

**ANNEXURE**

**SCRUTINY COMMENTS ON DRAFT MODIFICATION TO THE APPROVED REVIEW AND UPDATION OF MINING PLAN OF VEDANTA IRON ORE MINE, M. L. NO. 2677 OF M/s VEDANTA LIMITED, OVER AN AREA OF 160.59 HA, AS PER CEC. IN VILLAGE MEGHANAHALLI & OTHERS CHITRADURGA & HOLAKERE TALUK OF CHITRADURGA-DISTRICT, IN STATE KARNATAKA. SUBMITTED FOR APPROVAL, UNDER RULE 17(3) OF MCR, 2016. COMPLETE FOREST AREA (160.59 HA). CATEGORY OF THE MINE IS A-FM (FULLY MECHANIZED). FOR THE PERIOD 2019-20 TO 2021-22 (31.03.2022). THE ORIGINAL FIVE YEARS PERIOD IS FROM 2017-18 TO 2021-22.**

1. On the cover page the name of the mine is not indicated, this should be invariably written in the relevant part of the text and the plates. The mining lease comprises of few villages, which is expected to be written on the cover page and other relevant locations of the text & plates. (ii). The document is submitted for modification to the approved review and updation of Mining Plan, instead of just written mining plan. In the light of the above remarks, the text and the plates may be attended, wherever applicable.
2. From the contents, the undertaking certificate is from the applicant, instead of from the lessee.
3. The annexure table is expected to be present in the table format, instead of given without the same. The page number is written, instead of number of pages in each annexure may be indicated. (ii). The annexure enclosed in the text document for approval are not numbered, which ought to be, without which no meaning in submitting the annexures list.
4. The present submission of document is not appropriate, the text & annexure should be in one bound and the other plates should be separate and kept together in the box and tied with strap.
5. Introduction: In the introductory part, the datas should be furnished in chronological order step by step without any ambiguity for the clarity of the progress and the status of the mine and the production limit and the EC limit etc. what is the status of the EC limit as per the approved document vide letter No. 279/272/91/BNG/349 dated 21/8/2019. The present submission is submitted purely based on the approval of production enhancement by CEC from 4.51 MMT/A to 5.89 MMT/A vide letter no. 2-75/CEC/SC/2018-Pt. VII dated 4/3/2020. Therefore, the lessee interested to increase the development/ production, for the remaining period of current financial year 2019-20 to 2021-22 respectively.
6. In para 3.4, status of compliance of violation pointed out by IBM, in table no.12, rule 45(5)(b(i), it is given that the 23.24 ha, area is maintained in this MP/annual returns, but the same has been checked in 2018-19 returns, that the status remains the same.( 23.24 ha is reported in the reclaimed/ rehabilitated). Therefore, the violation taken complied in the IBM office is not found corrected in the lessee office records. This needs to be checked and corrected.
7. Para3.6, it is mentioned that the 4<sup>th</sup> modification is submitted to include the enhancement of production limit of 5.89 MMT/A as per CEC for the remaining three years of plan period & the updation of reserves & resources as per the latest exploration is accepted, but why the same is not included in the introduction chapter may be explained. Besides, it is given three years period is not appropriate, this should be given with appropriate wording that for the remaining period of the current financial year 2019-20 may be attended.

**Part-A**

8. Para 1(c), the description of iron ore is given in general about the ML area in page no.16, but the mine exhibits two major pits on north & south in between other lease of other lessee. There are variation in the northern pit working and the south pit workings, giving an insufficient information on the geology of the area is found to be not appropriate.
9. Continuation to the above para 1©, on Hematite siliceous ore in general about F/w & H/w sides of the ore zone, instead of giving a specific characteristics of bore holes drilled through core drills. About the location, depth, quality and the outcome of the core drills in north & south pits respectively.
10. Para 1(e)(ii), table nos.19 & 20 & 21, wherein in column 2, no. of boreholes , core/ RC/ DTH were indicated in the format column, again in the respective rows, type of holes is given, instead of that, why specifically it is not indicated either core, RC, DTH and not to indicate all the three types bore holes. Even in

the recent exploration undertaken and incorporated in the tables, in addition to that, need to give and emphasize the core drill holes from which mRL to which mRL and the maximum depth and specific outcome of the holes and total depth and geometric of the geology may be dealt in brief for the clarity of the fresh explorations.

