



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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No. MS/OTFM/31-ORI/BHU/2017-18

दिनांक / Date: 14.11.2017

To

Shri Rohit Saraf, Nominated Owner,  
M/s Ferro Alloys Corporation Limited,  
Laxmi Bhawan, Kuans, Post Dist-Bhadrak,  
Pin-756100, Odisha.

Sub: Approval of Review of Mining Plan along with Progressive Mine Closure Plan of Kalarangiatta Chromite Mines over an area of 23.80 ha in Jajpur district of Odisha of M/s Ferro Alloys Corporation Limited submitted under Rule-17 of MCR, 2016.

Ref: - i) Your letter no. KLCM/IBM/CMD/1206/2017 dated 17.10.2017.  
ii) This office letter of even no. dated 27.10.2017.  
iii) This office letter of even no. dated 27.10.2017 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 site inspection carried out on 20.05.2017 by Shri Dayanand Upadhyay, 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 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,

  
14/11/17

(HARKESH MEENA)

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

Scrutiny comments on the Review of Mining Plan of Kalarangiatta Chromite Mines over an area of 23.8 Ha of M/s FACCOR Ltd situated in Dist. Jajpur, Odisha State.

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**GENERAL:**

- I. The e-mail, phone & fax no. of lessee may furnish on cover page.
- II. In cover page it has been mentioned Scheme of Mining submitted under rule 12 & 23(B) of MCDR, 1988 instead of Review of Mining Plan under rule 17(1) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rule 2016. Also refer rule 17(1) of MCR 2016 in text part.
- III. The certificate furnished by qualified persons mentioned "The provision of the MCDR 1988" which is to be replaced with the provision of MCDR 2017. Also the certificate furnished by lessee to be corrected accordingly.
- IV. Chapter "Introduction": A brief review of status of Mining lease at present with supplementary lease deed may be given.
- V. Page-3. Brief description about Environment clearance, forest clearance and consent to operate has not been furnished.
- VI. Page-4, Para 1.f.2, Name & address of recognized person is to be replaced with qualified person under rule 15 of MCR 2016.
- VII. A latest list of board of directors duly certified by competent authority along with address/contact nos. to be enclosed. Latest resolution w.r.t. nominated owner to be submitted.
- VIII. In chapter "Location and Accessibility" Lease range should be given for proper identification of lease. UTM Co-Ordinate of boundary pillar also to be given with Deg. Min. Sec.



- IX. Page-6, Para 2.b, the brief of other leases held by lessee may be furnished.
- X. Page-10, Para 3.3.1, the details bore holes drilled during scheme period may described with Form-J submitted to this office under rule 47 of MCDR'88. Reason of deviations to be furnished in remarks column.
- XI. The extent and nature of surface right being held by the Lessee to carry out various mining activities be indicated with documentary evidence and same should be marked in relevant plans.
- XII. All the annexure to be properly indexed/ numbered/ paged and signed by qualified person. All the certificates should bear dated signature.
- XIII. "Mineral Conservation and Development Rules 1988" to be replaced with "Mineral Conservation and Development Rules 2017" in the content of different parts of the text.

#### **GEOLOGY:**

- I. Page-27, Para 1.J, the reserve should be based on recent survey and bore holes drilled and total excavation of ROM before submitting the document. While reserve has been updated by forecasting the proposed production upto the 01/04/2018. It is to be rectified.
- II. Page 29, Para 1.J.4.3, calculation of reserve estimation enclosed as annexure-18 should be depicted in text.
- III. The reserve estimation has not been furnished with the geological resources and parameters considered like recovery factor, bulk density, dip, strike & width of ore body.
- IV. Cross-sections have not been depicted in calculation table of reserve estimation. The blocked mineral resources of safety zone under 221 category has not been furnished.

