



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/02-ORI/BHU/2019-20

Date: 17.05.2019

To

✓ Shri Prasanna Kumar Panda, Constituted Attorney,
M/s Essel Mining & Industries Ltd,
HIG-51, Jaydev Vihar, Opp. Pal Heights,
Bhubaneswar-751013

Sub: Approval of modification of Review of Mining Plan of Kasia Iron & Dolomite Mine along with Progressive Mine Closure Plan (PMCP), over an area of 194.196 ha in Keonjhar district of Odisha State, submitted by M/s Essel Mining & Industries Ltd under Rule 17(3) of MCR, 2016.

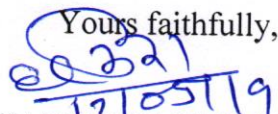
Ref: - i) Your letter No. EMIL/GEOL/81/2019-20 dated 25.04.2019.
ii) This office letter of even no. dated 29.04.2019.
iii) This office letter of even no. dated 29.04.2019 addressed to the Director of Mines, Govt. of Odisha, copy endorsed to you.

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 site inspection carried out on 06.05.2019 by Shri Ramkishan R, Senior Assistant Controller of Mines & Shri S R 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 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 MEENA)

क्षेत्रीय खान नियंत्रक / Regional controller of Mines

Copy for kind information and further necessary action to Shri V Srikanth & Shri Khageswar Mahanta, M/s Essel Mining & Industries Ltd, At/P.o – Barbil, Dist – Keonjhar, Odisha – 758035.

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

Scrutiny comment on Modification of Review of Mining Plan including PMCP in respect of Kasia Iron & Dolomite Mine of M/s Essel Mining & Industries limited

GENERAL:

1. On cover page Mining Lease Number/TC Number/Lease Number, Further, Name, address, e-mail, phone number, fax number of the lessee (Nominated Owner) and qualification details of the QP should be furnished on cover page. Summary of proposal at a glance may be furnished before "Introduction" chapter covering Exploration, Excavation, Area Utilization, Stacking, Environmental Protective Measures etc."
2. 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.
3. All the certificates/annexures should bear dated signature. Name of nominated owner should be furnished under applicant name. The status of mine operations should be furnished whether working or non-working with exact time periods. MCDR, 1988 should be replaced with relevant rules of MCDR, 2017.
4. The surface right area granted should be furnished with documentary evidence. All boundary pillars DGPS coordinates should be furnished in tabular format. The document should be prepared as per the IBM Manual on Appraisal of Mining plan 2014, no alteration and deletion should be made in the chapters headings, paras etc.
5. The term "TCF" should be replaced with "bulk density" and the term "subgrade" to be replaced with "mineral reject" at all places in the document.
6. In para 3.1, the details of earlier approved MP/SOM with letter no and date of approval and extent of area and plan period have not been furnished in tabulated format. In para 3, year wise proposal with achievement should be furnished with reason for any deviations, if any. Further, in para 3.4, sl.no.04, the compliance letter have not been enclosed.
7. Details of nominated owner (name and address) of the company along with Photo Identity Card and permanent address proof have not been furnished. Need to furnish the same.

GEOLOGY AND EXPLORATION:

8. In para 1(e) (iii), the details of sample analysis undertaken for complete chemical analysis for entire strata for all radicals in RC and core samples have not been mentioned. Also, it has not been mentioned whether the analysis has been carried out from NABL accredited laboratory or government laboratory. The details of 10 % of check samples analysis have not been furnished. Need to do necessary supporting documents and do necessary corrections.
9. The information of drilled BH to be submitted as per following format:

S. No	Year of drilling	BH Id	Borehole coordinates			Bore hole Inclination	Hole diameter	BH closing Depth	Type of BH (Core/RC/DTH)	No. of samples analyzed
			Easting (UTM)	Northing (UTM)	Collar mRL					
1										

