

SCRUTINY COMMENTS ON 3rd DRAFT MODIFICATION TO THE 2ND APPROVED REVIEW AND UPDATION OF MINING PLAN OF KUMARASWAMY IRON ORE MINE, M. L. NO. 1111 OF M/s NMDC LIMITED, OVER AN AREA OF 639.80 HA, AS PER CEC. IN VILLAGE KAMMATHURU, SANDUR TALUK OF BALLARI-DISTRICT, IN STATE KARNATAKA, SUBMITTED FOR APPROVAL, UNDER RULE 17(3) OF MCR, 2016. BOTH FOREST (480.79 HA) & NON-FOREST(159.01), CATEGORY OF THE MINE IS A-FM (FULLY MECHANIZED).. FOR THE PERIOD 2020-21(1.4.2020 TO 2021-22(31.03.2022). THE ORIGINAL FIVE YEARS PERIOD IS 2017-18 TO 2022-23(I.E. UP TO 17.10.2022).

1. On the cover page it is given 639.80 ha as per CEC, but in the surface Plan, it is written for both as per the lease deed of 647.50 ha & as per CEC of 639.80 ha. Better try to give uniformly in all the places of the text and the plates. (ii). It is expected to give volume –I & II for the text and the annexure, volume-III separately for the plans and sections for the clarity. The document submitted for 3rd modification need to be indicated on the cover page and other relevant places of the text & the plates and annexure as 3rd modification to the approved 2nd modification of Review & updation of Mining Plan.(iii). The forest land given, indicate what type of forest and the name of the forest, whether it is RF, etc.

2. The contents of the document may be presented through table format.

3. Introduction: In the introductory part, it is given that during the present phase of exploration, a total of 4328.50 meters of drilling has been drilled in ore & 3599.80 meters of drilling in waste till 31/03/2019, but the depth of the each bore hole or the average bore hole depth is not given for clarity and understanding. As per the recent exploration undertaken in the mine to increase the production capacity of 10MMT/A, what is the present reserves/ resources and the grade may be indicated for reference in the introduction part. What is the present status of R & R plan approved by ICFRE for reference may be dealt in brief.

4. In general, para 2(f), it is given as name of recognized person, instead of qualified person, which need to be changed.

5. Para 4.6, the reasons submitted for increasing the production of the mine/ annum, based on the increase of reserves/ resources and as on 1.4.2019 given as 222.23 & 40.71 MMT, if it is so, what is the additional reserves/ resources increased after undertaking the exploration during 2018-19 may be reflected accordingly.

6. Table no.9, refers to R & R work starting from the year 2016-17 to 2025 and other works are related 20 years, but your lease is valid up to 2022 only, if so, how the proposals will be accomplished during that period, when your lease is going to be expired/ surrendered. There will not be any scope to continue the mining operation in your ML area, except surrendering the lease to the state Government.

Part-A

7. Para 1(c): given that the lump to fine ratio in block B & C as per the table no.10 of average ratio comes to 30.88 to 69.12, which is almost 31: 69, found to be not appropriate as per my observation mine on 7/11/2019, it should be at least 35: 65, as an average to be considered for the mine. Accordingly, the tables, including the text needs to be attended and modified, wherever applicable.

8. Table no.14& 15 reveals the proposals of exploration for the year 2020-21 to 2021-22 to complete the pending proposals in the ML area. What is the reason for selecting difference in the depth of the bore holes within the C-block like 60m to 85m may be justified/ explained? . (ii). As per the table no.14 & 15, the bore holes proposals are given for 2020-21 & 2021-22, but in the geological plan, it is marked from 2019-20 to 2021-22, this may be checked corrected appropriately. (iii).

9. Para 1(J), under reserves & resources as per UNFC, the table 17 shows the 2nd modification approved document RMP as on 1/4/2018 with 262.94 MMT of +45%Fe, as per reserves & resources as on 1/4/2019. (ii). Due to ongoing exploratory drilling increase in vertical extent of ore body till 850 & 958 mRL in C & B blocks, the reserves & resources have enhanced which are depicted in this table, but as per this table there is only change in the extent of the area only and no changes in reserves/ resources could be seen, the 262.94MMT is as it is, without any change in the figure, the reason may be explained. (iii). While comparing table no.17 & 18, and in between para comments show that there is a chance of increasing the reserves/ resources position, but again referring to table no.29 & 30, the reserves further reduced to 232.06MMT, even less than the table table no. 17/18 & 29. The reason for decreased in the reserves position, the reason behind the same maybe explained.

