

Scrutiny Comments on draft ‘Modification to the Review & Updation of Mining Plan’ in respect of S A Thwab Iron Ore Mine, ML No.2488 of M/s S A Thwab & Company covering 24.72 Ha of area in Ramgad Village, Sandur Taluk , Ballari District of Karnataka State.

- *The Consent letter/Undertaking /Certificate from the lessee & qualified person may be digitally signed and enclosed.*
- *The format of the New Mining Template & para wise numbering may not be changed.*
- *No cells may be left blank. Either “Nil”or”Not applicable” may be furnished.*
- *Annexure no. may be given for the attachments enclosed as annexure.*

CHAPTER-1-GENERAL INFORMATION

1. Para 1.1.2: (i) Type of document submitted may be given. (ii) All the reasons for modification may be given under reasons for modification.
2. Para 1.3.1: The period of mining plan (From & to) may be corrected.
3. Para-1.3.4: (i) Under statutory compliances, the Environment Clearance & SPCB approval of proposed valid quantity may be furnished. The same may be attached as annexure. (ii) The details of the permissible annual production as per the CEC should also be furnished under this Para. Also, the details of the CEC approval Letter no, date, Permissible annual production etc. to be given under this Para. The related documents to be attached as Annexure and reference to be given.
4. Para 1.3.6: PAN of Nominated Owner may be furnished as annexure. The List of members of Board of Directors should also be enclosed and reference to be given in this Para.

CHAPTER-2-GEOLOGY AND EXPLORATION

5. Para 2.1.3: Regional Geology: Regional Strtigraphy of the area may be provided as an Annexure and the Annexure number may be referred in the Text or this may also be provided by inserting table in word file.
6. Para 2.1.4.3: Nature of occurrence of other lithologies along with foot wall and hanging wall rock may be described. Different type of iron ore available in the lease, their field occurrence, petrological characteristics and percentage of incidence of each type of ore may be given. Lumps and fines percentage in the iron ore may be provided.
7. Para 2.1.4.4: The information of Mode of Occurrence & Controls of Mineralization iron ore in the lease area may be provided.
8. Para 2.1.4.5: Extent of Weathering/ Alteration: Weathering zone lateral and vertical extent may be provided.
9. Para 2.1.4.7: Extent of Mineralization: This section may be reviewed. The extent of mineralization of different ore bands and float ore extent may be provided.
10. Para 2.1.4.8: Deposit Type: This para may be reviewed and suitably re-written as per Type of deposits mentioned in the MEMC Rule
11. Para 2.2.1.1: Geological Mapping area covered unit (km² or Hectare) may be specified.
12. Para 2.2.1.2 to 2.2.1.4: If exploration activity in these heads not carried out. The same may be mentioned.
13. Para 2.2.1.10: Chemical analysis: The core /non-core samples information may be provided in CSV/excel file which shall normally include Five files namely (a) collar file,

(b) survey file and (c) Geology log file, (d) Assay file and (e) RQD File. The file formats are as follows:

(a) Collar file

Hole_id	Latitude	Longitude	Altitude	Max_depth	Hole_path (linear/angular)	Date of drilling

(b) Survey file for drill holes

Hole_id	Depth	Dip	Azimuth

(c) Assay file

			radicals analysed (specify name of radical as an example given below)				
Hole_id	Depth_from	Depth_to	Fe	SiO ₂	Al ₂ O ₃	LOI	P

