

Discrepancies observed in the Modification in the Approved Mining Plan of Wadegaon Manganese Mine (Area-3.97 Hect.) of Shri Shakeel Ahmed Aqueel Hussain, located in Tehsil Ramtek, Distt. Nagpur (Maharashtra), submitted under Rule 17(3) of MCR, 2016 jointly inspected by the undersigned on 09/05/2017

Field Observations:

1. Boundary Pillars need to be erected as per CCOM Cir. 2/2010 (addendum).
2. Working is in the close proximity of canal passing in the vicinity of southern lease boundary. Thus suitable distance as per Rule 12(d) of MCR'2016 should be maintained to avoid any damage to public infrastructure.
3. Underground workings through the means of shaft are proposed in the area. Therefore, suitable permissions should be obtained from DGMS prior to going for underground method of mining.

Text and Plates:

1.0 General and Review of Mining plan:

1. PMCP is an integrated part of Mining Plan. Thus cover page should be revised accordingly. On the cover, instead of 'Modification' period, 'proposal' period should be mentioned.
2. Purpose of submission of the document should be clearly mentioned in the introduction.
3. Date of expiry of lease period as mentioned on cover and other relevant places in the document should be corrected as per lease deed (As per lease deed, lease has been granted for a period of twenty years from 19/01/2007).
4. Copy of Environment Clearance and letter of approval for last document needs to be enclosed.
5. Name of the lessee should be mentioned as per the executed lease deed. Further, as per registration under rule 45 of MCDR'2017 and as per the executed lease deed, status of the lessee is 'Individual' whereas in the document it has been mentioned as 'propriety firm'. Thus suitable correction is required.
6. Mine code should be corrected on page no. 8. Further, under land schedule, type of land should be clearly mentioned and status of surface rights should be given in case of private land.
7. Under item 3.11 on page no. 10, review for the proposals made in the earlier approved document should be given. Here, review has been given for excavation only.
8. Present area under mining and dumps should be reviewed and corrected at each place in the document. On page no. 12, present pit area is mentioned as 0.30 ha, under roads as 0.25 ha and area under dump as 0.20 ha (total 0.75 ha) whereas in the FA table, area under mining is mentioned as 0.5155 ha. Further, on page no. 15, present pit size has been given as 95 m X 55 m which gives present pit area 0.5225 ha. With having 5 dumps within the lease area, complete area under mining should have been more. Thus suitable correction is required at each place in the document and amount of FA should be modified as per revised broken area.
9. No work has been carried out for want of Environment clearance. Thus suitable information should be mentioned under item 5.23.
10. RLs and contour levels for the area as shown in all the plates are incorrect and should be suitably corrected.

2.0 Geology and Reserves:

1. Areas under G1/G2/G3/G4/non-mineralized area should be mentioned in a table.

2. Reporting of reserves/resources should be done giving the position of reserves/resources in the approved Mining Plan, then deducting the depletion of reserves due to production during the proposal period of the approved Mining Plan, then addition due to exploration (if any) and finally re-classification as per the Mineral (Evidence of Mineral Content) Rules'2015.
3. Future exploration proposals should be made in accordance with Rule 12 of MCDR'2017. Core bore holes should be proposed under future exploration program.
4. Under chapter Geology and exploration 6, estimated reserves/resources in the last approved scheme of mining are to be recasted properly. ie mineral resources are to be estimated/mentioned purely based on level of exploration, with reference to the threshold value of minerals declared by IBM. Then after the reserves/resources within the lease are to be arrived after applying results feasibility/prefeasibility study and economic evaluation and then the categorization of reserves/resources as per UNFC. Corrections are to be made at all the relevant places in the document.
5. The present status of the pit is to be described along with ore body.
6. On page no. 17, pit depth is 10-15 m whereas on the plates, it has been shown as maximum 5-6 m. Thus it should be suitably corrected and proposals should be suitably modified accordingly.
7. True thickness considered is incorrect as given in the table on page no. 21. Intersection lengths as mentioned on page no. 21 are in form of level difference but actual intersection points in form of borehole meterage should be given. As per the geological plan and sections and as per levels mentioned here, true thickness for BH-3 should be 4.62 m (4.0 m intersection level difference \div Sin60°) and similarly for BH-4 & 5 it should be 2.87 m and 2.784 m respectively. Thus it should be suitably corrected and estimation should be discussed accordingly.
8. Pit Limits, UNFC categories should be marked on the Geological plan and sections.
9. Level-wise reserves for underground mining proposals should be estimated and mentioned in the text.
10. Grade should be mentioned in the reporting of resources on page no. 24.
11. Borehole logs should be enclosed for all bore holes drilled.
12. Under para exploration by core drilling on page no 21, RL of the boreholes is to be corrected; similarly bearing of the angular borehole is to be mentioned with direction.
13. Under Para 6.9, it is mentioned that the strike length is 295m, whereas it noticed during the field visit that the entire ore body as proved by boreholes is under the surface/water logged pit. The actual strike length of the ore body is to be furnished based on the borehole data. Similarly under the same heading thresh hold limit considered is shown as -10%. Whereas as per IBM thresh hold limit it should be +10%.Need correction.
14. On page no 22, bulk density considered as 3.0 for calculation of reserves/resources, whereas it is to be considered as 3.5 in case of manganese.
15. Sample analysis alongwith location of the sample should be enclosed. Analysis for sub-grade and mineral rejects should also be enclosed.
16. Feasibility study report is irrelevant pertaining to the details given in the document. Thus a fresh feasibility report should be submitted as per the Mineral (Evidence of Mineral Content) Rules'2015 covering cash flow analysis as per the extent of mechanization for underground and open cast both (for capital expenditure). For operating cost, open cast, and underground should be dealt separately and defining feasibility by comparing with the revenues as per the available reserves.
17. Resources blocked in the shaft support pillar, if any, needs to be shown on the plates and discussed in the text.
18. Copy of letter regarding submission of Form –J is to be enclosed.(now changed to form I).
19. Photographs of boreholes cores are to be enclosed.

