

**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 reason for modification is not mentioned on page-2. Please elaborate in case expansion or change of site of proposed working etc.

***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 lease area is not falls under CRZ, whereas in page-5 it mentioned as yes.

***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.
2. Achieved production quantity is wrongly shown in table.3.3.3
3. During 2019-2020, the production has achieved 73998 from mines and 24302 tons from Dump working. Hence it is more than existing EC limit and Justification is needed.
4. 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. 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.
2. The thickness of ore body is mentioned as 10m in puja pit, whereas already pit has reached 15m depth towards south side and 25m in northern side of puja pit. In last approved document only 29 boreholes has been drilled, whereas submitted draft copy shows 35 boreholes. It needs to be explained.
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. 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.
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. 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.
6. 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.

7. Date of Reserves estimated in approved plan is 20.07.2018 and date of Reserves estimated in draft submitted plan is 07.05.2021, in between the above said period, the lessee has excavated more than 1,50,000 tons of Iron Ore. Whereas reserves is decreased 1.280 million tons to 1.170 million tons only. Hence it needs to be explained.

***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. Production and development plan proposal has been shown for 2021-2022, already three months has passed in 2021-2022. So based on that proposal may revise as per available sources, for the remaining period of the mining plan production & development should be proposed.
4. As per conceptual land use pattern, 0.3528 hectares are available for mineral storage, but it is not discussed whether mineral stocks will be existing after lease is expiry or not.
5. Overall, the entire chapter on geology, mining & its management shall be re-written after clear re-establishment of the geological resources, followed with the respective study carried out to drill down the resources, table of grade-wise material handling on yearly basis till conceptual stage, re-calculation of the machinery required, dump/ waste management etc.

***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. 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%.
2. As per finished produced after screening is 35% lumps and 65% fines, whereas in the annual return of 2019-2020 show 70% lumps and 30% fines, needs to explain.

***PLATES:***

1. 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 476m RL. Date of survey is too old and needs updation. Dump ID should be uniform in both plan & text.

2. 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.
3. Section line 2451000N shows both G1 & G2 category of resources have been shown in the text & plan both. However, only G1 category of resources has been indicated in the sections.
4. Production and Development planning: Proposal of plantation, check dams, retaining wall, drainage channel, dump re-handling 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. Year wise development should bring about the earlier stage in a lighter shade and the proposals in a darker shade. The year wise development sections shall incorporate all the corrections as envisaged in the geological sections in this scrutiny. The correct UNFC code shall be clearly represented in these sections. Proposal should be within the UPL during 2021-2022 in Puja pit, it has shown benches outside the UPL. Production plan and section is mismatching with each others, i.e, Section line 2451300N has 3 benches in plan but in section it has only 2 benches. During 2021-22, section line shows first and second benches are nearer to UPL, whereas in plan it is 25m distances between both benches.
5. 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.
6. 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. Longitudinal and transverse sections are required in support of conceptual planning.
7. Signature of Lessee, Mines manager & Geologist are missing in few plan. The mine surveyor shall sign all the statutory plans and a copy of his certificate to be enclosed.

**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.
4. A copy of the AAQ, water quality, noise & soil quality reports from a NABL lab. To be supported in respect of the previous year and season wise.

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