

Sutiny comments on examination of Scheme of Mining in respect of Obalapuram Iron ore mine of M/s Sai Balaji Minerals over an extent of 4.052 Ha. located in Obalapuram Village, H Hirehal, Mandal, Anantpur Dist. of Andhra Pradesh State submitted under Rule 17(3) of MCR, 2016.

Date of Inspection: 13.10.2016

Inspecting officer:- Mr. Ibrahim Sharief, Sr. Assistant Controller of Mines

Accompanying official:- Sri G Anjinappa, Mines Manager, Sri Pradeep Kumar, lessee representative and Sri Prava Ranjan Mishra, Qualified person.

TEXT:

Field observation:

1. The surface plan submitted is not matching with actual field condition. The survey has not been carried out and surface plan has not been updated as per the provision of MCDR 1988, last updated was on 09.11.2015. Submitting the document based on old survey data cannot be acceptable. Survey of the lease area should be carried out afresh.
2. Refer page no.3, it is furnished that lease area is bounded in between grid lines and that observed during the field observation are different as below.

	As per Text	As per field observation
Lat	15°03'10.0" to 15°03'09.6"N	15°02'56.8" to 15°03'09.4"N
Long	76°51'31.6" to 76°51'42"E,	76°51'32.7" to 76°51'42.8"E

Which are contradictory.

3. During field inspection it was observed that there exist ferroginous shale, ferrogenious quartzite, phyllite, clay etc. the same has not been depicted in plans and sections, without carrying out geological mapping for demarking litho units as per the field, the documents is submitted.
4. Litho units depicted in geological plans and sections are not matching with actual field condition and with that of bore-hole logs observed in the field. During field inspection it was observed that there exist veins having thickness of 2 to 5m on either side of the waste material i.e. phyllite, and dipping due @70°-80° NE. Further, on slope portion of lease area up to lease boundary i.e. on South- Western side, there is no presence of ore was observed, but the same has been depicted as ore without any basis. Also, bore holes had been drilled within the vein portion and reported occurrence of ore without carrying out chemical analysis, the reserves have been estimated by assuming congregate the above veins as a single ore body below phyllite over a depth of about 10 to 20 meters without any basis. Reserves should have been estimated based on actual field condition and as per provision of ME&MC rules 2015.

5. Recovery of ore should have been carried out on weighted average basis (ROM) and not on the mineral basis, in this regard recovery test should be carried out and submitted afresh..
6. Stripping ratio is furnished different at different place, refer page no.26 and page no. 31.
7. Screening and crushing operation is being carried-out outside the lease area but in the document the same has been furnished as a part of activity within the lease area, further returns in form-N in respect of the crushing and screening plant has not been submitted so far to the RCOM, Hyderabad.
8. In page no. 29, it is submitted that 80% of waste will also be salable as and when market prevails, but during field inspection it was observed that there is no permission for sale of waste from State government. The sale of waste should be proposed subject to permission obtained from the State Government.

#### General

9. A letter of intent from the state government that the deemed extension of Mining lease is being considered as per Amended act, 2015 should be enclosed.
10. Co-ordinates of the lease boundary duly authenticated by the competent authority of the state government should be submitted.
11. Cover page should also incorporate; the name of the document should be 'Review of Mining Plan with Progressive Mine Closure Plan' under rule MCR & MCDR. Further, land schedule of area and lease period should be furnished. MCR, 2016 should be elaborate.
12. The certificates/undertaking, consent letter etc. should be on original companies letter head duly dated and signed.
13. Qualified person should also submit the certificate in respect of observance of mines Act, Rules & Regulations made in the document.
14. Details of statutory clearance like E C, consent to establish, surface right area held by the lessee etc. should be furnished in introduction chapter with supporting document.
15. All the details required as per the prescribed format should be furnished. Registration no. of the lease under rule 45 should also be furnished.
16. Attested copy of the partnership deed should be furnished. Resolution of partners to authorize Sri Sanjeevarayadu to sign the document as per the provisions of MMDR Act, 1957 and rules made there under should be submitted.

17. Experience details of the Q.P. as required under the provision of rule 15 of MCR,2016 should be furnished in page no. 2 supported with document evidence.
18. Details of khasara no./plot no., etc. should be furnished in page no.3.Surface right area held by the lessee should be furnished with documentary evidence and the same should be depicted in the surface plan for clarity.
19. There was a gap period between 2012-13 to 2014-15, reasons for not submitting the document should be furnished.
20. Copy of Annual returns along with invoice of the ore sold during review period should be submitted.
21. In para 3.3.2, total production achieved is found to be 25,000 M T, but in review of production, the same is furnished as 3100 M T, which should be rectified.
22. Compliance status of violation with supporting document should be furnished.

