



भारत सरकार GOVERNMENT OF INDIA  
खान मंत्रालय MINISTRY OF MINES  
भारतीय खान ब्यूरो INDIAN BUREAU OF MINES  
क्षेत्रीय खान नियंत्रक के कार्यालय  
OFFICE OF THE REGIONAL CONTROLLER OF MINES



REGD WITH A/D  
Phone: 0674-2352463  
Tele Fax: 0674-2352490  
E-mail: ro.bhubaneswar@ibm.gov.in  
Plot No.149, Pokhariput  
BHUBANESWAR-751020

No. MSM/FM/41-ORI/BHU/2018-19

Date: 07.01.2019

To

✓ Shri Swarup Panda, Sr. Vice President & Power of Attorney Holder,  
M/s Balasore Alloys Ltd,  
Module C/1, 1st Floor,  
Fortune Tower, Chandrasekharpur,  
Bhubaneswar-751023

Sub: Approval of modification of Review of Mining Plan of Kaliapani Chromite Mine along with Progressive Mine Closure Plan (PMCP), over an area of 64.463 ha in Jajpur district of Odisha State, submitted by M/s Balasore Alloys Ltd under Rule 17(3) of MCR, 2016.

Ref: - i) Your letter No. BAL/BBSR/5286 dated 21.12.2018 received on 27.12.2018.  
ii) This office letter of even no. dated 27.12.2018.  
iii) This office letter of even no. dated 27.12.2018 addressed to the Director of Mines, Govt. of Odisha, copy endorsed to you.

Sir,

This has reference to the letter cited above on the subject. The draft of modification of Review of Mining Plan along with Progressive Mine Closure Plan (PMCP) has been examined in this office based on earlier site inspection carried out on 29.08.2018 by Shri Ramkishan R, Senior Assistant Controller of Mines. The deficiencies observed are enclosed herewith as Annexure- I.

You are advised to carry out the necessary modifications in the draft modification of Review of Mining Plan in the light of the contents vide Annexure- I and submit **three (3) firm bound and two (2) soft copies of the document text in CD in a single MS Word file ( the drawing/plates should be submitted in Auto CAD compatible format or JPG format in resolution of 100x100 pixels on same CD )** with financial assurance under Rule 27 of MCDR 2017 of the Modification of Review of Mining Plan within 15 (Fifteen) days from the date of issue of this letter, for further necessary action. If the total page of annexures exceeds 50 (Fifty) then it should be submitted as separate volume. But reference of these annexures must appear in the modification of Review of Mining Plan document. The plates are also to be submitted in separate volume.

The para-wise clarifications and the manner in which the deficiencies are attended should invariably be given while forwarding the modified copies of the modification of Review of Mining Plan. It may be noted that no extension of time in this regard will be entertained and the modification of Review of Mining Plan will be considered for rejection if not submitted within above due date. It may also be noted that if the deficiencies are not attended completely, the submission would be liable for rejection without further correspondence.

Yours faithfully,

  
(HARKESH MEENA)

क्षेत्रीय खान नियंत्रक / Regional controller of Mines

Copy for kind information and further necessary action to Shri P S Acharya & Shri S M Patra, M/s Gemtech Consultants Pvt Ltd, K-8/625, Kalinga Nagar, Ghatikia, Bhubaneswar- Odisha 751029.

(HARKESH MEENA)

क्षेत्रीय खान नियंत्रक / Regional controller of Mines

**Scrutiny comment on Modification of Review Mining Plan including PMCP in respect of  
Kaliapani Chromite Mines of M/s Balasore Alloys in Jajpur district of Odisha State.**

**General:**

1. On cover page Mining Lease Number/TC Number/Lease Number, IBM Mine code if any, along with registration number as allocated by IBM under rule 45 of MCDR, 2017 needs to be mentioned. Further, address, e-mail, phone number, fax number of the lessee should be furnished on cover page. Summary of proposal at a glance may be furnished before "Introduction" chapter covering Exploration, Excavation, Area Utilization, Stacking, Environmental Protective Measures etc." Qualification of QPs should be furnished.
2. Nominate owner details should be furnished. All certificates/consent/undertaking should be signed by Nominated owner only. Board resolution regarding the nominated owner should be furnished with documentary evidence with detailed description of powers and responsibilities given. Power of attorney signature is not valid. List of present board of directors should be furnished with documentary evidence. Company registration evidence should be enclosed.
3. In the review of mining plan reclamation and rehabilitation measures were proposed in dump management. So proposals versus achievement with justification should be furnished.
4. The reference of MCDR,1988 should be replaced with relevant rules of MCDR, 2017.