11. Para 1(i), under future program of exploration, no exploration proposals drawn due to ML area was explored extensively till last year of plan period is accepted, but in the below table it is reported G1 level of exploration for 99.16 ha and 61.43 ha for other, which are non-mineralized, which are these areas, whether denoted on the plan, if so give remarks below the table.

12. Para 1(j), table no.23, wherein the reserves/ resources in tones as on 31/6/2019 has been furnished for normal iron ore & the Hematite siliceous ore without indicating the grades of the same for reference. The reserves & resources indicated as on 31/6/2019 were 109.268 MMT & 39.628 MMT, whereas in the previous approved document on 21/8/2019 as on 30/6/2019 were same and no difference. (ii). Referring to the current submission of draft document in para 3.6, page no.12, it is mentioned that the current document is to increase the production from 4.51MMT/A to 5.89 MMT/A, and also to update the reserves/ resources as per the latest exploration referred in the table 21 during the year 2019-20. From the above it is found that the purpose of submission and the reality are found to be not appropriate. Therefore the document should be attended carefully without any ambiguity. What was the exploration and what are the additional reserves/ resources are established and the depleted ore reserves/ resources should be dealt with clarity.

13. Para 1(L), table no.31, resources/ reserves updated as on 31/01/2020, given 106.561MMT as normal iron ore with 51.67%Fe, and 43.851MMT as Hematite siliceous ore with 38.02%Fe. Further, it is not clear for understanding, in the latest exploration what is the actual quantity of reserves/ resources established of both the normal & Siliceous ores and the depletion of ores in the form of production and any other ores within the lease may be dealt with clarity in this para.

14. Para 2A (a), as per this guidelines, it is expected that this para need to be attended briefly describing, the existing & the proposed method for excavation with all design parameters indicating on plan/ sections, but the document you submitted indicated only with existing/ proposed method of excavation. Therefore, this para and the remaining other paras of the text must be attended strictly as per the guidelines. (ii). Accordingly; the details of the existing number of working and non working pits along with benches height, width, slopes, waste dumps, stacks and infrastructures, etc., similarly, the proposed method of working for the current proposal with their extent of individual pits need to be demarcated on the plan/ sections. (iii) Further, the slope of faces, direction of advancement, approach road to the faces & specification of roads, etc to be marked. Also, the existing dumps spread parameters, height, slope protective works etc., to be marked. (iv). The proposed bench height of 7m is accepted, but the width must be increased more than 8-10m, by reducing the number of benches, instead of having 20 benches. (vi). It is proposed to develop and advance the south block on the southern side and the western side. During the site inspection, it is found that the selective mining and concentrating on the south west portion developing like separate pit, which may be stopped and concentrate the development and production as per the 2019-20 proposals. (vii). **Also, to concentrate the workings of development of benches along the strike line, moving the benches on NNE and SSW, exposing the ore body at the bottom of the pit to know more about the width of the ore body at the bottom as much as possible for better planning in future to move the top benches on both the sides.** (viii). It is given some of the dumps will also be re-handled during the pit movement is not appropriate, it is better to specify the dumps or the sections or in clarity. (ix). The workings in the north block need to be demarked with clarity, differencing the waste dump and the siliceous ore stacks without any confusions.

15. In the same para 2A, page no. 30, it is given that on dump no.D1, 8.42 lakhs tones of incidental siliceous ore of 35 to 45%Fe is already stacked, if it is so, since when this has been stacked from which mRL to which mRL may be given for reference. The stabilized waste dumps and the existing working pits must be with different colors and for easy reference.

16. Para 2A (b), it is proposed for increase the production from the year 2019-20 up to 2021-22( i.e. 31/03/2022), based on the approval of CEC, New Delhi is accepted, but for the year 2021-22 , the limit of 5.89MMT/A is the existing level which can be maintained, but proposing for the future approval is not appropriate at this stage. Hence, the level of 5.89 MMT/A may be changed. (ii). The method adopted for bulk

density figure arrived/ calculated for iron ore & the siliceous ores if available may be given for authenticity of the same, without which arriving 2.7t/cum for siliceous ore may be justified. (iii). The table 36 need to be attended in line with the above remarks on the limit of the production approval of CEC. In the light of the above remarks, the text and the plates may be attended wherever applicable. Table no.37, 38, 40, 41 & 42 needs to be attended appropriately.

