

**Annexure**

**Scrutiny comments on examination of Review of Mining Plan including PMCP of Chhote Kadma Limestone Mine (area 2.43 Hect.) of Shri Rafik Khan in Bastar District of Chhattisgarh State inspected by Shri S. Kartikeya, Jr. Mining Geologist on 11/04/2017**

- At a glance information before introduction at start of document in following format may be furnished.

| 01 | MINING PLAN/REVIEW OF MINING PLAN AT GLANCE |          |              |         |
|----|---|----------|--------------|---------|
| 1  | Name of the Applicant /lessee               |          |              |         |
| 2  | IBM Registration no                         |          |              |         |
| 3  | Address of Applicant                        |          |              |         |
| 4  | Name of Mine                                |          |              |         |
| 5  | Minecode                                    |          |              |         |
| 6  | Lease area in hect.                         | Forest - | Non forest - | Total = |
| 7  | Forest Diverted Area if any,                |          |              |         |
| 8  | Name of Mineral                             |          |              |         |
| 9  | Lease period from to                        |          |              |         |
| 10 | Mineral Reserve (111& 112)                  |          |              |         |
| 11 | Mineral Resources                           |          |              |         |
| 12 | Production proposal (2017-18)               |          |              |         |
| 13 | Production proposal (2018-19)               |          |              |         |
| 14 | Production proposal (2019-20)               |          |              |         |
| 15 | Production proposal (2020-21)               |          |              |         |
| 16 | Production proposal (2021-22)               |          |              |         |
| 17 | Existing/valid EC permission in tonnes      |          |              |         |
| 18 | Plantation proposal per years in numbers    |          |              |         |
| 19 | Plantation proposal per years in area       |          |              |         |
| 20 | Back filling proposal in ha per year        |          |              |         |
| 21 | Bank Guarantee Amount                       |          |              |         |
| 22 | Validity of Bank Guarantee                  |          |              |         |
| 23 | Prohibitory order from any authority        |          |              |         |
| 24 | Any other important information             |          |              |         |

### General Oversight

- Since the mine is in working stage, therefore CCOM circular 2/2010 should be complied. No undertaking or consent letter has been enclosed with the document for the compliance of aforesaid circular.

During the study of the DGPS report, (Not authenticated by the state government) it has been observed that the calculated lease area was found to be extended from the actual grant area (Calculated Lease Area as per DGPS report is 2.865 ha. and actual grant area as per lease deed is 2.43 ha.) Therefore fresh demarcation of the lease area is required by the respective state government.

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- 2) Rule of Progressive Mine Closure Plan should be mentioned in relevant places.
- 3) All referred letters may be enclosed as annexure for reference.
- 4) All the symbols may be drawn as per MMR 1961.
- 5) All the referred rules of MCDR, 1988 may be modified as per MCDR, 2017.
- 6) Since the qualified person is working with the State PSU and he has prepared a document for the third party, therefore no objection certificate issued from the competent authority of the CMDC for preparation of the document should be enclosed.
- 7) During inspection it has been observed that the loading and transportation of the mineral from the quarry was being carried out by mechanised (Chain Mounted Excavator, Crusher & Tractor) means, therefore the present submitted draft review of mining in 'Manual' category could not be processed under rule 17(2) of MCR, 2016. Hence the document should be modified and submitted under rule 17(3) of MCR, 2016 for modification of the approved mining plan under category 'A Mechanised' mine.

It has also been observed that the prepared surface plan of the lease area is not matching with the actual ground condition such as 7.5m barrier zone has not been maintained in between pillar no. 1 to 4 and pillar no. 3 to 4 as well as the in between 580 RL to 605 RL, one working bench has not been drawn. Therefore a detail survey of the lease area is to be carried out and all the features and aspects as mentioned under 32 of MCDR, 2017 should be covered.

- 8) Feasibility study report has not been submitted with this draft.
- 9) All the chapters may be numbered chronologically.

