



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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Plot No.149, Pokhariput  
BHUBANESWAR-751020

No. MPM/OTFM/01-ORI/BHU/2019-19

Date: 09.04.2019

To

Shri Manoj Mumar Rustagi, Director & Nominated Owner,  
M/s Shiva Cement Ltd, Plot No.YY-5,  
Civil Township, 7&8 Area, Rourkela,  
Dist- Sundargarh, Odisha-769004

Sub: Approval of modification of Review of Mining Plan of Khatkurbahal Lst & Dol Mine along with Progressive Mine Closure Plan (PMCP), over an area of 72.439 ha in Sundargarh district of Odisha State, submitted by M/s Shiva Cement Ltd under Rule 17(3) of MCR, 2016.

Ref: - i) Your letter No. SCL/KKB/Mines/IBM/MMP/2019/001 dated 26.03.2019.  
ii) This office letter of even no. dated 28.03.2019.  
iii) This office letter of even no. dated 28.03.2019 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 earlier site inspection carried out on 16.12.2018 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- 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 G P Sahu & Shri Rohit Solanki, M/s Shiva Cement Ltd, Plot No.YY-5, Civil Township, 7&8 Area, Rourkela, Dist- Sundargarh, Odisha- 769004.

  
(HARKESH MEENA)

क्षेत्रीय खान नियंत्रक / Regional controller of Mines

N.O.O:

Copy for kind information to the Controller of Mines (EZ), Indian Bureau of Mines, CP-13, Sector V, Salt Lake City, Kolkatta- 700 091.

  
(HARKESH MEENA)

क्षेत्रीय खान नियंत्रक / Regional controller of Mines

**Scrutiny comment on Modification of Review of Mining Plan in respect of Khatkurbahal Limestone & dolomite mines, 72.439 ha of M/s Shiva Cement Ltd in Sundargarh district of Odisha State.**

**GENERAL:**

- I. On cover page and in certificates and text "Modification of Review of Mining plan" should be furnished. The e-mail, phone & fax no. of lessee and qualified persons should be furnished on cover page. Category of mines clearly mentioned as Category-A fully mechanized mines.
- II. In introduction chapter brief history of mines should be described in chronicle order. Reason of modification should be described in details with present capacity of captive cement plant, proposal for enhancement of plant capacity and accordingly annual requirement of limestone production. The present capacity of EC and their further enhancement, surface right and consent to operate should be described in details.
- III. Page-7, Latitude and longitude of all boundary pillars including intermediate pillars alongwith easting and northing should be furnished.
- IV. Para-3.2, Page-9-12, yearwise exploration proposed with actual should be furnished. Excavation of OB and ore are not correctly furnished upto the end of year. In remarks coloumn reason of less production furnished low market demand. Since production of ROM is for its captive use, therefore actual facts of deviation should be furnished. Reason of modification should be described with present production capacity, capacity of plant and EC and further enhancement of plant capacity and ROM production.
- V. The CCOM circular no.2/2010 and its addendum should be implemented.
- VI. 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.
- VII. All the annexure to be properly indexed/ numbered/ paged and signed by qualified person. All the certificates should bear dated signature.

**GEOLOGY:**

- I. Page-15, detailed description of regional geology has not been furnished. Structural features like dip strike etc. to be given.
- I. Page-16, Para(e), the details of exploration carried since inception of mining operation 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.
- II. 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. Litho units as depicted in geological plan & section should be matched with the bore hole logs.
- III. It has been mentioned that total 83 numbers of bore holes drilled out in the lease area but bore holes log of only 77 nos. of bore holes have been submitted and also total bore holes as mentioned are not shown in geological plan and section. Some of the bore holes log are incomplete and no having relevant information.
- IV. The Geological boundaries of exploration limit i.e. G1/G2 etc. based on exploration carried out are not marked in geological plan.
- V. Page-17, Para-(i), it has been observed from geological section that bore holes are terminated in ore zone. Therefore future exploration program should be furnished to know the depth ward continuity of ore. All the drilled and proposed BH to be depicted on the Geological section along with RL and its actual and proposed depth for better referencing.
- VI. Page-17, Para-(h), total geological section drawn and number of geological section considered for reserve/resource estimation and their interval should be furnished.
- VII. Earlier exploration carried out so far in the lease area should be summarized as per table below:



