



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



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Plot No.149, Pokhariput  
BHUBANESWAR-751020

No. RMP/A/23-ORI/BHU/2019-20

दिनांक / Date: 17.10.2019

To

Shri C. R. Ray, Nominated Owner,  
M/s IMFA Limited, IMFA Building,  
Bomikhal, Rasulgarh, Bhubaneswar,  
Pin-751 010, Odisha.

Sub: Review of Mining Plan of Mahagiri Chromite Mine over an area of 73.777 ha in Jajpur district of Odisha of M/s IMFA Limited submitted under Rule-17 (2) of MCR, 2016.

Ref: - i) Your letter no. IMFA/MPC/19/70 dated 25.09.2019 received on 01.10.2019.  
ii) This office letter of even no. dated 01.10.2019.  
iii) This office letter of even no. dated 01.10.2019 addressed to the Director of Mines, Govt. of Odisha, copy endorsed to you.

Sir,

This has reference to the letters cited above on the subject. The draft Review of Mining Plan along with Progressive Mine Closure Plan has been examined in this office based on earlier site inspection carried out on 24.09.2019 by Shri Ramkishan R, Sr. 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 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 and JPG format in resolution of 100x100 pixels on same CD)** with financial assurance under Rule 27 of MCDR' 2017 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 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 Review of Mining Plan. It may be noted that no extension of time in this regard will be entertained and the 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.

भवदीय / yours faithfully,



(HARKESH MEENA)

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

Copy for kind information and necessary action to:

1. Shri M. J. Raju, Shri Suresh Prusty and Shri B. N. Das, Qualified Person, M/s IMFA Limited, IMFA Building, Bomikhal, Rasulgarh, Bhubaneswar, Pin-751010, Odisha.

(HARKESH MEENA)

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

FILED

**Scrutiny comments on examination of Review of Mining Plan along with PMCP of Mahagiri Mines over an area of 73.777 Ha in Jajpur District of Odisha State of M/s IMFA Ltd**

**GENERAL**

1. Sequence of paragraph and its numbering as per IBM Manual Appraisal MP 2014 has not been covered in text. All the headings as mentioned in the IBM Manual Appraisal MP 2014 should be furnished in all chapters in the text.
2. All the text, tables and annexures to be properly indexed/ numbered/ paged and signed by qualified persons.
3. The information furnished under Para 3 should be in Para 3(1). In Para 3.1, the date of approved mining plan/review of mining plan should be given in tabulated format.

Sl. No	Mining Plan / Review of Mining Plan etc.	Period		Submitted Under (Rule Reference)	Approval Letter Reference No. & Date	Valid up to
		From	To			

4. In para 3.3, the review of proposal and achievement of waste generation has not been furnished.

**GEOLOGY**

5. In para 1 (c), the summarized information of the chrome bands present within the lease area should be submitted in the following tabular format.

Number of Regional Chrome Ore bands present within the lease area	Name of the Regional Chrome ore Band present within the lease area	Local nomenclature of the Regional Ore band within the lease area	Summarized information of the Chrome ore bands present within the lease area														
			Location (Quarry Name/Pit) etc.	Length of the Chrome Ore band	Width of Chrome ore band	Explored depth (in mRL)	Level of Exploration as per UNFC of the Chrome Ore Bands	Strike, direction, Dip direction and dip amount	Present UPL (in mRL) for Opencast method of mining	Nature of Chrome Ore band (Physical description)	Chemical analysis of Chrome Ore band	Gangue minerals associated with Chrome ore band	Control of mineralization	Associated Lithology both in Hang wall and footwall			

6. The details of the previous/existing drilled boreholes may be annexed in the following tabulated format.

Year of drilling	Exploration Agency	Borehole No	UTM Coordinate		Collar mRL	Bottom mRL	Borehole Depth	Angle of drilling	Direction of drilling (Azimuth)	Type of drill hole(Core/RC/DTH)	No of samples collected	No of samples analyzed
			Northing	Easting								

The information of 10% of check samples analyzed from NABL laboratory regarding the above samples analyzed should be furnished with documentary evidence.

7. The status of lease area explored under different UNFC norms has not been furnished. The same may be furnished in the following tabulated format.

