

Scrutiny Comments of the ‘Mining Plan’ in respect of Devadari Iron ore Mine, reserved for M/s KIOCL Ltd. under Section 17A(2) of the Mines and Minerals (Development and Regulation) Act 1957, covering 470.40 Ha. (As per DMG, Karnataka sketch), Forest area in Devadari Range Sandur Taluk of Ballari District, Karnataka State.

COVER PAGE

1. In cover page lease period should be removed since the ML yet to be executed.
2. Name of the forest to be mentioned in the cover page.
3. Category of the mine should be clearly mentioned as: ‘Opencast, Fully Mechanized, Captive, Govt. sector undertaking’.
4. Address of the applicant may be removed from the cover page.

INTRODUCTION

5. Ref. of the consent letter received by the applicant for submission of approved mining plan from IBM from DMG, Karnataka may be deliberated here.
6. All the Tables in the document may be numbered suitably.

GENERAL

7. Para 1.0(d): Lease deed not yet executed, hence name of the minerals may be removed, name of the minerals mentioned in the Karnataka Govt. notification for this reserved block should be mentioned separately.
8. Para 1.0(e): Minerals which the applicant intends to mine may be corrected as iron ore only since no reserve has been estimated for manganese ore in this deposit.

PART-A

9. Para 1.0 (c): In local geology (ref. page 16) the statement manganese ore “not occurring in this mining lease area” is not correct and premature to comment upon. During site inspection surface outcrops and old manganese pit workings were seen at southern part of the lease area (south of the BMM pit). Earlier GSI exploration in that area, by surface samplings (G3 state of exploration), also reveals occurrence of manganese ore in the lease hold area.
Occurrences of float iron ore and its extent are not discussed in the local geology.
10. Para 1.0 (d): Surface samplings carried out by M/s MECON should be demarcated in the Geological Plan.
11. Para 1.0 (h): Geological sections are not found to be prepared and demarcated in the geological plan for estimation of total reserve of the deposit. It is to be clarified that GSI has estimated only ‘total resources’ of the deposit for iron ore; ‘economic’ and ‘feasibility’ parameters are required to be applied by the applicant to upgrade the ‘total resources’ into ‘reserve’ category as per the requirement of UNFC and Minerals Rules, 2015.
12. Para 1.0 (i): Entire potential mineralized area within the lease should be explored by detailed exploration (G1 stage) within a period of five years from the date of opening of the mine after execution [ref. Rule 12(3) of MCDR, 2017]. Since the deposit is virgin in nature, additional mineralized areas, if encountered during first two years of exploration, should be drilled seamlessly during third and consecutive years.

Exploration by trial pits also to be proposed for float iron ore areas occurring along the hill slopes. Extent and quality of manganese mineralization is required to be established by proposing additional boreholes.

13. Para 1.0 (j): Estimation of ‘reserve and resources as per UNFC’ have been examined and following deficiencies have been observed in this para:
- a) Total reserve of the deposit is not estimated considering ‘economic’ and ‘feasibility’ axes. Interpretation of iron ore body and UNFC codes are not demarcated in geological sections.
 - b) Mining parameters for reserve/ resources estimations viz. sectional influence and area, recovery% etc. are not mentioned.
 - c) Total reserve and resources of the deposit are not found to be estimated as per the threshold value published by IBM.
 - d) No manganese ore reserve is found to be estimated but production proposal for the same is given in the document.
 - e) Reserve of float iron ore is not estimated.

As of now, considering GSI exploration, 3 types of UNFC codes are prevailing for this deposit for iron ore viz. probable mineral reserve (UNFC code 122), blocked ore resources due to UPL (UNFC code 222) and reconnaissance mineral resources (UNFC Cat.334). Accordingly, reserve/ resource calculations and justifications for all mentioned UNFC codes should be furnished in the document.

In this para, ‘total resources’ estimated by GSI should be furnished separately.

14. Para 1.0 (k) and para 1.0 (l) are not furnished in the document as per the prescribed guidelines of IBM. Since proposed iron ore handling of this mine is more than one million tonnes per annum, Reserve and Resource of the deposit also to be estimated as per ‘level wise slice plan’ method. Variation of ore estimation, between ‘cross sectional area’ method and ‘slice plan’ method, if any, may be justified.
15. Para 2.0 A. (b): In insitu total tentative excavation (ref. page 30), production and development has been proposed during 4th and 5th years which violate the provisions of rule 12(c) of MCR, 2016 which states that “the lessee shall commence mining operations within two years from the date of execution of the lease deed”. In view of above, production and development schedule is required to be corrected & additional table of insitu tentative excavation may be given in Tons. Quality, physical properties and disposal methods of proposed sub grade and mineral reject generation may be elaborated. Recovery % to be included while calculating the OB/SB/IB, Ore, Sub Grade & Mineral reject in In-situ tentative excavation table. Subsequently In-situ tentative excavation in tonnage may be added.

Yearwise/Blockwise working details may be enclosed in the appended table.

Year	Block	Section Line	Area in Ha	No. of Benches	Level in MSL	Location Coordinates

Mining proposal of manganese ore is not acceptable without estimation of reserve. After adequate exploration and subsequent reserve estimation, manganese ore can be proposed for mining in future.

16. Para 2.0(f): In this para the UPL parameters may be furnished in Tabular format

Block/Pit	Pit area in Ha	Pit Dimension			Ultimate Pit Slope
		Length	Width	Maximum Depth	

17. Para 2.0 C (Extent of Mechanisation): The total no of Drills, Excavators & Dumpers to be derived based on the Maximum material handling. The calculation for the same may be given.
18. Para 4.0(a): Year wise quantity of top soil, waste& mineral reject in tons may be furnished in the table.

