



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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BHUBANESWAR-751020

No. MRMP/A/44-ORI/BHU/2019-20

Date: 23.01.2020

To

Smt. Indrani Patnaik, Mine Owner,
Village- Unchabali, PO-Bamebari,
Barbil, Dist- Keonjhar,
Odisha-758034

Sub: Approval of modification of Review of Mining Plan of Unchabali Iron & Mn Mine along with Progressive Mine Closure Plan (PMCP), over an area of 106.1127 ha in Keonjhar district of Odisha State, submitted by Smt. Indrani Patnaik under Rule 17(3) of MCR, 2016.

Ref: - i) Your letter No. UIMM-IP/MP/2020/19 dated 07.01.2020 received on 13.01.2020.
ii) This office letter of even no. dated 13.01.2020.
iii) This office letter of even no. dated 13.01.2020 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 27.12.2019 by Shri Dayanand Upadhyay, 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 MAHANTA)

क्षेत्रीय खान नियंत्रक / Regional controller of Mines

Copy for kind information and further necessary action to Shri A. Gurubalashubramanium, Qualified Person, Unchabali Iron & Mn Mine, Village- Unchabali, PO-Bamebari, Barbil, Dist- Keonjhar, Odisha-758034.


(HARKESH MEENA)

क्षेत्रीय खान नियंत्रक / Regional controller of Mines

Scrutiny comment of Modification of Review of Mining Plan including PMCP in respect of Unchabali Iron & Manganese mine, Lease area 106.1127ha. of Smt Indrani Patnaik in Keonjhar district of Odisha State.

GENERAL:

- I. E-mail, phone & fax no. of lessee and qualified person, location of mines i.e village, tehsil, district etc should be furnished on cover page. In introduction chapter history of the mines should be described along with execution of supplementary lease deed in light of MMDR (Amendment) Act and 2015 documentary evidence marked with annexure.
- II. Certificate from qualified person has not been submitted as per IBM Manual Appraisal MP 2014.
- III. Page-6, the co-ordinates of boundary pillar should also be furnished in UTM along with latitude and longitude.
- IV. Page-7, Para-3.2, reason of last modification of mining plan approved vide letter no. MSM/FM/39-ORI/BHU/2015-16, dated 05/05/2016 should be furnished.
- V. Page 8-9, in review of earlier approved proposal the scheme of mining as depicted in column of different table should be replaced with review of mining plan. The reason of deviation should be properly justified.
- VI. The experience of qualified person should be clearly stated in supervisory capacity in the field of mining as per provision of rule 15(b) of Minerals (Other than Atomic and Hydro Carbons of Energy Minerals) Concession Rules, 2016.
- VII. The annexure submitted are not legible and properly indexed. All the annexure to be properly indexed/ numbered/ paged and signed by qualified person. All the certificates should bear dated signature.

GEOLOGY:

- I. In Chapter Geology and Exploration the sequence of paragraph and its numbering should be covered in chronicle order as per IBM Manual Appraisal MP 2014.
- II. The structural information like strike, dip, dip-direction etc have not been shown. All these information should be reflected on geological plan and section. Further, the lithology shown in the borehole log should match with the lithology shown in geological plan and sections.
- III. Page-19, nos. of bore holes drilled in the lease area as furnished are not matched with the nos. of bore holes drilled as depicted at page no.-22. It should be rechecked and rectified.
- IV. Page no. 22-24, total 159 of nos. of core/DTH/RC bore holes have been drilled in the lease area however the details of only 105 nos. of bore holes have been furnished in text. The relevant forms of intimation of all bore holes should also be submitted along with borehole logs as annexures.
- V. Page 26, the complete lease area should be proposed to cover under exploration under G1 level upto end of mineralization as per provision of rule 12(4) of MCDR2017. In the eastern part of the lease area between co-ordinate 241900-2420000 needs some more bore holes to be proposed at proper grid interval. The proposal of exploration to be given in following format:

Sl.No	Year	BH No	Northing	Easting	Collar RL	Core/RC/DTH	Meteage	Inclination	Forest/Non-Forest/ diverted Forest	Surface Right/ Non-Surface	Purpose of BH
1											
2											

At the end of the table cumulative number of proposed BH in forest area, non-forest area, diverted forest area, Surface right area and non -surface right area to be given.