**2. Geology and Exploration:**

5. BH wise information of drilled BH to be given in tabulated form indicating Year, Collar coordinate, collar RL, type (Core/DTH/RC), section number, diameter, spacing, inclination, depth, whether mineralized or non-mineralized etc.

S.No.	Year	BH Id	Easting	Northing	Collar RL	Inclination	BH Depth	Type of BH	No. of samples
1			UTM	UTM	mRL				

6. The reserves and resources were estimated in G1 and G2 level should be indicated up to what depth in mRL the level of exploration has considered with due justification. The reserves and resources should be estimated by cross section area method also at equal intervals of depth wise of ore body (in mRL) and the optimized results should be furnished. The reserves and resources should be assessed as per MEMC, Rules 2015 and a report on Reporting of Mineral Resources should be annexed in the format of part IV-A of MEMC, Rules 2015.
7. Bulk density considered for ROM excavation and mineral reject/sub grade with saleable ore should be properly justified with documentary evidence like tests carried out in NABL accredited lab.

**3. MINING:**

8. To maintain the pit slope stability at different stages of pit NIRM has given recommendations in their report, so status of implementation of those recommendation should be furnished with future proposal if any.
9. Grid location of existing and proposed workings should be furnished. Geological Section wise of proposed ROM excavation quantity for very year should be provided for Regular opencast mining.
10. The production table furnished total excavation and OB/IB and ROM excavation quantities are not matching. So review the same.
11. Drilling and blasting operation should be elaborated in detail with details of explosive magazine and type of explosive used, blasting pattern for shaft sinking and underground development headings.
12. The mRL of the proposed boundary pillar mining with due justification of location should be furnished. Also location of decline proposed should also be properly justified as it is proposed in the opencast benches. Whether the benches where decline is proposed are reaching their UPL position or not should be furnished.

13. The backup calculation for the quantity of ROM produced from boundary pillar mining should be furnished with MR quantity and Ore quantity.
14. Ventilation and support mechanisms for the UG mining excavations and boundary pillar mining excavations should be dealt in detail.
15. Present and proposed equipment/machinery should be furnished with quantity and specifications both for opencast and UG mining.
16. In the conceptual mining UG mining with respect to present open pit and extraction of band-II should be addressed. Management of dumps should also be addressed.

#### **4. Stacking of Mineral Reject/Sub-grade and Disposal of Waste:**

17. Build-up of dumps from year to year to be given in tabulated manner considering designed capacity of dumps, bottom and top mRL of individual terrace, dump slope, individual terrace height and slope. The quantities of OB dump details with common boundary and individual should be dealt in detail. Grid location of existing and proposed dumps should be given.
18. Further the height, mRL and all design parameters of the dumps should in line with the scientific study carried out for stability of dumps. Further the details of safe design parameters of all waste dumps with conditions as per study should be furnished in comparison with present and proposed dumps. Dump-3 height should be 225 mRL as per the approved mining plan. The information furnished regarding the present height of dump-3 should be rechecked.
19. The tailings generated from the COB plant should be stacked separately and not to be mixed with waste dump, so accordingly proposal should be modified. The protective measures for tailings disposal should be furnished. Information on separate stacking of +10%Cr<sub>2</sub>O<sub>3</sub> and -10% Cr<sub>2</sub>O<sub>3</sub> tailings if any should be furnished.
20. Existing as well as proposed protective measures like retaining wall/gabion wall, garland drain, check dams etc., should be furnished in tabular format with details of location, length, dimensions etc., a separate table should be given showing the year wise construction of retaining wall, garland drain and settling tank having specific proposal. Details of year wise proposal for construction of retaining wall, garland drain, settling tank etc. to be given with their location.