#### Geology and exploration

23. Description of geology of the lease area should be furnished.
24. Details of exploration carried out so far in the lease area should be furnished in tabular form incorporating Drilling/ exploration agency, period of drilling/ trenching, no. of bore holes/ dimension, total meterage/ cubic meter, drilling depth (Min- Max), no. of samples.
25. Details of bore holes drilled in the lease area during review period should be furnished in tabular form incorporating, Period of drilling, bore hole no., Location, collar RL, depth (in meters).
26. Details of exploration carried out should be furnished in the tabular form as below

SL no.	Area explored under				Total lease area
	G1 level (ha)	G2 level (ha)	G3 level (ha)	Unexplored area (ha)	

27. Expenditure incurred for exploration carried out during the review period should be furnished with documentary evidence.
28. Details of litho furnished in the bore hole logs are not matching with the litho of core logs observed during the inspection.
29. The lease area is structurally disturbed, sections considered for delineation of ore body are not sufficient, in this regard few more cross sections should be drawn and submitted for easy reference.

30. Regional Geology furnished seems incomplete; during the field observation it is extension of BIF of Sandur, this aspect should be detailed and submitted for understanding the genesis of the deposit.
31. Justification of UNFC code is not carried out as per guidelines, and it is submitted that reserves have been estimated based on 14 no. of bore holes; but some of the bore holes have already been excavated considering the same for estimation cannot be acceptable.
32. During the inspection , it was observation that there exist vein of 2 to 5 meters thickness dipping due North East, reserves for Iron ore with +45% Fe considering above thickness can only be acceptable, material below 45% Fe cannot be considered as Iron ore. Based on the above factor reserves should be re-estimated and submitted.
33. **Sale price** and **cost of production per tonne** of Lumpy ore of 45% Fe is furnished as **Rs.3300 to Rs. 4000** and **Rs. 1575** respectively in page no.16, which is impractical and not as per the present condition, which needs modification. Considering above factors for preparation of feasibility report cannot be acceptable.
34. Reserves should be as on date, with cut-off grade, threshold value; status of quantity of reserves/ resources at present should have been arrived after depletion of ore (+45% Fe) produced during review period. Proposal of year wise production should be made based on the reserves.
35. Stripping ratio considered is less and not been calculated as per the actual data available in the field, which needs complete re-casting of the document.
36. Average grade of ore of the lease area should be furnished while estimation of reserves/ resources for clarity.
37. Reserves/ Resources estimated having mineral content of only +45% Fe is considered for processing of the document, the rest of the material has to be considered as waste.

## Mining

38. Present status of working should be submitted incorporating, dimension of quarry, grid lines, top RL, bottom RL, No. of benches in ore & waste, bench height & width etc.
39. Status of mine at the end of 2016-17 should be furnished and depicted in plan and section.
40. Year wise production proposal should be revised and made commensurate with estimation of reserves as per item no.4 & 41.
41. Parameters considered for adequacy of machineries like excavator, tipper etc. is impractical, which needs correction.

42. Calculation done for year wise excavation proposal is not matching with actual field condition, there exist OB/SB which are not the part of ROM, considering only 39% of total excavation cannot be acceptable, large volume of waste has to be excavated to expose the ore body, proposal should be suitably modified.
43. Excavation within 7.5 meters of safety zone of the lease area has been carried out which needs justification.
44. Year wise layout of mine should be described in the text and same should be furnished in the plan for clarity.
45. Stripping ratio is furnished different at different places i.e. in page no. 26, it is submitted as 1:1.5 whereas the same is furnished as 1.0.2 in page no. 31, which is contradictory.

#### Conceptual plan

46. Conceptual plan has to be modified based on the comments of item no.4,41,51 and submitted.
47. Life of the mine is going to expiry within this scheme period where as final mine closure plan has not been proposed to be submitted.
48. Refer page no. 30, life of the mine is furnished as 5 years, at the end of this scheme period but in page no. 31 the same furnished beyond more this scheme period, which is contradictory.
49. Conceptual plan prepared is sketchy and not been carried out as per the guidelines, at conceptual stage no proposal of reclamation of quarry, dump, road is proposed.

#### Stacking of mineral reject/ Waste

50. 80% of waste is proposed to be sell, but adequacy for storage of the same has not been furnished/depicted in the text/ plan, which needs clarification.
51. Adequacy of waste dump with respect to waste material generated as per item no.4,41,51 should be calculated and submitted.
52. On page 37, maximum % of ore available in this area is 50% Fe, but in the use of mineral, use of ore having +60% Fe is furnished, which needs justification.
53. In year wise production chapter, there is no proposal of generation of mineral reject is calculated, whereas in page no. 38, generation of the same is furnished, which are contradictory.

#### Progressive mine closure plan

54. Environment Impact assessment and Environment management plan as per the report of EIA EMP approved by SEIAA of A.P should be furnished.
55. Retaining wall, garland drain along bottom periphery of waste dump yard should be proposed and submitted.
56. This being category-A mines, monitoring stations within core & buffer zone should be furnished and depicted in relevant plans, like Key plan, Environment management plan, Progressive mine closure plan etc.
57. Most of the lease area had been already degraded due to mining and allied activities but the same is furnished as 2.315 Ha only, resurvey should be carried out and submitted.
58. The reserves estimated based on the aspects as detailed in para no.4 and production proposal is submitted, which cannot be acceptable. Which requires complete re-casting of document.

