

Scrutiny Comments on Examination of Draft Modification to the Approved Mining Plan including Progressive Mine Closure Plan in respect of Ramanadurga Iron Ore Mine (ML No. 2141) over an area of 59.36Ha located in Yeshwanthnagar village, Sandur Taluk, Ballari District, Karnataka State submitted by M/s. Sri Kumaraswamy Mineral Exports Pvt. Ltd., for approval Under Rule 17(3) of MCR, 2016 and Rule 23 of MCDR, 2017.

GENERAL

1. No cells may be left blank. Either “Nil” or “Not applicable” may be furnished.
2. If any relevant information pertaining to the ‘calculation’ or ‘supporting information’ or ‘clarification’ may be provided as foot note in the respective table/para.
3. Wherever additional information or supporting document is given in Annexure, Annexure no may be specified in respective paras/foot note of the table.
4. Undertaking/Consent letter from the lessee may be digitally signed by the lessee.
5. Serial Numbers of all the chapters and sub paras should be as per the prescribed format. This may be verified and maintained as per the formats issued on FAQ on New Mining Plan format vide letter No.R-11011/1/IBM-M-A-MP/2012-CCOM-Vol-II dated 08/09/2021.

Cover Page

6. The title of the document should be given as “Modification to the Approved Mining Plan including Progressive Mine Closure Plan” submitted under Rule 17 (3) of MCR, 2016 and Under Rule 23 of MCDR, 2017.
7. Date of Grant, expiry and period details may be provided after M.L. No. para
8. Category: Fully mechanized may be corrected as ‘Mechanized’ and end use of mineral captive/non-captive may be specified.
9. Month and Year of the document submitted for modification of the Mining Plan may be specified at the bottom.

Chapter 1: GENERAL INFORMATION

10. **Para 1.1: Lease Details** – (i) Extent as per lease deed and as per CEC may be provided. (ii) Nature of use of mineral may be corrected as ‘Non-Captive’.
11. **Para 1.1.2 Mining Plan Submission Criteria:** Details of LOI number, Date and Annexure given in this para may be deleted, in the instant case this is not applicable.
12. **Para 1.3.1:** Copy of all Approval letters mentioned in this para of Mining Plan, Scheme of Mining, Modification of Mining Plan from 1991 to 2021 may be enclosed as Annexure for reference and Annexure no. may be provided in the para.
13. **Para 1.3.4.2:** SPCB Approval is valid upto 31/03/2022, the same may be renewed and copy of the SPCB approval may be submitted.
14. **Para 1.3.4.4: Land Acquisition Details:** May be mentioned as ‘Not Applicable’
15. **Para 1.3.6: Owner/Nominated Owner Details:** The enclosed Annexure-4 contains only extract of nominated owner; hence it is advised to attach the ‘Minutes of Board Resolution of nominated owner’ as per the format.
16. **Para 1.3.7:** Digitally signed ‘Declaration’ of Qualified Person may be enclosed.

Chapter-2: Geology & Exploration:

