

Scrutiny comments on the Final Mine Closure Plan of Balaji Iron Ore Mine over 19.331ha of Shri Anil Khirwal, in village Balijore of Chaibasa Taluk of Singhbhum (West) District submitted under Rule 24(1) of MCDR 2017 for the period from 2020-2021 to 2022-2023 (upto 30.04.2022).

Introduction:

1. Final Mine Closure Plan has to prepare as per IBM manual for appraisal of Final Mine Closure Plan 2018. Refer chapter-C for Guideline/ Format of Final mine closure plan. Certificates: Word 'lessee' should be used instead of 'applicant' in case of existing lease.
2. The Final Mine Closure Plan has not been submitted for approval at least two years prior to the proposed closure of the mine. The mining lease was valid upto 30.04.2022. Reason for delay in submission to be given.
3. The proposal is submitted for the year 2021-2022 & 2022-2023, whereas mining lease is valid upto 30.04.2022 only.
4. 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.
5. During the inspection is observed that, lessee had carried out the mining operations under statutory barrier of 7.5mts. This facts need to be highlighted in the document.
6. Para 1.1:- Compelling reason for closure of mine is to be given in detail.

Location and accessibility:

1. Number of Boundary pillar co-ordinates shown in text part are differ from number of boundary pillar shown in plan.
2. Para.3.7- Details of lease area with sub para is not enclosed. The number of State-wise leases already held by the Lessee for has not been indicated in the Final Mine Closure plan indicating type of Minerals, areas, location, etc.
3. Para.3.14- Details of status of award of star rating as per Rule 35(3) of MCDR 2017 during the last two financial years to be discuss.

Review of Earlier approved proposals given in the Mining plan:

1. 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.
2. As per monthly return January 2021, total production from mines is 61575 tons, whereas submitted draft copy shows no details about 2020-2021. Further there is information about development quantity carried out during 2019-2020 and 2020-2021 till date.
3. During 2019-2020, the production has achieved 73998 tons but the quantity removed as waste is 24302 tons with Ore: OB ratio of 1:0.328. Hence it is more than proposed Ore: OB ratio of 1:0.013. Justification is needed in this for handing more waste.
4. The reason for achieving excess development in the years 2019-2020 from the approval proposals has to be furnished. More so, the workings are expected to reach upto 476 MSL as on 31.03.2020 whereas the actual workings have reached only upto 476 MSL, whereas the targeted production program has been achieved with excess development. The exact reasons have to be discussed in this paragraph and in the chapter on mine production
5. Co-ordinates shown under location of excavation is differs from mines co-ordinates. Uniform grid values to be given.
6. There is no proposal to remove topsoil and stacked during last 3 years, whereas in updated surface plan, topsoil dump has extended to 10m height.
7. Under review of earlier approved mining plan there is no discussion about 15% waste generated

quantity. How much quantity has been achieved against 11099 tons during 2019-2020 and 45000 tons during 2020-2021, waste proposed in approved mining plan period to be discuss.

8. There is proposal for backfilling in Puja Pit during this approved plan period, against that Mahabir Pit has been backfilled on the extreme southern side and reason may discuss. How much quantity of waste has been used for backfilling the pit may be given.
9. Page-3-iv:- During this approved plan period, it is proposed to plant 1685 saplings and gap plantation against that 526 saplings has been planted. But in the relevant para it is not discussed.

Geology:

1. Geology and Exploration chapter is not discussed as per universal format. Para 6.1, 6.2, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10 & 6.11 are not discussed. Refer Guidelines for resources estimation.
2. 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. Recovery of mineral should be established from recognized laboratory. Refer Minerals (Evidence of Mineral Contents) Rules 2015 for exploration grid interval to be followed for UNFC reserves & resources estimation.
3. 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 one year plan period as per Rule 12(4) of MCDR 2017.
4. 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 based on type of deposit and various intrusion etc. As per Minerals (Evidence of Mineral Contents) Rules 2015, proposed borehole spacing along strike may be kept 50m or closer interval.
5. Geological reserves & Resources have to be shown in table to compare as per previous approved plan and as of now. Addition or depletion of reserves/ resources to be explains.