<b>Total Lease area:</b>						
Item of information	Lease area explored as per UNFC norms (in Ha) as on dt.					Remarks/Comments including reasons for not carrying out the exploration as per UNFC norms.
	<b>Total Lease area = A+B+C+D+E</b>					
	G1 Level	G2 Level	G3 Level	Explored and found non-mineralized with level of exploration (Remarks)	Unexplored lease area	
	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						
<b>Reserve estimated after above exploration as on dated :</b>						
<b>Remaining Resource after above exploration as on dated:</b>						
<b>Total Reserve/Resource after above exploration as on dated:</b>						

- VIII. Geological sections are not prepared as per Minerals Evidence of Mineral Contents Rules 2015. The profile of geological sections is not matched with lithology as furnished in geological plan. Some of the bore holes not shown in sections. RL of the bore holes are not correctly furnished. UPL not marked prevailed on mineralization in section XY21, XY22 and in section XY25 mineralization not shown taking influence of adjacent bore holes. All the geological sections should rechecked and corrected.
- IX. Page 19-24, the reserve and resources as furnished in tabular form are not in chronicle order. The Geological resources (under 331 category) should be converted into mineable reserve after depletion of blocked mineral resources (under 211 category) then mineable reserve (under 111 category) should be derived with grade mineral.
- X. The reserve and resources is not furnished as per Minerals Evidence of Mineral Contents Rules 2015. The resources as furnished under 333 & 332 category beyond the depth of bore holes drilled should be omitted. A fresh calculation of reserve & resources should be carried out based on the UPL marked in the geological plan as per table below:

Cross section considered	Sectional area	Length of influence	Total volume	Volume of top soil	Volume of OB/waste	Volume of ore	Conversion factor	Resrve/resource in MT	Average grade

- XI. Mineral Resources estimated purely based on level of exploration, with reference to the threshold value of minerals declared by IBM and to be furnished in the following format:

Level of Exploration	Resources in million tons	Grade
G1- Detailed exploration		
G2- General Exploration		
G3 – Prospecting		
G4- Reconnaissance		

- XII. Page-26, the justification of UNFC codes are explained properly. Page-27, the grade of the reserve and resources are not furnished.

- XIII. The nos. of samples analyzed from NABL accredited laboratory or Government laboratory have not furnished with documentary evidence. As per guideline of "IBM manual on appraisal of Mining Plan 2014" at least 10% of total samples to be analyzed in accordance to BIS and reports form NABL accredited/Government Laboratory.
- XIV. In feasibility report the Cost-Benefit analysis and financial appraisal to be carried out based on real time cost involved and also viability of the project up to the ultimate depth to be analyzed. NPV, IRR and Sensitivity analysis on cash flow due to market changes etc. to be carried out.
- XV. 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-29, existing method of mining has not been described properly. The description of existing pits/dumps/mineral rejects stack in the following table to be furnished.

Location (Grid)	Block	Size of Pit		Surface area covered(Ha)	Top RL(M)	Bottom RL(M)	No of Benches
		L	W				

- II. Proposed number of pits with their location and proposed top and bottom RL alongwith top soil, OB & ore benches with their RL should be furnished,
- III. Page-30, the bulk density of mineral reject and percentage of recovery of saleable/usable ore with ROM to be furnished.
- IV. Page-31, Para-(b), in insitu excavation yearwise summary of excavation of both the pits should be furnished in table.
- V. 1.5MTPA of ROM production proposed from 2021-21 in which mineral reject generated during mining operation is not included. The ROM should be furnished with including usable and mineral reject.
- VI. Grade of the usable ore and mineral reject should be furnished in table insitu tentative excavation. Page-32, in dump re-handling para shifting of OB /waste with their location and total quantity to shifted to be furnished.
- VII. Yearwise tentative excavation of top soil, overburden, mineral reject and usable ore have not been calculated considering the cross sections and bench RL as proposed.
- VIII. Page-43,drilling and blasting has not been explained in the line of DGMS letter no.S-29020/04/2018/CR/330284/567, dated 14/03/2018. All the parameters of drilling and blasting and protective measures taken should be proposed accordingly. As per DGMS letter 100m line beyond the school and other structures should be marked and described in text. Drilling and blasting will not be permissible within this zone. Alternative mining machineries like surface miners should be used for mining near the human settlement.
- IX. Development section is not matched with plan. The RL of proposed benches has not been shown in plan. The shifting of magazine house and their proposed location not shown in plan neither described in text.
- X. The quantity of Sub-grade to be generated during conceptual period and its utilization and future planning for beneficiation may be given.
- XI. In conceptual mining plan, life of mine, cumulative waste generation and protective measures should be furnished properly. Restoration of safety zone, stabilization of dump and reclamation and rehabilitation of excavated pits should be described properly.

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

- I. Page-52, The site for storage of mineral reject and yearwise progress of OB/waste dump has not been furnished. The yearwise waste and total mineral reject ( insitu+screen reject) generation and their utilization are not furnished in table.