17. **Para 2.1.2: (i)** From the key plan information it is observed that, there are human settlements (villages) within 5km from the lease boundary, all the village details within 5km from lease boundary may be provided. (ii) Mining leases located within 5km from the lease boundary may also be provided in others.
18. **Para 2.1.3 Regional Geology:** (i) Regional Stratigraphy provided in this para modified, titles may be provided in the table given. The columns may be organized in the following order Era, Group, Formation and litho units.
19. **Para 2.1.4: Local Geology :**(i) Local geological setup of the area may be sequentially arranged i.e. older formation in the bottom and younger formation on the top. (ii) All the litho units given in the sequence may be briefly explained.
20. **Para 2.1.4.2: Structure** – The information given in this para may be simplified; only structural information may be described.
21. **Para 2.1.4.3:** Lithological and petrological description of HSIO also may be explained in this para.
22. **Para 2.1.4.4 Mode of Occurrence & Controls of Mineralization:** The details given in this para may be reviewed, only genesis and control of mineralization may be described. The information given in this para may be modified by focusing on genesis of iron ore mineralization. In general, in Sandur Schist Belt, the iron ores have been deposited through sedimentary resources followed by metamorphism, deformation leaching, oxidation by surface water percolation over a long period and re-cementation with some replacements have also played a part at places. The hematite generally occupies the top of the ridges and hillocks, which are of great magnitude. Due to weathering hematite have altered to limonite & goethite and finally to Laterite at places.
23. **Para 2.1.4.6:** The information given in this para may be corrected suitably as per the comments given in Para 2.1.4.3
24. **Para 2.1.4.5 Extent of Weathering/ Alteration:** Lateral and vertical extent of weathering may be defined. As observed in the field, all the litho units in the lease area up to bottom of the mine pit have undergone deep weathering.
25. **Para 2.1.4.7 Extent of Mineralization:** Vertical extent of iron ore mineralization may also be provided.
26. **Para 2.2.1:** Details of exploration activity information provided in sub-paras also contains the information of previous plan period, it is advised to provide only plan period information i.e. from 2020-21 to 2021-22. The information from 2017-18 to 2019-20 given in this para may be deleted and same may be provided in before last plan period in Para 2.2.2.
27. **Para 2.2.1.2 to 2.2.1.8, 2.2.1.11 and 2.2.1.12:** It may be mentioned as 'No Proposal & Not Carried out'. This comment is also applicable to Para 2.2.2 where no proposal and exploration not carried out.
28. **Para 2.2.2.13 Bulk Density Study: (i)**The Bulk Density Study Report does not contain the Date of study carried out, if the study is carried out in the last plan period, same may be deleted in this para. (ii) Number of samples studied for each type of Ore/waste given as 3, however in study report 03 samples data is combined and only average bulk density is given. (iii) Bulk Density of Laterite Ore may be corrected as 'Lateritized Iron ore'
29. **Para 2.2.1.14:Area covered under exploration:** If no exploration carried out during plan period, details given in this para may be deleted and may be mentioned

as 'No exploration carried out during the plan period' and it may be mentioned as 'NA' in the cells of table.