17. Para 2©, individual year wise development and production plan and sections, it is given 2021-22 production will be maintained at 7.2 MMT/A as per previous approved modified Mining plan. The plan and sections of Plate no. III/ a to C need to be attended if applicable, the sections, and the benches while programmed for 7.2 MMT/A. (ii). It is given during this plan period, total waste will be dumped on the existing dump area( is it means, on all the waste dumps?) may be specified, instead of giving vague. (iii). The similarly, the waste dump proposals should be attended as per the restriction in the production limit of 5.89MMT/A during the year 2021-22, instead of proposing terracing in 10 stages.( plates VI a & VI b should be attended.).

18. Para 2(d), under proposed method of working, the width proposed for >8m is not appropriate, better reduce the number of benches and increase the widths for better long term planning in north and south blocks to have smooth operations and movement of the HEMM. Try to plan excavate the working and the development faces along the strike line, instead of concentrating on the SW in a selective manner, as if the mine is going to be closed in a short period.

19. Table no.43, indicated on the machineries, in which Sl. No. 8, it is given proposed beneficiation plant, 500tph, whether it is of wet or dry type plant may be dealt with clarity.

20. Transport system & the pipe conveyors, information furnished, when likely to be commenced construction and completion and resuming the transport details if any may be added.

21. Para 2A, under powder factor , it is given as 5.5t/kg of explosives for ore in hard strata only is not appropriate and correct to the strata present in your ML area, except BHJ/ BHQ zones. In many iron ore mines, the factor has been reported 7 & above, if it is so, why not in this mine may be reconciled. In the light of the above remarks, the calculation made for explosives on yearly requirements may be re-calculated.

22. Para 2(e), table no.44, wherein in south pits, proposed for 20 number of benches, which may be reconsider to reduce in the future working plan and by increasing the width in between for better approach to the respective benches and for the movement of the HEMM for systematic and scientific mining.

23. Para 2(f), this para needs to be attended in line with the scrutiny comments offered in the above paras for more clarity.

24. Para 2(f), under back filling in two stages are accepted provided the belly portion in the middle of the south pit needs to be excavated and moved on both sides to expose the ore body completely to be mined out before start the back filling, without which back filling should not be started.

25. Table no.51 on land use pattern, the stabilized dumps area gradually reducing from 23.24 ha to 6.54 ha in the conceptual stage, how this is has been calculated may be explained.

26. The mine photographs, including waste dumps, stacks etc., are enclosed in this text document without indicating the name, lessee name etc., which is must to identify the document.

27. Annexures are enclosed without giving the annexure numbers of the respective supporting documents for the proof of the same. Care should be taken to submit the same, otherwise the document will not be considered for approval.

## **Part-B**

28. Plate No. I/b (Key Plan): The approach road to the ML area with approximate distance from the known place needs to be marked. It is written on the plate as Modification to the approved Modified Mining Plan is not correct. It should be written as 4<sup>th</sup> Modification to the approved Review & updation of Mining Plan. In the light of the above remarks, the other plates must be attended accordingly and also in other relevant places in the texts, wherer applicable.

29. Surface Plan- (Plate No.II/a): The name of the mine is not written on the plate, which should be written invariably on the plate, without which, how the document is identified. In the light of the above remarks, the other plates must be attended. (ii). Old drilled bore holes and the new drilled bore holes were indexed on the plate in two different color, here all the existing bore holes must be indicated with red color only by differentiating through numbers for easy reference. The proposed bore holes if any must be given in other than red color (iii). The notations given in index for ores stacks and for siliceous ores must be different for easy identifications/ reference. (iv). The color used for benches both in ores/ waste must be different than the stacks of ores in between the working benches both in north block and the south blocks.

30. Geological Plan- (Plate No-II/b): (i) The plan may be as per rule 32 (1) (b) of MCDR 2017. (ii).The notations used in the index must be same when it is shown/ brought out in the plan/ sections for easy reference/ otherwise it will be confusion, difficult to identify. (iii). UPL in the plan and the ultimate pit slope in the sections must be attended appropriately, instead of showing ultimate pit limit in both plan / sections. (iv). The geological notations used in the index in this plate and in other plates must be same without any changes/ difference to avoid confusions.(v).The siliceous ore stacks shown in the geological plan index and the same is not found in the surface plan, which should have been invariably shown in the surface plan. (vi). The mine faces shown in the index must be changed to working benches faces. (vii). The color index given for siliceous ores is not matching with the plan drawn in the working pit of north and south.

