



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



By Speed Post/E-Mail  
Phone: 0674-2352463;  
Tele Fax: 0674-2352490;  
eMail:  
ro.bhubaneswar@ibm.gov.in  
Plot No.149, Pokhariput  
BHUBANESWAR-751020

No. MP/A/30-ORI/BHU/2020-21

दिनांक / Date: 24.12.2020

To

✓ Shri Harendra Narayan Das,  
Nominated Owner, M/s GM  
Iron & Steel Company Limited,  
At/PO-Rairangpur, Dist-Mayurbhanj,  
Odisha-757043.

Sub: Mining Plan of Badampahar Iron Ore Mine over an area of 128.427 ha (As per DGPS) / 129.610 ha (As per ROR) in Mayurbhanj district of Odisha of M/s GM Iron & Steel Company Limited submitted under Rule-16 of MCR, 2016.

Ref:- i) Your letter no. nil dated 17.12.2020 received on 21.12.2020.

ii) This office letter of even no. dated 21.12.2020.

iii) This office letter of even no. dated 21.12.2020 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 Mining Plan along with Progressive Mine Closure Plan has been examined in this by Shri Dayanand Upadhyay, Sr. Assistant Controller of Mines and Shri Sudip Ranjan Mazumdar, Senior Mining Geologist. The deficiencies observed are enclosed herewith as Annexure-I.

You are advised to carry out the necessary modifications in the draft 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 USB Pendrive/Flashdrive 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 USB Pendrive/Flashdrive)** within 07 (seven) 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 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 Mining Plan. It may be noted that no extension of time in this regard will be entertained and the 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 S. C. Nayak, Qualified Person, M/s Minesketch Consultants (P) Limited, Flat No-205, Bhagwan Tower, Cuttack Road, Bhubaneswar-751006.

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

**Scrutiny comments on examination of Mining plan with PMCP of Badampahar Iron Mine over an area of 129.61 Ha in Mayurbhanj District of Odisha State of M/s GM Iron & Steel Company Limited**

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**GENERAL POINTS:**

1. The rule under the mining plan submitted should be furnished as rule 16 (1) of MCR, 2016 and PMCP under rule 23 of MCDR, 2017. Rectify the same in all other relevant places of the document.
2. The name of the block has not been mentioned as per mining lease deed as "Badampahar Iron Ore Block". Need to do necessary changes at all relevant places in the document.
3. IBM registration number and mine code if allotted should be mentioned on cover page. 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. All the text, tables and annexures to be properly indexed/ numbered/ paged and signed by qualified persons. Correct table reference number to be mentioned at all relevant places. All the certificates/annexures should bear dated signature. Need to do necessary corrections at all relevant places in the document.
4. The land schedule and the lease area wherever mentioned in the text and plates should be as per the executed mining lease deed. Need to do necessary corrections.
5. The details regarding the present status of mining only should be given right from the details from NIT to execution of lease deed.
6. In Para 1(a), the details of the Nominated Owner (name, address, contact details etc.) have not been furnished along with information submitted.
7. All the corresponding documents details should be furnished in introduction like right from NIT, MDPA, auction bid details, vesting order, tender document etc., to the lease deed execution with Sate Govt. of Odisha and other Statutory Organization regarding the mining lease auction and subsequent execution have not been described in introduction and submitted as annexures. The final price offer details as per Mineral Auction Rules 2015 should be provided in introduction with documentary evidence as annexure. Present status of all statutory clearances viz., EC, FC, CTO, surface right etc., of the previous lessee have not been furnished with referring to documentary evidences as annexures. Need to do necessary corrections.
8. The details regarding the use of mineral produced from the lease viz., whether the mineral to be used in the lessee's end use industry or will be sold in the open market should be elaborated in detail. It may be described with plant capacity, its location in reference to proposed ROM production and conditions imposed by state government regarding the same in introduction with documentary evidence. Need to do necessary corrections.
9. The copy of the qualification & experience certificate in respect of the Qualified Person to be enclosed as per Rule 15 of MCR, 2016. The Identity proof may also be submitted.