30. **Para 2.2.2.1 and 2.2.2.7:** The information given in this para may be suitably corrected as per the comments given in para 2.2.1
31. **Para 2.2.2.9: Sampling:** No information provided in this para, all the samples details collected during before plan period may be provided as per the format.
32. **Para 2.2.2.10: Chemical Analysis:** (i) Samples analyzed details may be provided as per the format. (ii) The bore hole samples information may be provided in CSV/excel file which shall normally include Five files namely (a) collar file, (b) survey file and (c) Geology log file, (d) Assay file and (e) RQD File.
33. **Para 2.2.2.13 Bulk Density:** Information given in this para may be reviewed and suitably corrected as per the comments given in para 2.2.1.13.
34. **Para 2.2.2.14 Area Covered under exploration:** (i) The information given in this para may be updated as per the comments given in para 2.2.1.14. (ii) In the 2nd table, in the Year column, financial year may be mentioned. (iii) Only mineralized area may be considered for calculation of area under different level of exploration.
35. **Para 2.2.4.1 Methodology:** (i) Resource/reserves estimated as per UNFC guidelines may be specified. (ii) The Bulk Density considered for different type of ore types for calculation of Reserve/Resources may be specified. (iii) The Recovery percentage details given in this para is not clear, same may be provided in tabular form
36. **Para 2.2.4.2 Resource Calculation:** (i) All the columns of the table should be in 01 page, accordingly given table may be organized. This comment is also applicable to para 2.2.4.11 and 2.2.4.12 (ii) In the grade column, section-wise average grade of Iron ore may be provided. (iii) In para 2.2.4.13, 0.085 million tonnes of resources reported in 333 UNFC category, however, in this para, no resources reported in G3, the same may be reviewed and suitably corrected.
37. **Para 2.2.4.3 Mineral Resource Estimate for Conversion to Mineral Reserve:** (i) In addition to the information given in the para, it may be mentioned that Mineral reserves are estimated from geological resources by considering the level of exploration, deducting the blocked resources in safety zone & beyond Ultimate Pit limit etc. (ii) Hematitic siliceous ore mentioned may be corrected as Hematitic siliceous Iron (HSIO) ore and grade of HSIO should be Fe 35% to <45%, the same may be corrected.
38. **Para 2.2.4.4: Threshold Value & Cut off Parameters:** (i) The Threshold Value mentioned for Iron ore and HSIO may be corrected as Hematitic Iron Ore Fe 45% and above and for HSIO Fe 35% to <45%. (ii) Cut Off Parameters considered for the mine is not clearly mentioned in this para, the same may be provided.
39. **Para 2.2.4.5: Mining Factors or Assumptions:** (i) In the Mining Factors, Overall pit slope, bench slope, Ultimate Pit Depth, other mining factors if any may be provided. (ii) Lumps and fines ratio and recovery factor of iron ore may be provided.
40. **Para 2.2.4.7 Cost & Revenue factors:** Summary of the feasibility report may be provided and copy of the feasibility report may be enclosed as Annexure.
41. **Para 2.2.4.10 Classification:** The details given in this para may be simplified. Details of reserve/resources estimated by UNFC classification may be provided.
42. **Para 2.2.4.11 Calculation of Blocked Resources:** (i) Reserves blocked due to mentioned as others, the same may be clearly specified. (ii) Section-wise Average grade of Iron ore may be specified in grade column. (iii) As per EC Condition,

working depth should be restricted to 900mRL, beyond 900mRL/below UPL if the mineral is proved; same may be considered under blocked resources.

43. **Para 2.2.4.12 Calculation of Reserves (i)** In section line F-F', G-G' and H-H' are ended in Hematitic Iron Ore and HSIO, however, while estimation of reserves, the depth is considered beyond the drilled depth and reserves has been estimated in 111 category of UNFC, the same may be reviewed & corrected. The geological sections also need to be updated.
44. **Para 2.2.4.13: (i) Reserve/resources figures are given in million tonnes, the same may be provided in tonnes. (ii)** In addition to the Reserves resources given as on 01/04/2021, the Reserve/resources may also be provided as on 01/02/2022 as per the updated information. **(iii)** In the Grade column, average grade may be provided.
45. **Para 2.2.5: Future Exploration Proposal:** As per Rule 12(4) of amended MCDR, 2021, in the case of existing mining leases, *"Detailed exploration (G1 level) over the entire potentially mineralized area under the mining lease shall be carried out in the manner specified in the Minerals (Evidence of Mineral Contents) Rules, 2015 within a period of five years from the date of commencement of these rules."* Hence, it is advised to propose the exploration activities as per the MEMC Rules to cover the mineralized area into G1 level. Non-mineralized area needs to be proved by geological mapping, exploratory pitting/trenching and drilling if necessary.
46. **Para 2.2.5.5: Exploratory Drilling:** From the geological cross sections and litho log data, it is observed that, the proposed boreholes are ending in mineralized zone (Fe greater than 35%), hence, proposed exploratory drilling may be reviewed and additional boreholes may be proposed to prove the mineralized zone 3-dimensionally.

