



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. MPM/A/08-ORI/BHU/2019-20

दिनांक / Date: 25.11.2019

To

Shri Pramod Kumar Agrawal,  
Mining Lessee, Agrawal Graphite  
Industries, Shanti Kunj, Farm Road,  
Sambalpur, Pin-768002, Odisha.

Sub: Modification of Mining Plan of Gandabahali Graphite Mine over an area of 20.149 ha in Nuapada district of Odisha of Shri Pramod Kumar Agrawal submitted under Rule-17 (3) of MCR, 2016.

Ref: - i) Your letter no. nil dated 18.10.2019 received on 04.11.2019.  
ii) This office letter of even no. dated 04.11.2019.  
iii) This office letter of even no. dated 04.11.2019 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 Modification of Mining Plan along with Progressive Mine Closure Plan has been examined in this office based on site inspection carried out on 22.11.2019 by 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 Modification 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 Modification 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 Mining Plan. It may be noted that no extension of time in this regard will be entertained and the Modification 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 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 comment on Modification of Mining Plan including PMCP of Gandabahali Graphite ore mine of Shri Pramod Kumar Agrawal over an area of 20.149 Ha in Sambalpur district of Odisha**

**GENERAL:**

1. Sequence of paragraph, formats and its numbering as per IBM Manual Appraisal MP 2014 has not been covered in text. All the headings, formats as mentioned in the IBM Manual Appraisal MP 2014 should be furnished in all chapters in the text.
2. Consent letter/undertaking/certificate from lessee submitted is of Kirikita Graphite Ore Mine of Shri Dilip Kumar Agrawal which is incorrect. Need to submit Consent letter/undertaking/certificate for Gandabahali Graphite ore mine of Shri Pramod Kumar Agrawal over an area of 20.149 Ha in Sambalpur district of Odisha. Need to do necessary correction.
3. Mining officer, Kalahandi Circle held up all mining activities w.e.f. 01.10.2017 as no order from Government has been received for extension of lease period under section 8(3) of MMDR (Amendment) Act, 2015. Further, supplementary lease deed executed over 20.149 Ha area valid up to 03.10.2047 have not been submitted. Need to submit the same.
4. Precise area lease map over 20.149 ha duly authenticated by competent authority of state government has not been furnished.
5. In page 3 and para 3.6, it has been mentioned that the extent of ML area has been reduced from 20.234 ha to 20.149 Ha and therefore modification of mining plan has been submitted over an area of 20.149 ha but no authenticate document from state government has been furnished regarding acceptance of surrender over 0.085 Ha and thereby precise area lease map over 20.149 ha from state government. Also, all plans and sections have been prepared over 20.234 Ha. Thus, Modification of mining plan over reduced area of 20.149 Ha is not relevant and lessee may submit review of mining plan over entire lease area of 20.234 Ha for next five years.
6. In page 4, the grant of surface right over 20.149 ha area mentioned is incorrect and should be corrected as per lease area mentioned in annexure 6.
7. In Page 5, in para 5(b) of chapter 5, chapter 6 and at all related places in the text, the permission from state government for proposal for beneficiation of graphite ore produced from adjacent leases in the beneficiation plant within the lease hold area of 20.149 Ha area have not been submitted. Further, if approval is obtained from competent authority of State government, then accountability of graphite ore from adjacent lease for processing within the lease should be described in detail (ROM transport, stacking of processed ore, dispatch of processed ore etc.). Further, the beneficiation proposal for graphite ore produced within the lease area should only be described. The information of beneficiation outside the mining lease area of 20.149 ha should be omitted. Need to do necessary corrections at all relevant places in the text.
8. In page 9, it has been mentioned that the land schedule as per lease deed submitted as annexure 5 but the said annexure -5 is not the part of lease deed over 20.149 ha. Need to do necessary correction.
9. All the table neither have been numbered nor been suitably indexed. Need to do needful.
10. In Para 3.1, the date of approved mining plan/review of mining plan/ modification of mining plan /FMCP etc. should be given in following tabulated format.

