



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/28-ORI/BHU/2018-19

दिनांक / Date: 17.12.2018

To

Shri M. D. Rustagi,  
Director & Nominated Owner,  
M/s Rungta Mines Limited,  
Rungta Office, Main Road, Barbil,  
Dist-Keonjhar, Odisha – 758 035.

Sub: Approval of Modification of Mining Plan of Jajang Iron & Manganese Mines over an area of 666.150 ha in Keonjhar district of Odisha of M/s Rungta Mines Limited submitted under Rule-17 (3) of MCR, 2016.

Ref: - i) Your letter no. RML/ED/GEO/2018-19/1651 dated 26.11.2018.

ii) This office letter of even no. dated 27.11.2018.

iii) This office letter of even no. dated 27.11.2018 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 06.12.2018 and 07.12.2018 by Shri G. C. Sethi, Deputy Controller of Mines alongwith 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 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 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 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 MEENA)

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines



Copy for kind information and necessary action to:

1. Shri A. C. Biswal, Shri D. K. Mahanta and Shri S. Shekhar, Qualified Person, M/s Rungta Mines Limited, Rungta Office, Main Road, Barbil, District-Keonjhar, Odisha-758035.

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

**Scrutiny comments on examination of Modification of Mining Plan submitted under Rule 17 (3) of MCR 2016 with PMCP under Rule 23 of MCDR 2017 of Jajang Iron & Manganese Mine over an area of 666.15 Ha in Keonjhar District of Odisha of M/s Rungta Mines Ltd**

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1. 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.
2. The certificate from QP should be as per the format and its content should be same as specified in IBM Appraisal of MP 2014. Necessary corrections to be done.
3. All the annexure and text to be properly indexed/ numbered/ paged and signed by qualified person. All the certificates/annexures should bear dated signature.
4. In the introduction chapter, the reasons for submission of modification of the mining plan to be furnished in more specified manner than, that has been furnished. The reason for modification of the mining plan is not in scientific line and should be justified accordingly.
5. The term “subgrade and low grade” analyzing between 45% to 55% Fe as per the cutoff declared at 55% Fe should be replaced with the term “Mineral Reject” at all relevant places in the document (text and plates). All the assessment of stacks should be done with fresh bulk density study for mineral reject and date of assessment/survey of stock volume, dumps etc. should be mentioned.
6. The term “Natural Fines” may be replaced with suitable ore type.
7. In page 6, in para 2, (b), the type of non-forest land has not been specified.
8. In page 10, in the table under para 3.3.1, the total number of boreholes actual drilled from should be rechecked and corrected. Under Para 3.3, review of earlier approved in excavation, reclamation etc. for the period from 2015-16 to 2017-18 along with reason for deviation, if any, has not been furnished.
9. In page no.14, under para 3.6, the reason for modification should be further elaborated wr.t systematic and scientific development. Hence, necessary corrections to be done.
10. Under Para 1 (a), the rainfall data of previous 5 years showing average, maximum and minimum rainfall month wise has not been furnished in tabulated format.
11. Under Para 1 (a), the position of BHJ has not been shown in the local stratigraphy. Also, the color photograph of lithofacies model has not been furnished. Under para 1.e (1), the details of number of pits etc. prospecting/exploration has not been furnished. In page 44, in table 1.3, the reserve /resources estimated “as on date” is not mentioned.
12. As per IBM appraisal of MP 2014, complete chemical analysis for entire strata for all radicals may be undertaken for selected samples from a NABL accredited Laboratory or Government laboratory or equivalent. But the borehole data submitted reveals that only Fe% has been analyzed Hence, complete chemical analysis for entire strata for all radicals may be undertaken for selected samples and report should be submitted.
13. In page 24, under para 4 e (ii), the table no.4.2 showing the lease area explored under UNFC norms should be recalculated as per Part II point no.4 of MEMC Rules 2015. The justification for area considered for G1/G2 etc. should be given as per MEMC rules 2015. Necessary corrections to be done at all relevant places of the document.
14. Under para 1(i), the future exploration program to be revised incorporating the followings.
  - (a) The proposal and compliance of borehole proposed under rule 12 (4A) of MCDR 2017 (as amended up to 27<sup>th</sup> March 2018) should be furnished in tabulated format.
  - (b) Need to properly indicate whether the borehole proposed is as per approved modification of mining plan submitted under rule 12(4A) or new borehole proposal.



