

**Scrutiny comments on examination of Modification of Mining plan of Orasso Dongar Iron Ore lease over 98.4473 ha. (TC No. 76/1952) Of Vedanta Ltd. /Sesa Goa Ltd. in North Goa District of Goa state**

**Text:**

**GENERAL**

1. Certificate/Undertaking from TQPs is not enclosed. The same to be enclosed as per guideline of “IBM manual on appraisal of Mining Plan-2014”.
2. Self-attested copy of experience certificates as required for qualified person to prepare mining plan/Review of Mining Plan/Scheme of mining/its modification under MCR’2016, in respect of two TQPs are not enclosed. The same to be enclosed for all TQPs.
3. 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.
4. Chapter-3: Para 3.3: review of ROM production and Waste generation to be carried out separately.
5. Chapter-3: Para 3.4: Status of compliance of violations pointed recently (last 05 yrs) only to be given here.
6. Chapter-3: Para 3.5: Details of any suspension/ closure/ prohibitory order which is already given in last modification approved, is not required to be repeated here.
7. Chapter-3: Para 3.6: 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.
8. PART A 1.0.: Page 19 :\_In the Table showing G1, G2, G3 area, no. of BHs should be matched with BHs mentioned in the text, accordingly non mineralized area shall be corrected.
9. PART A 1.0.: Page 36 : Latest date of updating of Resource under UNFC should be mentioned, also a note below the UNFC table stating tentative quantities arrived based on approximate bulk density considered to be given as per guideline of “IBM manual on appraisal of Mining Plan-2014”.

**Geology:**

- When compare to previous approved plan, all the plan are having 5 to 10m differences in RL, without any movements in benches, dump etc, its need to be explain.
- Proposed 5 Boreholes are insufficient for unexposed area. Additional exploration is to be proposed to know the continuity of ore in depths as well as to complete the exploration as per UNFC norms. Many sections are not having sufficient Boreholes and many boreholes are incomplete to find out the contact zone.
- 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.
- Geological reserves & Resources have to be shown in table to compare as per previous approved plan and as of now. Addition or depletion of reserves/ resources to be explained.
- 13000 tons of ore has been produced in between Section-13 to 16, but there is no difference in Geological plan & section when compare with previous approved plan.
- Reserves & Plans are updated as on 01.01.2017, whereas in review chapter excavation has been considered upto 31.01.2017. Hence both are to be updated on same date.
- Using single Boreholes or without boreholes or DTH borholes, section has drawn and ore is consider as G-1, as per Minerals (Evidence of Mineral Contents) Rules 2015, it has to consider as resources only.
- During Inspection it has noticed that the mine is working in between Section 12 to 13 at 24RL, whereas in previous approved plan, working has proposed for upto 35 RL only. Updated Surface plan shows 40RL of the same location. Its need clarification.

## **MINING**

10. 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. At Page 37- table, pit number to be indicated before Phase no. I, III & IV.
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 b) ii): If there is no proposal of recovery of ore from Dump re-handling, then this Para is not applicable.
13. Ref. Page 53: Waste dumping carried out and to be carried out within this particular lease area only to be discussed. Nothing outside the lease area to be proposed as it is not acceptable in view of recent judgement of Hon'ble Supreme Court.

## **MINE DRAINAGE**

14. Para 3.c : As observed during site inspection, Pit bottom of Pit No.-2 observed filled with water and most of the enhanced production quantity in year 2016-17 is planned in this area. However, pumping arrangement and dewatering of pit in such short period to enable production immediately is not discussed properly. The same should be elaborated.
15. Adequate proposals for protective measures to control wash-off from backfilling area like retaining wall, check dams, settling pits etc. should be given in quantified terms in 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. Adequate proposals of protective measures to be carried out around the surface waste dumps, like retaining wall, check dams, garland drainages, settling pits and geo-textiling/plantation etc. should be given in quantified terms in tabular form.
18. Waste dumping/Back-filing to be carried out within this particular lease area only to be discussed. Proposal of Back-filing between ML boundary pillars BP-3 and BP-4 to be in accordance with order dated 25/03/2013 of the High Court in WP 322/2010.
19. Any proposal for Waste dumping/Back-filing in the area of 7.5m within the ML boundary to be supported with permission of competent authority. A copy of permission of competent authority in this regard to enclosed.
20. No any mineral beneficiation plant observed within the lease area. However, proposal for beneficiation of Sub-grade/mineral rejects is given. This needs to be rectified.

## **MINERAL PROCESSING**

21. Dry and 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**

22. 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.

## **Enclosure:-**

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

**PLATES:**

- 24.** 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 certified Surveyor; and surveyor certificate should be enclosed with the document.
- 25.** 7.5 m statutory barrier along the ML boundary should be marked clearly over all the plans.
- 26.** Surface plan: All surface features existing within the lease area to be shown. Dumps to be shown in different colour.
- 27.** Surface Geological Plan: Lithology wise colour in Index shall be matched. Laterite shall be shown with distinct colour, siliceous ore if not exposed shall not be shown in index, dip & strike shall be marked, Boreholes existing as on date w.r.t Resource estimated shall only be marked.
- 28.** Geological sections: In geological cross section 12 – 12’ reserve category shall be changed with respect to BH bottom ending in ore. Similarly all geological sections shall be revised for showing type of Reserve and Resource as per UNFC classifications.
- 29.** Reclamation Plan: Backfilling shall be redesigned with 2 terraces up to 7.5m from lease boundary. Retaining boulder wall up to 7.5m barrier shall be proposed. Proper protective measures around proposed surface dump like retaining boulder wall, garland drainage and two settling ponds, and afforestation within 7.5m to be shown.
- 30.** Environment Plan: Check dams of adequate height across the valley to control wash-off shall be proposed.

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