CHAPTER-3: MINERAL BENEFICIATION/PROCESSING

47. **Para 3.1: Mineralogy of the ROM Ore/ Mineral -(i)** Valuable Mineral name in ROM may be specified as Hematite, Goethite & Limonite. **(ii)** Approximate Mineral iron percentage is given, the same may be corrected valuable mineral percentage in the ROM may be provided. **(iii)** Radical name mentioned in Gangue Mineral column, the same may be deleted and name of the gangue mineral in the ROM may be specified.
48. **Para 3.2:** Complete chemical analysis of other radicals MgO, Al₂O₃, SiO₂, LOI etc. may also be provided.
49. **Para 3.5.1 Dry Screening and Classification:** Aperture size of screen is mentioned as -10mm, however, Product size mentioned as -15 mm, which is contradictory. Further, above 10mm comes under lumps category, hence, product size may be corrected as -10mm, 10 to -40mm.
50. **Para 3.5.2 Product Quality:** Lumps and fines percentage is mentioned as 25% and 75% respectively, whereas in Geology & Exploration Chapter Lumps and fines percentage is mentioned as 30% and 70%, hence, same may be corrected as Lumps 30% and Fines 70%.
51. **Para 3.3.2 to 3.4.2 and 3.5.3 to 3.6.6:** Where no crushing/screening/processing activity is proposed, it may be mentioned as 'No Proposal'
52. **Para 3.9 Overall Water requirements: (i)** Water requirement for dust suspension and plantation may be given separately. **(ii)** Source of water mentioned as Bore wells. Is the bore wells located inside lease or outside lease may be specified.

53. **Para 3.10: Flow Sheets and Charts:** Flow sheet showing different stages of crushing and screening may be provided along with feed size and outsize details in Annexure.

Chapter -4: MINING METHOD (OPENCAST)

54. **Para 4.2.1.2 Dump Details:** (i) Average height of the dump (D2) is mentioned as 40m, however, as per the EC condition, maximum height of the dump should be 30m. Hence, the given information may be reviewed. (ii) Temporary BHQ dump details may also be provided in this para.
55. **Para 4.2.1.2.2 Stack Details:** Only sub-grade dump details provided in this para, details of all the mineral stacks (ROM/lumps/fines) existing in the lease may be provided.
56. **Para 4.2.2.1 Bench Parameters :** (i) All the columns of the table should be in 01 page, accordingly given table may be organized. (ii) Depth of Water Table column cells is merged and details may be provided as per the format. Depth of water table may be provided in mRL. (iii) Maximum depth of working may also be provided in mRL for ready reference with plans and sections. (iv) Year-wise separate Production & Development Section may be provided.
57. **Para 4.2.2.2: Year Wise Opencast Development:** (i) The Bulk Density of OB given separately for Shale and BHQ and OB quantities are estimated separately for each mineral, the Mining Plan format is edited. It is advised to not edit the template, average bulk density of shale and BHQ may be taken and calculation may be made accordingly. (ii) During the plan period, it is proposed to mine both lateratized iron ore (top benches) and Hematitic Iron ore, bulk density of both the minerals is different. Hence, it is advised to give Hematitic Iron Ore Production Calculation and Lateratized Iron Ore Production calculation separately. (iii) In place of OB to Ore Ratio, Ore to OB ratio is mentioned; the same may be corrected suitably. (iv) Detailed Year-wise, Section-wise Production and Development calculation may be provided in Annexure and also in Production and Development Plan. (v) The existing EC capacity and CEC capping for production of Iron ore in the lease is 2.0MTPA and 1.94MTPA respectively, however, in the draft Mining Plan, it is proposed to produce 2.4 MTPA of Iron ore for all the 5 years (2022-2027) in anticipation of EC as per Office Memorandum of MOEFCC dated 02.10.2021 as the mine is 5 Star rated. As per, the said Office Memorandum, lessee has to get several statutory clearances viz. CGWA, DGMS, FC etc. and lessee also has to install Air Quality Online Monitoring System in the Mine and has to prepare EMP report. All the said activities going to take time, hence it is advised to propose to produce 1.94 MTPA of Iron ore for the year 2022-23 and 2.4 MTPA of iron ore for the remaining period. (vi) Between the section lines K to Q, Production & Development is proposed along the common lease boundary with ML NO. 2160 of M/s VESCO. The common boundary permission letter may be enclosed and the Working Permission conditions may be followed. Currently, ML NO. 2160 of M/s VESCO is non-working, however the proposals for production along the common boundary is proposed, the same may be reviewed.
58. **Para 4.3.1:** Integrated Slope Stability study may be carried out for mine pit/benches and dump and report may be enclosed.
59. **Para 4.3.2: Insitu Mining:** Details given in this para may be updated in line with the comments given in Para 4.2.2.2.