Total Lease Area: Ha						Remarks/ comments including reasons for not carrying out the exploration as per UNFC norms
Item of Information	Lease area explored as per UNFC norms (in Ha) as on dt.					
	Total lease area a = A+B+C+D+E					
	G1 Level	G2 Level 1	G3 Level	Explored and found non- mineralized with level of exploration (Remarks)	Unexplored lease area	
A	B	C	D	E	F	
Area as per level of exploration						
No. of BH drilled						
No. of BH considered for Resource						
Meterage drilled						
Grid Interval						
Scale of Mapping						
Reserve estimated after above exploration as on dated :						
Remaining Resource after above exploration as on dated :						
Total Reserve / Resource after above exploration as on dated:						

8. The G1 and G2 boundary of ore body at depth has not been defined as per the provision of MEMC Rules, 2015 (refer Part II, Point No 4). Necessary modifications to be done at all relevant places in the document like reserve resource estimation, plans and section etc.
9. The summary of exploration after complying scrutiny point no 8 may be furnished in the following tabulated format.

Ore Body	Deepest Intersection (mRL)	Explored Depth of G1 and G2 Exploration ( in mRL)	Depth of G1/ G2 Level of exploration from Surface (m)

10. The proposal for exploration under future exploration program is inadequate. The proposal may be modified to the extent that it should clearly indicate the level (in mrl) to which G2/G3 level is to be converted to G1 level in mrl for both the ore bodies. The proposed boreholes should be in grid pattern for G1 level of exploration as per exploration norms specified in MEMC Rules, 2015. The details of year wise boreholes proposed may be furnished in the format tabulated below.

Year of drilling	Section No	Proposed Borehole No	UTM Coordinate		Collar mRL	Bottom mRL	Proposed Borehole Depth	Angle of drilling	Direction of drilling (Azimuth)	Type of drill hole (Core/RC / DTH)	Purpose of Borehole
			Northing	Easting							

11. Reserves and resources should be reestimated after complying scrutiny point no 8 by level plan method. The recovery factor in resource/reserve assessment may be derived from time series data. All resources shall be assessed up to the threshold value and the resources between the threshold value and the cut-off grade should be reported separately. Parameters considered for resource/reserve estimation should be defined. The average grade of the reserves and resources estimated under various categories of UNFC should be furnished in table under Para I) Mineral Reserves and Resources. The blocked resources should be properly categorized as per UNFC guidelines and justification of UNFC codes should be furnished accordingly.

### MINING

12. In page no.54 the quantities of waste that are going to be utilized for backfilling purpose of Mahagiri stope voids. The quantity of material should be quantified separately from the mahagiri dump and Sukinda waste dump that are going to be utilized. It should be proposed that the waste from Sukinda waste dump only be utilized after getting necessary permission from competent authority of State Government.
13. Justification should be elaborated for selection of method by underground mining for development and stoping method (with recovery from stoping method), considering the workability and technical viability for both ore bodies viz., Band-VI and VI-6A. Justification should also be furnished for location of entry points to the mines viz., decline and shaft etc.,
14. RL of collar of entry points in relation to higher flood level in the area should be furnished for declines, shafts etc.
15. The size of proposed stope blocks should be regular in size, if not proper justification with Geotechnical study conducted for dimensions of different stope blocks should be furnished with documentary evidence.
16. The sequence of proposed stoping blocks with backfilling of stoped out voids should be rechecked so that the stoped out voids should be filled immediately after extraction and the adjacent stope blocks should only be extracted after the stabilization of filled material with recommend strength as per the recommendations of CIMFR study.
17. Saleable ore and Mineral reject part of ROM from underground mining operation has not been bifurcated. Need to specify the same in the table showing year wise production in page no.76. Further detail calculation of ROM excavation has not been shown in tabulated format. Need to do necessary correction.
18. The parameters for drilling & blasting in the proposed stope blocks of different stope size, development faces of different sizes should be furnished in detail. Need to do necessary correction.
19. The reinforcement of underground excavations like drives, cross cuts, shafts, decline, stope blocks etc. should be elaborated in detail under strata control. The SSR (systematic support rules) as per MMR 1961 should be furnished in a summarized form and the document should be enclosed as annexure. The geotechnical study reports related to the strata control should also be enclosed as annexure.

