

**Scrutiny comments on examination of Modification of Mining plan of Mareta Sodo Iron ore Mines, M/s Vedanta Ltd. over an area of 26.6677 ha in North Goa district of Goa State.**

**Text:**

**GENERAL**

1. Self-attested copy of qualification & experience certificates as required for qualified person to prepare mining plan/Review of Mining Plan/Scheme of mining/its modification under MCR'2016 should be enclosed.
2. Lessee is a company/firm. Hence, a Latest list of board of directors duly certified by competent authority along with address/contact nos. to be enclosed.
3. Certificates/ Undertaking should be signed by Nominated owner only. A latest resolution from board of directors of the lessee Co. regarding nominated owner of the mine to be submitted. Photo id of nominated owner to be enclosed.
4. In introduction/Preamble, Status of all statutory clearance obtained and Surface right acquired should be given along with documentary proof as enclosure.
5. Chapter-3: Para 3.2: reason of last modification of MP to be given.
6. Chapter-3: Para 3.3: reason of generation of Mineral reject more than proposed in the last modification of MP, in spite of less production of ore to be given with justification.
7. As shown over the Surface Plan & other plans, 7.5 m statutory barrier has not been maintained along the lease boundary between ML boundary pillars no. BP3 to BP2 & BP1 to BP14 as waste dumping was carried out across the lease. Reason with justification to be given for the same.

**GEOLOGY AND RESERVE**

8. Details of exploration carried out is not given. Details of exploration carried out i.e. BHs meterage drilled so far as to be given with year of exploration carried out along with detailed report and standard borehole logs in annexure.
9. Exploration carried out so far should be corroborated with documentary evidence in respect of name of agency, order for the work, cost involved, and payment details by the lessee etc. with copy of form J & K maintained as per rule 47 & 48 of MCDR. All details of exploration carried out should also be certified by the concerned geologist of the mine.
10. Earlier exploration carried out so far in the lease area should be summarized as per table below and given in the text.

<b>Total Lease area:</b>						
Item information of	Lease area explored as per UNFC norms (in Ha) as on dt...					Remarks/Comments including reasons for not carrying out the exploration as per UNFC norms.
	<b>Total Lease area = A+B+C+D+E</b>					
	G1 Level	G2 Level	G3 Level	Explored and found non-mineralized with level of exploration (Remarks)	Unexplored lease area	
	A	B	C	D	E	
Area as per level of exploration						
No. of BH Drilled						
No. of BH considered for Resource Estimation.						
Meterage Drilled						
Grid Interval						

Scale of Mapping					
<b>Reserve estimated after above exploration as on dated :</b>					
<b>Remaining Resource after above exploration as on dated:</b>					
<b>Total Reserve/Resource after above exploration as on dated:</b>					

11. Documentary proof for chemical analysis of BHs samples and bulk density/T.F. & recovery% considered for reserve/resource estimation may be submitted. It should be from NABL accredited lab. or Govt. lab. As per guideline of "IBM manual on appraisal of Mining Plan-2014". *Entire mineralized area should be analyzed meter wise with 10% of check samples. (At least for 10% of total samples may be analyzed in accordance to BIS and reports from NABL accredited/other government laboratory).* NABL Accreditation certificate of laboratory from where Chemical Analysis of BH samples and bulk density test carried out, should also be enclosed.
12. The future programme of exploration is not been given. From geological surface plan it is evident that northern portion of the Ml area is not explored. Exploration proposal for the entire lease area should be given on a regular grid pattern (excluding the area already covered) to be completed during this proposed plan/scheme period for assessing the total mineral reserve/ resources as per UNFC.
13. The Mine is A-category, a detailed feasibility Study report should be enclosed. In the UNFC feasibility study Economic evaluation of the project is not carried out properly and also Viability of the project up to the ultimate depth has not been analyzed. Further, In the UNFC feasibility study, following important parameters are not dealt with:-
  - a. Assessment of IRR (Internal Rate of Return) and NPV for the project life.
  - b. IRR based on operating cost, reclamation/ rehabilitation cost, closure cost and other important parameters as per UNFC guidelines for the life of the project on the basis of ore body geometry, i.e., depth, width, length etc. as estimated and considered for reserve/ resource estimate.
  - c. Cash flow statement for the period considered for assessment of IRR.
  - d. Sensitivity analysis on cash flow due to market changes, i.e., cost of operation, sale price etc.

### **MINING**

14. Para a): Existing & proposed mining method has not been described. Sequence of mining operations should be described properly in brief. Details of existing quarry, Stocks/Dumps of Waste, Sub-grade/mineral rejects etc. should be given in text vis-à-vis that is actually available on the site.
15. Para b) i): excavation/production as per approved mining Plan to be given with approval date of the modification of Mining Plan (MMP). In Proposed Mining Plan (MMP), proposal for 2015-16 to be eliminated as the same has already been elapsed. Further, Stacking of Mineral reject outside the lease area should not be proposed, all Activities to be within lease area only.
16. Para b) ii): If there is no recovery of ore from Dump re-handling, then this para is not applicable. Existing Waste Dump to be described in Existing mining Para & Disposal of waste - chapter.
17. As per guideline of "IBM manual on appraisal of Mining Plan-2014", year-wise tentative Excavation in Cubic Meters to be indicated from (i) In-situ excavation & (ii) Dump re-handling, if applicable. Then, a NOTE to be added below the proposed year wise excavation summary Table regarding tentative tonnage as arrived considering recovery % and Bulk-Density based on time series data and few samples test.
18. Para C): summary of individual year-wise development plans to be given in tabular form indicating direction of advancement, bench parameters, depth of working with mRL etc.
19. Para d): Maximum annual handling is mentioned incorrectly. Further, Large fleet of small capacity machineries i.e. 50 number of tippers have been proposed to deploy, it is not desirable in view of safe & scientific mining. Number of tippers to be used for transportation of ROM and waste should be kept less to avoid high traffic density.
20. Para e): Layout of mine hauls road/pits roads, Pit design in safe and scientific way, road slope & gradient at the curve etc. should be described in detail.

### **MINE DRAINAGE**

21. This small Mine lease area having two big old waste dumps. However rainwater management plan i.e. drainage plan is not given. Therefore, adequate rainwater management plan i.e. drainage plan along with arrangement for arresting solid wash off should be prepared.

## **HANDLING OF MINERALS REJECT/ SUB-GRADE AND DISPOSAL OF WASTE**

22. Specific proposal for environment protection measures i.e. Retaining wall, garland drain, check dam, settling ponds etc. in quantified terms around the existing waste dumps to be given with rehabilitation of the same through plantation, coir matting etc. as these dumps were not observed rehabilitated during the site inspection.
23. As protective measures, erection of an embankment/Bund to be proposed near to common lease boundary with Sonshi Mine of M/s V.G. Queni, so that, proposed waste/backfilling material do not escape in haphazard manner and enter into adjacent lease.

### **Enclosure:-**

24. All the annexure to be properly indexed/numbered/paged and signed by the TQP.
25. Copy of permission of DGMS & MOU with adjacent lessee for common boundary working to be enclosed.

### **Plates:-**

26. All plans to be prepared based on recent and accurate survey and to be correct as per existing surface features & mine profile.
27. Surface right acquired area should be marked clearly over the plans.
28. Over FA area plan, Area considered for financial assurance to marked clearly in distinct color.