60. **Calculation Summary:** Details given in this para may be updated as per the calculation in Para 4.2.2.2.
61. **Para 4.4.2: Shovel/Excavator Requirement:** (i) Swell factor mentioned as 1.0, the swell factor should be less than one, accordingly given information may be corrected. (ii) Machine utilization factor should be given in percentage. (iii) Round figure of number of excavators required may be provided in bracket.
62. **Para 4.6.6** In the Others Manpower it is mentioned as Supervisor and 41 nos. is proposed, however, Supervisor already provided in Para 4.6.2, the same may be reviewed and suitably corrected.
63. **Para 4.7.1 Existing Dump:** (i) Proposed dumping details for the plan period is not provided, this para may be reviewed and Year-wise dumping proposal details may be provided as per the format. (ii) From the Production & development Plan it is observed that, for the plan period, dumping is proposed on existing dump, as per EC condition, the maximum height of the dump shall not exceed 30m, each stage of the dump preferably of 10m, the height of the dump should be maintained as per EC condition. Further, since, the dump proposed is located on slope, it is advised to carry out the slope stability study.
64. **Para 4.7.3 Existing Stack:** (i) BHQ is shown in the existing stack, however, in the Mining Plan BHQ has been shown as waste. Hence, it is advised to show BHQ in the Temporary waste Dump. (ii) Existing Stacks (ROM/lumps/fines/sub-grade) if any may be provided in this para.
65. **Para 4.7.4:** There is no proposal for new stack, if lessee propose to stack ROM/lumps/fines temporarily, year-wise Temporary new stack details may be provided as per the format.
66. **Para 4.8: Mineral waste to utilize as Minor Mineral:** Details given in this para is inappropriate, it may be mentioned as 'No Proposal' and 'Nil' information may be provided in cells. (ii) Details given in foot note about proposed use of mineral may be provided in Para 4.9.
67. **Para 4.9 Use of Mineral:** In the physical specification, size of lumps and fines may be provided.

CHAPTER-5: SUSTAINABLE MINING:

68. **Para 5.1:** Compliance of Vishakha Committee Mentioned as 'Not Applicable', for the statement justification may be provided.
69. **Para 5.2: CSR Initiatives:** The Cumulative work done/ measures taken figures are given in the respective heading itself. To avoid any confusion, it is advised to give the details in the cells where the information is required to be submitted.

CHAPTER-6: PROGRESSIVE MINE CLOSURE PLAN

70. **Para 6.2.2.1: Preparations for Ground water Recharging:** It is stated as no proposals. Instead in the foot note it may be stated that the mine water accumulated during monsoon at the pit bottom is allowed to percolate into ground thereby allowing for ground water recharge.
71. **Para 6.2.2.2: Retaining Wall:** Both Easting to Northing co-ordinates may be provided in location (from & To) column of proposed construction of retaining wall. Same is applicable for para 6.2.2.3: Garland drains.
72. **Para 6.2.11: Land Use of Lease Area at the Expiry of Lease Period:** The Area details given in various activities may be verified for its correctness. In the foot note

of the table it may be committed to undertake fencing of mine pits, regrassification of dumps and top OB benches, utility service area etc.