- VI. Page-30, in table it is furnished that 57.7287 ha explores and found non- mineralized but level of exploration has not been furnished. The reserve and resources as furnished is also miss-matched.
- VII. The area explored different UNFC categories are not marked in geological plan. The area explored under G1/G2....should be furnished as per as per Minerals Evidence of Mineral Contents Rules 2015.
- VIII. In the Geological plan, the boundary of UPL has not been marked. In the Geological plan and sections, the UPL should be drawn properly considering the mineralization over the lease area. The UNFC boundary/code should be properly shown.

- IX. Pag-31, Para-k, the method of reserve estimation may be further elaborated and justified with supporting documents w.r.t recovery factor, Bulk density, Length of influence, nos. cross sections and bore holes considered in reserve and resource estimation. Necessary supporting documents to be furnished with respect to bulk density and recovery factor considered for iron ore.
- X. Page-32, the reserve/ resources as depicted in table are not correctly furnished. Proved mineral reserve under 111 is furnished 21.768 million tonnes while in the same table it is also furnished 21.829 million tonnes. The total mineral resources are furnished 23.454 million tonnes while at page no. it is furnished 23.394 million tonnes.
- XI. The bulk density and recovery factor considered for calculation of reserve/ resources is not matched with the analysis report of bulk density and recovery factor as submitted in annexure.
- XII. The reserve and resources has not been furnished as per Minerals Evidence of Mineral Contents Rules 2015. In calculation of reserve and resources enclosed at annexure-XIV, refer section AA' and CC' whether resources under 211 has been furnished but it is not shown in geological section. The section wise calculation of float ore not furnished and UNFC codes also not depicted in geological sections. Different grades of ores as furnished in calculation are not clearly shown in geological sections.

MINING:

- I. Page-36, existing method of mining should be described in brief. Proposed method of mining should be furnished in light of development plan i.e production capacity, nos. of pits proposed for production, waste dump and other designing parameters to be discussed.
- II. The dimension of existing pit/block should be furnished in following table:

Name of pit	Location	Length	Breadth	Depth	Top mRL	Bottom mRL	No. of benches in ore/No. of benches in OB	Pit slope	Area backfilled	Area reclaimed & rehabilitated

- III. In situ tentative excavation the term saleable ore should be referred for +58% Fe. The bulk density and recovery factor considered for different types of ore are not with the report enclosed in annexure.
- IV. Updated ROM production carried out in 2019-20 should be furnished in bullet notes below tentative excavation table so that remaining proposed ROM should be matched with total yearly proposed quantity of ROM.
- V. Page 38-39, the quantity of saleable ore, mineral reject and OB as furnished are not matched with the calculation table considering sections enclosed at annexure-XVI. Stripping ratio also not furnished in calculation table.
- VI. In year wise calculation of ore and OB as enclosed in annexure-XVI the 1st year, 2nd year..etc should be replaced with specific year.
- VII. Bore holes have not been depicted in development section. Different types of ores and other geological information encountered through bore holes to be depicted clearly in development sections.
- VIII. Back filling proposal as furnished in development plan has not been explained text. Exhausted area to be backfilled by OB/Waste to be specified with RL and area on year to year basis with description of the method & manner of disposal of waste.
- IX. Before backfilling of the quarry as proposed, it should be ensured the exhaustion of ore body in terms of their depth & extension in the interest of mineral conservation. It should also be ensured that during backfilling original sequence of lithology of the lease area to be maintained.

- X. In conceptual mining plan, the life of mines has not been furnished correctly. Cumulative waste generation and backfilling and protective measures should be furnished properly. Restoration of safety zone, dead dump and slope of the dump may describe properly.

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

- I. Page-67, the nature and quantity of top soil, OB/waste and mineral reject generated year wise to be described and information to be provided in the table as below.

Year	Top Soil (cum)		Overburden		Mineral Rejects	
	Reuse/spreading	Storage	Backfilling	Storage	Blending	Storage

- II. Page-70, the existing mineral reject dumps should be furnished below alongwith analysis report.

