration proposal should be modified. only core type drilling of boreholes should be proposed.

(d) The details of the proposed boreholes have to be furnished in following tabular format.

Year of drilling	Section No	Proposed BH no	Northing	Easting	Collar RL	Core/ RC/DTH	Proposed Depth	inclination	Forest/ Non Forest/ Diverted Forest area	Surface Right/Non-surface Right area

(e) 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.

- (f) In the table under proposed exploration program, a column should be inserted showing the purpose of borehole (for lateral extension or depth ward) conversion of G2 or G3 area to G1 or for unexplored area.
9. The mineral resources should be provided in the following table. the current UPL drawn is not fully extracting the the ore zone as shown in Geological plan and sections, it should be drawn to fully extract the mineralized area with optimized stripping ratio. Necessary modifications to be done accordingly in relevant part of text and plans & sections.

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

## MINING

10. Dump re-handling should only be proposed for the existing waste dumps / old mineral rejects dumps for recovery of mineral. This should also be rectified in the text part of the document wherever mentioned. Dump re-handling (for the purpose of recovery of mineral) should be submitted in format specified in IBM Appraisal of MP 2014 only for waste dumps/old subgrade dumps. The recovery of ore and mineral reject should be properly justified. The proposal should only be made if there is recovery of mineral not for shifting to another location. Modify accordingly in relevant text and plates of the document.
11. Justification for site selection for mining during the proposed plan period should be furnished. Excavation proposal table should be justified with back up calculation of tables showing. Section wise and mRL wise year wise excavation proposal of Ore, Mineral reject and Waste (OB/SB/IB) should be calculated showing section number, mRL considered, cross-sectional area, length of influence, volume, Bulk density and tonnage. Necessary calculation should be shown in tabular format.

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

12. The waste that is going to be stored in waste dumps and backfilling purpose should be furnished. The figures furnished in page no.92 should be rechecked. All the existing mineral reject stacks should be furnished.
13. The proposed waste and mineral rejects quantities that are going to be handled during the proposed plan period should be furnished with proper justification like present waste dumps, mineral rejects stacks holding capacities. The proposed dump heights should not be more than 60 m in height otherwise supported by a scientific study conducted by a reputed institute. The report should be enclosed.
14. The area proposed for overburden dumping/backfilling shall be proved for its non-mineralization through exploration. Accordingly, the priority of drilling has to be proposed so that the area is proved to be barren before overburden dumping. The same should also be described under the paragraph. Necessary modification to be done in the text accordingly. The same should also be furnished for mineral rejects stacks.

15. The year wise buildup of dump should be described in the following table. The table is for the waste quantity which is going to be stored in dumps.

Year	Waste to be dumped (in m <sup>3</sup> )	Dump Nomenclature	Location of dumping (coordinates)	Existing or new /Proposed area (m <sup>2</sup> )	Proposed dumping Terrace from and to mRL.	No of terrace proposed.	Individual Terrace height	Slope of the terrace	Overall slope angle of dump

a column should be added to the above table for whether it is in outside UPL or within UPL, nature of dumping whether it is permanent or temporary and whether it is in mineralized area or non-mineralized area. The same should also be furnished for mineral rejects stacks also.

16. The backfilling of waste dumps is also proposed during the plan period. Proper justification should be furnished regarding the proposed area for exhaust of mineral with relevant boreholes litho and the same should be referred with section numbers on relevant plans and sections. The backfilling proposal should be given in the following format.

Year	Waste to be backfilled (in m <sup>3</sup> )	Area Nomenclature	Location of backfilling (coordinates)	Existing and Proposed area (m <sup>2</sup> )	Proposed backfilling from and to mRL.	Relevant plan/section reference number

17. The necessary corrections should be made in the relevant plans and sections according to the modified plan of handling of waste and mineral rejects.

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

18. The material balance chart to be furnished. 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 both for existing and the proposed beneficiation plant. The details should be for both dry and wet process. The study reports for the wet beneficiation plant should be annexed.
19. The summary of the physical and chemical composition of feed material quantity for the existing beneficiation process for both wet and dry circuit along with different output products physical and chemical composition (with nomenclature of product) should be furnished with recovery percentages and tonnages. The same should also be furnished for the new beneficiation process.
20. The flow sheets, diagrams, of the existing and proposed plants should be furnished. Necessary legible flow sheets and diagram should be submitted.
21. The quality & quantity of tailings disposed should be furnished in terms of physical and chemical composition of the material to be disposed at tailings site.
22. The study report regarding the site of tailings disposal with holding capacities should be enclosed.
23. Water balance flow chart diagram furnished should be rechecked.

#### **OTHERS**

24. Information in respect to the proposed manpower both on departmental role and contractual has to be mentioned separately in the text for managerial level, supervisory level and others.

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

25. The information on protective measures for reclamation and rehabilitation works year Wise table should be rechecked.
26. The bank guarantee as per rule 27 of MCDR, 2017 should be submitted.