- V. Refer longitudinal section, drawing-8 and transverse section, drawing-7, the reserve shown above the UPL is shown in 121 and 221 category. It may be checked & corrected.
- VI. As per geological section the probable & possible resources has been estimated beyond the depth of bore holes drilled which is not as per guidelines of Minerals (Evidence of Mineral Contents) Rules 2015. It should be verified and corrected.
- VII. The details like potentially mineralized area and its extent (coordinate in WGS 84), potentially mineralized area explored (in forest and non-forest area, Govt. land, Pvt. land etc.), remaining area, proposal of exploration to explore remaining potentially mineralized area to be given with justification of adequacy.
- VIII. The table in page -21 of the text submitted for status of lease area explored as per UNFC norms (in Ha) as to be rechecked. In the non-mineralized area no any bore holes has been shown in geological plan as indicated in remarks column of the same table.
- IX. The depth of the proposed boreholes should be adequate enough to justify the lateral and depth extension of the ore zone along and across the section lines up to the end of mineralization considering the geology and nature of ore deposit.
- X. Detail Exploration (G1 level) proposal should be given for entire potentially mineralized area under the mining Lease to justified the depth and lateral extension of ore body.
- XI. The UNFC boundaries have not been marked under G1/G2 level of exploration in geological plan. Bore holes log of complete bore holes drilled till date has not been enclosed with annexure.
- XII. All the drilled and proposed BH to be depicted on the Geological section along with mRL and its actual and proposed depth for better referencing.



- XIII. As per guideline of "IBM manual on appraisal of Mining Plan 2014" at least 10% of total samples to be analyzed in accordance to BIS and reports form NABL accredited/Government Laboratory. Accordingly, the proposal should be given under future exploration programme.
- XIV. Reporting of Mineral Resources in the format prescribed in Part IV-A of Minerals (Evidence of Mineral Contents) Rules, 2015 to be submitted.

**MINING:**

- I. Page-35, Para 2.A.a.2, the environmental clearance of mine accorded by MOEF for 50000 TPA of chrome ore while in table the production proposed for the year 2<sup>nd</sup> year, 3<sup>rd</sup> year & 4<sup>th</sup> year is 0.504 MT, 0.503MT & 0.504 MT of ROM which is exceeded the EC limit.
- II. Page-35, the specific years of proposal should mentioned in place of 1<sup>st</sup> year, 2<sup>nd</sup> year, 3<sup>rd</sup> year, 4<sup>th</sup> year & 5<sup>th</sup> year.
- III. Individual yearwise development proposal has not been described and table has not been furnished with number of benches, cut off grade, sub grade generation, waste generation etc.
- IV. Page-32-43, description of proposed mining method has not been described in chronicle order as per guidelines of IBM Manual Appraisal MP-2014.
- V. Page-39, Para 2.A.a.7.2, calculation of machineries requirement based on the ROM production and OB generated have not been furnished.
- VI. Page-40, Para 2.A.b, below table bulk density considered should be furnished in bullet notes. The yewarwise tentative excavation should also be furnished in tonnage considering the tonnage and recovery factors.
- VII. Page-40, table-4, the grade of ROM has not been furnished in tabular form.

- VIII. Page-41, Para 2.A.d, computation of tentative excavation program has not been furnished in tabular form considering the cross sections, MRL, area of excavation, volume of ore and overburden etc.
- IX. In the development and production tables bench wise, year wise area of excavation and average thickness of the excavation or average area of cross section of bench and its average advance is to be given along with RL of bench with direction of advance at the end of the year.
- X. Conceptual mining plan, cumulative waste generation and top soil generation and protective measures have not been furnished considering the life of mine As per IBM Manual Appraisal MP-2014.
- XI. Ultimate pit limit should be depicted on all relevant plans & sections.

#### **STACKING OF MINERAL REJECT/SUB GRADE AND DISPOSAL OF WASTE:**

- I. Existing waste dumps may describe with its location along with mRL in text. The top mRL of all above to be depicted clearly on plans.
- II. Details Existing and proposed retaining wall, garland drain, settling tank etc. to be given with their location in terms of length, width and height year wise.
- III. Further, Build-up of dumps from year to year to be mentioned in text w.r.t. designed capacity of dumps, bottom and top mRL of individual terrace, dump slope, individual terrace height and slope with description of method & manner of disposal of waste should be mentioned.

#### **Chapter- "Other":**

- I. Existing manpower both direct and contractual has to be mentioned in the text.



- II. An organizational chart has to be provided for risk assessment study to whom communication to be made in case of any accident.

