

Scrutiny comments on the Review of Mining plan along with Progressive Mine Closure Plan of Benti Bagda Limestone Mine over 135.52ha of M/s Jharkhand State Mineral Development Corporation Limited, in village Benti & Bagda, Ranchi District, Jharkhand State submitted under Rule 17(2) of MCR 2016 and 23 of MCDR 2017 for the period from 2021-2022 to 2025-2026.

General:

1. It has been observed that the ML area has not been surveyed before preparation of this submitted review of mining plan (ROMP). The surface plan has not been updated as per the ground field conditions observed during the time of inspection. The entire area therefore needs a re-survey followed with necessary updation in all the relevant chapters of this document.
2. Brief lease history, Status of all statutory clearance obtained or to be obtained and Surface right acquired should be given in introduction along with documentary proof as enclosure. Distance of ML from protected area/wild life sanctuary etc. to be mentioned accurately in introduction.
3. Page No:1- The mine is non-working from 2012 for want of statutory clearance, whereas EC has been grant in 2016 and CTE by JSPCB issued on 2017. The Reason for Non-working to be justify.
4. The Review of Mining Plan has not been submitted for approval at least one hundred and eighty days before the expiry of the five years period for which it was approved on the last occasion, for mining operations for a period of five subsequent years. Approved Review of Mining plan was valid upto 31.03.2020. Reason for delay in submission to be given.
5. There are typographical mistake while furnishing page number of annexures in the text of various plates, same should be checked. Instead of applicant, it should mention as Lessee and instead of report it should mentioned as Review of Mining plan in all relevant page.
6. Details of others leases of the same lessee to be mentioned with its status in introduction.
7. Sufficient space should be provided at the first and last page of the text on the bottom right hand side, for the signature of the approving officer. The RQP should sign on the left hand sign.
8. On examination of Annexure- 5, the 'environmental clearance letter issued by the MOEF', the total lease area mentioned is 135.508 Ha whereas in text and on cover page it is mentioned as 135.520 Ha. Thus there is a difference of 0.12 Ha of lease area. Land revenue with survey numbers as supporting document to be enclosed.
9. When a lessee is unable to commence the mining operations within a period of two years from the date of execution of the mining lease or discontinuation of mining operations for reasons beyond his control, he may submit an application to the State Government, explaining the reasons for the same, at least three months before the expiry of such period of two years as per MCR 2016, of Rule-20, Section-3 or under MMDR-2015 under Section -4A. The order of the state government, if any, in this regard to be enclosed.
10. As per Rule 12(1)(V) of Minerals Concession Rules,2016, the lessee shall at his own expense, erect, maintain and keep in repair all boundary pillars according to the Act and rules made there under with respect to the manner of construction and upkeep of boundary pillars as enumerated in this rule. However, it was observed that although corner pillars were posted around ML area, but intermediate boundary pillars were not posted and other requirements regarding size and colour code under this rule with respect to corner boundary pillars were also not full filled. The same needs to be erected as per rule and its photographs to be enclosed with RMP document.
11. The Id proof of the authorized signatory to be enclosed.

Location and accessibility:

1. Page:5- Corner boundary pillar erected are not standard procedure of MCR 2016. Co-ordinates of boundary pillars are not differs with plans and text, hence it has to be corrected based on DGPS co-ordinates only.
2. On Verification of lease plan and present submission of DGPS surveyed lease sketch authenticated by state government, it is observed that Survey No.227 & 442 of Benti village is substantially shifted. As

per land scheduled it is demarked as Jungle Jhari, whereas plan shows as notified forest area. Needs justification.

Details of approved Mining plan/ Scheme of Mining:

1. Previous approved RMP date is wrongly shown.
2. The review of earlier approved proposal of exploration, excavation, afforestation land reclamation & rehabilitation has to be shown in table format for year wise. Development quantity is not shown and waste in cu.m is more than the approved proposal quantity.
3. Justification given for earlier approved proposal is not acceptable hence EC and CTE by JSPCB have been obtained prior to 2017.
4. The review of compliance of violation pointed out by IBM during last 5 years is not discussed properly. Copies of violation letters issued from IBM and lessee's reply may be enclosed in the annexure in support of details given. Please refer IBM manual for appraisal of mining plan.

