

Scrutiny comments on the Modification of Mining plan along with Progressive Mine Closure Plan of Purnadih Graphite Mine over 81.75ha of M/s. Mohan Minerals, in village Purnadih of Satbarwa Thana of Palamau District submitted under rule 17(3) of MCR 2016 and 23 of MCDR 2017 for the period from 2020-2021 to 2024-2025.

General:

1. Certificates: Word 'lessee' should be used instead of 'applicant' in case of existing lease. As per IBM manual for appraisal of mining plan 2014 all the certificate should have the original signature of Lessee and Qualified person who has prepared the mining plan. Whereas in submitted draft copy repeated certificates are enclosed.
2. 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.
3. There are typographical mistake while furnishing page number of annexures don't mention previous annexure number and date of grant of lease is wrongly mentioned. Instead of original certificate, it should mention as Xerox copy in all relevant page.

Location and accessibility:

1. As per land scheduled enclosed in first lease deed, i.e 80.83 hectares has granted, whereas in cover page it is shown as only 81.75 hectares under GM land. Hence justification is need in this.

Details of approved Mining plan/ Scheme of Mining:

1. It is reported that no boreholes are drilled against target of 30 boreholes; location of proposed boreholes planned is not indicated. A table for year-wise review of exploration has to be included having number of holes & meterage to be discussed. Reason for non-achieved to be discussed.
2. The year wise production & development quantity should be updated & given till date based on statutory annual/ monthly returns submitted to IBM & deviation should be justified. The proposed & achievement should be mentioned as per approved plan proposal i.e. Latitude & Longitude/ RL etc. & actual workings done should be discussed in tabular form with proper justification.
3. During 2019-2020, 33419 cu.m of waste has been generated against 32892 cu.m of waste, whereas production was 4908 tons achieved against 28666 tons of proposal it need to be explained.
4. During this approved plan period, waste has generated 32892 cu.m only, by using this quantity quarry-10 & 12 has been backfilled and Dump-1 has increased to the height of 8m.
5. Production of 4908 tons has excavated from Quarry-1 & 6 during 2019-2020. Dimension of Quarry-1 has moved from 60m x25m x 6m to 84m x 51m x 6m and Quarry-6 has advanced from 38m x 35m x 3.3m to 124m x 83m x 15m compare to previous approved plan. The production quantity is lesser when compare to advancement of pit dimension.
6. Page-15:- During this approved plan period, it is proposed to plant 1200 saplings, whereas no saplings has been planted. Reason for deviation to be discussed. Annual return 2018-2019 shows only 100 sapling has been planted, but in draft copy it is nil. A realistic plantation proposal should be furnished.
7. There is no proposal for backfilling during this approved plan period, against that Quarry-10 & 12 has been backfilled and reason may discussed.

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.
2. Depth of Quarry shown in text is differs from plan, i.e, Quarry -10 & 12 are completely backfilled, but it is shown as depth of 6 to 8m in text. So, realistic and up to date status of the pits should be given in text as well as in plates.

3. 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. Based on Cut-off grade/ threshold value (i.e. revised threshold value) 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.
4. Para 1.0(i): 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		

5. Without single Boreholes, section has drawn and ore is considered as G-1, as per Minerals (Evidence of Mineral Contents) Rules 2015, it has to consider as resources only. Based on the Quarry depth reserves cannot be estimated. Therefore additional exploration by the way of Core drilling has to be proposed upto depth of mineralization.
6. UPL has to proposed upto proved depth only. No extrapolation of extreme depth has to be considered for estimation of reserves & resources. Beyond & below the depth of quarry, it should be considered as resources as per above said rule.
7. Geological reserves & Resources have to be carry forward based on previous approved plan, since no exploration has been taken during approved plan period. Depletion of reserves has to be considered based on actual removal of excavation, backfilled quarry and balance reserves can consider for mining. Fresh estimation is not considered without any exploration.
8. The complete lease area should be proposed under the plan period to cover under exploration to quantify reserves/ resources with cutoff grade corresponding to threshold value suggested by IBM within two years plan period as per Rule 12(4) of MCDR 2017.
9. 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.