Sl. No	Mining Plan / Review of Mining /modification of mining plan /FMCP etc.	Lease area (in Ha)	Submitted Under (Rule Reference)	Approval Letter No. & Date	Period



11. All the categories/grade of Ore above cutoff grade should be termed as "Ore" and between threshold value and cutoff grade as "Mineral Reject". The term "subgrade" should be replaced by "mineral rejects". Necessary corrections to be done at all places in text, table and plates.

**PART-A: (1). GEOLOGY AND EXPLORATION:**

12. In Para 1 (i), future exploration proposal should be modified to the extent mentioned below.

- i. the depth of proposed boreholes should be up to 300 meters or up to discontinuance of ore body, whichever is earlier. The average depth of boreholes should be at least 50m. Need to modify the proposal accordingly.
- ii. The proposal for exploration should be over the period of two years only i.e. 2020-21 & 2021-22.
- iii. The present explored depth (in mRL) of the ore body both vein I and vein II should be furnished in tabulated format and inclined or vertical boreholes all along the strike of the ore body at 100 m interval should be proposed to prove 50 m below the existing explored depth of the ore body. Need to modify the exploration proposal accordingly.
- iv. The format specified in IBM appraisal of MP 2014 for future exploration program has not been furnished along with other formats.
- v. The details of boreholes proposed for drilling should be furnished in the following tabulated format.

Year of drilling	Section No	Proposed BH No	Northing	Easting	Collar RL	Core/RC/DTH	Proposed Depth of BH (in meter)	Inclination	Forest/ Non Forest/ Diverted Forest area	Surface Right/ Non-Surface right area	Surrendered area applied/ retained area

13. Justification of recovery of graphite ore of +2% FC considered as 37 % has not been furnished. Further, justification with supported documents for recovery of beneficiate graphite ore and mineral reject at 85% and 15% respectively has not been furnished. Need to submit the documentary evidences for the same.
14. Bulk density test report of graphite ore from NABL accredited laboratory has not been submitted.
15. In page 26, in both the tables the resources under G1 and G2 category are different. Separate grade of resources under G1 and G2 have not been furnished. The date of resource assessment has not been mentioned. Need to do necessary corrections.
16. In page 28, 29, 30, in the tables furnished the grade of resources and reserves under different categories of UNFC have not been furnished. Need to do necessary corrections.
17. In page 29, it has been mentioned that subgrade ore resources estimated from old stacks under UNFC is coded which is incorrect. The resource and reserve figures shown in table in page 30 should reflect the insitu reserves and resources. Need to do necessary corrections at all relevant places in the document.
18. Reserves and resources have to be re-estimated as per the provision of MEMC Rules 2015 complying the provision of Part II point no.4 and part III of Minerals (Evidence of Mineral Contents) Rules, 2015 (MEMC, Rule 2015). Justification of UNFC codes should be further elaborated as per UNFC norms.

**PART-A: (2). MINING:**

19. Justification for area proposed for mining has not been given with respect to exploration, targeted quantity and grade considering mineral conservation and grade.
20. The portion of the dump extended over safety zone in the southern part of the lease should be re-handled and removed from safety zone. Protective measures such as retaining wall and garland drain should be proposed in the development plan and sections. Further, the portion

of semi-processed ore stacking area extended over safety zone in the northern side of the lease should be removed and the area should be reclaimed and rehabilitated. Necessary corrections to be done in development plan and sections, reclamation plan and year wise reclamation proposal.

21. In the table in page 34, the quantity of subgrade/mineral reject in two dumps have not been mentioned separately and also the top and bottom RL of the dump has not been furnished. Need to do necessary corrections in the table.
22. Year wise development and production plan to be modified and 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 (coordinates)	
	Sections considered for development	
	Number of benches to be developed	
	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)		
Stripping ratio (t/cum)		

23. In page 39 and 55, the threshold value of graphite ore and grade of mineral reject mentioned is incorrect. Need to do necessary corrections at all relevant places in the document.
24. Existing and proposed list of machinery/equipment w.r.t capacity and numbers should be mentioned in tabulated format. Need to do necessary corrections.