Geology:

1. Under Geology of the lease area type of the deposit, shape and size of the ore body, structural features if any needs to be discussed. Dip and strike of the formation may be mentioned in whole circle bearing.
2. Para 1.e: Earlier exploration carried out so far in the lease area should be summarized as per table below and given in the text.

Total Lease area:						
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.
	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	
	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:						

3. Boreholes logs of all the drilled boreholes to be enclosed.
4. Existing Boreholes are insufficient to prove the quantity and quality of Limestone deposit. Few sections are not having sufficient boreholes for estimating reserves & resource. Hence Reserves and Resources have to be re-estimate based on available data only & the re-survey required.

5. It is incorrect to consider category 111 without or with one borehole based on lithology on section. Lateral and vertical extrapolation of maximum 25% of grid interval i.e. 12.5m beyond the borehole may be considered for G-1/G-2 category.
6. Detailed estimation sheet for reserve and resources need to be furnished showing sectional area as per UNFC category, influence, BD, recovery factor, location on plan & sections etc. The basis of bulk density and recovery factor should be given on the field tests conducted for different grade of minerals. Test result on moisture contents may also be included. Cut-off grade based on international/domestic market conditions, mining and processing losses i.e. generation of tailing etc may also be considered for estimation of reserves & resources. Refer Minerals (Evidence of Mineral Contents) Rules 2015 for exploration grid interval to be followed for UNFC reserves & resources estimation.
7. UPL has to proposed upto proved depth only. No extrapolation of extreme borehole has to be considered for estimation of reserves & resources. Beyond & below the depth of boreholes, it should be considered as resources as per above said rule.
8. Feasibility report must have sale price of different grade of ore i.e. specific market aspects along with economic viability. Other items i.e. cash flow forecast, inflation effects etc may also be attended as per guidelines.
9. Proposed exploration are not adequate and additional exploration has to be proposed in working pit also to know the existence of mineral as well as its UNFC compliance has to be planned. Core boreholes have to be planned and propose to drill during 2021-2022. As per Minerals (Evidence of Mineral Contents) Rules 2015, proposed borehole spacing along strike may be kept 50m or closer interval for irregular habit type deposit.
10. Detail of at least 10% of total samples from NABL accredited laboratory is not given. Recovery test and bulk density report from NABL accredited laboratory to be enclosed.
11. Para 1.0(j): The area under G-1, G-2, G-3 and G-4 may be given in a tabular form based on the exploration carried out in the past.
12. Para 1.0(l): Mineral resources may be estimated based on the level of exploration, with reference to the threshold value of minerals declared by IBM in tabular form.

Level of Exploration	Resources in Million Tons	Grade
G1- Detailed Exploration		
G2- General Exploration		
G3- Prospecting		
G4- Reconnaissance		

13. An attempt may be made to prepare slice plans for estimation of reserves & resources due to complex deposit with intrusion and shape of the mineralised zone etc. Refer sub-para-k of Part-A Geology & Exploration of universal format for Mining Plan.
14. Water course & Electric line is passing inside the Lease area, safety barrier zone has not been given, hence it has to mention in text & plan. Ore below this safety barrier zone has been considered as reserves instead of Resources. UPL, UNFC code & reserves has to re-estimate and re-draw.
15. Page-21:- Submitted draft RMP shows 2184 tons as mineral stock, whereas the submitted annual return shows 1200 tons only as mineral stock. But during inspection it has noticed that more than 5000 tons of stock is present in mines pit.

Mining:

1. Production planning is silent on grade of ore to be produced, cut-off grade for sale of ore, reject generation and its stacking. Nature of waste and mineral reject describing the lithology has to be mentioned.
2. As per guideline of “IBM manual on appraisal of Mining Plan-2014”, a NOTE to be added below the proposed year wise excavation summary Table regarding tentative tonnage as arrived considering

recovery % and tonnage conversion factor (TCF) based on time series data alongwith the technological tests carried out to arrive at the recovery & tonnage conversion factors.