(d) Geology file

Hole_id	Depth_from	Depth_to	Lithological Description

(e) Rock Quality Designation (RQD) File

Hole_id	Depth_from	Depth_to	RQD%

**Hole ID should tally with the surface geological plan as available in the latest approved mining plan*

14. Para 2.2.1.13: Bulk Density Study: For the waste rock, bulk density considered as 2.0 t/m³. However, in the bulk density details table only iron ore is mentioned. The same may be reviewed and rectified suitably. Bulk Density Test study report with photographs may be Annexed and Annexure no. may be given in the para.
15. Para 2.2.2.5: Pitting: Lithology encountered in the pit may be specified in the 'Litho Unit Exposed' column.
16. Para 2.2.2.7: Exploratory Drilling: Drilling details for the year 2021-22 is already provided in during last plan period exploration i.e. para 2.2.1.7 Exploratory Drilling(Core/non Core). Hence the same needs to be deleted.
17. Para 2.2.2.9: Sampling: Mentioned as Rock chip, in the foot note of the table Type of sample may be mentioned as Drill- hole samples from RC/DTH drilling.
18. Para 2.2.2.10: Chemical Analysis: The information given in the table may be corrected. Total no. of samples, radicals analysed, type of Mineral details may be provided in the Table.
19. Para 2.2.2.13: Bulk Density: Bulk density details already provided in 'During last plan period exploration' section i.e. para 2.2.1.13. This may be reviewed and the information may suitably be provided in the respective para.
20. Para 2.2.2.14: Area Covered under Exploration: From the concise litho logs given in Annexure no. 12, it is observed that most of the bore holes ended in the mineralized zone

- (i.e. Fe is greater than 35%). Hence the area is not completely explored. The area in given G1 level may be reviewed and accordingly information may be provided.
21. Para 2.2.3: Ore body geometry & Grade: (a) In para 2.1.4.1: Local geology: 04 ore bands with different dimension have been mentioned. However, the details of only one ore band are given in this para. All the four different ore bands details may be provided along with their dimensions (length, width & Depth). (b) Further, in the table it is observed that in the radicals analysed, the information given in separate row for each radicals. This may be corrected. (c) Strike and dip of the ore body may be checked and given correctly.
 22. Para 2.2.4.1: Methodology: (i) The details of bulk density measurements may be deleted from this para. (ii) Lumps and fines percentage in the ore (ROM) may be provided.
 23. Para 2.2.4.2: Resource Calculation: Information of Level of exploration not given in the Table. The same may be given as per UNFC classification. Depth information given as zero, the same may be removed, if depth information is not available, the same may kept blank.
 24. Para 2.2.5.2: Threshold value & Cut off Parameters: Only threshold value of hematitic iron ore provided. However, hematitic silicious iron ore (HSIO) also exists in the lease. The threshold value of HSIO also needs to be provided and cut off value for calculation of reserves may be specified.
 25. Para 2.2.5.3: Mining Factors or Assumptions: Backfilling is proposed after extraction of float ore of about 3.5m depth. In the lease area, apart from float ore, iron ore reef also exists in bands as *in situ*. Hence, this para may be reviewed and suitably modified. Backfilling proposals may be given after proving the area non-mineralized.
 26. Para 2.2.5.6: Market Assessment: The cut-off grade from this mine is mentioned as 54% Fe and the grade of ore between 45% to 54% Fe will be suitably blended with higher grade ore. However, there is an ore exists between cut off grade and threshold value (i.e. between 35 to 45% of Fe ore) not taken into account in the Market assessment. If non saleable in the present Market Scenario, the iron ore between 35 to 45% Fe may be stacked separately as a Mineral Reject and the same may be proposed. Accordingly Reserve & Resources calculation table may also be corrected.
 27. Para 2.2.5.9: Calculation of blocked resources UNFC Code: The iron ore grade between 35 to 45% Fe may also be considered while calculation of Resources.
 28. Para 2.2.5.11: Reserve & Resources: (i) The information given in the table may be modified as per the comments given in the calculation and Modifying factors. (ii) Reserves/ Resources estimated given as on 30/06/2021, the same may be given as on 01/04/2021. Whatever the mineral produced from 01/04/2021 to 30/09/2021, the quantity of the same may be given in foot note of the table. (iii) For Hematitic iron ore and HSIO the reserves & resources information may be given in separate table.
 29. Para 2.2.6.1: Geological Mapping: Geological mapping the entire lease area already mapped in 1:2000 scale in the previous exploration. However, again the Geological mapping is proposed in future programme of exploration, the same may be deleted.
 30. Para 2.2.6.5: Exploratory Drilling: No exploration drilling is proposed. As comments given in para 2.2.2.14, the total lease area not explored vertically by drilling. It is advised to propose some bore holes as a gap filling to explore vertically upto the non-mineralized zone.

CHAPTER-3-MINERAL BENEFICIATION/PROCESSING

31. Para 3.1: Mineralogy of the ROM may be furnished with approximate percentage of mineral & gangue.
32. Para 3.2: Complete chemical analysis of ROM ore may be furnished.

