

Scrutiny comments on examination of Modification of Mining plan of Deulem Pissurlem Iron ore Mines, M/s R S Shetye & Bros. over an area of 98.7765 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 partnership firm. Photo id of partners to be enclosed. Also, Undertaking regarding working/interest in other firms/company/organization from partners should be given.
3. In introduction/Preamble, Status of all statutory clearance obtained and Surface right acquired should be given along with documentary proof as enclosure.
4. Chapter-3: last modification of MP is approved on 16.09.2016; Review up to 2015-16 was already carried out in the same. Hence, review of 2016-17 up to the previous month only requires to be carried out here.
5. 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. BP 8 to BP 9 & BP1 to BP 9 at places. Further, Excavation was carried out across the lease boundary between ML boundary pillars no. BP 8 to BP 9. Reason with justification to be given for the same.
6. Only mining & allied activities, infrastructure, processing facility, waste dumping etc. existing/proposed within this particular lease area to be discussed.
7. As per surface Plan & other plans submitted, mining was carried out at common ML boundary with another mining leases. Permission from competent authority in this regard to be enclosed.

GEOLOGY AND RESERVE

8. Para e)ii) : Details of exploration carried out so far i.e. BHs meterage drilled, spacing, level etc. to be given with year of exploration carried out in tabular form 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.

Total Lease area:						
Item of information	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.
	Total Lease area = A+B+C+D+E					
	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					
Reserve estimated after above exploration as on dated :					
Remaining Resource after above exploration as on dated:					
Total Reserve/Resource after above exploration as on dated:					

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. From geological surface plan it is evident that S-E portion of the ML area, consisting of hilly and plain area is not fully 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. Check BHs should be proposed in non-potential resource area.
13. Reserve/ resources to be updated/estimated based on latest survey, production & exposure of mine faces and to be given in million te.
14. The reserves & resources to be reported as on 01.01.2017 instead of 01.04.2015. Detailed estimation table for reserves & resources as per UNFC has to be given in text.
15. Numbers of boreholes drilled during last scheme period were indicated as 29 at page-17, but borehole shown in sections are only 3 holes.
16. Detailed estimation sheet for reserve and resources need to be furnished showing sectional area as per UNFC category, influence, BD, recovery factor, location on plan & sections etc. The basis of bulk density and recovery factor should be given on the field tests conducted for different grade of minerals. Test result on moisture contents may also be included. Cut-off grade based on international/domestic market conditions, mining and processing losses i.e. generation of tailing etc may also be considered for estimation of reserves & resources.
17. 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.
18. There is no borehole available from Section-18 to 20. But reserves have estimated, hence it should be considered as G-2/G-3.
19. Without single boreholes, production has been proposed in sections -18 to 20 have to be modified and there is no possible to mine in unproved area.
20. Geological reserves & Resources have to be shown in table as per previous approved plan and as on now. How much reserve has increase or depletion to be explained.

MINING

21. Para b) i): 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 Meters; regarding tentative tonnage as arrived considering recovery % and Bulk-Density based on time series data and few samples test.
22. Para b) ii): If there is no recovery of ore from Dump re-handling, then this para is not applicable..
23. 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.
24. Para d): Extent of mechanization with maximum annual handling to be mentioned here and Calculation of adequacy of equipments to be carried out in scientific way.
25. 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

26. The bottom part of the pit observed to be sub-merged by water. However this chapter is not dealt with properly.
27. Para C): Quantity & quality of water likely to be encounter, arrangement of Sump, Capacity of de-watering pump etc. to be calculated and proposal w.r.t. discharging mine water & related environmental protection measures etc. to be given.
28. Para d): Adequate rainwater management plan i.e. drainage plan along with arrangement for arresting solid wash off should be given in quantified terms along with engineering details & material to be used for its erection/construction.

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

29. Back-filling has been proposed in a part of pit from southern side pit benches up to 30 mRL & bottom of pit in northern side is at about -10mRL. About 40 m back-filling height is proposed without any stabilization and protection measures, which is unlikely to be sustained. Hence, In view of safe & scientific mining, the same should be re-designed.

PMCP

30. Environmental Base line information & EIA : Base line data collected & assessment done by which agency to be clarified, Period of data collection & assessment to be mentioned.
31. The Para “Disaster Management & Risk Assessment”, risk analysis of different mining operations and safety management plan needs to be given.

Enclosure:-

32. All the annexure to be properly indexed/numbered/paged and signed by the TQP.

Plates:-

33. All plans to be prepared based on recent and accurate survey and to be correct as per existing surface features & mine profile.
34. Surface right acquired area & 7.5 m statutory barrier along the ML boundary should be marked clearly over all the plans.
35.
 - I. **Surface Plan:-**
 - a. Section lines to be removed from this plan.
 - b. Intermediate Pillars to be marked.
 - c. 7.5mts Safety Barrier to be shown.
 - d. Existing plantation to be shown.
 - e. Electric line to be removed as it is dismantled.
 - f. All Features to be shown as exist within the lease area .
 - II. **Geological Plan:-**
 - a. Geological Plan should match with the sections.
 - b. List of plate nos mentioned is mismatching with plan & section
 - c. An attempt may be made to prepare slice plans for estimation of reserves & resources due to complex deposit with intrusion and shape of the mineralised zone etc. Refer sub-para-k of Part-A Geology & Exploration of universal format for Mining Plan.
 - d. Yearwise production profile is not needed to show in Geological Cross sections
 - e. Lateral and vertical extrapolation of maximum 25% beyond the borehole may be considered for G-1/G-2 category; accordingly all the sections may be modified for showing UNFC reserves category. UNFC codes are not marked on geological sections to know the correctness of reserves & resources estimation.
 - f. Proposed Boreholes to be include in Geological Cross Sections.
 - III. **Geological Sections**
 - a. Existing temporary Backfilling to be shown with Different Hatch.
 - IV. **Production Plans**
 - a. Existing temporary backfilling to be coloured and Proposed temporary Backfilling Area extent to be marked and Hatched.
 - V. **Reclamation Plan**
 - a. All Protective measures to be shown.
 - VI. **Key Plan:-** Latitude and Longitude to be marked.