- II. Shifting of existing dump of OB /waste with their location and total quantity to shifted to be furnished.
- III. The existing dumps should be furnished below alongwith analysis report.

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

- IV. It should be ensured that the area proposed dumping should be proved non mineralised. Therefore before dumping the exploration proposal should be furnished in proposed dumping area in 2018-19.
- V. The proposal of dumping may be given in tabulate format as shown below. The year wise build up of dump should be described in details .

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

- VI. The details of sub grade dumps and their analysis report should be submitted and discussed for their future use on the basis of their physical and chemical properties.
- VII. Page-53, Details Existing and proposed retaining wall, garland drain, settling tank etc. to be given yearwise with their location. The retaining wall and garland drain along the OB dump, mineral reject and top soil dump should be proposed in 2019-20 in place of 2021-22 as furnished in text. The protective measures taken to be described.

**PROGRESSIVE MINE CLOSURE PLAN:**

- I. Page-64-65, Monitoring station of air, water, noise and ground vibration in the lease area should be furnished with their location.
- II. Page-66, human settlement of the in lease area and surrounding area as per census likes male, female, literacy percentage etc to be furnished. Resettlement and rehabilitation policy if any for inhabitant lying in lease area should be furnished.
- III. Page-68, Year wise plantation covering number of saplings to be planted, location and area covered may be furnished. Page-79, Para-8.3.2, The generation of top soil yearwise and their utilization and protective measures should be furnished.
- IV. Page-75, Para-vii, The permanent structure like school, towers, house etc are exist in the lease area, therefore protective measures taken to secure the permanent structure to be furnished.
- V. Page-86, Amount of financial assurance should be calculated as per rule 27(1) of MCDR-2017 and submitted accordingly.
- VI. Updated air, water, noise, ground vibration and soil data with analysis from laboratory done at specified periodicity for last one year to be enclosed.
- VII. Under impact on land, cumulative land degradation at present, at the end of proposal period and at the end of conceptual period may be given referring to conceptual mining plan given in scheme of mining.

**PLATES (General):**

- I. All plans and sections shall show a scale of the plan at least twenty five centimeters long and suitably subdivided. All plans & sections prepared shall follow the sign conventions under MMR 1961.
- II. Magnetic declination and date of observation, wind rose diagram in key plan and environmental plan should be furnished. An authenticated lease plan to be enclosed.
- III. 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.
- IV. 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. The UPL should be shown in red colour in all relevant plans and sections.

**Surface Plan:** Few pillars may be correlated with some permanent ground features giving distance and direction. Different land use may be shown with colour codes, surface right area should be marked clearly. DGPS coordinate of all boundary pillars should be mention on surface plan. Grid lines should be furnished in terms of easting and northing.

**Geological Plan & Section:** The geo-structural information like strike, dip, dip-direction etc to be shown clearly. 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. The colour of Geological features should be same in both Geological Plan and Geological sections. The grid value as marked in section is not matched with plan. UPL not shown in Plan and not drawn correctly in sections. Nomenclature of section adjacent to section X13-Y13 is wrong, it should be replaced with section X14-Y14 similarly section X24-Y24 should be replaced with section X23-Y23. Existing bench RL should be mention in Plan & sections clearly. PBH 7 shown in section along x3-y3 but its location not properly shown in plan. Some of the bore holes are missing in section as shown in plan and RL of bore holes not matched with plan and section. All the lithology to be shown in the Geological plan and sections as per bore holes log.

**Development plan & Section:** Existing and proposed RL of benches/dumps should be mention clearly in development plan and section. Section of proposed topsoil dump and waste dump not shown. UPL of Section D13-14 is not correctly furnished, UPL of all section should be rechecked. In plan bore holes to be shown in proposed pits. Lito units shown in index not depicted in plan. The grid value as marked in section is not matched with plan. Some of the index is missing in plan and section. Location of screen plant, proposed magzine to be shown in plan.

**Reclamation Plan:** Year wise proposal of top soil storage, mineral storage, retaining wall and garland drain and afforestation using different colour codes for easy understanding should be furnished. Location of screen plant should be shown.

**Environment plan:** The Environment Plan as prepared should be satisfy the provision as laid down rule 32(5) (b) of MCDR2017. Environment Plan, natural drainage systems such as water course, streams, nalla, 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 and section should be prepared up to the end of lease period taking into consideration the production of ROM, Disposal of waste, backfilling of voids, reclamation and rehabilitation etc. One longitudinal section may also be submitted.

**FA Plan:** 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.