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.
2. Present pit dimension with length, breadth, RL, depth, benches in Ore & waste has to be shown in table format for all the existing pits & dump area. Number of Dumps/ stocks of waste, Sub grade/ mineral reject, processed ore etc with size of each dump i.e. L X W X H and total quantity of waste material in the dumps.
3. Proposal of five year development & production, waste management, reclamation & rehabilitation, afforestation are to be shown on individual year-wise plan & sections. Another table or column in existing table may be incorporated indicating B.D. and tonnage for ROM Bauxite.
4. 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.
5. During the approved plan period there is no proposal for dumping in dump no-1 under high tension safety barrier, whereas against that dumping has been carried out and increased height of 3m.
6. Entire production & development plan has to re-design as per previous approved reserves & resources.

Mine drainage:

1. Nalla is passing inside the lease area, whereas safety barrier of 50m has not shown. 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, 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.

Stacking of Topsoil, Mineral Reject and Disposal of waste:

1. Existing rehabilitation and protective measures taken around backfilled area like Retaining Wall, Garland Drain, Check Dams, Settling tanks, plantation etc. should be given in quantified terms.
2. Proposal for protective works to be carried out year wise around backfilled area with design details & materials to be used for its construction should be given taking in to consideration average rain fall in the area.

PMCP:

1. Few photographs of the ground control points, working area, dumps, afforestation on dumps, mineral stacks of different grade, pits and backfilled area 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. There is no backfill proposal during 2020-2021 but in the table in Para 8.3 for year 2020-2021 backfill proposal has shown.

PLATES:

1. Cadastral lease map has to be certified from competent officer of state department has to be enclosed.
2. DGPS Plan: the copy of DGPS plan duly authenticated by state government is not submitted. As per CCOM circular no.2/2010, DGPS map shall be superimposed on Geo-referenced vectorised cadastral map is not enclosed. The boundary pillars along with co-ordinates value should be mentioned and authenticated by competent authority of state Government.
3. Key plan:- Land use pattern i.e. forest, waste land, agriculture land etc is not shown as per rule 32(5)(a) of MCDR 2017. The prominent features existing in core and buffer zone to be shown.
4. As per Rule-35(2) of MCDR, 2017, high resolution satellite images obtained from CARTOSAT-2 satellite LISS-IV sensor on the scale of cadastral map, covering the mining lease and an area of 500 meters from the lease boundary, should be submitted along with the document.
5. 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 as well as afforestation done over dumps with trees density per hectares is not shown. Refer Para 4.4.4 of IBM manual for appraisal of mining plan 2014. Adjoining lease area of M/s Singhania Commercial Co., is not shown.
6. Surface Plan: Date of survey is blank. Surveyor and mines manager signature is need in this plan. Boundary pillars along with its Latitude & Longitude values to be included. Dump ID should be uniform in both plan & text.
7. Surface Geological Plan & sections: Geological plan & section should be drawn based on previous approved plan, since no exploration has been carried out. 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. Geologist signature is need in this plan and section. Lithology and UNFC codes are incomplete in all sections. 50m Safety barrier to be mark for the High Tension line/ Nalla passing inside the lease area and it should be considered as resources and to be mark in sections also.

8. Five-year planning: Proposal of plantation, check dams, retaining wall, drainage channel, dump rehandling etc may also be included on the year-wise plan & sections. Section should be drawn as per Geological Section. Other scrutiny comment given in text has to be suitably reconciled. Entire working proposal to re-design and to be proposed as per previous approved reserves & resources.
9. Financial Assurance plan: Different colour code has to used for pit, infrastructure, mine road, backfilling etc by showing outlines of the existing working pits, dumps, mineral stacks, roads, virgin unused area etc covering all the items under the financial assurance table as on 01.04.2020 and at the end of 5 year plan period for the purpose of computation of the areas required to be used in that period to verify the financial assurance. Table showing area considered for financial assurance under different activities should be given.
10. 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.

Annexure:-

1. The clear and legible Xerox copy to be enclosed for all annexures.
2. All the annexure to be properly indexed/numbered/paged and signed by the TQPs.
3. English translation of annexure-1, 4, 8 & 9 to be enclosed.
4. Latest quarterly monitoring report on air, water & noise should be enclosed as per category of the mine for last 2-3 quarter. 2014 data has been enclosed.
5. The copy of original valid BG of requisite amount should be submitted in the form of annexure along with original.
6. Approval copy of National Board for Wildlife is to be enclosed.