10. The threshold value of +45%Fe for iron ore & the ultimate pit depth has been taken to calculate the reserves/ resources as on 01/4/2019, if it is so, why the latest threshold value of +35%Fe for siliceous ore has not been established/ calculated for the mine may be justified.

11. 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 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. (ii) 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. (iii). the text para also need to be attended in line with the development & production plan & sections scrutiny comments offered as per the plate no. 4/5/6, etc. (iv). The powder factor of 5.5t/kg of explosives in ore & 7.5t/kg of explosives for waste is not appropriate and acceptable. This need to be rechecked & reconciled. Some of the mines in Hospet/ Bellary sector are submitting/ reported minimum of 7t/kg of explosives for ore. Hence, in the light of the above remarks, the relevant paras/ text need to be attended and modified, wherever applicable.(Table no.31 need to be checked again and reported). (v). Based on the changes of production from 7MMT/annum to 10MMT/annum, the existing and the proposed method of development & production using how many number of benches compared to the existing number of benches need to be dealt in brief. (vi). Similarly, the waste dumps that are using now and the proposed dumps / back filling if any need to be touched up on for clarity.(vii). The machineries that are using at present and the new additional bigger capacity machines like dumpers/ shovels/ loaders etc., if any to cope up the production may be given for clarity.

12. Para 2A(b), wherein the methodology for excavation of 10MMT/A, in table no.34, benches proposed for merger, along with that, the workings/ benches should be aligned along the strike direction, especially in the block-C. The pit No.1 & 2 in C-Block can be gradually merged for systematic mining operation, by moving the stack yard kept for the C-ore/ fines(stock piles) in between the pit No.1 & 2.

13. Para 2A, under powder factor , it is given as 6.25 to 6.5t/kg of explosives for ore/ and 7.5t/kg of explosives for waste, but in other para it is still given less and why this difference in reporting place to place. This needs to be reconciled and checked for appropriate figure. In many mines of iron ore mines, it is reported for minimum of 7t/kg of explosives in common for ore/ waste.

14. Para 2(d), it is given the generated waste of 33 lakhs tons of from B & C blocks will be dumped in the designated waste dumps as shown in the plates 6,8 & 10 for B block production planning & plate nos. 7,9 & 11 for C-block production planning. It is better to designate the waste dump numbers for B & C block in the text itself and also in the plates for easy reference / clarity. In the light of the above remarks, the relevant plates & the paras of the text may be attended, wherever applicable. (ii). In the same para, under dump re-handling, it is mentioned that kumaraswamy mine is a Mechanized mine, it should be corrected as A(FM-Fully mechanized mine.), also in other part of the text para & plates, wherever applicable.

15. Para 2(f), in table no.62-64, the production of the life of the mine, pit dimension at the conceptual stage is given, including dumping locations, the period mentioned 2022-27 & and up to 2037-2042 respectively. The mining lease period given as per the existing document is for 17/10/2022, if it is so, how the proposals have been drawn for the period referred above may be justified/ explained. (ii). Under the adequacy of land for disposal of waste is mentioned as area for for waste dumping, subgrade stock piling has been identified and marked on the relevant plates is not appropriate and correct. Better to indicate the plate number for easy reference. (iii). The back filling & the reclamation and rehabilitation with post mining land use pattern discussed here, the R & R approval based on ICFRE is different and the actual back filling is different. The term back filling is also called reclamation/ and rehabilitation means undertaking additional work after back filling like plantations/ creating water pond/ using the back filled land/ reclaimed land to some other useful purposes. If, any such work undertaken in the mine, it should be brought out separately in the Reclamation & rehabilitation column for reference.

16. Table No.76, given about sales trend for last three years, without any unit for the same. (ii). Para 6.1, it is given that the downhill conveyor capacity has been derived in the following manner; 1800TPH x 20 working hours x 300 working days =10.8 MMT/A. how the 20 hours is accounted from what time to what time.

