



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. MSM/FM/05-ORI/BHU/2018-19

Date: 05.04.2018

सेवामे

श्री टी वी नरेंद्रन, प्रबंध निदेशक और
नामांकित मालिक, मैसर्स टाटा स्टील लिमिटेड
At / P.o - जमशेदपुर, जिला - ईस्ट सिंगभूम,
झारखंड - 831001

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

विषय : खनिज रियायत नियम 2016 के नियम 17(3) के अंतर्गत ओडिशा प्रदेश के केंदूझर जिले में
स्थित बामेबरी लौह और मैंगनीज खान (1150.55 हेक्टेयर) की खनन योजना की पुनर्विलोकन
का उपांतरण सह उत्तरोत्तर खान बंद करने की योजना की प्रस्तुति ।

Sub: Approval of modification of Review of Mining Plan of Bamebari Iron & Mn Mine along with
Progressive Mine Closure Plan (PMCP), over an area of 1150.550 ha in Keonjhar district of
Odisha State, submitted by M/s Tata Steel Ltd under Rule 17(3) of MCR, 2016.

संदर्भ: - i) Your letter No. MGM/P&E/229/2018 dated 21.03.2018.
ii) This office letter of even no. dated 23.03.2018.
iii) This office letter of even no. dated 23.03.2018 addressed to the Director of Mines, Govt.
of Odisha, copy endorsed to you.

महोदय,

यह उपरोक्त पत्रों का विषय के संदर्भ में है। इस संबंध में, खनन योजना की पुनर्विलोकन
का उपांतरण सह उत्तरोत्तर खान बंद करने की योजना मसौदा का जांच श्री दिलीप जैन, कनिष्ठ
खनन भूविज्ञानी के द्वारा दिनांक 08.01.2018 क्षेत्र परिदर्शन के आधार पर किया गया है। देखे गए
कमियां संलग्नक -I के रूप में इसके साथ संलग्न हैं ।

This has reference to the letter cited above on the subject. The draft of modification of
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 08.01.2018 by Shri Dilip Jain, Junior
Mining Geologist. The deficiencies observed are enclosed herewith as Annexure I.

अनुलग्नक - I के अनुसार खनन योजना की पुनर्विलोकन का उपांतरण सह उत्तरोत्तर खान
बंद करने की योजना मसौदा में आवश्यक संशोधन करने के लिए आपको सलाह दी जाती है ।
दस्तावेज की तीन (3) फर्म बाउंड प्रतियां और एमएस वर्ड फाइल में सीडी में दस्तावेज पाठ की दो
(2) सॉफ्ट प्रतियां (ड्राइंग / प्लेट्स को ऑटो कड संगत प्रारूप या जेपीजी प्रारूप में 100x100
पिक्सेल में जमा करना चाहिए।), इस पत्र जारी करने की तारीख से 15 (पंद्रह) दिनों के भीतर
खनन योजना की पुनर्विलोकन का उपांतरण खनिज रियायत नियम 2017 के नियम 27 के तहत


वित्तीय आश्वासन के साथ, आगे की आवश्यक कार्रवाई के लिए जमा करें। यदि अनुबंध का कुल पृष्ठ 50 (पचास) से अधिक है तो इसे अलग खंड के रूप में प्रस्तुत किया जाना चाहिए। लेकिन इन अनुबंधों का संदर्भ खनन योजना की पुनर्विलोकन का उपांतरण में अवश्य होना चाहिए। प्लेट को अलग खंड में भी जमा करना है।

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 or JPG format in resolution of 100x100 pixels on same CD)** with financial assurance under Rule 27 of MCDR 2017 of the Modification of 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 modification of Review of Mining Plan document. The plates are also to be submitted in separate volume.

खनन योजना की पुनर्विलोकन का उपांतरण की संशोधित प्रतियां अग्रेषित करते समय जिस तरीके से कमियों को पूरा किया गया है, उन्हें दिया जाना चाहिए। यह ध्यान दिया जा सकता है कि कोई भी समय विस्तारित नहीं किया जाएगा और यदि उपर्युक्त नियत तारीख में दस्तावेज नहीं जमा किया गया तो उसे खारिज किया जा सकता है। यह भी ध्यान दिया जा सकता है कि यदि कमियां पूरी तरह से अनुपालन नहीं होता है, तो बिना किसी अन्य पत्राचार खनन योजना की पुनर्विलोकन का उपांतरण मसौदा खारिज कर दिया जा सकता है।

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,


(हरकेश मीना)

क्षेत्रीय खान नियंत्रक

प्रतिलिपि सादर सूचनार्थ और आवश्यक कार्रवाई हेतु Shri Amit Kumar Dubey, Head, Ferro Alloys & Minerals Division, Tata Steel Ltd, At/Po- Bichakundi, Dist- Keonjhar, Odisha- 758034.