3. Production plan has not design properly, i.e, Production has been proposed in unexplored area. In most of sections production has proposed in G-2 category. Resources should not be mined and proposal has to be made only for reserves. Excavation has been proposed in Quarry-1, 2, 3 & 5 for this proposed plan period, whereas there is no sufficient influence of Borehole to considered Quarry-1,2,3&5 surrounding area as Reserves. Therefore Production plan has to be revised based on updated UNFC category, UPL.
4. Since dumping is proposed within the lease in the Northern part it should be on a proved barren. Hence bore holes should be proposed before commencement of dumping under proposed exploration programme. On Northern side, the Village Road & Nalla is passing inside the lease area; the proposed dumping should not contaminate the water source.
5. There is no approved explosive magazine with the lessee in the mine. Therefore, copy of the agreement with explosive dealer to supply the explosive on the day of blasting and take back the unused explosive may be enclosed. Other specific conditions of agreement may be briefed.
6. Describe briefly with calculation for adequacy and type of machinery and equipment proposed to be used in the lease for different activities of drilling/ripping, total handling in development and production, surface transportation and any other ancillary operation. Refer Para 4.2 of IBM manual for appraisal of mining plan 2014.
7. The proposal for safety, security and other welfare amenities as required for labours/ manpower to be discussed including the adequacy of ODF facilities.
8. Para 2 (f):- Conceptual mine planning may be end of lease period. The chance of enhancement of reserves after exploration may also be mentioned. Generation of Production, wastes and their location of disposal, afforestation and other protective measures during conceptual period have not been discussed. Incorporated tables of proposed mine development, location of disposals of wastes, afforestation and other environmental protective measures during RMP period (i.e. year 2020-21 to 2024-25) need not necessary under this para.

Mine drainage:

1. Minimum and maximum depth of water level is not given based on own monitoring of nearby wells and water bodies or based on studies/ publications of CGWB/ SGWB.
2. The general water table in the lease area is more than 30m and average depth of mine working is 35m and maximum to 55m. Whereas 'Environmental clearance letter issued by the MOEF', the specific condition Nos-xii, should be mentioned and accordingly hydrogeological study should be carry out and necessary permission from CGWB to be obtained.
3. Ambiguous statements are used for different sub-para of mine drainage i.e. minimum and maximum depth of water level, quantity & quality of water likely to be encountered (seepage as well as discharge), pumping capacity and Regional & local drainage pattern w.r.t. Benti Nalla.
4. Seasonal garland channel has to show in year wise production & development plan and dimension to be mentioned under PMCP table.
5. Page-52:- Rainwater in form of surface runoff will discharged in the Natural Nalla, but Consent to Establish issued by Jharkhand SPCB clearly mentioned that rain water harvesting structures and water body to retain all the rain water falling in the area and no sediments should go out mining lease area. Mining operations is restricted upto 100m from the bank of water boby.
6. Mine is having large catchment area and substantial quantity of rain water flowing through the lease area. However, adequate rainwater management plan i.e. drainage plan along with arrangement for arresting solid wash off is not incorporating with engineering details & material to be used for its erection/ construction. Accordingly, Proposals should be incorporated in this document in view of environmental protection.

Stacking of Topsoil, Mineral Reject and Disposal of waste:

1. Instead of Quarry waste, it can be mentioned as mineral reject. It is proposed to rehandled the dump during conceptual plan period, whereas conceptual period is only for 01.04.2026 to 04.05.2026. Therefore it is not sustainable to rehandled all the dump material.
2. Page-55:- There is no proposal for backfilling during this plan period, whereas text part describe the yearwise area covered by backfilling.