**Introduction**

- 1) Page no. 4: (a) Earlier approved scheme period should be discussed here. (b) Validity of the lease period may be written as per MMDR, 2015. (c) Reason for non submission of the review of mining plan timely, should be mentioned. (d) Supplementary lease deed for the extended period may be enclosed or letter of lease extension issued from the competent authority of the state government may be enclosed.
- 2) A term Modification of the Approved Mining Plan may be used, instead of Review of Approved Mining Plan in all the relevant places.

**1.0 General**

- 3) Page no. 6: Aadhar no., Email Id and landline no. of the lessee/nominated owner may be mentioned.

**2.0 Location & Accessibility**

- 4) Page no. 7, Para Period/Expiry Date: Lease period and its validity should be written as per lease deed and needs to be corrected in cover page also.
- 5) Name of the nearest highway and railway station may be written.

**3.0 Details of the Approved Mining Plan/Scheme of Mining**

- 6) Page no.9; Para 3.1: Date of execution of the lease may be mentioned. Validity of the Approved mining plan has not been written. Further copy of last the earlier approval letters of MP/MMP/SOM may be enclosed for reference.
- 7) Reason for non submission of the review of mining plan/Modification of the Mining Plan timely, should be mentioned in this chapter.
- 8) Page no. 10, Para 3.3 1. Exploration: An appropriate reason for non achievement of the proposal for 2 nos. of DTH boreholes should be mentioned in remarks.
- 9) Page no. 10, Para 3.3 2. Mine Development: Proposal and its achievement should be given year wise separately. A term 'Exploration' may be replaced with 'Exploitation'. Year wise quarry layout may be given before and after completion of the financial year (Top and Bottom RL).

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- 10) Page no. 10, Para 3.3 3. Exploitation: Production details up to March 2017 should be furnished.
- 11) Page no. 11; Para 3.3 4. Afforestation: Suitable photographs of the plantations should be enclosed.
- 12) As the Financial year 2016-17 is over, therefore actual achievement during this financial year may be incorporated in this chapter.

**Part A; 1.0: Geology & Exploration**

- 13) Page no. 13: Detailed description of the vegetation, climate, and rainfall of the area may be incorporated.
- 14) Page no. 16; Para 1(d) Name of the prospecting/exploration agency: Details report of the prospecting carried out by the Directorate of Geology and Mining in this area may be enclosed for reference.  
GPS co-ordinates (WGS84; degree minute second) of the earlier drilled boreholes may be mentioned in the text.
- 15) The estimation of the reserve & resource does not fulfil the UNFC Norms, those are mentioned in the MEMC Rule, 2016. Therefore the entire reserve/ resource may be re-estimated with the compliance of the UNFC Norms as well as comments of serial no. 16 & 17. Further depleted reserve may not be accepted.
- 16) The following deficiencies have been observed in the geological Plan of Chhote Kadma lease area:
  - a) As there is no subsurface data available in the mine except ore exposed within quarry therefore, RL of the quarry bottom may only be considered for estimation. Also the mineral existence in entire lease has not been proved through proper exploration as defined under MEMC Rule, 2016 hence, cross sectional method will be adopted with 25 m lateral influence from the quarry face.
  - b) Area explored in G1, G2, G3 and G4 has not been demarcated in the plan.
  - c) Structural features and Surface outcrops of the different litho-units have not been marked.
  - d) NABL accredited test reports of at least 10 samples from the working quarry phase (Channel Sampling) and surface outcrops (Chip Samples) should be submitted along with the documents.
  - e) Structural features and litho-contacts have not been marked.
- 17) The following deficiencies have been observed in the geological section of Chhote Kadma area:
  - a) Uniform grid interval for reserve and resource estimation has not been maintained, which is not acceptable as per MEMC Rule 2016.
  - a) The lateral influence is 25 m on both sides of the borehole/ quarry limit for G-1 & further 25 m for G-2 stage has not been considered.
  - b) For consideration of depth, the actual depth of each borehole/quarry depth in each section should be considered for G-1 & G-2 stage of exploration along with the influence of 50 % towards the other borehole, the same has not been done.
  - c) UNFC Codification has not been written in any section.
  - d) Area explored under G1, G2, G3 & G4 have not been demarcated in the plan.
  - e) Most of the mineral bearing area has been capped with the soil. The same has not been shown in the plans & sections.
  - f) Outcrops of the different litho-units have not been marked.
  - g) Mineral/ore blocked due to five year pit limit, ultimate pit limit, safety zone /barrier zone (7.5 m), blasting, restrictions, statutory restrictions, broken area line etc. is not been shown in all the plans and sections.
  - h) Ultimate pit limit has not been drawn.
  - i) Reserve/resource estimation below quarry/borehole depth may not be accepted.