(हरकेश मीना)

क्षेत्रीय खान नियंत्रक

Scrutiny comment on Modification of Review of Mining Plan including PMCP in respect of BAMEBARI Iron and Manganese Mine of M/s TATA STEEL Ltd. in Keonjhar district of Odisha State.

1. **General:** On cover page Mining Lease Number/TC Number/Lease Number if any, along with e-mail, phone number, fax number of the lessee and mine office to be furnished on cover page. Cover page should have the information of actual review period i.e 2015-16 to 2019-20 and Proposal for remaining Review Period i.e. 2018-19 to 2019-20.
2. The coordinate boundary pillars may also be given in UTM. Further, UTM grid as per DGPS map may also be super-imposed in relevant plans for better comprehension.
3. Para 3.1: The area over which Mining Plan or Scheme of mining approved to be mentioned in table. Further, proper justification for modification of review of mining plan to be given under para 3.6.
4. **Geology and exploration:** Page 33- The area for level of the exploration mentioned in table is not as per the Mineral (Evidence of Mineral Content) rule 2015. Same to be revised as per MEMC rule, 2015. Further, proposal of the exploration given is inadequate to explore entire potentially mineralized 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. Besides that remaining lease area to be explored under G2 level of exploration, accordingly proposal of exploration to be given as per MEMC rule 2015. Necessary modification to be carried out in light of above comment.
5. Page 40: From text it appears that exploration data for resource estimation has been considered upto FY 2015 only. However, a total of 94 BH have been drilled during the period from 2015-16 to 2017-18. Same needs to be consider for ore body modeling and resource estimation. Annexure T4: Resource estimation calculation has not been given for Iron Ore. Further, estimation calculation for UNFC category 221 and 222 to be given separately. Resource figure has been mentioned for UNFC category (331, 332, 333) in table presented on page 42, however, estimation calculation has not been submitted.
6. In resource table UNFC category 331, 332, and 333 has been mentioned twice for different grade of material. Consolidated resource table as indicated in format of Appraisal of Mining Plan 2014 to be submitted for all the grade of material. Further, some figures in resource table has been indicated with "-" sign. Same to be clarified.
7. Information of 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.
8. It is observed that mineral resource is estimated by inverse square distance (ISD) method using Surpac Software. The method of resource estimation should be discussed in details along with parameter like, selection of block size, variogram details, 3D modeling, ellipsoid dimensions, minimum and maximum compositing sample length, sub-blocking, maximum search distance in different direction etc. Further, software logic to be given in detail. Further, all the parameter considered as well as all input to the software should be described in detail with proper justification. X-validation report for the resource estimation to be enclosed.
9. 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 and result/analysis thereon to be discussed and 10% of total samples to be analyzed from NABL accredited/Government Laboratory.
10. Details of proposed 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. Further, 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 indicated.

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									

11. **MINING:** The information furnished in respect of the Existing and proposed method of mining to be furnished under different para. The information under existing mining method should include the existing status of the quarries/pits with dimensions including number of benches, dumps with size/capacity, reclamation indicating extent of area in ha., overall dump slope, rehabilitation & afforestation with extent of area in ha. etc. for more informative. Besides, the location co-ordinates of the existing quarries, reclamation & rehabilitation may also be furnished. The details of existing fines dump to be furnished along with the grade.
12. On verification of the stripping ratio presented on page 51 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.
13. Page 51: The current proposal of Manganese Ore production i.e. 97882 tonnes/year is more than the EC limit i.e 83000 tonnes/year. Proper justification of enhancement of production to be given or proposal to be revised within EC limit of Manganese Ore (+10% Mn).
14. Page 51: It is mentioned that Mineral fines is generated during the Manual Processing. Hence, same should be the part of ROM. Accordingly, necessary modification in tables to be carried. Further, detail section wise and year wise backup production calculation for ROM, OB, top soil etc. to be submitted. The coordinates for proposed development mentioned in subsequent pages not matches with the plan at places. Check and rectify.
15. The recovery as mentioned on page number 50 and subsequent pages to be justified with documentary evidence or time series data. Necessary information to be furnished along with required enclosures.
16. The excavation proposal is to be given considering the grade of ore obtained from different quarries in such a way that overall grade of ore by blending with high grade would be marketable in the interest of mineral conservation. Hence, the grade of Mn Ore for proposed production from different blokes to be mentioned.
17. The detail statement of the existing extent of mechanization along with additional requirement or proposed fleet of machineries to be given in tabulated form.
18. Incidental Iron Ore is supposed to be generated. However, disposal of same has not been discussed.
19. **Conceptual mining plan:** Page 66- The length, breadth etc. mentioned on the page are not matching with the Conceptual plan. Check and rectify. In view of above comment on exploration in geology and exploration chapter, the content of conceptual exploration to be revised.
20. In Conceptual Mine plan following to be discussed in detail: The quantum total excavation, Total waste generation and its disposal, total quantity Sub-grade generation and its beneficiation/utilization, ultimate extent of the pits and its dimensions, availability of waste material for back filling, the depth/level of backfilling, depth of the back filling, environment protective measures required, area (pit, waste dump, waste land etc.) available of reclamation & rehabilitation, method of reclamation and rehabilitation, manpower and equipment requirement, Proposal of any expansion, etc. Post mining land use to be submitted.
21. **Mine Drainage:** The para wise information as indicated in IBM manual to be furnished in the chapter. Minimum and maximum depth of water table in the form of mRL based on observations from nearby wells and water bodies to be given in tabulated form indicating block name, UPL mRL, Proposed minimum and maximum working mRL during plan period, minimum and maximum water table mRL.