#### MINE DRAINAGE:

25. In para 3 (b), the max and min depth of working should be given in following tabulated

Name of the Quarry	At the end of plan period (mRL)		At the end of conceptual period (mRL)	
	Top	Bottom	Top	Bottom

format.

#### 4.0 STACKING OF MINERAL REJECT /SUB GRADE MATERIAL AND DISPOSAL OF WASTE

26. The nature/ type of mineral reject and waste material have not been described or classified. Necessary corrections to be done.
27. In para 4(a), the proposal for shifting the subgrade dump from eastern side of the quarry to the western side over existing subgrade dump should be proposed as further development of subgrade dump in the eastern side will restrict development of quarry in future. The proposal may thus be suitably modified for re-handling the subgrade dump located in the eastern side of the quarry.



28. In para 4(a), the proposal for part shifting the existing waste dump from eastern side of the quarry to the western side should be proposed as further development of waste dump in the eastern side will restrict development of quarry in future. The proposal may thus be suitably modified for re-handling the waste dump located in the eastern side of the quarry after proving barrenness of the area proposed for exploration in the western side. Also, the waste generated during the next five years may be dumped in the western part in barren area instead of dumping over the existing waste dump. The proposal may be suitably modified at all relevant places in the text and plates. Need to do necessary corrections.
29. Proposal has not been submitted to remove the dry tailings from the quarry and its subsequent dumping. Need to submitted proposal for removal and re-handling of waste material filled up in part portion of quarry. Need to reflect the proposal in development plan and section and dump plan and sections.
30. Justification of proposed waste dumping sites w.r.t to status of exploration, non-mineralization and outside the UPL have not been furnished. Dump plan and sections should be modified to the extent that sub surface lithologies have not been shown.
31. The proposal for dumping may be given in tabulated format as shown below: 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. The method of waste dumping should be in retreating manner. The year wise buildup of dump should be described considering the space requirement to handle in-situ waste and waste to be removed from quarry as mentioned in scrutiny point no 29.

Year	Waste to be dumped (in m3)	Dump No	Location of dumping (coordinates)	Proposed area (m2)	Proposed dumping mRL.	No of terrace proposed.	Individual Terrace height	Slope of the terrace

32. Existing as well as proposed 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. Proposal for protective measures have not been submitted around mineral reject dumps and waste dumps.

#### **PROCESSING OF ROM AND MINERAL REJECTS:**

33. A material balance chart with a flow sheet or schematic diagram of the processing procedure indicating the proposed ROM feed quantity from the lease of 20.234 Ha, its product, recovery, and its grade at each stage of processing has not been furnished. The arrived percentage of recovery of saleable ore and mineral reject should be justified.
34. Specially prepared tailings disposal area such that they are not allowed to flow away and cause land degradation or damage to agricultural field, pollution of surface water bodies and ground water or cause floods have not been proposed. Embankment all around the tailing disposal area has not been proposed. Need to do necessary correction in development plans and section and also in reclamation plan and year wise reclamation proposal.

#### **OTHERS:**

35. Information in respect to the existing and proposed manpower right from management level to unskilled labor both on role and contractual has to be mentioned separately in the text.

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

36. In para 8.3.1, it has to be mentioned that the mineral has not been exhausted and thus the mine quarry is not matured for reclamation and rehabilitation.



37. The air, water and noise monitoring stations and their frequency of monitoring have not been furnished in tabulated format. All water discharge points from lease area to external should be monitored. Accordingly, monitoring proposal to be submitted. Further, Gap plantation along the safety zone should be furnished.
38. All the paragraphs should be 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.
39. 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.
40. Financial assurance should be recalculated as per scrutiny point no. 20, 27, 28, 31 and 34 and additional amount of financial assurance should be submitted. Need to do necessary corrections at all relevant places

