



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. MSM/FM/22-ORI/BHU/2017-18

Date: 18.07.2018

To

✓ Shri M. D. Rustagi,
Director & Nominated Owner,
M/s Bonai Industrial Co. Ltd.
Main Road, At/P.o - Barbil,
Keonjhar, Odisha- 758035

Sub: Approval of modification of Review of Mining Plan of Nadidih Iron & Mn Mine along with Progressive Mine Closure Plan (PMCP), over an area of 73.855 Ha in Sundargarh district of Odisha State, submitted by M/s Bonai Industrial Co. Ltd under Rule 17(3) of MCR, 2016.

Ref: - i) Your letter No. BICO/ED/GEO/2018-19/244 dated 07.07.2018.
ii) This office letter of even no. dated 10.07.2018.
iii) This office letter of even no. dated 10.07.2018 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 13.04.2018 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 1 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 H S Biswal, Shri Ganesh Kumar Sah and Shri Lingaraj Sahoo, M/s Bonai Industrial Co. Ltd, Main Road, Barbil, keonjhar, Odisha – 758035.

(HARKESH MEENA)
क्षेत्रीय खान नियंत्रक / Regional controller of Mines

Scrutiny comments of Modification of Review of Mining Plan of Nadidih Iron & Mn. Ore Mine over 73.855ha ha. in Sundergarh District of Odisha state of of M/s Bonai Industrial Co. Limited submitted under rule 17(3) of MCR 2016.

General:

- I. The lease no., e-mail, phone & fax no. have not been furnished on cover page.
- II. Page-2, Para(b), the environmental clearance describe in brief for Insitu excavation and dump re-handling.
- III. Page-4, reason of modification as furnished should be in same line as discussed in introduction chapter para-2.
- IV. Page-6, Para-2(a), the lease area bounded by latitude and longitude has not been furnished. The date of grant of lease has not been furnished in chronicle order.
- V. Page-7, Para-b, the details of lease area has not been described with surface right with documentary evidence.
- VI. Page-9, Para-3.3.2(A), the actual production proposal has not been furnished with Insitu ROM and ROM recovered from dump re-handling..
- VII. Page-10 & 11, the low grade/mineral reject, backfilled area, and details of plantation carried out have not been specifically described with its location against the approved proposals. .
- VIII. The compliance of conditions imposed while execution of lease deed approval of mining plan, MOEF, SPCB may be submitted with remarks if any deficiency observed. The relevant document may be attached as annexure.
- IX. Recent photographs of pits, dumps, afforestation and reclamation and rehabilitation carried out should be enclosed.
- X. All the annexure to be properly indexed/ numbered/ paged and signed by qualified person. All the certificates should bear dated signature.

Geology:

- I. The Geological boundaries of exploration limit i.e. G1/G2/G3 etc. are not marked as per Minerals Evidence of Mineral Contents Rules 2015.
- II. Litho units as depicted in profile of geological section is not matched with the geological plan and as per bore hole data. Structural information like dip, strike etc is not furnished properly. Further, Ore zone should be depicted on plan and section based on surface exposure, exploration data and threshold value.
- III. The drilled bore holes as depicted in geological section are not as per geological plan. There are numbers of bore holes are missing in sections. The mRL of bore holes and their depth as furnished in bore holes log not matched with geological plan.
- IV. Page-21, the details of exploration carried since inception of mining operation till date to be given in tabulated form i.e. year, BH number, Location (Coordinate), nature of BH (Core/DTH), Depth (max-Min), mineralized/non-mineralized, Inclination etc. The relevant forms for intimation of borehole and borehole logs to be submitted as annexures.
- V. Page-23, para-(i), it has been mentioned that whole area is covered under G1 level of exploration but at some places uniform grid of bore holes has not been maintained. The area covered between grid W200/E100 & S000/S400 (part of dump area) not satisfied the G1 level of exploration. Some of the bore holes should be proposed in such a way that depth of exploration shall be upto 300m or discontinuance of ore body whichever is earlier. Proposed BH to be depicted on the Geological section along with mRL and its actual and proposed depth for better referencing.
- VI. 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. The quantity of different ore types and its proportion in lease area to be given.
- VII. Page-31, table-1.5, the details of total lease area explored under UNFC have to be furnished in the tabular format provided below.