10. The documentary evidence to be enclosed in support of expenditure incurred in various exploration operation which was carried out right from inception of mine. The respective Form J and Form K of already drilled boreholes should be annexed with detailed litholog.
11. The lease area explored under different category of UNFC norms as shown in table in page no 24 is incorrect and should be recalculated as per the provision of Part II point no.4 and part III of Minerals (Evidence of Mineral Contents) Rules, 2015 (MEMC, Rule 21015). The justification for area considered for G1/G2/G3 etc. should be given properly as per the provision of MEMC Rules'2015. Necessary corrections to be done at all relevant places of the document and resource estimation.
12. A summary of exploration conducted in the lease area as per UNFC norms should be furnished in the following table.

Total Lease area:		
Item of information	Lease area explored as per UNFC norms (in Ha) as on dt.	Remarks/Comments including reasons
	Total Lease area = A+B+C+D+E	

	G1 Level	G2 Level	G3 Level	Explored and found non-mineralized with level of exploration (Remarks)	Unexplored lease area	for not carrying out the exploration as per UNFC norms.
	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:						

13. The exploration proposal under para 1(i) has to be modified as the proposal does not meet the provision of MEMC Rules 2015. Adequate proposal of exploration to be given to explore entire lease area under G2 level of exploration as per Part III of MEMC, rule 2015. Further, in geological sections it is observed that few BH have been terminated in mineralized zone. Hence, additionally, new core boreholes to be proposed in the location adjacent to existing drilled boreholes that have been either terminated in the ore zone or closed prematurely without intersecting entire ore zone in depth. As per rule 12 (4A) of MCDR 2017 as amended up to 27th March, 2018, the depth of exploration to be proposed for open cast mining shall be up to 300 meters or up to discontinuance of ore body, whichever is earlier and accordingly the proposal has to be submitted. The proposal should be submitted for completion of exploration within 3 months from the date of resumption of mining operation. Necessary corrections to be done at all relevant places in the document and revised exploration program should be submitted complying the above mentioned points.

14. The details of the proposed exploration to be given as per 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											
Total						Total BH	Total mts				

15. The summary of proposed exploration to be given in the following table.

Year	Number of BH proposed for G2 level of Exploration			
2019-20 (within 3 months from resumption of mining operation)	Diverted forest area	Non-diverted forest area	Non-forest area	Total

16. In Geological sections, the litho correlation should be done scientifically and the lateral extent should be as per the provision of MEMC Rules 2015. The Geological section should corroborate with the litholog. UNFC codes have not been shown in geological sections.

17. Resources and Reserves within the lease have not been arrived after applying results feasibility/prefeasibility study and economic evaluation of deposit based on various factors such as:

a) Recovery factor have not been should be based on field test and authenticated from NABL accredited laboratory having valid recovery test in its scope of accreditation. The bulk density considered for saleable ore (above cutoff grade) and Mineral reject (between threshold and cut-off grade) should be determined separately based on field test and authenticated from NABL accredited laboratory. Therefore, the parameters considered for reserve and resource estimation should be corrected and modified as per points mentioned.

18. Further in the calculation of reserves and resources the Mineral reject/Subgrade (between threshold value and cutoff (grade) to be furnished. As per MEMC Rules 2015, For General (G2) and detailed (G1) stages of exploration, the lateral extension of the ore to be considered for resource assessment shall depend on geological considerations supplemented by geological continuity by mapping or by other means and in any case shall not be more than 50% of the grid spacing of the probe points. Therefore, the projection of resources in the sections should not be more than 50% of the grid spacing. Also, for General (G2) and detailed (G1) stages of exploration

the depth continuity of mineralization may be considered limited to the depth up to which direct evidence of mineralization is established. Hence, geological sections have to be modified and section wise resources and reserves have to be re-estimated as per MEMC Rules 2015 and new UPL has to be drawn. Accordingly, the resources and reserves are to be updated in all relevant places in the text and in tables.