Mining:

1. Production and development plan proposal has been shown for 2020-2021, since only one month is left for this completing 2020-2021. So based on that proposal may revise as per available sources, for the remaining period of the mining plan production & development should be proposed.
2. Para: 7.4- Describe briefly giving salient features of the proposed method of working indicating Category of mine is not discussed.
3. Extent of mechanization- Describe briefly type of machinery and equipment proposed to be used in different activities of drilling, excavation, loading & transportation is not explain.
4. 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 lumps, fines etc with size of each dump i.e. L X W X H and total quantity of waste material in the dumps for recovery of salable grade iron ore, if any in future and its basis has to be given. Dump recovery should be based on scientific data through trench/pit sampling at closer interval and accordingly additional exploration has to be proposed for future proposal of dump mining, if any.
5. During this proposed plan period there is no proposal to re-handle the dump during 2019-20 & 2020-21. But in the annual return 2019-2020, dump working of 24302 tons has been shown. Old Dump-9 has been reduced when compare with approved plan.
6. Para 5.1.2(Safety and Security)-The fencing should be proposed for the entire Mining excavation area to prevent endangering fall of persons/cattle etc. in terms of Rule 26 of MCDR 2017. The Grid reference for the fencing to be mentioned in this para. Also, the same should be demarcated on the Reclamation plan with index.

Mine drainage:

1. Water regime chapter is not discussed as per FMCP format. 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.
2. 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.
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.

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. around proposed waste dump along with reclamation & rehabilitation measures, to be given year wise in quantified terms.
2. Dumping proposal should be in such a manner that ore dump should not be mixed with waste. The dumping of waste should be on non-mineralised area.
3. Para: 9.1- Briefly the nature and quantity of top soil, overburden/ waste, Mineral Rejects Fines, Tailings or Slimes available within the lease area and to be generated during the closure period.
4. Quantity and Average Grade of mineral reject dump and sub grade dump is not discussed. Usage of subgrade dump to discussed.

Mineral Beneficiation:

1. Mineral beneficiation chapter is not discussed as per FMCP format. Describe in brief the mineral beneficiation practices if any, indicating the process description in short. A material balance chart should be given mentioning beneficiation process, yield at each stage etc.

FMCP:

1. Para 5.1.2: In this para, fencing of the excavated area, securing OB dumps, topsoil dump, sub grade dump & mineral stocks may be proposed & discussed point wise. Securing entry & exit to the mine & mine pits may also be clearly spelt out.
2. Para 5.1.3: (i) Existing afforestation details with area ,their locations, no of saplings planted along with survival rate may be furnished.(ii) Proposal for re-grassification, plantation in backfilled area, dump plantation & plantation on ultimate benches with area & no of saplings may be given.
3. Para 5.1.10:Surface features such as natural drainage system (streams, nalahs, water reservoirs, irrigation dams and canals), roadways & railways, places of historical and archaeological importance, monuments, places of worship, forests with tree density, sanctuaries, wastelands, agricultural lands, grazing lands, predominant wind direction etc may be discussed in brief in this para.
4. Para 5.1.11: All the details (dimensions & area occupied) of the infrastructure present with in the ML area may be furnished along with the timelines to dismantle, dispose or decommission the same.
5. 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.

PLATES:

1. Cadastral lease map has to be certified from competent officer of state forest department for extent of forest land or copy of forest clearance approved from MOEFCC has to be enclosed.
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 is not shown as per rule

- 32(5)(a) of MCDR 2017. The prominent features existing in core and buffer zone to be shown. Lease area should be bounded by all sides showing latitudes and longitudes of extreme four points.
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 to shown. Refer Para 4.4.4 of IBM manual for appraisal of mining plan 2014. Adjoining lease area also to be included.
 6. Surface Plan: RL differences is there, when compare to previous approved plan, i.e, Borehole DTH-1 is on 479m RL as per approved plan and as on date it is 482m RL. Date of survey i.e.29.09.2020 is too old and needs updation. Dump ID should be uniform in both plan & text.
 7. Surface Geological Plan & sections: Geological plan & section should be drawn based on recent 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. 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. 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. Few boreholes are projected in two sections and having different lithology. Geological plan and sections are mismatching, i.e, Puja pit shown as Soft laminated iron ore with blue dust in plan but in section it mentioned as Lateritic Iron ore.
 8. Production and Development planning: Plan and section is not enclosed. 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.
 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 01.04.2021 and at the end of 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. Reclamation Planning: Reclamation 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. The copy of original valid BG of requisite amount should be submitted in the form of annexure along with original.