22. 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, pumping arrangement, location final discharge, arrangement of arresting of solid waste etc.
23. The details of water drawn from external source and arrangement of its recycling may be given for domestic and industrial purpose separately. Source of external water to be mentioned, if any.
24. **Stacking of Mineral Reject/Sub-grade and Disposal of Waste:** The table presented on page 86 to be revised as per following format:

Year	Pit	Disposal of Top Soil (CuM)		Disposal of waste		Disposal of Mineral reject	
		Re-use/Spreading	Storage	Backfilling	Storage	Blending	Storage
2018-19							

25. The details furnished for existing sub grade dumps should also have the information of existing quantity of sub-grade material and its grade. Similar information in respect of Mineral rejects (fines) dumps to be submitted.
26. Page 87: It is proposed to stack Sub-grade material in the north-eastern part of the quarry, which is not acceptable. A suitable location to be proposed for storage of sub-grade or blending with high grade to be proposed.
27. The location and extent of the proposed dumps over backfilling area to be given. 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, location, extent, designed capacity, present quantity, remaining quantity, bottom RL and top RL. Year wise area proposed for backfilling to be indicated.
28. As the further dumping is not proposed over the waste dumps, hence, proposal of rehabilitation by the way of plantation, coir mating, grass seeding etc. to be given in the first year of the proposal.
29. Use of Mineral and Mineral Reject: The information has not been furnished in accordance to the "IBM manual of appraisal of mining plan 2014". Information as required under different head as per manual to be furnished.
30. Processing of ROM and Mineral Reject: The information has not been furnished in accordance to the "IBM manual of appraisal of mining plan 2014". Information as required under different head as per manual to be furnished.
31. **Others:** An organizational chart has not been furnished. Proposed manpower both direct and contractual has to be mentioned in the text.
32. **Progressive Mine Closure Plan:** Page 128- Area under excavation as on 01/01/2018 mentioned is 90.327 Ha and area at the end of plan period is reduced to 88.485 Ha. Justification to be given for such reduction.
33. The location and schedule of environment protective measure to be given in the text. As no further dumping is proposed over waste dumps, hence, it is advised that most of the plantation work to be completed in year 2018-19 only. The year 2019-20 should be for post care maintenance only. Accordingly proposal may be revised.
34. Updated air, water, noise, ground vibration and soil data analysis from NABL laboratory for at least one year to be enclosed.
35. Table 8.7: Information in respect of retaining wall and garland drain, check dam etc. to be furnished under Others. Further, proposal for rehabilitation to be given for waste land as indicted in table II-2.
36. Are under excavation has been reduced to 90.327 Ha in comparison to the area mentioned in last approved document i.e. 92.041 Ha. Similarly, some more differences has been observed in other heads. Justification of such reduction to be given. Financial assurance after proper correction needs to be submitted.