- (c) Additionally, new 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.
- (d) The exploration schedule for 15 nos. of coring boreholes has been proposed during 2018-19 but the depth of the bore holes are not mentioned, which should be indicated. The entire potential area of mineralization should be proposed under exploration during 2018-19 at least up to G2 level. The exploration schedule may also be revised accordingly as per the requirement. In view of the above, as required under the Minerals (Evidence of Mineral Contents) Rules, 2015, entire potentially mineralized zone to be explored at least under G2 level of exploration. The depth of exploration to be proposed in the modified mining plan for open cast mining shall be up to 300 meters or up to discontinuance of ore body, whichever is earlier. Accordingly proposal to be made in under future exploration program. Revised borehole proposal to be submitted complying the provision of rule 12(4A) of MCDR 2017 (as amended up to 27th March 2018). Further, details of exploration to be given as per following format:

Sl.No	Year	BH No	Northing	Easting	Collar RL	Core/RC/DTH	Meteage	Inclination	Forest/Non-Forest/ diverted Forest	Surface Right/ Non-Surface	Purpose of BH
1	2018-19	PBH01									
2	2018-19	PBH02									
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 has to be depicted on the geological plan. (Table 1.4)

- (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.

The revised drilling proposal complying the above points should be given in the format tabulated below in such manner that the plan for exploration is completed before 1st April, 2019.

15. Under para 1 (j), the total number of boreholes considered for resource estimation should be shown in tabulated format indicating borehole number, year of drilling, type of borehole, total depth of borehole, inclination etc.
16. Justification for UNFC categories is inadequate. Proper justification of all UNFC codes should be furnished as per the provision of UNFC guidelines.
17. Table No 1.7, does not justify the proved mineral reserve. Hence the table should be omitted. Necessary justification should be furnished as per UNFC guidelines.
18. The average the bulk density of 2.50 MT/cum for ROM combining both saleable ore and mineral reject is not appropriate. Therefore, fresh bulk density study should be carried out for Fe less than 45% Fe for lithology that are considered as waste and from different ore types between grades +45% Fe to 50%, +50% Fe to 55% Fe, 55% Fe to 60% Fe, 60% Fe to 65% Fe and above 65% Fe. The average bulk density for Saleable Ore (+55% Fe), Mineral Reject (+45% Fe to 55% Fe) and Waste (less than 45% Fe) should then be determined from adequate number of samples from different Fe range collected along and across geological sections representing both grade wise and ore type wise. The bulk density study may be carried out by institute of repute or from third part NABL accredited laboratory or Govt.laboratory. The copy of the fresh bulk density study should be enclosed with the document complying the above mentioned points.



19. In page no.54, the average bulk density of 2.50 MT/cum for ROM should be modified with the average bulk density to be obtained from fresh study for Ore, Mineral Reject and Waste. Necessary corrections to done at all places in the document (text/tables/calculations etc.).
20. Grade wise reserves and resources should be reestimated by cross-sectional area method at 100m cross-section interval separately for Ore and Mineral reject under various UNFC categories with proper justification of length of influence, recovery factor (established from time series data), bulk density separately for ore and mineral reject, cutoff grade, UPL considered, mineral blocked etc. accordingly, the tables showing estimation of resources should be modified.
21. In page 56, the table showing the ore type wise resources should be reestimated based on fresh bulk density study.
22. In page 57, table 1.10, the tonnage of dump should be reestimated based on revised bulk density and average grade of dump has not been specified.
23. In page 60, ref table 1.16, the quantity and average grade of Ore and Mineral Reject under various categories of UNFC codes should be specified separately.
24. The life of mine has to be recalculated based on reestimated reserve figures.
25. The feasibility report should be rechecked and modified in line with above points.
26. The proposed and actual status of the ROM production & dump working upto October 2018 has been furnished in the table furnished in the para under reference but the proposed status as on October 2018 is not in accordance with the modification of the mining plan, approved on 13.07.2018. The table may be revised suitably. (Para 3.3.2.1)
27. The proposed and actual status of waste generation furnished in the table as on October 2018 is not in accordance with the modification of the mining plan, approved on 13.07.2018; thereby the data furnished in the table may be revised suitably. (Para 3.3.3.2)
28. Against the proposed generation of 1.74 million tonnes of sub-grade ore, the actual generation status is indicated to be 0.038 million tonnes as on October 2018 and no dump re-handling has been done but the information on quantities of dup proposed to be re-handled during 2018-19 has to be furnished. Moreover, the dump re-handling should be proposed and achieved to comply with the MoEF clearance. Accordingly, corresponding changes may also be made in other places of the document. (Para 3.3.4)
29. The grade of dump-1 & 2 is indicated to be +45%Fe but the authenticated chemical analysis for the same has not been enclosed. (Table -1.10)
30. The grades of different low grade stacks has been furnished in the table under reference but no authenticated analysis report for such stacks has been submitted. (Table -1.11)
31. The proposed mining operations from 01.12.2018 to 31.03.2020 has been furnished in the para under reference but he existing status of mining has not been furnished, which should be discussed, indicating the existing status of pit/quarry, dump, reclamation, rehabilitation & afforestation etc. Accordingly, the proposed method of mining may also be revised by giving proposed bench formation status both in overburden & in ore zone, dumping, reclamation & rehabilitation etc. for clarity. If the existing quarries are proposed to be developed /extended, the same may also be furnished. In the light of the above; the entire para may be revised.(Para 2.2, page No. 65)
32. Year wise backfilling programme from December 2018 to March 2019 and for 2019-20 has been furnished in tabular form but the extent of area already backfilled during April 2018 to November 2018 is missing, which should be furnished in addition to the extent of area proposed to be backfilled during December 25018 to March 2019. Besides, the location co-ordinates of such backfilling may also be furnished by adding one more column in the referred table. (Table 2.5)