#### **4. Processing of ROM and Mineral Reject:**

21. The feed size of the material and end product (Concentrate) should be furnished in the material balance chart. Authenticated flow chart should be enclosed. The data analyzed and proposed regarding the material balance in COB plant is not matching with the flow diagram. Review the same. The proposed processing should be in line with flow chart regarding quantities and qualities of feed and end products, tailings etc.,
22. It should be proposed that a quarterly report on quantity and quality of tailings generated in COB plant should be submitted to this office regularly.
23. Details of process of water treatment, if any and quality and quantity of final discharge and the place of its disposal (proximity to rivers, public well or any other public utility places) should be furnished.
24. Quantity and quality of tailings /reject proposed to be disposed, size and capacity of tailing pond, toxic effect of such tailings, if any, with process adopted to neutralize any such effect before their disposal and dealing of excess water from the tailings dam. If the tailings generated are proposed to be backfilled the scientific study report should be enclosed.

#### **5. Others:**

25. The details contractual and departmental manpower to be given separately for opencast and underground workings.

#### **PROGRESSIVE MINE CLOSURE PLAN:**

26. The system for periodical monitoring of environmental parameters like quality of air, water and noise etc., as per relevant statute should be proposed.
27. The area considered for FA should be reviewed as the entire lease area is put under utilization in the plan period.

## 6. Plates:

28. All plans and sections should be signed with date by certified Surveyor, Qualified Person, Mine Manager, Mining Engineer and Mining Geologist as per provisions of MCDR, 2017 and MMR, 1961. All plans & sections prepared should follow the conventions mentioned under MMR 1961.
29. Key Plan: The approach road to lease area has not shown. Plan should be prepared as per rule 32 (5) (a) of MCDR, 2017.
30. **Surface Plan:** Forest/non-forest/diverted forest/private land/SR area to be shown. Surface plan should be prepared as per rule 32 (1) (a) of MCDR, 2017. Common boundary if any should be shown.
31. **Geological Plan & Section:** plan and section should be prepared as per 32 (1),(b),(c), (d) of MCDR, 2017.

### Development plan & Section:

32. The benches and configuration of existing and proposed quarries should be shown in different legends and litho units should also be shown in development sections. The layout of the haul road for present and future excavation proposal should be properly addressed in line with safe movement of fleet of the machinery. The proposed and existing haul road to be depicted on the development plan. The proposed and existing bench mRL to be shown clearly over year wise development plan and sections.
33. Dump plan and sections are not matching with respect to profile of the dumps. Check and rectify the same.
34. **Environment plan:** All feature as mentioned under rule 32(5) (b) of MCDR,2017 to be depicted. Surface features and contour of adjacent mine has not been shown in core and buffer zone. Wind rose diagram to be depicted. Water drainage flow should be depicted.

### UG Plan and section:

35. All feature as mentioned under rule 32(1) (e) of MCDR,2017 to be depicted
36. **Reclamation plan:** reclamation plan showing the proposed reclamation and rehabilitation measures should be submitted.

## 11. Enclosures:

37. All the annexure to be properly numbered/paged and relevant annexure to be signed by Geologist/surveyor/RQP etc.
38. The updated list of all the directors to be enclosed and same to be given in the text. The latest copy of board resolution about nominated owner to be enclosed.
39. Copy of bank guarantee should be enclosed. Photographs of boundary pillars should be enclosed. Copy of SLD should be furnished.
40. bulk density test reports carried out in NABL laboratory should be enclosed.
41. Certificate from the lessee should also include: The information furnished in the Review of mining plan and Progressive Mine Closure Plan is true and correct to the best of my knowledge and records. It is to undertake that all the measures proposed in this Progressive/Final Mine Closure Plan will be implemented in a time bound manner as proposed.
42. Copy of form I and J (year wise) as per MCDR, 2017 to be enclosed for all the drilled BH during the last review period of mining future reference as per Rule 47 and 48 of MCDR, 2017. The same should be signed by the Geologist appointed under MCDR, 2017. The section should be correlated with available information i.e BH data, surface geology etc.
43. Detailed/full report on Geotechnical study report by scientific institution regarding the method adopted for UG mining and also for boundary pillar mining should be enclosed.
44. bulk density test reports carried out in NABL laboratory should be enclosed.

In view of above, wherever necessary correction required to be made.

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