37. **Plates:** General: All the updated plans and sections to be submitted (by the end of March 2018). Accordingly all the tables may be modified. The date of survey to be mentioned in all the plans and sections.
38. Part surface and geological plan on a scale of 1:1000 to be submitted as mentioned in Chief controller of Mines letter dated 23.02.1996. (annexure-R)
39. Grid line, Existing bench RL, proposed bench mRL, existing and proposed dump terrace mRL etc. to be mentioned invariably in relevant plans and sections. Magnetic Meridian and date of observation of should be given on all relevant plans.
40. **Key Plan:** The approach road to lease area has not shown. Many of the feature as prescribed under rule 32(5) of MCDR, 2017 has not been shown on the plan like village boundary with population, forest with tree density, sanctuary, waste land, agriculture land etc. The prominent wind direction to be shown with wind rose diagrammed. Further, Joda west lease boundary. Cultivated area, house building, forest boundary, pond etc as shown in the legend has not shown on the plan. Drawings number 02A to 02C: Index has not been given.
41. Drawing 3A to 3C: The submitted drawings are hazy in appearance. Further, it is observed that DGPS survey was conducted for "forest area proposed to be diverted", however, in list of drawing same has been named as Digitized lease plan. Check and rectify.
42. **Surface Plan:** The legend of different land use like Surface right/Forest/non-forest/diverted forest/private land etc. should be same in all the blocks. Further, entire land use as mentioned in table presented on page 12 to be depicted. All the existing benches to be shown on surface plan with mRL. Dump terrace mRL, backfilling mRL and spot mRL al place to be shown. The color code for road and contour should be different. Similarly, the color code for benches and dump terraces should also diverse. Joribar Block: Excess plantation has been shown in the area near to boundary pillar C. Legend has not been given for some of the features.
43. UTM coordinates also to be mentioned of boundary pillars in table presented on the surface plan. GCP to be highlighted and should be visible. The surface plan should also include the location of all existing BH. The color code for BH drilled during last scheme period should be different.
44. **Geological Plan & Section:** Only few representative sections have been submitted. Geological section to be submitted for entire lease area from boundary to boundary at suitable interval showing Ore Zone, Drilled BH with duly marked lithology, Proposed BH, depth of proposed Bh at the end of proposed BH, lithology correlation, direction of the sections etc. The scale of the section should be as of plan. Ultimate pit limit to be marked in all the section in red color. The information furnished in BH log should be match with Geo section. The index for proposed BH should be differ from drilled BH. UNFC code to be depicted on sections.
45. 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. The geology of the lease area to be highlighted in geological plan. The level of the exploration depicted on the plan is not as per the Mineral (Evidence of Mineral Content) rule 2015. Same needs to be furnished as per MEMC rule, 2015. The legend should be same in plan and section for all features. UPL to be drawn.
46. **Development plan & Section:** The location of the proposed development could not be assessed from the plan, hence, entire lease area to be shown in index, showing enlarged area of proposed development. All Geological information to be reflected in development plan and sections. The layout of the existing and proposed haul road to be depicted.
47. Separate development sections at regular interval along the geological sections to be submitted for proposed development area for all the blocks. The proposed and existing bench mRL to be mentioned. The legend in plan and section should be same.
48. **Conceptual plan and section:** All details as mentioned in comment numbers 18 & 19 to be furnished on conceptual plan with few relevant conceptual sections. Accordingly conceptual plan and section along with text to be revised. As the category of the mine is "A", hence, as per guideline individual year wise development sections to be submitted.

49. **Sub grade dump plan and section:** The existing backfilling area to be marked properly with present level of backfilling. The year wise proposed backfilling area to be shown on the plan. In sections backfilling level to be mentioned at the end of each year. Few more section to be submitted.
50. **EMP:** The proposed feature has not been shown clearly in the plan. Further, few information mentioned in the index have also been not furnished on the plan. Location of waste dumping/filling to be depicted for all the blocks. Similarly, the location of disposal of mineral reject (fines) and sub-grade to be depicted year wise on the plan. Check and rectify. Prominent wind direction to be shown along with wind rose diagram. Proposed stacking yard and sorting yard to be depicted. Are considered as fully rehabilitated should be shown with different color code.
51. **FA Plan:** Few areas like road, area between two degraded land and area degrade due to allied activity of mining have not been considered for FA calculation in Bamemari and Joribar block. Hence, updated FA plan to be submitted showing all the degraded land and area considered fully reclaimed and rehabilitated. Additional area proposed to be shown with different color code. Further, present land use plan to be revised in light of the above comment at relevant places.
52. **Environment plan:** The Environment Plan as prepared should be satisfy the provision as laid down rule 32(5) (b) of MCDR2017. Surface features of adjacent mine has not been shown in core and buffer zone.
53. **PMCP and 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.
54. Many of the plans have been submitted without proper referencing. A index lease plan to be given in such plan at the corner of respective plan duly marked with enlarged area as mentioned in comments of development plan.
55. **Enclosures:** Page 18: The status of application under form C to be mention in text along with documentary evidence.
56. Page 33: The documentary evidence in respect of expenditure incurred during various prospecting operation to be enclosed. Further, Copy of form I and J as per MCDR, 2017 to be enclosed for all the drilled BH for ready and future reference as per Rule 47 and 48 of MCDR, 2017. The same should be signed by the Geologist appointed under MCDR, 2017. The documentary evidence i.r.o. bulk density considered for tonnage estimation to be enclosed.
57. Proof of address submitted in respect of qualified person is not legible. Further, few of the annexures are not legible like forest clearance etc.

In view of above comments, wherever necessary correction required to be made in plates and text.

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