

Scrutiny comments on the Modification of Approved Mining plan along with Progressive 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 17(3) of MCR 2016 and 23 of MCDR 2017 for the period from 2020-2021 to 2022-2023 (upto 30.04.2022).

General:

1. Certificates: Word 'lessee' should be used instead of 'applicant' in case of existing lease.
2. The working place changing to be mentioned in reason for modifications in mining plan.

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. The number of State-wise leases already held by the Lessee/ applied for has not been indicated in the mining plan indicating type of Minerals, areas, location, etc.

Details of approved Mining plan/ Scheme of Mining:

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. Reason for development beyond the 7.5m safety barrier & lease boundary may also be described.
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. 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.
6. 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.
7. Page-3-iv:- During this approved plan period, it is proposed to plant 1685 saplings and gap plantation, whereas it is mentioned only 526 saplings has been planted. Reason for deviation to be discussed.

Geology:

1. The topography of the lease area is not discussed properly. The elevations within the lease area and nature of the land are not discussed properly. Lowest RL is mismatching with plan & text.
2. Dimension of existing quarries shown in Page-1-vi is differ from approved review of mining plan, i.e, Top RL of Ganesh Pit-A has increased from 501.62m to 503.07m. Borehole log enclosed is totally differs from approved document, such as date, depth, lithology, depth and analysis result.
3. 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:						

4. 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.
5. Para 1.0(i): 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.
6. 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.
7. 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.
8. 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.

9. 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.
10. Para 1.0(k): 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.

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 not been mentioned. Need to furnish the same.
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 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.
3. In the approved mining plan, 15% of fines below 45% Fe are planning to backfill the ore exhausted pits. So far how much quantity has been generated and backfilled or dumped. Whether any proposal for re-handling the materials to explain.
4. 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.
5. Recovery test report has been enclosed for Zone-III, whereas production has been proposed in Zone-I & II also. Time series data enclosed as annexure is totally differs from submitted Annual return.
6. 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.
7. Topsoil Dump-2 has shown height of 0.5m whereas in the surface plan it is 10m height.
8. Page No:-2.xvi:- It is calculated that 4052 cum (insitu), 5056 cum (loose) or 4305 cum(compact) of intercalated waste will be generated during this modification period. Whereas in page-2-xiii, only 4052 cum of waste shown.

Mine drainage:

1. 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. During inspection it has noticed that ore has been stocked on backfilled area.

Use of mineral and mineral reject:

1. Proposal to recover the 15% fine salable mineral from ROM is planned; but physical and chemical property of waste/ reject material lying in dumps has to be defined for future recovery of salable mineral, if any.

Processing of ROM and mineral reject:

1. Material balance chart shown that 85% of processed ore will be +57 Fe%, but in the annual return of 2019-2020 shows entire 90% of processed ore is below +55 Fe%.

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.

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: Plate No is mismatching with text part and plan. Environment plan is not enclosed. 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: 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. Conceptual Planning: 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. Conceptual section has been repeated in plate-8 & 10. Longitudinal and transverse sections are required in support of conceptual planning.

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-III to be enclosed.
4. The copy of original valid BG of requisite amount should be submitted in the form of annexure along with original.
5. Annexure-XXV:- Enclosed time series data is mismatching with annual returns for all the years, i.e as per annual return 2019-2020,processed ROM is 69865 tons, whereas in annexure it shown as 39865 tons