**Geology and Exploration**

10. The mineral block summary report has not been submitted. Also need to submit the signed copy of the Geological report by state government as annexure to the document. The Plates of the Geological report also need to be submitted.
11. All the parameters considered for like recovery factors, bulk densities etc., for estimation of reserves/resources should be as per the Geological report with referring to the relevant annexures. Cutoff grade considered should be furnished. Need to do necessary corrections.
12. All the geological information furnished has to been furnished as per the Geological report approved by state government along with documentary evidences. Detailed description of geology of the lease area such as shape and size of the mineral/ore deposit, disposition various litho-units indicating structural features if any etc. has not been furnished. The summary of bore hole drills information regarding the depth of intersection of ore body i.e. depth of top of ore body intersection and floor of the ore body intersections as per bore hole drilled has not been incorporated.
13. As per Rule 22 of Mineral (Auction) Rules, 2015, the holder of a mining lease shall complete detailed exploration (G1 level exploration) and prepare a detailed feasibility study report conforming to Part IV and V of the Mineral (Evidence of Mineral Contents) Rules, 2015 over the entire area under the mining lease, within a period of five years from the date of commencement of such mining lease. Accordingly, it is observed that G1 level of exploration over entire area has not been proposed. Further, within the G1 explored areas, proposal should be furnished to intersect ore body at depth, if any considering the continuity of boreholes in adjacent sections. The depth of the boreholes proposed should be considered considering the lateral and depth wise continuity of ore body in geological cross-sections and till the end of mineralization intersecting the ore body at depth. The exploration proposal should be completed by 2023-24. The grid spacing for G1 level of exploration for iron ore should be as per the exploration norms defined in Part III of MEMC Rules 2015. Need to do necessary corrections at all relevant places and modify exploration proposal accordingly.
14. The year wise exploration proposal should be modified as per above scrutiny point and the year should be mentioned in financial year. The exploration proposal has not been submitted as per the format specified in IBM



Appraisal of MP 2014. Further, the details of individual proposed boreholes should be furnished in following tabulated format. Need to do necessary corrections.

Year of drilling	Section No	Proposed BH no	Core/RC/DTH	Northing	Easting	Collar RL	Borehole Inclination	Proposed Depth	Forest area/ Non forest area/ diverted forest area	Area having surface right/ non-surface right area

15. The lease area exploration status should be modified and the same should be furnished in the following tabulated format. The information furnished should be as per Geological report.

Total Lease area:							Remarks/Comments including reasons for not carrying out the exploration as per UNFC norms.
Item of information	Part of the Lease area applied for surrender explored as per UNFC norms (in Ha) as on dt.					Unexplored lease area	
	G1 Level	G2 Level	G3 Level	Explored and non-mineralized level with exploration (Remarks)			
	A	B	C	D	E		
Area as per level of exploration							
No. of BH Drilled							
No. of BH considered for Resource Estimation.							
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:							

16. Justification of UNFC codes as per UNFC guidelines has not been furnished. Need to do necessary corrections.
17. In Para 1(j), in the parameters considered for reserve/resource estimation, the relevant information from Geological report supplied from state government need only be mentioned. Further, the parameters for resource estimation have not been considered as mentioned in IBM Appraisal for Mining Plan 2014. Need to do necessary corrections.
18. Justification for recovery factor considered for ore and mineral reject part of ROM along with bulk density test reports have not been submitted. Need to do necessary correction.
19. In the parameters considered for resource estimation, ultimate pit depth proposed has not been mentioned etc. The depletion of ROM production of iron ore by previous lessee during the period 01.01.2019 to end of lease period of previous lessee should be rechecked and corrected and thereby the estimated total balance resource of iron ore as on 08.11.2020 reported should be corrected. The revised estimation of reserves and resources should be based on the updated geological plans and sections which were submitted along with the Geological Report. Need to recheck calculation and do necessary corrections at all relevant places in text/tables etc.
20. The detail calculation of section wise reserves and resources by cross sectional method of estimation for different UNFC codes for iron ore have not been furnished. The estimation should be separate for ore and mineral reject. The estimated reserve and resource should match with the total resources reported in Geological report less the production by previous lessee during the period 01.01.2019 to end of lease period and by current lessee, if any. Need to recheck and do necessary corrections.
21. The final presentation of reserve and resources as on date 04.11.2020 for iron ore under various UNFC codes separately for ore and mineral reject with grade have not been furnished. The information should be furnished in the format specified in IBM appraisal of mining Plan 2014. The date of estimation should be the date of survey. Accordingly, life of mine to be recalculated. Need to do necessary correction and furnish required information.