**PLATES (GENERAL):**

1. Magnetic Meridian and date of observation should be given on all relevant plans. Date of survey should be given on all plans and sections and signature should bear date of signature. All plans & sections prepared should follow the conventions mentioned under MMR 1961. All plans and sections shall show a scale a scale of the plan at least twenty five centimeters long and suitably subdivided. 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. The index should be kept same in all the plans and sections.
2. **KEY PLAN:** The key plan should incorporate all features as mentioned Rule 32 (5) (a) of MCDR 2017.
3. **SURFACE PLAN:**
  - (i) The term "water storage "may be replaced with "water logged" area.
  - (ii) Forest, Non-forest and surface right area to be shown in surface plan. The Surface Plan should be prepared to satisfy the provision as laid down rule 32 (1) (a) of MCDR'2017.
4. **GEOLOGICAL PLAN & SECTION:**
  - (i) The Geological Plan should be prepared to satisfy the provision as laid down rule 32 (1) (b), (c) and (d) of MCDR'2017
  - (ii) The borehole log does not match with geological section. For e.g., in geological section, the depth of the BH-6 shown is 24 m but in form k submitted the log of BH-6 is submitted to 16 m. Further, of run details of BH-6 mentioned in form-K is incorrect. Need to submit entire borehole logs and check all other borehole information furnished in sections and do necessary corrections at relevant places.
  - (iii) Further, in section S-S', the reserves have been estimated beyond the proved depth by boreholes. Need to recheck and rectify the same as per provision of MEMC Rules 2015.
5. **DEVELOPMENT PLAN & SECTION:**
  - (i) Development plan and section should be suitably modified as per scrutiny point no. 20, 27, 28, 31 and 34. Need to do necessary corrections at all relevant places.
  - (ii) Development plan and sections should be revised based on updated geological map and sections. Existing and proposed OB and mineral rejects dumps should be shown. The nomenclature of the dumps should be done.
  - (iii) The proposed and existing bench mRL to be shown clearly over year wise development plan and sections.
  - (iv) Existing and proposed protective measures and plantation should be shown in different colors around all waste dumps and mineral reject dumps. Index of safety zone boundary and surface right area should have distinct color.

- (v) Dump plan and sections should be modified to the extent that sub surface lithology has not been shown.

**6. ENVIRONMENT PLAN:**

- (i) The environment plan has not been prepared as per the provision laid down in rule 32 (5) (b) of MCDR'2017. Adjacent lease boundaries within 500m of lease boundary have not been shown.  
(ii) Proposed protective measures have not been shown. Need to do necessary correction.  
(iii) Air, water, noise monitoring stations in the core and buffer zone has not been shown.

**7. RECLAMATION PLAN:**

- (i) Reclamation plan should be suitably modified as per scrutiny point no. 20, 27, 28, 31 and 34. Need to do necessary corrections at all relevant places  
(ii) Existing and proposed protective measures and plantation should be shown in different colors along all waste dumps and mineral reject dumps.

**8. FINANCIAL ASSURANCE AREA PLAN:**

- (i) Financial assurance plan should be suitably modified as per scrutiny point no. 20, 27, 28, 31 and 34. Need to do necessary corrections at all relevant places  
(ii) The area degraded due to mining and allied activity and waste dump sites to be considered in FA calculation. The existing area and additional area under different heads should be shown properly under different colored hatching.

**ANNEXURES:**

1. Copies of Form I as per MCDR 2017 of all drilled boreholes have not been submitted.
2. Particulars to be recorded in respect of each bore-hole in Form J as per format specified in MCDR, 2017 along with chemical analysis of major radicals have not been furnished. Borehole logs of entire length of borehole drilled have not been submitted. Need to do necessary correction.
3. Few coloured photographs showing land use of the lease area, environmental status of the area have not been submitted.
4. Copy of quality of air, water, soil, noise and other environmental a parameters monitoring report of the last year should be enclosed.
5. The details of all the BH to be annexed year wise BH wise. The lithology of the borehole logs should match with the lithology shown in Geological sections.
6. Copy of valid bank guarantee has not been enclosed. Photographs of boundary pillars should be enclosed.

*Sudip Ranjan Mazumdar*  
25/11/19  
(Sudip Ranjan Mazumdar)  
Senior Mining Geologist