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+B+C+D+E					
	G1 Level	G2 Level	G3 Level	Explored and found non-mineralized with level of exploration (Remarks)	Un-explored 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 explanation as on dated:						
Remaining Resource after above exploration as on dated:						
Total Reserve / Resource after above exploration as on dated:.....						

- VIII. Copy of form I and J as per MCDR, 2017 to be enclosed for all the drilled BH for ready and future reference as per Rule 47 and 48 of MCDR, 2017 and the same should be signed by the Geologist appointed under MCDR, 2017.
- IX. Page-35, table-1.6, the calculation of reserve and resources is not as per guide lines of Minerals (Evidence of Mineral Contents) Rules, 2015. Sectionwise reserves and resources as furnished tabular form is not matched with the geological sections. The resources as shown in cross section S000 has not been considered in geological resource estimation under 331 category. Further resources calculated through table-1.13 are part of the geological resource therefore it needs not a separate table and it should be included under 331 category.
- X. Sectionwise volume of waste/OB will be excavated has not been furnished in tabular form of reserve and resource estimation.
- XI. Page-36, it is mention that 36 nos. of mineral stacks are also present in the mine but description of only 21 nos. of stacks have furnished. Total resources as furnished in para-D is also not matched with table-1.9.
- XII. Page-38, the recovery factor considered in geological reserve and resources estimation is 75% of total excavation. Again further recovery of 75% has been applied for estimation of mineable reserve. It should be clarified.
- XIII. 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-41-42, para-2.0, the existing method of mining has not been described properly. The dimension of existing pit/block should furnished in following table:

Name of pit/Block	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

- II. The production proposal is 4.3 million tonnes ROM (Insitu) as per approved review of mining plan. Abrupt enhancement in production leads to unsystematic and unscientific mining; therefore it is advised to revise the production proposal which insure systematic and scientific mining with conservation and protection of environment.
- III. Page-43-44, the low grade stack and iron ore stack as furnished in tabular form should depicted volume of stack, quantity in tonnes and specific location their co-ordinates.
- IV. In the text and table, the low grade ore should be replaced with mineral reject. The details of mineral reject dumps as furnished in table should referred with dump size and location.
- V. Page-44-45, proposed mining operation has not been described with bench height & width, haul road, no. of pits /block considered for iron ore production.
- VI. Page-49, the proposed tentative excavation as furnished in table, below table Bulk density should be mentioned.
- VII. Page-50, table-2.8, cumulative yearwise production of ROM has not been summarized.
- VIII. Page-58, Quantum of production and development may be described with no. of benches, mRL, depth of excavation, direction of advance, location and cross-section considered.
- IX. Page-62, refer section S-500 (Boundary pit), benches RL 573 & 564 do not show ore zone in development section while in tentative quarry development for the year 2018-19 volume of ore excavation has computed. Therefore all the development sections should be re-checked and quantum of excavation should be revised accordingly.
- X. The existing benches and geological information has not been shown in development plan.
- XI. The dump re-handling should be shown in development plan and sections yearwise with different colour codes.

- XII. 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.
- XIII. Back filling proposal has not been explained properly. It should be insured that sequence of backfilling should be same as per original sequence of the litho units occurring in lease area. Exhausted area to be backfilled specified with mRL and year to year basis.
- XIV. Conceptual mining plan, 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.

Mine drainage:

Mine is situated near to river Karo, and substantial quantity of rain water likely to be flow through lease area. Hence, adequate rainwater management plan and mine drainage plan should be prepared and incorporated in the document in view of environmental protection.

Stacking of mineral reject/ sub grade material and disposal of waste:

- I. The location of dumping proposal of mineral reject generated during mining has not been described in plan and not marked in text.
- II. Page-90, Para3.3.2, the details of low grade/mineral reject generation has not been furnished with quantity and grade of mineral reject generated during wet beneficiation process.
- III. Furnish 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. 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. Further, a detail programme for dump analysis to be given to assess the quality and quantity of waste dumps.
- V. Storage/Stacking of Sub-grade material/ Mineral reject in earmarked area to be described with m. RL and area on year to year basis with description of the manner of its disposal.
- VI. 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.

Use of Mineral and Mineral Reject:

Describe the beneficiation process with slurry/tailing dam and their disposal/utilization practices. A material balance chart should be given mentioning beneficiation process yield at each stage.