#### MINING

22. The year wise proposed production beyond first two years does not satisfy the conditions as mentioned in Schedule-D of signed MDPA. Accordingly necessary changes in insitu excavation in text and development plan and sections should be modified along with necessary modifications at relevant places of the document and plates wherever necessary. Need to do necessary corrections.
23. Justification for site selection for mining during the proposed plan period has not been furnished. Proposed method of mining has not been furnished in light of development proposal i.e. annual production capacity, nos. of pits proposed for production, site of waste dump and other mine design parameters. In existing method of mining, the information should be modified as this is fresh grant of mining lease. Need to do necessary corrections.

24. Insitu tentative excavation table showing quarry wise production proposal has not been submitted. Further, insitu tentative excavation proposal could not be verified as year wise development plans and sections have not been submitted.
25. Year wise development and production plan should be furnished in the following tabulated format.

Particular for the year...		
Bench Geometry	Height (in m)	
	Width (in m)	
	Individual bench slope angle	
Quarry Development	Location (Quarry Name)	
	Extent of Development (in UTM coordinate)	
	Sections considered for development	
	Number of benches	
	Benches considered for development with RL	
	Top RL	
	Bottom RL	
	Direction of advancement	
	Dimension of the quarry at the end of the year including existing benches	
	Area occupied (in sq. m)	
	Overall quarry slope angle	
	Production of Ore (in MT)	
	Generation of Mineral rejects ore from quarry (in MT)	
Production of ROM (Ore+Mineral Reject) in MT		
Total Generation of waste (in cum)		

26. The detail calculation of yearly generation of ore, mineral reject and waste for iron ore by cross sectional method has not been furnished. Need to furnish the same.
27. Conceptual Mine planning should be modified taking into consideration of the revised production from in-situ excavations, available reserves and resources describing the excavation, recovery of ROM, Disposal of waste, backfilling of voids, reclamation and rehabilitation showing on a plan with few relevant sections.
28. Conceptual land use patterns details have not been furnished. Need to furnish the same. The basis of calculation of furnished powder factors figures should be furnished. The details regarding the blasting should be elaborated.
29. In pursuant to the order dated 14.01.2020 passed by MoM, Gol, consequent up on the order dated 08.01.2020 of the Hon'ble Apex Court passed in W.P.(C) No. 114/2014, the lessee shall carryout "regrassing in mining area after closure of mines". Accordingly proposal has not been submitted in conceptual planning, conceptual plan and sections.

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

30. In Para 4a, the nature and quantity of top soil, overburden / waste and Mineral Reject to be disposed of have not been furnished in the following format.

Year	Top Soil (cum)		Waste (cum)				Mineral Rejects (tones)			
	Reuse/spreading	storage	Total generation	Backfilling	Storage (dumping)	Utilization	Total generation	Blending	Storage	Beneficiation

31. The year wise buildup of waste dumps has not been described in detail. The information should be furnished in the following table. No proposal should be submitted for stacking of mineral rejects over existing minerals rejects stacks/mineral reject dumps of previous lessee within the stipulated time frame as allowed by State Govt. to remove it in favor of earlier lessee as per rule. Need to do necessary corrections.

Year	Waste Generation (in m3)	Waste Dumped (in m3)	Dump Name	Location of Dump (coordinates)	Existing or new dump	Top RL of the Dump	No of terrace proposed	Individual Terrace height	Slope of the terrace	Overall slope angle of dump

32. The information about stacking of mineral rejects should also be furnished in above similar table.
33. Existing as well as proposed year wise protective measures like retaining 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.

34. In para 8.3, under mined out land it has been mentioned that there is no proposal for reclamation as there mineral is not exhausted whereas in yearly reclamation and rehabilitation proposal backfilling has been proposed. Both the statements are contradictory to each other. Need to recheck and do necessary corrections at all relevant places in the document. Further, if backfilling is proposed, then the location of proposed backfilling should be justified with respect to non-mineralization of the area and the proposal should be furnished in the following tabulated format. Further, in page 53, the disposal of waste has been mentioned as backfilling/dumping but shown in the table of the same page.

