

**Scrutiny comments on examination of Modification of Mining plan (MMP) of C.A.D. Iron Ore lease over 79.9002 ha. (TC No. 10/1949), constituent of Sanquelim Mine of Vedanta Ltd. /Sesa Goa Ltd. in North Goa District of Goa state**

**Text:**

**GENERAL**

1. In introduction/Preamble: Detailed reasons of earlier approved MP & modification of MPs are not required to be given here. Only brief lease details with Status of all statutory clearance obtained and Surface right acquired should be given.
2. Chapter-3: Para 3.3: last MMP was approved on 21.09.2015, and review up to year 2012-13 was already carried out in the same. Hence, the same should not be repeated and to be followed wherever applicable. Review from year 2015-16 till date to be given.
3. Chapter-3: Para 3.4: Status of compliance of violations pointed recently, if any, i.e. from year 2015-16 to be given here.
4. Chapter-3: Para 3.5: Details of any suspension/ closure/ prohibitory order, which has already been given in last MMP, is not required to be repeated again.
5. Chapter-3: Para 3.6: In this para & in introduction, Reason given for submitting this modification of MP is absolutely incorrect. Reason given as..... change in lease area & reduction in production... is totally incorrect; as for change in lease area, already MMP was approved on last occasion on dtd. 21.09.2015 and by referring Mining chapter, it is understood that this MMP is submitted for enhancement of production from 0.09 MTPA to 0.20MTPA in year 2016-17 based on enhanced annual production capping given by the State Govt.
6. Reason & Justification for submitting this modification of approved MP to be given in detail w.r.t. last approved quantity and proposed quantity along with reserve position and systematic, scientific and environmentally friendly mining.
7. Many repetitive/unclear/misleading statements observed in the submitted modification of MP document. These need to be rectified. Also, overall Standard of the document needs to be improved.
8. PART-A- 1.0.: The UPL considered is far below to the depth of ore last encountered in the boreholes. Hence Reserves estimated are too high and not as per UNFC. Therefore, Reserves and resources computed need be reviewed.

**Geology:**

- Page-26:- 3 No of Boreholes has been proposed for the year 2016-2017, as on date not a single borehole has been drilled. Now the same of boreholes has been proposed for the year 2017-2018. Simply postponing to next year will not fulfill the justification of Exploration. Nos of borehole proposed in not mentioned.
- Achieved Production & Development for last two years may be explained with location, RL & Bench wise. Mineral reject achieved quantity has not given.
- Geological Plan & sections are totally different with previous approved plan, i.e, Mineral rejects are considered as Ore in this plan.
- When compare to R & R table, 16000 tons of resources under 211 categories has been excavated during 2016-2017 without any approval.
- Additional exploration is to be proposed to know the continuity of ore in depths and to complete the exploration as per UNFC compliance has to be planned. Many sections are not having sufficient Boreholes and many boreholes are in complete to find out the contact zone.
- Refer Minerals (Evidence of Mineral Contents) Rules 2015 for exploration grid interval to be followed for UNFC reserves & resources estimation, which indicates 200-100m or closer interval borehole spacing along strike for G-2 and 100m or closer interval borehole spacing along strike for G-1 category of irregular bodies. Geological section has to be drawn in closer interval.
- Detailed estimation table for reserves & resources as per UNFC has to be given in text. Minerals (Evidence of Mineral Contents) Rules 2015 has to be followed for exploration grid interval for UNFC reserves & resources estimation. Beyond & below the depth of boreholes, it should be considered as resources as per above said rule.

## **MINING**

9. Para a): Sequence of different mining operations should be described. Description of existing quarries/pits should be given with no. of benches in ore and OB with their mRL.
10. Para b):- Excavation/production as per last approved mining plan to be given with approval date of the last mining plan or modification of mining plan (MMP). Proposal for the year 2015-16 and before to be eliminated, as the same has already been elapsed.
11. Para b) As per guideline of “IBM manual on appraisal of Mining Plan-2014”, a NOTE to be added below the proposed year wise excavation summary Table (given in Cubic m) regarding tentative tonnage as arrived considering recovery % and Bulk-Density based on time series data and few samples test. Incidence/recovery % of salable ore and mineral reject/Intercalated waste from ROM & total excavation to be clarified.
12. Para c):- Individual year wise development plan to be described in tabular form for working sections, working levels, no of benches in ore and waste etc.
13. Para f):- Page 47, Conceptual Plan : Proposal of exploration/exploitation/ rehabilitation etc. after yaer 2017-18 (2018-19 onward) to be discussed.
14. Para f):- Page 50, Additional information provided pertaining to dump, tailing, backfilling to be removed and to be described in chapter 4- Stacking of mineral reject/sub grade material and disposal of waste.

## **MINE DRAINAGE**

15. Para d):- Protective measures towards arresting of surface run off water from catchment area in to the pit and /or water to be discharged out of the lease area through settling pond within lease to be given in quantified and tabular form.

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

16. Details of existing Waste Dumps, Sub-grade/mineral rejects stocks, Back-filing carried out etc. within the lease area should be given in text vis-à-vis that is actually available on the site.
17. During inspection it was observed that waste back-filling being carried out in scattered and un-systematic manner. Hence, Configuration and sequence of back-filling & its year-wise build up to be described in detail at each stages/terraces.
18. Manner of back-filling/disposal of waste (preferably in retreating manner) to be designed in such a way that from one side of the reclaimed area, rehabilitation/plantation can be made possible. Accordingly proposal for rehabilitation/plantation in the reclaimed area to be given.

## **MINERAL PROCESSING**

19. Dry/Wet beneficiation process described for the beneficiation plans situated outside the lease area need not be discussed here. Processing carried out/to be carried within the lease area only to be discussed.

## **PMCP**

20. Latest environmental baseline data to be provided and Mitigation measures of impacts associated with mining i.e. mainly related to air, water, noise, vibration, land, aesthetics etc. are to be elaborated.
21. In summary of PMCP table for Item No. 8.3, Cumulative actual achievement as on date also to be given in quantified term. Under heading ‘others’, environment monitoring to be carried out should also be given.
22. Chapter 8.4 Disaster & risk assessment: give note on slope failure and its mitigation measures.
23. Para 8.6 : F.A. to be given as per the guideline of “MCDR-2017”.

## **Enclosure:-**

24. All the annexure to be properly indexed, numbered, paged and signed by the TQP.

## **PLATES:**

- 25.** All plans to be prepared based on recent and accurate survey and to be correct as per existing surface features & mine profile. Such plans should be prepared and certified by the qualified Surveyor; and surveyor certificate should be enclosed with the document.
- 26.** 7.5 m statutory barrier along the ML boundary should be marked clearly over all the plans.
- 27.** Surface plan: All surface features existing within the lease area to be shown. dumps to be shown in different colour.
- 28.** Suitable distinct colors to be assigned for different lithology in geological plans and sections.
- 29.** Existing borehole to be shown in light color and proposed borehole to be shown in dark color for easy identification.
- 30.** UPL to be modified as per current proposal of pit design 2017-18.
- 31.** Safety barrier line from public road to be marked on Production & Development Plan.
- 32.** Retaining wall/Rock wall, settling ponds and vegetation to be shown on reclamation plan.
- 33.** Color code for untouched area on Financial Assurance plan should not be assigned.

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