## MINE DRAINAGE

20. In mine drainage, the maximum depth of opencast and under ground working during the review of mining plan period and at conceptual period along with ground water in mRL should be furnished in tabulated format. The pumping arrangement and management of underground water, surface runoff etc. is to be described in detail. Need to do necessary correction.
21. Water treatment, water management of Mahagiri mine should be described in detail.

## STACKING OF WASTE AND MINERAL REJECT

22. In page no. 93 the quantities of waste that are going to be utilized for backfilling purpose of Mahagiri stope voids. The quantity of material should be quantified separately from the mahagiri dump and Sukinda waste dump that are going to be utilized. It should be proposed that the waste from Sukinda waste dump only be utilized after getting necessary permission from Competent authority of State Government.
23. In para 2 (A), the details of existing quarry, details of backfilling with backfilled area, waste dump details along with their location, number of waste dump wr.t to UPL, mineral reject stacks etc. as on date has not been furnished in tabular format. The description of the existing dumps/Mineral reject stacks/ fines or lump stocks in the following table to be furnished. Besides underground development status as on date have not been furnished.

Existing Dumps/Mineral Reject stacks etc:

Name	Location (coordinates)	Length (max) in m	Breadth (max) in m	Area occupied		Tonnage	Grade
				(m <sup>2</sup> )	(ha)		

24. Proposal for backfilling in opencast to be described in detail specifying area (in ha), quantity of waste and location of backfilling. Need to do necessary correction.

## OTHERS

25. The existing as well as the proposed manpower right from management level to unskilled level both for departmental and contractual should be furnished.
26. In para 8.3.1, the mined out area at the start of the year may be rechecked and corrected. Method of reclamation has not been mentioned. The species to be planted has not been mentioned. Need to do necessary corrections.

## ANNEXURES

- i) All the reports related to Geotechnical investigation for optimization of stoping parameters & design of support system for underground operation justifying proposed stoping parameter has not been enclosed.
- ii) The chemical analysis from NABL certified laboratory or Government Laboratory has not been enclosed.
- iii) The valid copies of bank guarantee for the plan period have not been submitted. Need to submit the same.

## PLATES (General):

- i) Show a scale of the plan at least twenty-five centimeters long and suitably sub-divided;
- ii) The conventions provided under the Metalliferous Mines Regulations, 1961, shall be used in preparing all plans and sections
- iii) All plans and sections should comply with the provisions of Rule 32 of MCDR 2017.

- iv) The plans and sections submitted should bear the certificate that -the plans and sections are prepared based on the lease map authenticated by the state government.
- v) Date of survey should be given on plan and sections and the same should be signed by with date.

**Key Plan:**

- i) The key plan should incorporate all features as mentioned Rule 32 5 (a) of MCDR 2017 and all features should be shown in index as well.

**Surface Plan:**

- i) Few boundary pillars should be correlated with some permanent ground features giving distance and bearing/direction. The plan should bear the signature of the surveyor.

**Geological Plan & Section:**

- i) The potentially mineralized area should be rechecked and corrected considering the dip of the ore body and surface exposure. Necessary corrections to be made at all relevant places.
- ii) The boreholes drilled for testing geophysical anomalies should be traced.
- iii) The index shown in plan does not match with its index.
- iv) The index of Geological features should be same in both Geological Plan and all the Geological sections.

**Underground development plan & Section:**

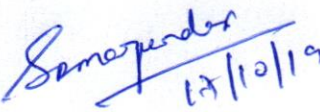
- i) The nomenclature "proposed stoped out blocks" should be renamed as "proposed stope blocks". Necessary changes to be done at all relevant plans and sections.
- ii) The proposal should for the plan period only (2020-21 to 2024-25). Necessary changes to be done at all relevant plans and sections.

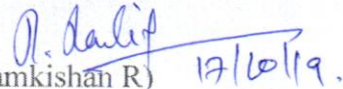
**Environment plan:**

- i) The Environment Plan as prepared should be satisfy the provision as laid down rule 32 (5) (b) of MCDR'2017. Air, water and noise monitoring stations to be shown in the plan.

**Financial assurance plan:**

The FA table as furnished in the text should be shown in the plan.

  
(Sudip Ranjan Mazumdar)  
Senior Mining Geologist

  
(Ramkishan R)  
Sr.Asst Controller of Mines