Year	Waste to be backfilled (in m3)	Area Nomenclature	Location of backfilling (coordinates)	Existing and Proposed area (m2)	Proposed backfilling from and to mRL.	Relevant plan/section reference number

**USE OF MINERAL and MINERAL REJECT**

35. The utilization of different end products produced from ROM processing of Iron ore viz., lumps and fines products, whether utilized in captive plant/sold in the open market should be mentioned clearly for individual different size and quality products.

**PROCESSING OF ROM AND MINERAL REJECTS**

36. The material balance chart has not been furnished. The ROM feed grade and tonnage with recovery%, grade and tonnage of product at each stage of processing may be shown in the flow sheet along with block diagram processing plant. The summary of the physical and chemical composition of feed material, grade and quantity along with different output products with physical and chemical composition (with nomenclature of product) should be furnished with recovery percentages.
37. The recovery percentage considered at each stage of processing should be justified properly.

**OTHERS**

38. Information in respect to the proposed manpower both on departmental role and contractual has to be mentioned separately in the text for managerial level, supervisory level and others.

**PROGRESSIVE MINE CLOSURE PLAN**

39. All the paragraphs have not been addressed in detail under PMCP chapter as per IBM Manual Appraisal MP 2014. The present land use pattern should be furnished as per the format of FA table of different heads.
40. Baseline information of the lease area has not been described as per guidelines. Further, base line information to be furnished for surrounding 500 meter form lease boundary. The monitoring of various environmental parameters as per the relevant statue should be proposed in the core and buffer zone the lease area. The details of monitoring stations should be marked on the environment plan.
41. In FA table the different heads should be kept as per the format specified in IBM manual appraisal 2014. The area under different heads of FA table should be properly shown in different hatching with present area and additional area in FA plan. Need to do necessary corrections at all relevant places.
42. Year wise mining plan proposals and land use pattern should be submitted in softy copy in the format of .kml or .shp file along with document. Need to do necessary corrections.

**FEASIBILITY REPORT**

43. Feasibility/Prefeasibility Study report conforming to Part V of Minerals (Evidence of Mineral Contents) Rules, 2015 has not been submitted particularly with reference to Cost and revenue factors such as the derivation of, or assumptions made, regarding projected capital and operating costs, the assumptions made regarding revenue including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, final price offer of 95.15% etc., the allowances made for royalties payable, both Government and private, Basic cash flow inputs for a stated period, Yearly planned production, Net Present Value (NPV) and Internal Rate of Return (IRR) of the deposit, intrinsic value of the deposit based on annual projected production has not been furnished. Market sensitivity study has not been submitted. Accordingly, necessary corrections should be made at all relevant places in the document.

**PLATES (General):**

44. Lease plan in favor of lessee has not been authenticated by competent authority of state government. Need to do needful.
45. As per rule 31 (1) (d) (ii) of MCDR 2017, plans and sections have not been prepared in scale of 1:2000. Need to do necessary corrections.
46. The conventions provided under the Metalliferous Mines Regulations, 1961, shall be used in preparing all plans and sections. All plans and sections should comply with the provisions of Rule 32 of MCDR 2017. 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. All plans and sections should be signed with date by Qualified Person. Date of observation of Magnetic meridian should be shown in all plans. The Northing (N) and Easting (E) have not been mentioned along the grid coordinate values of plans and sections. Need to do necessary corrections.

47. With reference to CCOM Circular No 2/2010 and its addendum, the geo-referenced mining leases map superimposed on latest high-resolution satellite data has not been submitted.
48. The existing and proposed bench positions clearly with mRL to be mentioned in the all plans and sections. Date of survey has not been given on every plan and sections and the same should be signed by with date. Grid Lines have not been be shown in all plans and sections. All plans and sections should be signed with date by certified Surveyor, Qualified Person, Mine Manager, Mining Engineer and Mining Geologist
49. All plans and sections should be signed with date by certified Surveyor, Qualified Person, Mine Manager, Mining Engineer and Mining Geologist

**Key Plan:**

50. The key plan has not been prepared as per the provision of rule 32 (5) (a) of MCDR 2017 particularly the boundaries of all villages and towns with their population, forests with tree density, approach road to lease area, Latitude/longitude of the extreme ML pillar coordinates etc. have not been marked in key plan.