Year	Top Soil		Waste		Mineral Rejects	
	Reuse/ Spreading	Storage	Backfill	Storage	Storage/ Blending	Beneficiation

19. Para 4.0 (b): It is to be mentioned in this para that proposed waste materials will be dumped at designated ‘temporary dumping area’. After completion of exploration by boreholes, ‘final dumping area’ should be selected over a mineral barren land as per the provisions of MCDR, 2017.

It is mentioned that the proposed waste dump will be disposed as external dump, but in the plate the waste dump is shown inside the lease area. The same may be corrected as internal temporary dump.

20. Para 4.0(c): Sequence of year wise build up of ‘temporary waste dump’ and environment protective measures viz. construction of retaining wall, garland drain, silt settling tank etc. to prevent escape materials from the ‘temporary dump’ should be furnished in a tabular format. Management and disposal of ultrafine tailing cakes should be carried out separately from ‘temporary dump’ and suitable environment protective measures should be taken to prevent air borne dust from tailing cakes. Location of top soil stacking area may be demarcated separately in the Production and Development plans.

Yearwise dumping details may be enclosed in the appended table.

Year	Dump No	Area in Ha	No. of Stages with height	Level in MSL	Location Coordinates	Slope Angle

Reclamation & Rehabilitation measures of the worked out pit may be elaborated along with proposals for backfilling in the conceptualised stage.

21. Para 5.0(a): The expected lump & fines ratio may be given.
22. Para 6.0(a): Proposed feed and output quality of beneficiation plant, expected Fe% of different final products after beneficiation (viz. cyclone fines, classifier fines, magnetic fines, lumps etc.) and % total tailing generation w.r.t. feed quantity (Recovery) should be discussed briefly in this para. Particle size and expected Fe% in tailing fines also may be mentioned.
23. Para 6.0 (g): Proposed water recycling% in beneficiation plant and proposed consumption of water per tonnes of final product may be mentioned. Total water consumption per day may be given in a tabular format.
24. Para 8.1: In page 47, name, distance and population of the villages present in the buffer zone may be furnished in a tabular format.

25. Para 8.2: Proposed mitigate measures/ action plan to control air quality, water (surface water runoff) and noise pollution should be furnished here along with proposed sampling locations of Air, Water, Noise & Soil in the core zone & buffer zone.
26. Para 8.3: Proposed environmental protective measures for tailing dump may be discussed here briefly (Ref. page 49).
27. Para 8.3.1: Proposed year wise plantation details may be furnished in the tabular format.

Year	No of Saplings	Area in Ha	Survival Rate	Types of Species

28. Para 8.6: All item heads of the Financial Assurance table is not found to be furnished as per the guidelines, the same should be prepared in accordance with the CCOM Circular no. 4/2006. In Financial Assurance table, already excavated areas under mining and under OB Dump at the start of the plan period are shown as 0.83987 Ha & 5.94272 Ha respectively, please clarify. Total area at the start of the plan period should tally with the total mining lease extent. Financial Assurance to be paid as per applicable condition.

PART-B

29. **Para 10, Plates:** Name of the nominated owner may be written in all plates.
 - a) Key Plan (Plate no.01): Demographic details ie population details as per census 2001 may be given in this plate.
 - b) Geological Plan (Plate no. 3): Geological sections should be drawn in the plan. Instead of mentioning several nomenclatures for iron ore based on physical properties (viz. hard ore, hard lumpy ore, laminated ore etc.), all $\geq 45\%$ Fe value can be shown as ‘iron ore reef/ band’ in the plan. Extent of float iron ore is not demarcated in the plan for north and central deposit. Proposed temporary dumping area and mineral processing complex areas should be explored during first year itself. Tentative UPL and areas covered under G2, G3 and G4 stages of exploration may be shown in the plan.
 - c) Geological sections (Plate no. 4): Interpretation and delineation of ore body is not shown in the sections, UNFC codes and UPL are also not marked. Proposed boreholes should be demarcated in the sections.
 - d) Surface plan (Plate no. 5): This plan should be duly signed by the mine surveyor with certificate no.
 - e) Production & Development Plan (Plate No.06): The proposed workings should be highlighted in bold lines and the direction of advancement of benches also needs to be given for clarity. In the pit sections the Lease boundary & UPL must be marked distinctly and sections drawn. Longitudinal section may also be enclosed.
 - f) Environment Plan (Plate no. 7): Proposed air, water, noise and soil monitoring stations are to be marked in core and buffer zone. Year wise various types of proposed environment protective measures viz. afforestation, retaining wall, check dams, gully plugs and other measures required in this terrain are not shown at appropriate places with proper indexing. Tabular formats may also be included in this plate as given in the documents.
 - g) Conceptual plan (Plate No 9):(i) The plan should be supported by few sections. (ii) Standard land use pattern table at conceptual period as per text should also be incorporated.

h) Financial Assurance Plan (Plate No.10):The proposed mine working, dumps, stacks, etc. covering all the items with breakup of their respective areas under the financial assurance table as given the text at the end of 5th year in different colour should be shown in this plate.

30. **Para 11, Annexure:** Avoid any type of stamping in the annexure, following items are required to be annexed/corrected with the document:

- a) Copy of the consent letter received by the applicant for submission of approved mining plan from IBM from DMG, Karnataka.
- b) Detailed section-wise calculation of reserve and resources of the deposit as per UNFC.
- c) Copy of the analysis reports of BHC from NABL/ similar accredited laboratory.
- d) Corrected Feasibility Study Report, as in economic evaluation of feasibility report, provisions of paying royalty on dispatched material to the State Govt., paying royalty% against District Mineral Foundation (DMF) and National Mineral Exploration Trust (NEMT) are not considered.
- e) Copy of the beneficiation study report of low grade iron ore, if any.