PMCP:

1. Few photographs of the ground control points, working area, dumps, afforestation on dumps, mineral stacks of different grade, pits and tailing pond showing baseline information as on date may be enclosed. Human settlements and public buildings, places of worship and monuments within core zone have to be given.
2. The employment potential table needs to be furnished with an additional column under categories of high skilled, skilled, semi-skilled & un-skilled
3. The table in Para 8.3 for year-wise proposals for reclamation & rehabilitation is mismatching with five-year proposals. Separate year-wise proposals are required for applicable items under PMCP. Table given in IBM manual for appraisal of mining plan 2014 is having format for yearly report under rule 26 of MCDR 2017 and it needs suitable modification for year-wise proposals to be included for next five-year period. It is therefore advised to delete the column 'Actual' as well as non-applicable rows for proposals i.e. cumulative number of plants in dump management, afforestation done and cumulative number of plants in management of worked out benches etc.
4. The details of construction of check dams/ settling tanks etc shall be given along with their design in the chapter on mine drainage. The mode of disposal of surface run-off water shall be discussed indicating the schematic route showing its discharge with proposed provisions of check dams/ settling tanks/ water quality monitoring stations etc in tabular format. The proposal shall also to be shown in the reclamation plan.

PLATES:

1. Cadastral lease map has to be certified from competent officer of state department/ forest department for diversion of forest land has to be enclosed. As per Lease deed Survey number of 565, 650 of Bagda village are shown under Benti village in cadastral map. Village road are not plotted as per lease deed. Few survey numbers are repeated and omitted in the plan.
2. DGPS Plan: the copy of DGPS plan duly authenticated by state government is not submitted.
3. Key plan:- Land use pattern i.e. forest, waste land, agriculture land etc to be shown as per rule 32(5)(a) of MCDR 2017. Other surface features like residential township, HT/LT electric lines etc may be updated. Key plan shows that area falls below south side of Nalla are on Forest area. Its need to be explains. Signature of QP is not there.
4. Environment Plan: Following details may be include i.e. forest land, government land, private land, pits etc within 60m distance and within 500m distance as per rule 32(5)(b) of MCDR 1988. Existing natural vegetation, adjoining working pits of other lessee's etc.
5. Surface Plan: The surface plan has not been updated as per the ground field conditions as observed during the time of inspection. The surface plan shall be strictly updated as per rule 32(1)(a) of MCDR 2017 duly countersigned by the surveyor of the mines. A copy of the surveyor's certificate shall be invariably submitted alongwith the document.
6. Surface Geological Plan & sections: All boreholes should be marked with type, diameter, inclination, collar level and depth. Boreholes above pit bottom must be shown by hatched lines in sections. Excavated boreholes are not needed to show. Sections are not drawn at regular interval of 100m. All sections Lateral and vertical extrapolation of maximum 25% beyond the borehole is allowed for G-

1/G-2 category; accordingly all the sections may be modified for showing UNFC reserves category. Few sections are having only 2 boreholes and few sections have no boreholes, however category G-1 is consider for reserves. UNFC codes are not marked in Geological plan & sections. Sub surface resources can't be projected on plan under UNFC category. UNFC codes have to be described in text also. Sections are not having any other lithology. Borehole RL are mismatching with borehole logs RL. Drilled Negative Borehole and Proposed boreholes colour to be distinguished.

7. Five-year planning: Section should be drawn as per Geological Section. Proposal of plantation, check dams, retaining wall, drainage channel, dumping etc may also be included on the year-wise plan & sections. Other scrutiny comment given in text has to be suitably reconciled.
8. Conceptual Planning: It has to be prepared by including five-year block wise proposals for development, waste management, reclamation & rehabilitation, afforestation etc up to the lease period instead of tentative final pit limit at the end of lease period. Longitudinal and transverse sections are required in support of conceptual planning. Other comments may be suitably reconciled. Conceptual Mine plan upto the end of lease period has to be prepared on the base geological plan and sections considering the present available reserves and resources by showing the excavation, disposal of waste, backfilling of voids, reclamation and rehabilitation, afforestation etc.
9. The plans and sections should be neatly folded. On the labeling of plan is done such that on folding, the legend is visible in front, for easy identification of the plates.

Annexure:-

1. The clear and legible copy of the documents enclosed as Annexure to be provided.
2. All the annexure to be properly indexed/numbered/paged and signed by the TQPs.
3. The copy of original valid BG of requisite amount should be submitted in the form of annexure along with original.
4. As per EC, Approval copy of National Board for Wildlife clearance to be enclosed.
5. Geological plan of the interim report on the investigation for limestone in Benti & Bagda area to be enclosed.