31. Geological Cross sections- 1A-1A' & 3A-3A' (Plate- no. II/C/1): (i).The remarks given in the geological plan may be considered for geological sections. (ii). The Ultimate Pit Limit / Ultimate Pit Slope, ultimate pit slope should be indicated in the sections only, & UPL for plan. The sections should be drawn from ML boundary to boundary to be appropriate, otherwise it is incomplete presentation. (iii).

32. Geological Cross sections- L1-L1' & L2-L2' (Plate- no. II/C/5): (i). The Ultimate Pit Limit / Ultimate Pit Slope, ultimate pit slope should be indicated in the sections only, & UPL for plan. (ii). The longitudinal sections drawn found to be incomplete, without indicating the north & south pits along with the bore holes details. Without the projection of bore holes details how the geological sections drawn without the datas of the bore holes.

33. Developments & Production Plan OF North & South block -( Plate No – III/a 2019-2020): (i).The proposals drawn to work in south end of south pit is accepted, but the benches should be developed along the strike line, instead of making small pit at SSW (ii). The direction of advancement of faces/ benches indicated is not clear for easy understanding. The working faces shown for the one year development & production plan without revealing the approach road & exit from the working faces and also to the waste dumps. (iii). During the site inspection it was observed that the north pit is operation and also the south pit in SSW, NNW & NNE. (iv). Why no proposals drawn for production in north pit for the year 2019-20 in the present submission may be explained.

34. Developments & Production Plan OF North & South pit- ( Plate No –III/b, 2020-21): The existing benches should be brought out & the future working/ advancement of benches need to be marked with clarity. (ii). The development and production proposed for the year 2020-21, on north & south pit need to be modified by developing the benches along the ore body/ strike line, the bottom of the ore body must must be extended laterally and depth to expose the ore body to plan for future workings.

35. Developments & Production Plan OF North & South pit- ( Plate No –III/C, 2021-22): The existing benches should be brought out & the future working/ advancement of benches need to be marked with clarity. (ii). The development and production proposed for the year 2021-22, on north & south pit need to be modified by developing the benches along the ore body/ strike line, the bottom of the ore body must be extended laterally and depth to expose the ore body to plan for future workings. (iii). The proposals for this year is not appropriate and correct, there should not be any benches across the ore body, except at the common boundary in the south pit. (iv). There should be not be any barrier left in the ore body, it should be completely excavated along the strike line.

36. Conceptual plan- (Plate Nos. VI ): (i). The plan and sections should be such that, what would be position of workings at the end of this plan period/ conceptual stage must be visualized and brought out accordingly. (ii). The conceptual plan submitted is not appropriate, the position of the workings brought out is not updated as it should be at the conceptual stage. The parking yard & the fixed plant were proposed to relocate towards SW & SSE, which is not happened in the back filled area. (iv). The development & production scrutiny comments offered to attend and for changes are need to be considered & whatever the changes takes place also requires changes in the conceptual plan/ sections accordingly. (v). During the conceptual stage, the back filling (BF) undertaken using the waste dumps in the worked out area and in some areas bench plantations may be planned / undertaken depends on the outcome of the future exploration/ workings and exhaustion of minerals from the working pits.(vi). In the sections, the conceptual stage profile must be brought out, not the existing profile. (vii). If there is a chance for water reservoir/ pond creation, it should be undertaken and brought out accordingly. (viii). The reclamation plan need to be attended and modified in line with the conceptual plan & sections.

37. Conceptual dump section-(Plate no.vii/b/2): the sectional view of the conceptual dump reveals the quantity of siliceous iron ores were dumped by the side of the waste dumps, without consuming the same, the reasons for non utilizing the same may be explained.

38. Environment Plan (Plate No.V): the other ML areas of other lessees present within the buffer zone must be brought out in the 500m line for reference. Though the other ML is indicated without indicating the name of the mine/ & the lessee to be appropriate.

39. Slice plan-Plate No. II/d/, (at 750-MRL): From the slice plan submitted here with the field visit by the undersigned reveals that the middle portion of the south pit depicts the exhaustion of the ore body and left with the BHJ/ BHQ, but on the day inspection of the mine, very good high grade blue duct iron ore was exposed in the middle of the South pit, It is therefore, necessary that the development at the middle of the south pit & on both the sides needs to move the faces as much as possible to maximize the exposures of the ore body to excavate the mineral to the optimum level.