33. Para 3.3.2 & 3.5.1: The product size mentioned for secondary crushing & subsequently the product size of the secondary screen (3.5.1) may be verified with respect to over generation of fines.
34. Para 3.8: Since there is no wet processing adopted “Not Applicable” may be given under disposal method for tailing/rejects.
35. Para 3.9: The quantity of water required in Cum/day for mining & allied activities process like dust suppression, drilling, plantation, domestic purpose like vehicle washing, drinking etc. details to be given under this Para. The details regarding source of supply of water, disposal of water, extent of recycling, chemical analysis of water should be given under this Para.
36. Para 3.10: The Water balance charts to be prepared accordingly and may be added in annexure and reference to be given under this Para. The water requirement should be within the EC & CFO permissible limits.

CHAPTER-4-MINING OPERATIONS

37. Para 4.1.1: Under proposed method of mining “Mechanized” may be selected.
38. Para 4.21.1: (i) The status of the pit may be furnished. (ii) The pit dimension given may be corrected.
39. Para 4.2.1.2.1: Status of existing dump may be given.
40. Para 4.2.2.2: Recovery % may be furnished in this para
41. Para 4.3: Slope study report may be attached as annexure for the old dump situated in the ML area.
42. Para 4.3.2: (i) In this para the total handling quantity may be verified & corrected.(ii) The ore to waste ratio may also be corrected.
43. Para 4.7.1: The proposed minerals stack details if existing stacks are used & the details of new stack may be furnished.
44. Para 4.9: Under use of Minerals, the physical & chemical compositions may be furnished. It is pertinent to mention here the use of minerals of less than 45% Fe.

CHAPTER-5-SUSTAINABLE MINING

45. Para 5.1- It should be specifically mentioned under this Para “ Sustainable Mining and SDF implementations during the plan period will be carried out in accordance with Rule 35 of MCDR 2017”.

CHAPTER-6- PROGRESSIVE MINE CLOSURE PLAN

46. Para 6.1: The area mentioned under different headings may be verified from the last approved document & corrected.
47. Para 6.2.11: Land use of lease area at the expiry of lease period (conceptual stage) may be corrected as per the latest approved document.

CHAPTER-7- FINANCIAL ASSURANCE/PERFORMANCE SURETY

48. (i) Land use particulars may be given year wise for 5 years. (ii) The land use pattern at the start of plan period may be verified & corrected & accordingly bank guarantee may be paid.

CHAPTER-8- REVIEW OF PREVIOUS PROPOSALS

49. Para 8.1.1: Lease area utilisation as per the approved plan may be corrected & reasons for deviation may be given correctly.
50. Para 8.1.2: Since the last approved document didn't have SDF proposals, accordingly it should be mentioned "Not applicable" under this para.
51. Para 8.2.1: Area converted under G1 from G2/G3 may also be verified & corrected.
52. Para 8.2.2: Reasons for deviation may be furnished.
53. Para 8.2.5: Under backfilling, achievement, Deviation & reasons for deviation may be furnished.
54. Para 8.3: Since there were no proposals in the last approved plan period under Socio-Economic, accordingly under para 8.3.1, 8.3.2, 8.3.3.1, 8.3.3.2, 8.3.3.3, 8.3.3.4 & 8.3.3.5 it should be mentioned "Not applicable".

55. PART-C, PLANS & SECTIONS:

- a) Hard copies of all the plans may be submitted in .dwg format with UTM grids (WGS 84 datum) only. Soft copies of the same may be submitted in KML/SHP format.
- b) **All plan submission should be output of GIS in SHP format.** All sections submission should be in dwg. Format (Auto-cad output).The numbering of plates has not been sequentially maintained as per the format. Numbering of plates to be specifically maintained as per the format. Any additional plates enclosed may be followed after plate no 11 with corresponding details
- c) All the plans & sections to be prepared in UTM grid and Northing & Easting gridlines should be clearly demarcated throughout the plan. The scale of the plan to be mentioned. The Mine Lease boundary along with 7.5 m safety zone should be prominently demarcated in all related plans & section. The other safety zone for Nala/Road/Villages/Electric power line etc. if any inside the ML area as per the statutory norms should also be demarcated along with the details of the safety zone, in the index.
- d) It should be ensured that all attached plans & sections are prepared as per the content & scale specifications, of Rule 31(General requirement about Plan & Sections) of MCDR 2017& IBM Circular no. 1/2021. All plans and sections should be signed with date by the certified surveyor, Qualified Person, Geologist, Mining Engineer as per provisions of MCDR 2017.y
- e) Key Plan (Plate No. 1A): All requirements as per rule 32(5) of MCDR 2017 should be incorporated and the plate should be corrected accordingly. The plan should show distinctly Natural drainage system such as rivers, nallahs, stream etc., roadways, boundary of all villages and towns with their population, places of historical & archaeological importance, forest with tree density, predominant wind direction etc. as per the provision of aforementioned rule. The index to be updated accordingly.