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- j) Status of the environment clearance is not known.
- k) As per the local geology of the area mineral is dipping 2 to 3 degree South East, therefore the same should be reflected in the geological sections.
- 18) Bulk density test may be done from the NABL accredited laboratory.
- 19) Term Proved, Probable and Possible may not be accepted as it has not defined under UNFC Classification. A fresh estimation of reserve and resource should be done category wise as mentioned in the MEMC Rule 2016. Further depleted quantity of reserve and resource may not be accepted.
- 20) The classification of the reserve in respect to the feasibility & economic axis has not been mentioned. To be given in tabular form along with the study done with respect of the field guideline mentioned under MEMC, Rule 2016.

| Geological Axis  |   |            |
|------------------|---|------------|
| Axis             | Field Guideline (As defined under MEMC Rule 2016) | Study Done |
| G1               |   |            |
| G2               |   |            |
| G3               |   |            |
| G4               |   |            |
| Feasibility Axis |   |            |
| F1               |   |            |
| F2               |   |            |
| F3               |   |            |
| Economic Axis    |   |            |
| E1               |   |            |
| E2               |   |            |
| E3               |   |            |

- 21) Detail calculation of each category of reserve/resource may be given.
- 22) Page no. 17; Para 1.0 (i): The following parameters may be considered for the proposal of future exploration programme:
- Lease area and proposal year may be cross checked.
  - At least 4 nos. of core borehole will be proposed during plan period.
  - GPS (WGS84; degree minute second) co-ordinates of all proposed boreholes may be given along with reason for site selection and ground RL.
  - All the proposed boreholes may be marked in the geological plan with distinct colour for each year proposal.
- 23) All the relevant tables and calculations of this chapter may be updated after the re-estimation of the reserve/resource.
- 24) Area explored under G1, G2, G3 & G4 may be given in hectares.
- 25) Anticipated life of the mine may be given in this chapter.
- 26) Point no. 1.0 (j), (k) and (l)(a)(b)(c) of Part-A; Geology and Exploration of IBM manual on appraisal of Mining Plan 2014 should be covered and the necessary details need to be incorporated.

**2.0 Mining**

- 27) This chapter may be updated after re-estimation of reserve/resource.
- 28) The following deficiencies have been found in the mine during inspection:
- It has been found that the mining activity in quarry bottom is continuing in the southern part of the lease area. In the submitted draft, the development has been proposed in the northern part of the lease area. In view of the scientific and systematic development, the mine planning shall be carried out in accordance with the proposal given in the mining plan/scheme of mining/review of mining plan. Therefore the entire planning needs to be changed according to the present development of the mine. All the relevant plans and sections may be modified as per above comments.

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- b) It has also been observed that as per physiography of the lease area, the systematic development of benches and their height have not been maintained during last scheme period. Therefore during this plan period, systematic development will be proposed with bench height 3 meter and width 6 meter.
- c) In the lease, it has been found that bench width and slope gradient has not been maintained in respect of sustainable development. Therefore during this plan period, a proposal may be given for further systematic development of all the benches according to the previous comments in mine in view of the sustainable mining.
- 29) Page no. 24 Para 2.0 A (b) (i): In the given table stripping ratio may also be calculated.
- 30) Page no. 25 Para 2.0 (c): Year wise quarry/pit layout may be incorporated before and after completion of the development year (Top and bottom RL).
- 31) In the present document 'Cut of Grade' of the ore has not been discussed.
- 32) In most of the development plan and sections Ultimate pit limit, bench RL and haul road have not been marked. Since the entire mining will be proposed by the mechanised means, therefore it is difficult to understand how the ore will be transported from the working quarry to the stack yard.
- 33) Page No. 27 Para (C) Extent of Mechanisation: Details of all the machinery deployed in the mine should be discussed here with their detail specification and efficiency of output of work.
- 34) Page no. 26; Para 7.18: As per lease deed, mining lease will be expired on 06/08/2022 therefore, the conceptual mine planning may be prepared according to the validity of the mining lease. Further relevant plan and sections may be modified accordingly.