**Surface Plan:**

51. The features shown in the index is not distinguishably shown in the plan. Diverted forest area to be shown in the plan as well as marked in the index of the map. The UPL should be shown over the plan and in index. Necessary corrections to be done.
52. The features shown in the index is not distinguishably shown in the plan. Diverted forest area to be shown in the plan as well as marked in the index of the map. The UPL should be shown over the plan and in index. Necessary corrections to be done. Surface right area and forest, non -forest area, diverted forest area have not been shown. Few boundary pillars should be correlated with some permanent ground features giving distance and bearing/direction. Nomenclature of the existing waste and mineral reject dumps along with fines stack should be mentioned.
53. All the boundary pillars coordinates should be furnished in a tabular format. The Surface Plan should be prepared to satisfy the provision as laid down rule 32 (1) (a) of MCDR'2017.

**Geological Plan & Section:**

54. The Geological Plan should be prepared complying the provision as laid down rule 32 (1) (b), (c) and (d) of MCDR'2017. Need to do necessary corrections.
55. The mineralized and non-mineralized area as demarcated in Geological plan of Geological Report has not been shown properly. Need to do necessary corrections.
56. The revised exploration proposal as mentioned in the scrutiny point should be incorporated in geological plan. The proposed boreholes to be shown in dotted lines in Geological sections along with proposed borehole number, RL and proposed closing depth at the bottom of the borehole. The year wise proposal for drilling to be shown in different contrasting color in both Geological Plan and Geological sections. The year wise color of the boreholes proposed in Geological plan should match with the plotted proposed boreholes in Geological sections. Need to do necessary corrections.
57. In geological sections, the grid lines along the X-axis have not been shown. The UNFC codes should be rechecked and corrected in all plans and sections. Bench RL have not been shown in the sections. Need to do necessary corrections.
58. The UPL has not been shown in geological sections. The UNFC codes have not been shown in sections. The blank portions of the sections above the UPL should be filled with relevant lithologies. The ore and mineral reject part considered in sectional method of calculation of reserves and resources should be demarcated in geological sections. Need to do necessary corrections.
59. The demarcation of ore and mineral reject has not been shown in geological sections justifying the calculations for reserve and resource estimation for the same by cross sectional method. Need to do necessary corrections.

**Development plan & Section:**

60. The development plans and sections should be prepared on updated geological plan and sections. Need to do necessary corrections.
61. Year wise mining plan proposals should be submitted in softy copy in the format of .kml or .shp file along with document. Need to do necessary corrections.
62. Year wise development plan and sections have not been submitted. Further, a composite development plan and section should also be submitted. UPL has not been shown in development plans and sections. The development boundaries shave not been shown in the plan and section and also in index. Need to do needful.

63. Quarry name, existing and proposed year wise bench profiles, waste dumps, mineral reject dumps etc. to be shown in the development plans and sections including legend. The lithology of the area should be clearly shown in year wise development plan and sections in the area proposed for development. In development plan, proposed benches RL should be clearly depicted. Proposed infrastructure and waste dumping should be furnished year to year basis in different color codes. The nomenclature of existing and proposed dumps should be clearly marked. In development section progress of dumping and others protective measures should be clearly depicted. Need to do necessary corrections.
64. The UNFC codes should be rechecked and corrected after complying the above scrutiny points.

**Environment plan:**

65. The Environment Plan as prepared should be satisfy the provision as laid down rule 32 (5) (b) of MCDR'2017. The proposed environment protective measures to be shown in environment plan. The drainage pattern of the lease area also to be shown on the plan. Air, water and noise monitoring stations to be shown in the plan. Wind rose diagram should be shown with predominate wind direction.

**Reclamation plan along with sections.**

66. Reclamation plan should be submitted as per IBM appraisal of mining plan describing the proposals to be implemented for reclamation and rehabilitation of mined-out land including the manner in which the actual site of the pit will be restored for future use. The proposals may be supported with yearly plans and sections depicting yearly progress in the activities for land restoration/ reclamation/rehabilitation, afforestation, protective measures etc.

**FA Plan**

67. The area under different heads of FA table should be properly shown in different hatching with present area and additional area in FA plan. The FA table should be furnished.

*Sudip Ranjan Mazumdar*  
24/12/20  
(Sudip Ranjan Mazumdar)  
Senior Mining Geologist

*Dayanand Upadhyay*  
24.12.20  
(Dayanand Upadhyay)  
Senior Asst. Controller of Mines