- f) Geological Plan (Plate no.3): (1) The plates should be checked and all corrections to be specifically incorporated as per the aforementioned scrutiny comments of Geology and Exploration chapter. The plate should incorporate all the details as per Rule 32(1)(b) of MCDR 2017 like all lithological units in the area, already drilled boreholes, proposed boreholes for the plan period, structural details like dip, fold, fault etc. if any, contour interval not more than 10m, the area covered under different explorations limits G1, G2,G3 to be clearly demarcated and area to be mentioned in plate. The section lines at regular interval from one boundary of the lease to the other based on which Geological sections are prepared. The Plan should be submitted showing different colour codes for i) Lithological/Geological occurrence ii) Area under G1, G2, G3 iii) Active pits & Excavation area iv) Dump area & backfilled areas v) Mineral stacks vi) Lease boundary along with other details
- g) Geological Section (Plate No.4)-The plates should be checked and all corrections to be specifically incorporated as per the aforementioned scrutiny comments of Geology and Exploration chapter . The section should be submitted with different colour code depicting all the features as shown in surface geological plan.
- h) Geological Plan & Sections : (i)As mentioned in the text about four bands of iron ore may be shown in the geological sections and the trend of bands may be projected on the surface with distinct color code in geological plan so that the same can be matched with the geological sections. (ii)The index should be same in both geological plan and sections. (c) the geological plan and sections may be prepared on 1:1000 scale for more clarity.
- i) Production and Development Plans (Plate No.5A-5E): (i) The bench wise & direction of movement of benches may be aligned with the information given in para 4.2.2.2.(ii) Backfilling as proposed may be incorporated in the text part.
- j) Production & development sections: (i) Separate year wise, pit wise proposed production & development sections may be furnished on 1:1000 scale.(ii) All the activities like backfilling, mineral storage & plantations may be shown on the respective section lines.
- k) Progressive mine closure plan & Section (Plate No.7& 8): (i) This plans needs to redrawn as per the information furnished in the text showing all the proposed PMCP activities with different colour coding & indexed accordingly.(ii) In this plate only the proposed engineering environmental measures like construction of retaining wall, garland drain, plantation & backfilling may be shown & indexed accordingly.(iii) The plate may be attended as per comments placed at chapter 6.
- l) Conceptual Plan & section (Plate No.9): This plans needs to redrawn as per the information furnished in the text showing all the proposed activities at the conceptual stage of mining including fencing, plantation, backfilling, converting the dugout pit into water reservoir if any & regrassification of the degraded land. The same may be attended in the text part.
- m) Environment Plan (Plate No.11): In this plate all the existing & proposed environmental measures falling within the core & 500mts radius of the core zone may be shown on 1:1000 scale for better visibility.
- n) Financial assurance plan may be enclosed.

- o) Dump management Plan & section: Separate plate of OB dump management plan & sections may be given.

56. **PART- B, ANNEXURE:**

- a) The numbering of annexures has not been sequentially maintained as per the format. Any additional annexures enclosed may be followed after annexure no 18 with corresponding details. All the annexures as mentioned in above scrutiny comments of different chapters to be enclosed. Also, corrections in the annexures, as mentioned above in scrutiny comments of different chapters to be incorporated and corrected annexure to be enclosed.
- b) A copy of lease grant letter may be enclosed.
- c) A copy of Forest clearance in the name of M/s S.A. Thwab & Company may be enclosed and referred in the text. The submitted Forest Clearance is in the name of Sri S. A. Thwab.
- d) A copy of Environment Clearance for the permissible annual production of 67500 tonnes may be enclosed and referred in the text.
- e) A copy of CFO for the permissible annual production of 67500 tonnes may be enclosed and referred in the text.
- f) Bulk density study report for waste may also be enclosed.
- g) All the annexure to be properly numbered/ paged and relevant annexure to be signed by QP.