Other:

An organizational chart has not been furnished. Proposed manpower both direct and contractual has to be mentioned in the text.

Progressive Mine Closure Plan:

- I. The lease is expiring in 31st March 2020; therefore PMCP submitted in instant document should in line with the FMCP.
- II. Updated air, water, noise, ground vibration and soil data with analysis from laboratory done at specified periodicity for last one year to be enclosed.
- III. Year wise plantation covering number of saplings to be planted, location and area covered may be furnished. Massive planation proposal on matured area may be given for early rehabilitation of matured area. Accordingly proposal of plantation, coir matting/geo textile etc may be revised/given.
- IV. It is advised that most of the plantation work to be completed in year 2018-19 only. The year 2019-20 should be for post care maintenance only. Accordingly proposal may be revised.
- V. Back filling proposal has not been explained properly. The proposed backfilling bottom mRL, top mRL, quantity of backfilling year to year basis etc. may be given.
- VI. Describe the proposals to be implemented for securing the excavation/pits/mineralized dump or mineral rejects stacks/fine stacks by means of fencing etc. Explain the safety measures implemented to prevent access to surface openings, excavations etc.
- VII. All the active dumps should be proposed with extension of retaining wall and garland with settling tanks with proper terracing and stabilization of slope. The dead dumps should be proposed for fully rehabilitation by plantation and with gap plantation if necessary. The proposed and existing retaining wall, garland drain and settling tanks should be clearly marked yearwise on reclamation plan.

Feasibility report:

The details of existing infrastructure available in the lease area should be furnished in tabular form and their present value after depreciation. Further their future utilization should be evaluated on case to case basis. The decommissioning cost and final value of the decommissioned infrastructural facilities if any may be furnished. NPV and IRR should be furnished including cost of infrastructure and closure and preventive measure to be taken.

Plates:

- 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. Wind direction may show through wind rose diagram in key plan and environmental plan.
- III. All plans and sections should be signed with date by certified Surveyor, Qualified Person, Mine Manager and Mining Geologist. Magnetic Meridian and date of observation of should be furnished on all relevant plans.
- IV. The UPL should be shown in red colour in all relevant plans and sections. The updated plans and section should be submitted.

Surface Plan:

- I. 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.
- II. Virgin area to be shown by contours and spot RL in surface plan. 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 inadequate and not legible .
- II. Geological Plan and Geological section not matched each other and geological section not synchronized with geological plan. The litho contact and ore zone as furnished in plan and benches shown are not matched with sections.
- III. There are numbers of bore holes are missing in sections. The nearby bore holes have not been projected in section. The bore holes (DTH-251, BH-54, DTH-253) as depicted in section S-100 naot matched with geological plan. The bore holes log as furnished in annexure are not matched in terms of their RL & depth with sections.
- IV. The index of Geological features should be same in both Geological Plan and Geological sections. Some of the index are missing in plan and section.
- V. The mineralised area should be shown distinctly on geological plan and sections. Different level of exploration like G1, G2, G3 etc in line with MEMC rule 2015 to be depicted on geological plan and UNFC codes should clearly furnished in sections.

Development plan & Section:

- I. Development plan has not been furnished with existing benches, ore zone and litho contact etc.
- II. The index should be same in both development Plan and sections. Some of the index is missing. It is to be checked.
- III. Re-handling of Dumpto be shown yearwise in different colour codes.
- IV. Location of proposed mineral reject has not been shown in plan and section.

Environment plan:

- I. The Environment Plan as prepared should be satisfy the provision as laid down rule 32(5) (b) of MCDR2017.
- II. Environment Plan, natural drainage systems such as water course, streams, nallah, river, Forest with tree density, waste land, agricultural land, grazing land and surface features of 500 buffer zone should be shown.

Conceptual plan: Conceptual plan 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.

Reclamation Plan: Proposals of land restoration/reclamation/rehabilitation, afforestation, waste dump management, safety and security etc should be depicted in Reclamation Plan yearwise with different colour codes. Sequence of backfilling should be same as per original sequence of the litho units occurring in lease area. Exhausted area to be backfilled specified with mRL and year to year basis. The proposed fencing wall with measurement and sketches of retaining & garland wall, settling pond should be furnished.

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.