**3.0 Mine Drainage**

- 35) Meteorological data of the average rainfall may be enclosed for reference.
- 36) NABL accredited test report of air, water & noise has not been furnished.

**4.0 Stacking of Mineral Reject/ Sub grade material & Disposal of Waste**

- 37) Page no. 31; Para (a): Year wise generation of the mineral quantity may be cross checked. Further a detailed characterization of the minerals may be given along with the NABL accredited test reports for CaO%.
- 38) Page no. 60: The yearwise dump management plan and sections may be prepared to show the storage of waste.
- 39) To stabilize the dump, terracing in every 10m interval may be proposed. Proposal for construction of the settling tank, garland drain and retaining wall may also be given.
- 40) Subsequent change in the top & bottom RL may be given year wise.

**6.0 Processing of ROM & Mineral Reject**

- 41) Page no. 34: A detailed specification of the crushing units with their feed size & the finished size ore along with their chemical analysis (NABL accredited test reports) may be furnished.

**7.0 Others**

- 42) Page no. 36: Employment potential may be modified as per Category A Mechanised mine.

**9.0 Progressive Mine Closure Plan**

- 43) Page no. 37; Para (i): Total should not be kept blank.
- 44) Page no. 38; Para (v) Flora & Fauna: The written species of the plants under this para may be proposed for plantation in future to protect and retain the local environment. A year wise proposal for plantation may be incorporated.

**Plates**

- 1) All the plan & sections may be updated & modified as per the comment mentioned under text and rule 32 of MCRD, 2017. All plans and sections should indicate the Ultimate pit limit, Lease area boundary, 7.5 m barrier zone, statutory barrier, haul roads, approach road, mineral stock yard place for stacking mineral rejects and etc.

Below drilled borehole/quarry depth mineral existence may not accepted.

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- 2) **Plate 1; Key Plan:** Range of the latitude and longitude (From to To in WGS 84; degree minute second) of the lease area to be shown in the plan.
- 3) **Plate 2; Location Map:** Location map is not clear; it should clearly indicate area and access routes up to lease area.
- 4) **Plate 4; Surface Plan:** A surface plan should cover location and number of the boundary pillars along with its latitude and longitude values, every surface feature within the mining lease boundaries, such as building, telephone, power transmission line, water pipeline, tramline, railway, road, river, water-course, reservoir, tank, bore-hole, shaft and incline opening, opencast working, dumps and dumping ground, the waste land, forest, sanctuaries, agricultural land and grazing land and subsidence on the surface beneficiation plants, tailing ponds and other workings within the lease. Therefore same may be modified accordingly.
- 5) **Plate 7; Yearwise Development Plan:** Instead of composite plan, separate year wise development plan should be prepared. All development plans should reflect the area considered for development.
- 6) Year wise dump management plan and sections may be drawn.

**Certificates**

- 1) Only two certificate one by lessee and other by Qualified person as per IBM Manual of Mining plan needs to be given

**Annexure**

- 1) Page numbers and annexure no. of the enclosed documents should be mentioned.
- 2) Copy of violation letters and its compliance submitted to IBM may be enclosed.
- 3) NABL accredited test reports of borehole samples, surface and quarry face may be furnished.
- 4) Copy of Form K may be enclosed for reference.
- 5) Self attested copy of identity proof with permanent address and the Aadhar Card of the lessee/nominated owner may be enclosed.
- 6) Documentary evidence of lease extension as per MMDR, 2015 may be given.
- 7) Copy of the Environment Clearance may be enclosed.

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