3.0 Mining:

1. Details of all existing dumps should be given (as shown on the plan) alongwith type of dump-top soil/ waste/ rejects/ sub-grade & active/dead/stabilized.
2. Existing and proposed area for various mining activities should be shown on the Financial Assurance Area Plan distinctly.
3. As per the extent of mechanization, mine should be under Category-‘A’. Thus suitable corrections should be made on the cover and FA amount should be modified accordingly.
4. It is mentioned on page no. 17 that area is containing 0.5-1.5m soil cover, but the same has not been shown in the year-wise development and production table. Thus top soil generation and management needs to be dealt separately from OB. Suitable modifications in the plates should also be done and top soil dumps should be shown on the relevant plates.
5. On page no. 30 in table (a), ROM is 2335.50 cuM and OB is 115000 cuM. Out of this ROM Mineral rejects/sub-grade shall be generated and hence total excavation shall be 117335.5 cuM. But it has been mentioned as 126219 cuM. Also, in table (b), 80% clean ore, 10% sub-grade and 10% mineral rejects generation is proposed out of ROM which is contradicting the details given in the table (a). Quantum of sub-grade and mineral rejects both should be mentioned in tonnage also.
6. Bulk density for ore, sub-grade and mineral rejects has been considered as 3.5 t/cuM, whereas in the adjacent lease of the same lessee (Wadegaon-2.49 ha), it has been considered as 3.0 for sub-grade and mineral rejects. Justify.
7. While no working from opencast is proposed in 4th and 5th years i.e. 2020-21 and 2021-22, how come the same has been reported in the table given on page no. 30-31?
8. Extent of development, production etc. in the proposal period as well as upto conceptual period should be mentioned clearly showing year-wise levels in the text as well as relevant plates.
9. Conceptual Plan and sections should be drawn showing position of mine at the end of mine-life period. As per the details given on page no. 43, the plates should be modified. Also, details should be given for the area proposed for partial backfilling and plantation. For part of the area proposed for water storage, details regarding capacity of the pit so developed should be mentioned. Conceptual planning for underground workings protective measures should also be discussed and shown on plates.
10. For underground workings, L-section and Transverse section, both sections need to be drawn.
11. Being a category ‘A’ mine, separate year-wise development and production plans should be submitted showing dynamic position of workings, dumps plantation etc.
12. Shaft sinking hasn’t started yet and is to be done in the first two years of the proposal period. But shaft sinking has not been discussed. Thus shaft sinking needs to be discussed in detail giving a brief feasibility study for the need and location of shafts. Expenditure towards this underground development needs to be studied against revenues expected and thus method of entry should be designed. Resources blocked/recovered from shaft may be informed.
13. Production in the shaft sinking, if any, should be mentioned in the text.
14. Prior to going for underground, a geotechnical study should be done. To ensure conservation of mineral and optimum recovery, suitable design parameters for stopes and pillars (crown/sill/rib/shaft pillar/post pillar etc) should be adopted.
15. **Year-wise Development and Production (Underground):**
 - (i) Details for underground workings, proposed number of stopes to be developed / exploited in the proposal period and their location should be mentioned in the text in tabular form.
 - (ii) For underground workings, L-section and Transverse section, both sections need to be drawn.

- (iii) Year-wise development and production plan should be submitted showing dynamic position of the developments in the respective proposal year.
- (iv) Level interval as mentioned in the text is 15 m whereas as per plate V-2, it is 17 m for service level to first level and 16 m for 1st to 2nd level. Why?
- (iv) As per the plate VI-2 enclosed, blocked resources in the crown pillar should be informed. Also, the plate suggests

Vertical Development= 30 m (3 levels with 15 m level interval) X 8 (number of Winzes)

$$= 240 \text{ m}$$

Mineral excavated while Vertical Development= 240 X 2.4 X 2.4 (size of dev.)
= 1382.4 cuM

Hz Development= 193.2 m (7 pillars with 27.6 m width) X 3 (number of Levels)
= 579.6 m

Mineral excavated while Hz Development= 579.6 X 3 X 2.4 (size of dev.)
= 4173.12 cuM

Total mineral excavated while development= 5555.52 cuM

Which is more than what is shown in the table given on page no. 31? Thus suitable corrections should be done and year-wise proposals for underground should be done giving development details, generation of sub-grade/rejects etc.