CHAPTER-7- FINANCIAL ASSURANCE/PERFORMANCE SURETY:

73. **Para 7.1 :** (i) Only details of area put to use may be provided in the Year-wise proposal table, (ii) Others – Green belt area, R & R Structure etc may be provided in single row in Sl. No. 12, accordingly details given may be merged in Particular column in bracket details of different purpose of land use may be specified.
74. Revised bank guarantee as per the Mineral Conservation and Development (Amendment) Rules, 2021 needs to be submitted.

CHAPTER 8: REVIEW OF PREVIOUS PROPOSALS:

75. Here the review may be provided only plan period information i.e. from 2020-21 to 2021-22. The information from 2017-18 to 2019-20 given in this para may be deleted and same may be provided in before last plan period in Para 2.2.2.

Plates – Hardcopy

76. All the plans should be updated as per the scrutiny comments wherever applicable.
77. Surface Plan: The details of benches, drilled bore hole location etc given outside the lease boundary (given in ML No. 2160 of M/s VESCO) may be deleted. This comment is applicable to all the plans.
78. Surface Geological Plan: (i) Mineralized area and non-mineralized area may be demarcated on the plan and area details may be given in tabular form. (ii) Dip value may be specified where Strike & Dip symbol given on geological plan. (iii) Lateritic ore given in Index may be corrected as 'Lateritized Hematitic Iron Ore'. (iv) Geological plan should be signed by Geologist.
79. Geological Cross Section: Beyond the drilled depth, Mineral resources are estimated under Reserve(111 UNFC) category, which is not correct. The same may be reviewed as per comments given in Para 2.2.4.12
80. Production and Development Plan: (i) Section-wise production and development calculation may be provided on the plan. (ii) Large area of the Temporary Mineral stack has been shown all along the proposed working area which may hamper the scientific & systematic development if the mineral is unsold for long period. Hence, it is advised to earmark an area where there is no production & development during the plan period, accordingly plan may be updated. (iii) Proposed Retaining wall, garland drain and plantation details along with location (UTM grid) may be provided on the plan. (iv) Proposed Production & Development for the year 2022-23 may be reviewed as per the comments given in para 4.2.2.2 accordingly Production & Development Plans and Sections may be updated.
81. Production & Development Sections are given in one plan for the entire plan period, it is advised to provide separate section for each year.
82. Progressive Mine Closure Plan: Year-wise Proposed Retaining wall, Garland drain and Plantation may be shown with different color code on the Plan and details may be provided in tabular form.

Plates soft copy (shape file)

- 83. All the plans may also be updated in softcopy (.kml/.shp) as per the comments given in Plates (Hardcopy) and in text.
- 84. The plans submitted in kml format is not in order. The features (point, line & polygon) should contain the attribute information, for example (i) Point feature – Bore hole should contain information of Proposed/Drilled borehole, Type of bore hole (RC/Core), Depth of drilling, collar RL etc. (ii) Line feature – Road, power line, streams, benches etc should contain basic information and (iii) Polygon features – Dump, Pit, lease boundary, safety zone, infrastructure should contain details which are given in text. if we click on any point/polygon the details should be there. Accordingly all the plans in the kml files should be updated.

ANNEXURE:

- 85. The numbering of annexure has not been sequentially maintained as per the format. Numbering of annexure to be specifically maintained as per the format. Any additional annexure enclosed may be followed after annexure no 18 with corresponding details. All the annexure as mentioned in above scrutiny comments of different chapters to be enclosed. Also, corrections in the annexure, as mentioned above in scrutiny comments of different chapters to be incorporated and corrected annexure to be enclosed.
 - 86. Undertaking letter of QP may be digitally signed by the lessee.
 - 87. Annexure 2B copy of corrigendum is for lease area reduction is not clear/ not readily readable.
 - 88. Copy of Valid Bank Guarantee for the entire plan period as per the amended MCDR Rule 2021 needs to be submitted.
 - 89. All the annexure to be properly numbered/ paged and relevant annexure to be signed by QP. The Page no range should be accordingly given in list of Annexure. All the annexure should be legible.
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