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

- I. Page-83, Para 8.1.7, human settlement has not been furnished with population distribution pattern around mines area, male female ratio, literacy etc.
- II. Year wise plantation covering number of saplings to be planted, location and area covered may be furnished.
- III. Amount of financial assurance should be calculated as per rule 27(1) of MCDR-2017 and submitted accordingly.
- IV. Updated air, water, noise, ground vibration and soil data with analysis from laboratory done at specified periodicity for last one year to be enclosed.
- V. Under impact on land, cumulative land degradation at present, at the end of proposal period and at the end of conceptual period may be given referring to conceptual mining plan given in scheme of mining.

#### **PLATES (General):**

- I. The plans and sections submitted do not bear the certificate that --the plans and sections are prepared based on the lease map authenticated by the state government.
- II. All plans and sections shall show a scale of the plan at least twenty five centimeters long and suitably subdivided. All plans & sections prepared shall follow the conventions mentioned under MMR 1961.
- III. Wind direction may show through wind rose diagram in key plan and environmental plan.
- IV. All plans and sections should be signed with date by certified Surveyor, Qualified Person, Mine Manager and Mining Geologist.
- V. Magnetic Meridian as shown in relevant plans is not correct. This is to be corrected.

- VI. Existing and proposed bench mRL to be mentioned in the all plans and sections.
- VII. The UPL should be shown in red colour in all relevant plans and sections.

**Surface Plan:**

- I. Surface plan needs to be updated and all the drilled BH to be shown drilled boreholes in black color and year wise proposed boreholes in relevant colors.
- II. Information of boundary pillars in UTM coordinates as well as in Latitude and longitude of all ML boundary points should be depicted in tabulated form on surface plan. Further, the nomenclature of the grid to be given both the side of the grid.
- III. Virgin area to be shown by contours and spot RL in surface plan.
- IV. Few pillars may be correlated with some permanent ground features giving distance and direction. Different land use may be shown with colour codes.
- V. Forest & Non forest area, Surface right acquired area etc. should be marked clearly.

**Geological Plan & Section:**

- I. Data related to strike, dip, dip-direction etc. shown on the geological plans are not clearly shown.
- II. In the Geological Plan UNFC boundaries, explored area, unexplored area, forest area, non-forest area, forest diverted area, drilled boreholes in black color and year wise proposed boreholes in relevant colors to be shown.



- III. The proposed boreholes to be plotted in dotted lines in Geological sections along with Collar Id, RL and proposed closing depth at the bottom of the borehole.
- IV. All the already drilled boreholes to be shown in black color in all the relevant plans (Geological Plan, Surface plan, etc) and Geological sections. The year wise proposal for drilling to be shown in different contrasting color in both plans (Geological Plan, Surface plan, UNFC plan etc) and Geological sections. The color of the boreholes proposed in Geological plan should match with the plotted proposed boreholes in Geological sections.
- V. The UNFC codes in geological sections are not legible enough. Accordingly, the proper UNFC boundaries to be shown in Geological sections.
- VI. The index of Geological features should be same in both Geological Plan and Geological sections. Some of the index is missing. It is to be checked.
- VII. Grid lines have not been marked in geological sections.
- VIII. In Geological plan, the contour to be shown over the area wherever it is missed out.

**Development plan & Section:**

- I. N-S grid has not been marked in development sections and dump section.
- II. Existing position of waste dump and proposed dump height is to be marked with mRL.
- III. Yearwise wise progress of waste dump may show clearly with different colour.

- IV. Each year development proposal to be shown in different color. Composite development plan and section to be submitted.
- V. The index of should be same in both development Plan and sections. Some of the index is missing. It is to be checked.

**Environment plan:**

- I. The Environment Plan as prepared should be satisfy the provision as laid down rule 32(5) (b) of MCDR2017.
- II. Surface features of adjacent mine has not been shown in core and buffer zone.
- III. The proposed and existing environment protective measures to be shown in environment plan. The drainage pattern of the lease area also to be shown on the plan.
- IV. Contours should be shown in core zone.

**Financial Assurance Area Plan:**

In the Financial Assurance plan area of each individual land i.e. land degradation due to mining activity and processing unit etc. at the end of plan period may be shown separately on this plan with highlighted boundaries and different colour codes for FA calculation.

**Reclamation Plan:**

Year wise progress of dumping, stacks, afforestation using different colour codes for easy understanding may be shown.

**Conceptual plan:**

Conceptual plan may be prepared considering mineralization as revealed from the borehole logs. One longitudinal section may also be submitted. Direction of run off from the area based on surface contours may be shown on the plan and the sections.

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