16. On page no. 50 under item (d) and (e), it is mentioned that stopes are being developed and shall be worked in the next proposal period, hence method of stoping is not required to be discussed here at this stage. But, stopes are developed for exploitation of ore in the ensuing proposal period. Thus without discussing anything about stoping practices, how the stopes are developed?
17. Proposed production from underground may be further sub-divided into: mineral production during underground development and production from stopes, if any.
18. Underground development as shown on the plate V-A is extending beyond the lease boundary near BP-15. Suitable modifications should be done to keep the developments within 7.5 m non-mining zone. Accordingly proposals should be modified.
19. Method of mining for underground workings needs to be discussed. It is mentioned that the stope shall be filled by sand (sand stowing) and overburden/waste (refer page no. 51 & 53) post recovery of mineral from the underground? Usage of waste filling instead of sand may be worked.
20. Extent of mechanization for underground should be given correctly. It has been mentioned on page no. 45 under item (a) that 'height of 2.4 m is taken to facilitate working of loader etc. For mechanized workings and faster developments'. But details for the same have not been included in the extent of underground mechanization given on page no. 55.
21. Management of sub-grade material generated (blending or stacking) should be discussed. A table should be given in stacking of sub-grade mineral indicating quantum of mineral available in the dumps as on date, if any, proposed quantum of material recharged/dumped due to generation of sub-grade in the proposal period.
22. Table given on page no. 60 needs to be reviewed and corrected as per the table for opencast workings given on page no. 31. Also, details for underground should be worked and mentioned here correctly.
23. Underground waste management has not been discussed. It should be given in a tabular form mentioning generation of waste, underground filling (if any) and management of rest quantum of generated waste.
24. For underground workings a 'water endangerment plan' should also be submitted.
25. As per item (e) on page no. 65, no surface area has been shown for beneficiation in the plates.

26. Material/mineral balance chart as given on page no. 68 is contradicting the details given in the geology and mining chapters regarding recovery. Thus suitable correction is required.
27. Being a category 'A' mine, a full time mining engineer and a full time geologist should be employed (page no. 70-71).

4.0 Progressive Mine Closure Plan:

1. Details for underground water also need to be discussed alongwith surface water.
2. The period of FA is already expired on 15/12/2011 and it was submitted for 'B' category mine. But as the mine falls under Category 'A', therefore, fresh FA as per Rule 27(1) of MCDR'2017 shall be submitted immediately alongwith modified copies.
3. A water balance chart should be enclosed and should be discussed in the text. Amount of water re-circulated/ recharged should also be informed. Suitable permissions for ground water withdrawal, if any, should be enclosed.
4. Settling tanks as shown in the plates should be discussed alongwith dimensions and quantum of water cleaned and other details.
5. Garland drain and retaining wall should be proposed to be constructed along the toe of the dumps and should be shown on the plates.
6. Environmental monitoring of various parameters should be proposed as per MoEF clearance and monitoring stations should be shown on relevant plates.
7. SDF: this should be added under PMCP details and a brief note about mine with special emphasis on SDF should be given here alongwith suitable supporting documents like expenditure done towards SDF and CSR, future SDF/CSR proposals, Star Rating of the Mine etc., if any.

5.0 Plates:

1. All the plates should bear the reference of the document under submission.
2. Various plates are not upto the scale. Thus corrections should be done and plates should be made up to the scale prescribed in the MCDR'2017.
3. Location plan needs to be submitted.
4. Geological Plan and Sections:
 - (i) Plate no 4, the topographical contours shown on the map varies from 91 to 94m. But as noticed from the key map, the topographical contour in the area varies from in between 285 to 300m. Need correction on the plate as well on all other plans/sections of the document.
 - (ii) Plate no 4; Ore body projection is to be shown based on the borehole data. The same is to be corrected on the plate.
 - (iii) Plate no VA, on all the cross sections drawn, the projections of ore body are shown up to the surface level but as noticed during the field visit that there are no outcrops of ore body. Needs correction/justification for the same.
5. Environment Plan: Environment plan submitted is incorrect and it should be submitted as per the provisions of Rule 32(5) (b) of MCDR'2017 showing details for 60m and 500 m radius.
6. Reclamation Plan: year-wise activities under progressive closure should be marked on the plan.
7. Financial Assurance Plan: Area put to use at the start of SOM period and area required during the 5-years period should be shown distinctly on the plates and land use table should be shown on the plate for the calculation of FA.