



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. MS/OTFM/45-ORI/BHU/2017-18

Date: 28.02.2018

To

Shri T K Roy, Mines Manager,
Bolani Iron Ore Mine,
M/s Steel Authority of India Ltd,
Po- Boalni, Dist- Keonjhar,
Odisha- 758037

Sub: Approval of Review of Mining Plan of Bolani Mn & Iron Mine along with Progressive Mine Closure Plan (PMCP), over an area of 1586.36 ha in Keonjhar district of Odisha State, submitted by M/s Steel Authority of India Ltd under Rule 17 of MCR, 2016.

- Ref: - i) Your letter No. BOM/Mines/B dated 27.01.2018 received on 12.02.2018.
ii) This office letter of even no. dated 13.02.2018.
iii) This office letter of even no. dated 13.02.2018 addressed to Director of Mines, Government of Odisha copy endorsed to you.

Sir,

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 dated 15.02.2018 by Shri Ramkishan R, Sr. Assistant Controller of Mines & 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 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.

Yours faithfully,



(HARKESH MEENA)

Regional controller of Mines

**Scrutiny comment on Review of Mining Plan including PMCP in respect of BOLANI
Manganese and Iron Ore Mine of M/s Steel Authority of India Limited (SAIL) in Keonjhar
district of Odisha State.**

General:

1. On cover page Mining Lease Number/TC Number/Lease Number, Mine Code if any, along with registration number as allocated by IBM under rule 45 of MCDR, 2017 needs to be mentioned. Further, address, e-mail, phone number, fax number of the lessee may be furnished on cover page.
2. The expiry of Lease period is mentioned as 13/11/2032. The expiry of lease period should be as per the executed lease deed (copy of supplementary lease deed should be enclosed).
3. The category of Mine to be revised as per MCDR, 2017.

Geology and Exploration:

4. Page 27: There are two quarries namely 6A and 6B and same has also shown on the geological plan. However, description of the quarry has given only for one quarry i.e. as quarry 6. Check and rectify. Same may be checked for other quarries also.
5. Page 28: It is mentioned that a total of 30 trial pits and one trench have been sunk in lease area, however, location of same and other details like chemical analysis etc. has not given in the text as well as in the geological plan.
6. 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. Accordingly table presented on page 30 needs to be modified. Number of BH considered for resource estimation also to be revised. The grid spacing motioned for G2 level of exploration is "more than 50mx50m", However, no drilling has been observed in G2 level of exploration. Check and rectify.
7. Page 31: The rule position mentioned to be revised as per MCDR, 2017. An area of 205.611 has been considered under G4 level of exploration and resource of Iron has been estimated under 334 category. However, the details of the exploration carried out have not been mentioned.
8. The documentary evidence of bulk density has been given for Iron Ore and waste. The evidence of bulk density has not given for Mn Ore. Same to be submitted.
9. Page 33: The details of exploration to be given in accordance to the land schedule i.e. forest/non-forest/diverted forest/surface right area etc. The details of individual proposed BH to be given in following format:

| Sl.No | Year | BH No | Northing | Easting | Collar RL | Core/RC/DTH | Metage | Inclination | Forest/Non-Forest/ diverted Forest | Surface Right/ Non-Surface | Purpose of BH |
|-------|---------|--------|----------|---------|-----------|-------------|-----------|-------------|---------------------------------------|-------------------------------|---------------|
| 1 | 2018-19 | PBH 01 | | | | | | | | | |
| 2 | 2018-19 | PBH02 | | | | | | | | | |
| 10. | Total | | | | | Total BH | Total mts | | | | |

- At the end of the table cumulative number of proposed BH in forest area, non-forest area, diverted forest area, Surface right area and non -surface right area to be given. Same to be depicted on the Geological plan. Further, 2017-18 is about to complete, hence, proposal of exploration to be shifted in remaining years of review period. Further, the entire lease area to be explored within the period of RMP document. Necessary modification to be carried out in light of above comment.
11. In instant document, the total resource of Mn Ore has been enhanced from 0.286 to 0.545 million tonnes and resource of Iron Ore has been enhanced from 0.567 to 5.382 million tonnes. The justification to be given.
 12. The lateral influence has been considered for resource estimation of Mn Ore & Iron Ore and same is considered under G2 level of exploration. However, no exploratory BH or

pitting/trenching has been observed in the mentioned area. Estimation of resource and area to be revised as per M(EMC) rule 2015.

MINING:

13. On verification of the stripping ration presented on page 69 and 70 found some calculation error. Check and rectify. Further, the layout of the haul road for present and future excavation proposal should be properly addressed in line with safe movement of fleet of the machinery.
14. The details of existing dumps given should also include the design capacity of dumps and waste material dumped and remaining quantity of waste dumping etc.
15. **Mine Drainage:** 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 catchment area, flow direction of the water, location final discharge, arrange of arresting of solid waste etc.
16. Para D: Describe regional and local drainage pattern. Also indicate catchment area and likely quantity of rain water to flow through the lease area, arrangement for arresting solid wash off etc.