Name of Dump	Location (Grid)	Length(m)	Width(m)	Area Occupied	Total volume (cu.m)	Total quantity(T)	Grade

- III. The extent/location of the proposed dumps to be given also mentioned whether within UPL or not. Also give the details of the existing dumps (top soil, waste dump, mineral reject dump) within the lease area in tabulated form comprising dump number, designed capacity, present quantity, remaining quantity, bottom RL and top RL.
- IV. Details Existing and proposed retaining wall, garland drain, settling tank etc. to be given yearwise with their location. Location of sub-grade storage along with year to year development of the SG dumps to be given.
- V. It should be ensured that the area proposed dumping should be proved non mineralised. The proposed location of mineral reject should be furnished with terraces to minimize the land degradation. The details of mineral reject dumps and their analysis report should be submitted and discussed for their future use on the basis of their physical and chemical properties.
- VI. The proposal of dumping may be given in tabulate format as shown below. The year wise build up of dump should be described in details.

year	Waste to be dumped	Dump No	Location of Dumping (Grid)	Proposed area	Proposed dumping RL	No of terrace proposed	Individual terrace height	Slope of the terrace

PROGRESSIVE MINE CLOSURE PLAN:

- I. Page-84, Para-8.1, the baseline information should be described properly incorporating buffer zone of the lease area.
- II. The existing land use pattern furnished in table at page no.- 84, 91 and 106 are not matched to each other. It should be re-checked and corrected accordingly. The additional requirement of area under different heads specifically mentioned during plan period.
- III. Monitoring station of air, noise and water should be described in text and their locations furnished in tabular form.
- IV. Updated air, water, noise, ground vibration and soil data with analysis from laboratory done at specified periodicity 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.
- VI. Mitigation measures of impacts associated with mining i.e. mainly related to air, water, noise, vibration, land, aesthetics etc. are not given properly. The same to be elaborated.
- VII. Year wise plantation covering number of saplings to be planted, location and area covered may be furnished. Matured area of backfilling and dump slope should be stabilized with plantation.

VIII. Page-97, Para-8.3, Back filling proposal of exhausted quarry has not been explained properly. The proposed backfilling, reclamation and re-habilitation to be carried out should be furnished as below:

Year	Pits/ Quarries	Area beginning of year(ha)	Additional degraded during year(ha)	Area to be reclaimed by backfilling(ha)	Area rehabilitated by plantation (ha)	Balance area at the end of year

Year	Nature of dump	Area at the beginning of the year (ha)	Additional area degraded during year (ha)	Area to be rehabilitated during the year(ha)	Balance area at the end of year (ha)

PLATES:

- I. All the plan and sections should be signed with date by certified surveyor, qualified person, mines manager and mining geologist. The plans and sections submitted 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 sign conventions mentioned under MMR 1961.
- III. Wind direction may show through wind rose diagram in key plan and environmental plan. Approach road to the ML to be shown.
- IV. Existing and proposed bench RL to be mentioned in the all plans and sections. The UPL should be shown in red colour in all relevant plans and sections. Magnetic Meridian and date of observation of should be given on all relevant plans. Approach road to the ML to be shown.
- V. Lease boundary marking as per standard procedure to be marked properly on all plans.

Surface Plan: Few pillars may be correlated with some permanent ground features giving distance and direction. Different land use may be shown with colour codes. Virgin area is to be shown by contours and spot RL in surface plan. Forest & Non forest area, Surface right acquired area etc. should be marked clearly. All the mineral reject dumps, mineral stacks, OB dumps should clearly notified with nos. and their RL.

Geological Plan & Section: Data related to strike, dip, dip-direction etc. shown on the geological plan clearly. In the Geological Plan UNFC boundaries of G1, G2 .. area has not been furnished as per MEMC Rules 2015. The Proposed bore holes with their depth should be marked in sections. Projected bore holes is to be denoted by (P) for better understanding. Geological Plan and Geological section same color codes should be followed and in sections UNFC codes should be re-checked and corrected. Some of the indexes are missing, it should be re-checked. Litho exposed in the quarry along with shape of the ore body with dip and strike has not been marked over geological plan.

Development plan & Section: Existing and proposed RL of benches/dumps should be mention clearly in development plan and section. Retaining wall and garland should be marked clearly yearwise with colour codes. UPL should be shown in red colour. Backfilling area depicted yearwise in different colour with their RL.

Environment plan: The Environment Plan as prepared should be satisfy the provision as laid down rule 32(5) (b) of MCDR2017. 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. Contours should be shown in core zone. Feature within 500m of lease boundary on Environmental plan has not been marked properly with environmental monitoring stations as per Moef Guidelines.

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