19. Detail calculation of section wise reserves and resources of iron ore has not been furnished showing cross sectional area, volume, bulk density and recovery factor considered, tonnage estimates for ore and mineral reject part of ROM. Grade wise estimation has to be shown between threshold and cut off and above cutoff grade. Reserves and resources have to be estimated by cross sectional method.
20. Reserves and resources of Dolomite have not been furnished. Proper estimation as per the provision of MEMC Rules 2015 has to be done. Details of section wise calculation of reserves and resources also need to be furnished. Reserves and resources have to be estimated by cross sectional method.
21. Recovery and bulk density considered for ROM excavation and mineral reject/sub grade with saleable ore should be properly justified with documentary evidence.
22. Feasibility report has not been submitted. Need to submit the same.

MINING:

23. The proposed development location for the year 2019-20 in north block is extended over subgrade stack and old quarry. However, no proposal has been submitted subgrade stacks handling. Review the same and modify accordingly at relevant places of text and plates.
24. The description of the existing pits/dumps/Mineral rejects stacks/ fines or lump stocks in the following table to be furnished.

Existing Pits:

Location (Grid)	Block	Size of Pit (in m)		Surface area covered (in Ha)	Top RL (m)	Bottom RI (m)	No of benches
		Length	Breadth				

Existing Dumps:

Name of the dump	Block	Location (Grid)	Length (max) in mts	Breadth (max) in mts	Area occupied		Grade
					(m ²)	(ha)	

25. The Year wise stripping ratio should be furnished in t/cum format. The year wise excavation proposal should be given in the following format separately for each year.

Particular for the year...		
Bench Geometry	Height (in m)	
	Width (in m)	
	Individual bench slope angle	
Road Design	Gradient of Haul Road	
	Ramp gradient	
	Berm Height	
Quarry Development	Location of Development in UTM coordinates	
	Sections considered for development	
	Number of benches	
	Benches considered for development with RL	
	Length of proposed benches (in m)	
	Direction of advancement	
	Dimension of the quarry at the end of the year	
	Overall quarry slope angle	
Production of Saleable 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. Production proposal should be revised as per the revised estimation of reserves. The location proposed for mining should be properly justified. Total excavation quantity considered for calculation of machinery should be checked and rectified as discussed during the field visit. Equipment fleet strength should be in line with present haul road and quarry configuration for safe movement of the machineries with proper justification.
27. In para 2.A (b), the in-situ excavation figs should be submitted in the format specified in IBM appraisal of MP 2014 both in cum and in tones in separate table.
28. Geological Section wise of proposed ROM excavation quantity in for every year shall be provided. Sections may be equally spaced so that the entire area proposed for excavation may cover. The total excavation, OB/IB/waste, Ore, Mineral reject should be matched with section wise calculations and recovery factors considered.
29. Old dumps existed in the lease area which may contain mineral. So dump re-handling should be proposed and accordingly the disposal of waste, mineral should be addressed.
30. Existing and proposed equipment/machinery with quantity and capacity should be furnished.
31. Justification for tonnage estimates of ore and mineral reject has not been supported with cross sectional estimation and also recovery factor.

MINE DRAINAGE

32. Considering the topography of the lease area, it appears that the slope is towards East. Hence, a mine drainage plan to be submitted showing catchment area, flow direction of the water, location of final discharge, arrangement for arresting of solid waste etc. showing retaining wall, garland drain, settling tank, check dam etc.

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

33. The disposal of waste and mineral reject and soil to be furnished as per table furnished in IBM Manual appraisal MP 2014.
34. The details of all the existing dumps, Mineral reject dumps to be furnished in tabulated form.
35. 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.

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

36. The location of dumping/stacking of waste and mineral reject should be proposed in the non mineralized area with due justification of proven area of non-mineralization.
37. 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.
38. Protective and stability measures for proposed new waste dump should be furnished in tabulated format.