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

17. Page 92: The mineral reject has been mentioned instead of Waste in table. Check and rectify. Further, proposal of maintenance of all existing retaining wall, garland drain, settling pond and check dam to be given.

Processing of ROM and Mineral Reject:

18. It is observed that tailing slime will be produced form Bolani Iron Ore Mine of M/s SAIL (5.1 Sq. mile lease) and will be disposed in Bolani Mn & Iron Mine of M/s SAIL (6.9 sq mile lease). As per Hon'ble Supreme Court Judgment dated 21.04.2014 in Writ Petition (Civil) No. 435 of 2012 filed by Goa Foundation vs Union of India and Others all activities like waste dumping, stacking ore, subgrade, mineral rejects, disposal of tailings slime are to be within the lease only. In view of said Judgment disposal of tailing slime from 5.1 Sq. mile lease to 6.9 sq. mile lease area is not allowed. Further, as per IBM manual of appraisal of Mining Plan 2014 guideline also activities like waste dumping, stacking of Ore, subgrade, mineral reject, beneficiation, depositing of tailing material are to be within lease area only. In view of Supreme Court judgment and IBM guideline proposal of tailing disposal to be revised. Relevant para at other places of the document, plan and sections to be revised.

Others:

19. Details in respect of contractual and departmental manpower to be given separately.

Progressive Mine Closure Plan:

20. The current base line information to be submitted in respect of the water regime, noise, air etc. Further, information in respect of the public building, places of worship and monument to be given.
21. Proposal of afforestation in phased manner to be given on waste land available in lease area. Further, the report of the environment monitoring has to enclosed and reference of same to be mentioned. Updated air, water, noise, ground vibration and soil data with analysis from laboratory done periodicity for last one year to be enclosed. Further, the frequency and schedule of environment protective measure to be given in text.

Plates:

22. General: Relevant plans and sections should be signed with date by certified Surveyor, Qualified Person, Mine Manager and Mining Geologist as per rule 34 of MCDR, 2017. Every plan should bear a certificate as mentioned under rule 34 of MCDR, 2017. Magnetic Meridian and date of observation of should be given on all relevant plans. Further, the UPL should be shown in red colour in all relevant plans and sections. The infrastructure of SAIL to be highlighted.

23. The nomenclature of the plates as mentioned in the index (list of the plates) should be same on the plates. Scale of the plan may be checked and rectified.
 24. **Key Plan:** The lease boundary and de-leased area to be shown clearly. Index has been given for, reverted /surrendered area same to be explained. The lease should be highlighted. Indexing to be given for of all the features depicted on plan.
 25. **Surface Plan:** Forest/non-forest/diverted forest/private land/SR area to be shown clearly. Some area between fines dumps to be depicted. UTM coordinate as per DGPS map to be mentioned in plan.
 26. **Geological Plan & Section:** Geological plan does not illustrate geological feature of the area such as orientation of ore zone, structural information like strike, dip, dip-direction etc. All these information should be reflected on geological plan and section considering information of drill BH, surface exposure, pit exposure etc. Check and rectify. Further, the index in geological plan and section should be same.
 27. The UPL to be shown as per present level of exploration i.e. exploration under G1 and G2 level. The geological plan and section to be revised in accordance to the comments mentioned in chapter 2 i.e. Geology and Exploration. Accordingly, Ultimate pit configuration mentioned on page 76 to be revised.
 28. **Development plan & Section:** Color code for pit development and dump development to be given separate. The proposed pit profile for the year 2018-19 may also be depicted in the development section for the year 2019-20. Further, the layout of the haul road for present and future workings has not been depicted on the plan and sections.
 29. **Conceptual Section:** The section should reflect the position at the end of the conceptual stage i.e. backfilling, level of back filling, remaining benches and its mRL, plantation etc.
 30. **Waste dump plan and section:** The year wise dumping to be shown with different color. Location of retaining wall, garland drain and settling tank to be depicted. For both the proposed dump, same nomenclature has been given i.e. WD1. The location of the proposed dump could not be ascertained in reference to the lease area, hence, as discussed during the inspection entire lease area to be shown on the plan (not to the scale), showing enlarged area of dumping.
 31. **Environment plan:** The Environment Plan as prepared should satisfy the provision as laid down rule 32(5) (b) of MCDR2017. Flow direction of the river and other nala to be displayed. Surface features of adjacent area of buffer zone to be depicted. Contour value to be depicted at the end of the contour.
 32. **Reclamation plan:** The color code for existing and proposed feature should be different. All the proposed features in tabulated manner may be depicted on the plan. The location of existing and proposed plantation to be depicted. Accordingly, reclamation plan to be revised.
- 9. Enclosures:**
33. It is observed that few annexures are not legible for example annexure -16. A legible copy of same to be enclosed.
 34. Certificate from the lessee should also include: It is to undertake that all the measures proposed in this Progressive Mine Closure Plan will be implemented in a time bound manner as proposed.
- In view of above, wherever necessary correction required to be made.

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