#### Plates

59. The purpose of the plan i.e. name of the document for which it is submitted and proposal period may be indicated in the title box of all plates.
60. Key Plan should be submitted on SOI to-po sheet no. All the details as required under the provision of rule 28 of MCDR 1988 should be furnished.
61. Surface plan should be submitted based on the resurvey of the lease area and duly dated and signed by Mines Manager, surveyor with certificate no., nominated owner.
62. UNFC codes should be depicted in Geological plans & sections for easy reference based

In view of the comments above, relevant para, plans and sections should be suitably modified and submitted

LATEST

#### **Deficiencies still existing in Scrutiny cum inspection report on modification on approved mining plan of obulapuram iron ore mine of m/s Sai balaji Minerals over an area of 4.046 hectares in Obulapuram village D Hirelal mandal Anantpur district in Andhra Pradesh**

1. A letter of intent from the state government that the deemed extension of Mining lease is being considered as per Amended act, 2015 should be enclosed.

2. In para 3.4, the violation has been pointed out for the period 2009-10, accordingly status of compliance for the period 2009-10 should be furnished. Status of MCDR compliance position should be detailed with copy of all correspondence should be enclosed.

3. In para 1 (e) (ii), it is incorrectly mentioned that 9 core drills have been made at grid interval of 100m. Only seven boreholes have been shown on Geological Plan.

In para 1 (e) (i), The proposed grid interval is not suitable for the deposit and should be proposed considering the field status. The proposed waste dump area should be explored at a close grid pattern to ensure the area as barren.

4. The Annexures have not been enclosed as per list of annexures. A copy of company registration paper should be enclosed.

5. In enclosed Feasibility study report, Under infrastructure, the distance of nearest railway station / loading station and type of road connecting should be furnished.

In Feasibility axis and other relevant parts it is incorrect to mention that ferruginous shall and phyllite are also having Fe. Instead Fe% grade variation should be mentioned. It is incorrect to mention that mining has reached 30 mts.

It is incorrect to mention that the main processing practice is manual. During the field visit, a crusher and screening plant was found adjacent to the lease area where run of mine ores are subjected to crushing and screening. Thus process should be accordingly mentioned.

Under economic axis, the number of core drills and grid interval should be corrected.

6. In section-wise calculation of resources estimation, the lateral influence have been incorrectly taken. The resources should be re-estimated accordingly. The total G2 scale of resources should be furnished. It is incorrect to designate UNFC code to section-wise estimated resources and 111 code has been incorrectly assigned.

7. In para 2, the maximum handling quantity considered for machine calculation is incorrect. The maximum proposed handling should be considered.

8. In para 2 (e), it should be mentioned that waste will be sold as and when there is a market for it and will be dispatched with due permission from the State Government and royalty payment.
9. In para 2 (f) the life of the mine should be corrected based on revised resources to be calculated.
10. In para 4 (a), Drill holes at a grid pattern should be proposed to prove the proposed waste dump area as barren instead of proposal of single bore hole.
11. Detailed calculation for requirement of labour for handling the ore should be furnished.
23. In Annexures, since Shri P R Mishra has prepared the document, a copy of RQP certificate of Shri Mishra should be enclosed. Instead, RQP certificate of Shri A M Srinivas has been enclosed.

#### Plates

1. In Key Plan, the places connected by roads and railway line, district and state boundary and population of villages should be shown.
2. In Surface Plan. The-handling of waste and back filling of the area disturbed by mining should be proposed. Should be discussed in text.
3. In Geological Plan, The exploration zone have been incorrectly shown taking extensive influence in dip direction. Proposed exploration in form of core drilling should be proposed to cover entire potentially mineralized zone under UNFC scale of exploration. Exploration in form of core drilling at a grid pattern as specified for the deposit by UNFC should be proposed to cover the entire proposed area under minimum G2 scale of exploration. In Geological Plan existing trial pit and boreholes should be shown in conventional red colour.
4. Geological sections should be separately furnished. In Geological sections, G2 scale of exploration should be correctly shown. In sections, extensive lateral influence along dip direction have been taken, which is incorrect. The resources should be re-estimated taking influence of area within the explored area and accordingly reflected in relevant chapters. The resources blocked up due to development of benches should be shown. As per chemical analysis enclosed, in

borehole no. 1, depth from 0 to 10m has a chemical analysis of 28.14% Fe. Thus, material containing <45% Fe should not be considered as Iron ore and accordingly should be shown in all sections. The resources should be revised accordingly.

5. In Year-wise Development Plan and sections, The proposed waste dump area is unexplored. The area should be proposed for exploration to prove the area as barren. No dumping should be carried out prior to proving the area as barren.

6. Reclamation and rehabilitation Plan, backfilling of 7.5m safety barrier disturbed by development of quarry on south eastern side of the lease should be proposed and accordingly should be detailed in relevant chapters para 6.3.1 & other chapter in text.

7. In Conceptual Plan, The protection measures for backfilled areas and waste if any should be proposed.