PROCESSING OF ROM AND MINERAL REJECTS:

39. A material balance chart with a flow sheet or schematic diagram of the processing procedure indicating feed, product, recovery, and its grade at each stage of processing has not been furnished. The arrived percentage of recovery of saleable ore and sub grade ore should be justified properly with documentary evidence.

OTHERS:

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

PROGRESSIVE MINE CLOSURE PLAN:

41. The lease is expiring in 31.03 2020, therefore PMCP submitted in instant document should in line with the IBM Manual for appraisal of FMCP.
42. Baseline information of the lease area should be described on the basis of information incorporated in first approved mining plan at the time of grant of ML. Existing base line information to be furnished on the basis of environment monitoring parameter carried out. The environment monitoring data of last one year to be enclosed for ready reference. Further, base line information to be furnished for surrounding 500 meter form lease boundary.
43. The proposal of fencing should be given for entire Excavations/ pits endangering fall of persons/cattle etc. Proposal of geo-textile/coir matting with plantation to be given for matured terraces/slope of the proposed/existing dump. If the Sub-grade material is not utilized fully by the end of lease period, proposal of coir matting over such dumps to be given in the interest if protection of environment. Garland drain and retaining wall to be proposed along the proposed sub-grade stack. Accordingly progressive mine closure plan to be revised.
44. The details of all existing infrastructure available in the lease area should be furnished in tabular form and their present value and value at the end of lease period to be given after depreciation. The decommissioning cost and final value of the decommissioned infrastructural facilities, if any, may be furnished.
45. Time scheduling for proposed activity like waste dump management (Garland drain, retaining wall, settling tanks, plantation), safety and security (fencing of pits, dumps etc.), disposal of machineries, reclamation & rehabilitation, infrastructure, protective measures of environment should be supplemented by PERT (programme evaluation review technique) or Bar chart and these activities should be clearly shown on reclamation plan. All the proposals regarding decommissioning should be with in 31.03.2020
46. In FA calculation, the area put on use at the start of review of mining plan period is less than the area put on use at the start of the previous approved document. Further, the additional area required under various heads should be justified as proposal is for only one year. The area under different heads should be rechecked and calculated properly. Additional bank guarantee has to be submitted if the net considered area is more than the area shown under FA calculation. The area under different heads of FA table should be properly shown in different hatching with present area and additional area.
47. Plantation should be proposed over existing backfilled area and should be shown in relevant plans. Also the existing stabilized area by plantation should be shown in all relevant plans.

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 and sections should be signed with date by certified Surveyor, Qualified Person, Mine Manager, Mining Engineer and Mining Geologist as per provisions of MCDR, 2017 and MMR, 1961. 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 x-axis coordinates have not been shown in the plates. The term backfilling area should be removed as there is no proposal for backfilling. Rather the area already backfilled should be shown as "backfilled area". The old dumps/stacks that have been stabilized by plantation should be shown relevant plans. List of plates to be updated with the reference of DGPS survey map. Need to do necessary corrections at relevant places.
2. **KEY PLAN:** The key plan should incorporate all features as mentioned Rule 32 5 (a) of MCDR 2017. The prominent wind direction to be shown by rose diagram in key plan and other relevant plans. The approach road to the lease area should be shown with Co-ordinates of extremity of lease area.
3. **SURFACE PLAN:** All the boundary pillars to be given in UTM too. All the updated boundaries of Fines stack, Waste dump, Mineral reject dumps to be shown on the plan. Surface right area to be shown on the plan with different type of land schedules. All the features have not been shown in the index. Common boundary with other lessees if any should be shown on the plan. The Surface Plan should be prepared to satisfy the provision as laid down rule 32 (1) (a) of MCDR'2017. The distance and bearing from GCP should be shown in map.