33. In the backfilling plan and section, the in pit geology shown in the plan has not been shown in the index of the plan/sections. Thus, the area proposed for backfilling is not justified with respect to non-mineralization in the area proposed for backfilling. Necessary justification for non-mineralization in the area selected for backfilling has to be submitted supported with plans and sections.
34. In table 2.7, the grade of dump along with number of terrace, terrace height etc. has not been mentioned.
35. The quantities of low grade ore as on 01.12.2018 has been furnished in the table under reference but it is not known whether such stacks will be available in the mine after 31.03.2020 should be specified. Besides, such ores are salable or not may also be specified. (Table No. 2.8). The grade of the low grade stacks furnished in refer table has not been given, which should be analyse though a Govt. laboratory or NABL accredited laboratory and the report for the same should be submitted. Grid specifications are incorrect.
36. The dump re-handling proposal for dumps SG-2, SG-7, SG-6 & Dump-1 has been proposed for re-working during December 2018 to March 2019 but the percentage of recovery of salable ore has not been given, which should be supported by an authenticated chemical analysis report. Accordingly, the recovery percentage from SG-4, SG-5, SG-6, SG-11 & Dump-2 proposed for re-handling during 2019-20 may also be furnished. Accordingly, corresponding incorporations/ modifications may also be made in other relevant places in the document. (Table No. 2.9)
37. Dump re-handling (for the purpose of recovery of mineral) should be submitted in format specified in IBM Appraisal of MP 2014. Tentative tonnage of the saleable material may be arrived by computing approximate bulk density and recovery factor as these data are variable and may be established on time series.
38. The proposed in-situ excavation during December 2018 to March 2019 has been furnished in table no. -2.10 but the actual achievement status of the excavation planning during April 2018 to November 2018 has not been given which is required to be submitted and the table may be revised suitably. The similar information/data furnished at any other place of the document may also be revised accordingly. (Table No. 2.10)
39. The insitu year wise tentative excavation figs should be furnished in format as specified in IBM appraisal of MP 2014 in both Cubic meter and in tones in separate tables. Table no 2.17 & 2.18, does not shown RL wise calculation for volume and tonnage of OB, Ore and Mineral reject. Further, recovery factor of ROM established through time series data should only be considered instead of individual assumption of 98% and 2% for Ore and Mineral reject respectively. Necessary corrections to be done at all places in the document.
40. In processing of the ROM or Mineral Reject the nature of processing indicating size and grade of feed material and product (finished marketable product), recovery etc. has not been mentioned. In the material balance chart the feed, product, recovery, and its grade at each stage of processing has not been mentioned.

#### **ANNEXURES**

- i) All the previously drilled borehole logs should be enclosed in format with the document. The lithology of the borehole logs should match with the lithology shown in Geological sections.
- ii) The ID proof in support of two qualified persons excluding Shri Biswal has not been enclosed along with the annexure-2, which should be submitted.
- iii) The copy of the environmental monitoring report from cleenviron Private Ltd. has been enclosed as annexure-13 but the same for last four quarters has not been submitted. Besides, the NABL accredited certificate in support of the above analytical laboratory may also be submitted.



- iv) The surface rent receipt as the proof of surface right area has been enclosed as annexure-23, instead the copy of the surface right order should be submitted.
- v) The chemical analysis report in support of the grade of iron ore has not been submitted, which should be obtained either from Govt. laboratory or from NABL accredited laboratory and enclose along with the document for more informative.
- vi) The analysis reports for grade of the dumps from NABL accredited laboratory/Govt. laboratory also required to be submitted.