#### **PLATES (General):**

1. The plans and sections to be submitted as per the scale relaxations specified in approval letter by IBM the part plans and sections should be prepared on 1:1000 scale.
2. Show a scale of the plan at least twenty-five centimeters long and suitably sub-divided. 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.
3. Along with local grid coordinates, UTM coordinates should also be provided in the grid lines and latitude/longitude coordinates should be mentioned adjacent to boundary pillars in all plans and sections.
4. The UPL has to be redrawn based on provision of UNFC boundaries as per MEMC Rules 2015 and should be shown in red color in all relevant plans and sections.
5. The existing and proposed bench positions clearly with mRL to be mentioned in the all plans and sections.
6. Date of survey should be given on plan and sections and the same should be signed by with date. Grid Lines to be shown in all sections - Geological Sections, Development Sections, Conceptual sections, Dump sections etc.
7. The lithology should be shown in all relevant sections.
8. All plans and sections should be signed with date by certified Surveyor, Qualified Person, Mine Manager, Mining Engineer and Mining Geologist

#### **Key Plan:**

9. The key plan should incorporate all features as mentioned Rule 32 5 (a) of MCDR 2017 and all features should be shown in index as well.
10. Approach road to lease area should be shown in key plan. The Latitude/longitude of the extreme ML pillar coordinates should be marked in key plan. Wind rose diagram should be depicted.

#### **Surface Plan:**

11. UTM coordinates to be mentioned along with local coordinates along the grid lines. The features shown in the index is not distinguishably shown in the plan. Diverted forest area to be shown in the plan as well as marked in the index of the map. The UPL should be shown over the plan and in index. Necessary corrections to be done.
12. Surface right area and forest, non -forest area, diverted forest area should be shown.

13. Few boundary pillars should be correlated with some permanent ground features giving distance and bearing/direction. Nomenclature of the existing waste and mineral reject dumps along with fines stack should be mentioned.
14. All the boundary pillars coordinates should be furnished in a tabular format. The Surface Plan should be prepared to satisfy the provision as laid down rule 32 (1) (a) of MCDR'2017.

**Geological Plan & Section:**

15. The surface geology of the lease area should be depicted on geological plan as discussed during the field inspection. The quarry position with benches should be shown on plan and sections.
16. Geological Plan should be updated with revised boreholes proposal as mentioned under future exploration program. The redefined UNFC boundaries and UPL along with UNFC code should be prominently shown in Geological Plan and sections. All the lithology within and outside the UPL to be shown in the Geological sections with the proved lithology. Necessary corrections to be done in all the sections.
17. Geological sections should be revised. Particularly the resources/reserves should not be projected in the section if it is not proved through borehole. Necessary corrections to be done in Geological sections, calculations, text, tables etc.
18. The proposed boreholes to be plotted 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.
19. The index of Geological features should be same in both Geological Plan and all the Geological sections. In Geological Plan, longitudinal section line to be shown and a longitudinal section to be submitted.
20. Existing quarry positions should be shown on sections.
21. The color of the UPL should be same in all plans and sections. In the Geological sections, the UPL shown wrongly, the revised UPL and benches should be drawn properly. The blank area shown in geological sections above UPL should be filled with relevant lithology.
22. The Geological Plan should be prepared to satisfy the provision as laid down rule 32 (1) (b), (c) and (d) of MCDR'2017.

**Development plan & Section:**

23. Quarry name, existing and proposed bench profiles, waste dump, backfilling proposal, mineral reject dumps etc. to be shown in the development plans and sections.
24. The lithology of the area should be clearly shown in year wise development plan and sections in the area proposed for development.
25. Each year development proposal for different blocks should be shown separately in different color. The UPL may be redefined and benching pattern of existing and proposed to be made in all development plans and sections. The UPL should be shown in Red color which should contrast to the year wise development proposal color shown in development plan and sections. The existing and the proposed quarry positions year wise should be properly demarcated.

26. The RL of the benches should be clearly shown in year wise development plan and sections. The profile of development sections should match with the contour of the respective plans.
27. Development sections should be equally spaced in the proposed development year wise plan and accordingly the respective sections should be submitted. the section interval should be 100 m.
28. A longitudinal section along the disposal of tailing pond should be submitted.

#### **CONCEPTUAL PLAN & SECTIONS**

29. The conceptual plan should depict workings keeping in view of the validity of the lease period as proposed in the text. Conceptual longitudinal and T- sections representing the entire lease area should be submitted. dumps are shown in the mined out land i.e mining quarries. Whether it is backfilled or dumped should be clarified.

#### **Environment plan:**

30. The Environment Plan as prepared should be satisfy the provision as laid down rule 32 (5) (b) of MCDR'2017.
31. The proposed environment protective measures to be shown in environment plan. The drainage pattern of the lease area also to be shown on the plan. Air, water and noise monitoring stations to be shown in the plan. Wind rose diagram should be shown with predominate wind direction

#### **Reclamation plan along with sections for the backfilling proposal.**

32. 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/PMCP**

33. 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.

#### **ANNEXURES**

34. All the annexure to be properly numbered/paged and relevant annexure to be signed by Geologist/surveyor/QP etc. It is observed that many of the annexures are not legible. A legible copy of same to be enclosed.
35. Copy of bank guarantee should be enclosed. Photographs of boundary pillars should be enclosed.
36. The copy of the experience certificate in respect of the QP to be enclosed.

*A. Adil*  
24/11/2020