4. **GEOLOGICAL PLAN & SECTION:** (i) Geological information to be highlighted in geological plan and section. All other information like contour, quarry etc. to be suppressed. All drilled BH, quarries and trial pits to be shown with red color and BH nomenclature with black color. (ii) Geo structural information has not been furnished adequately. (iii) Limit of estimation should be as per MEMC rule 2015. (iv) The redefined UNFC boundaries and UPL to be shown in Geological Plan and sections. (v) All the geological information to be furnished on geological plan based on drilled BH, exposed pit, trial pits etc with their configuration profile (dimensions) like depth. Section lines with nomenclature should be highlighted on the plan. Proposed boreholes should be shown in dotted line. Iron ore mineralization area should be clearly demarcated on the Geological plan. The Geological Plan should be prepared to satisfy the provision as laid down rule 32 (1) (b), (c) and (d) of MCDR'2017. Plan and section should be drawn on same scale. (vi). UNFC should have not been shown in the sections. (vii). The blank space above UPL should be filled with relevant lithology. (viii) Grade wise sections have to shown.
5. **DEVELOPMENT PLAN & SECTION:** (i) present pit profile configuration with UPL to be shown with red color and proposed development with some other color. All development section to be submitted for which development is proposed. (ii) The layout of the haul road for present and future excavation proposal should be properly addressed in line with safe movement of fleet of the machinery. The proposed and existing haul road to be depicted on the development plan. (iii) The proposed and existing bench mRL to be shown clearly over year wise development plan and sections. (iv) Geological information to be furnished on development plan and sections. Plan and section should be drawn on same scale.
6. **RECLAMATION PLAN:** All revised year wise proposals as per comments in PMCP chapter to be depicted on the plan.
7. **ENVIRONMENT PLAN:** The Environment Plan as prepared should be satisfy the provision as laid down rule 32 (5) (b) of MCDR'2017. Wind rose diagram should be depicted.
8. **Environment management plan** need not to be submitted.
9. **Financial Assurance Area Plan:** The area degraded due to mining and allied activity to be considered in FA calculation. It should be re-calculated and submitted accordingly. The existing area and additional area under different heads should be shown properly under different coloured hatching.

ANNEXURES:

1. The updated list of all the directors to be enclosed and same to be given in the text. The latest copy of board resolution about nominated owner to be enclosed.
2. The copy of the qualification & experience certificate in respect of the QP to be enclosed.
3. Copy of latest lease deed executed with copy of authenticated land schedule should be enclosed. The lapse order of ML issued by state government and Revision Authority orders should be enclosed.
4. Copy of quality of air, water, soil, noise and other environmental a parameters monitoring report of the last year should be enclosed.
5. All the annexure to be properly numbered/paged and relevant annexure to be signed by Geologist/surveyor/QP etc. It is observed that many of the annexures are not legible. A legible copy of same to be enclosed.
6. A legible copy of photo id, address proof and signature proof of lessee to be enclosed.
7. Copy of previous approved mine plan & scheme of mining letter should be enclosed.
8. 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.
9. Copy of EC, FC, CTO etc. to be enclosed. Environment monitoring data to be enclosed at least for last one year. Copy of surface right order. Certificate of surveyor. Approval letters of last MP/SOMs.
10. Recovery test, bulk density test reports carried out in NABL laboratory should be enclosed.
11. Copy of bank guarantee should be enclosed. Photographs of boundary pillars should be enclosed.
12. Certificate from the lessee should also include: The information furnished in the Modification of mining plan and Progressive Mine Closure Plan is true and correct to the best of my knowledge and records. It is to undertake that all the measures proposed in this Progressive/Final Mine Closure Plan will be implemented in a time bound manner as proposed.
13. Copies of Form J and Form K of all drilled boreholes have not been submitted.
14. The chemical analysis results of borehole samples from NABL accredited laboratory have not been submitted.

Sudip Ranjan Mazumdar
15/5/19
(Sudip Ranjan Mazumdar)
Senior Mining Geologist

R. Ramkishan
15/5/19
(Ramkishan. R)
Sr. Assistant Controller of Mines