**PLATES (General):**

- i) Show a scale of the plan at least twenty-five centimeters long and suitably sub-divided;
- ii) The conventions provided under the Metalliferous Mines Regulations, 1961, shall be used in preparing all plans and sections
- iii) All plans and sections should comply with the provisions of Rule 32 of MCDR 2017.
- iv) 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.
- v) All plans and sections should be signed with date by Qualified Person.
- vi) 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.
- vii) 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.
- viii) The proposed bench mRL to be mentioned in the all plans and sections.
- ix) Date of survey should be given on plan and sections and the same should be signed by with date.
- x) Grid Lines to be shown in all sections - Geological Sections, Development Sections, Conceptual sections, Dump sections etc.
- xi) The lithology should be shown in all relevant sections.
- xii) Date of observation of Magnetic meridian should be shown in all plans.
- xiii) All the plan & sections submitted along with the modification of mining plan should be certified by the Qualified Persons indicating that, the plans and sections are prepared based on the lease map authenticated by the State Govt. of Odisha and found to be correct.
- xiv) DRG No. 3 (Surface Plan): (i) the status of already drilled bore holes are not marked on the plan, which should be clearly depicted. (ii) At least three permanent ground control points beyond the lease area have not been selected, which should be done and latitude & longitude of those ground control points should be furnished. Besides, the ground control points need to be linked with boundary pillars.
- xv) The plates for development plans & sections are named as the plan showing active quarry and back filling area at the end of March 2018-19 & 2019-20, which is not acceptable.

**Key Plan:**

- i) The key plan should incorporate all features as mentioned Rule 32 5 (a) of MCDR 2017 and all features has not been shown in index as well.
- ii) Approach road to lease area should be shown in key plan.
- iii) The Latitude/longitude of the extreme ML pillar coordinates should be marked in key plan.

**Geological Plan & Section:**

- i) The Geological plan should be updated with geology shown in surface geology. In the index, the boreholes proposed for drilling in 2018-19 should be mentioned.



- ii) In the Geological plan, the UTM coordinates should be mentioned along with local coordinates along the grid lines.
- iii) Geological Plan should be updated with revised boreholes proposal as mentioned under future exploration program.
- iv) Grade wise reserve resource boundaries under UNFC codes to be shown in Geological sections.
- v) The redefined UNFC boundaries Sections as per MEMC Rules, 2015 and UPL along with UNFC code to be shown in Geological Plan and sections. All the lithology within and outside the UPL to be shown in the Geological sections. Necessary corrections to be done in all the sections.
- vi) The proposed boreholes to be plotted in dotted lines in Geological sections along with Collar Id, RL and proposed closing depth at the bottom of the borehole and also at the end of already drilled boreholes.
- vii) The index of Geological features should be same in both Geological Plan and Geological sections.
- viii) In Geological Plan, longitudinal section line to be shown and a longitudinal section to be submitted.

**Development plan & Section:**

- i) Quarry name, existing and proposed waste dump, mineral reject dumps etc. to be shown in the development plans and sections.
- ii) The proposed bench position at the end of the year should be shown in different colour and same should be marked in legend. The UPL may be redefined and benching pattern 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.
- iii) The RL of the benches should be clearly shown in year wise development plan and sections.
- iv) UNFC codes should be shown in development sections.

**Reclamation Plan:**

- i) The proposals may be supported with yearly plans and sections depicting yearly progress in the activities for land restoration/reclamation/rehabilitation, afforestation etc. 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 has not been mentioned. Since the lease is expiring by 31.03.2020, the proposal for reclamation as per the IBM guideline of FMCP such as fencing of pits etc...has not been proposed under PMCP. Necessary corrections to be done in PMCP and in reclamation plan and sections.

**Dump plan & section:**

- i) Separate dump plan and sections should be submitted showing the year wise buildup of dump along the section with RL. The index of the dump section should be properly shown showing the year wise buildup proposal.
- ii) The grid coordinates should be shown in the X-axis of the dump sections.

**Environment plan:**

- i) The Environment Plan as prepared should be satisfy the provision as laid down rule 32 (5) (b) of MCDR'2017. Wind rose diagram has not been shown in environment plan.
- ii) The drainage pattern of the lease area also to be shown on the plan.
- iii) Air, water and noise monitoring stations to be shown in the plan.

**Conceptual Plan and sections:**

- i) Conceptual plan and sections upto the end of lease period taking into consideration the present available reserves and resources describing the excavation, recovery of ROM, Disposal of waste, backfilling of voids, reclamation and rehabilitation showing on a plan with few relevant sections should be submitted.

*Somajdar*  
17/12/18  
(S.R.Mazumdar)  
Senior Mining Geologist

*Sh*  
17-12-18  
(G. C. SETHI)  
Deputy Controller of Mine