17. Table no.83, reveals about the status of EP measures proposals in 2019-20, wherein some of the work has been completed and some are pending, when these pending works will be completed is not given with the expected dates of completions.

18. Para 8.6, table 86, under financial assurance, the virgin area plantation need not be considered under net area calculations, including the green belt of 6.96 ha may be deleted from the net area calculations.

Part-B

19. Plate No. 1 (Key Plan): The approach road to the ML area with approximate distance from the known place needs to be marked.

20. Surface Plan- (Plate No.4): The permanent Ground control points brought out in the plan/ plate, but not specified GCP-1, 2 & 3 for reference. The surface plan submitted for the date surveyed on 1/4/2019, but the document submitted to this office on 24/10/2019, after a gap of six months, and it has been observed during the inspection/ plate no.3, that the updation of pits, degraded land are not brought out what was observed during the field inspections. Hence the plates should be updated, every three months and this being the A(FM-Fully Mechanized Mine). (ii). The pits, dumps, stacks etc., are must be depicted in the index/ plan as per the standard notation given in the MMR 1961. (iv). The retaining wall & the garland drain around the waste dump constructed must be depicted/ shown with clarity for understanding. The present surface plan does not show anything of that things, which ought to have been.(v). The excavation undertaken through encroachment on the western side need to be marked on the plan, without which it is difficult to understand the extent of the area degraded/ excavated from the virgin land.

21. Geological Plan- (Plate No -5): (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 future planning for development & production must be in such a way for scientific & systematic mining.

22. Geological Cross sections- (Plate No. B & C blocks.): (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 sections only, & UPL for plan. The sections should be drawn from ML boundary to boundary to be appropriate, otherwise it is incomplete presentation. (iii). Stripping limit depicted with red color code, is it ultimate pit slope.

23. Developments & Production Plan OF C-BLOCK -(Plate No -9, 2020-21): (i). color notations used to differentiate ore type / waste etc are different from the one used in geological plan ore type. Though the color notations used here to differentiate the mRL/ benches also need to be given in indexing for clarity & for easy understanding. (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). With the present situation of C-Block proposals, to work from C-8 1/8 to C-26 7/8 is accepted, but the hindrances present in the C-Block, like +10-20 stock pile, crusher plant (1050 mRL), three fines stock piles present between C-11 3/8 to C-15 5/8 need to be relocated for the movement of the top benches and gradually to connect pit 1 & 2 of C-block. (iv). The pit No. 2, need to be opened and extended towards western side on one side and eastern side on other sides to join the pit no.1., towards the east. (v). The crushing plants located at 1030 & 1033 mRL's also needs to be relocated at the earliest. (vi). The production from the sections C3- C3M may be avoided if wanted. (vii). The waste dumps depicted on the plan is not that clear for understanding, the dump numbers is not indicated. The approach road to the active dump/ inactive dumps not indicated. The extent of the waste dump is not marked on the plan. (viii). whether forward/ retreat method of dumping is not discussed. The terracing system also not discussed/ not marked for clarity.(ix). The protective measures present around the waste dumps or not, and the proposals to provide future protective's measures need to be shown as it is on the plan for clarity. In the light of the above remarks, the other plan of the year 2021-2022 needs to be attended appropriately, considering the above scrutiny comments.

24. Developments & Production Plan OF B-BLOCK -(Plate No –8, 2020-21): The color code index should be marked for reference. The extent of the pit nO.1, 2 & 3 need to be marked on the plan. The existing benches should be brought out & the future working/ advancement of benches need to be marked with clarity. In the light of the above remarks, the year 2021-22 workings need to be attended appropriately.

25. Conceptual plan- (Plate Nos.14): (i). the conceptual sections are not submitted with this document, which ought to have been. (ii). 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. (iii). 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. What is seen in the surface plan is reproduced as it is without undertaking any changes during the two years period need to be attended and corrected. (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. Pit 1 &2 goes for joining & subsequently No.3, at the end it will be single pit and dumps etc. The C-ore stocks will not be present in conceptual stage. (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.

26. Year wise build of dump section-(Plate no.20): the waste dump AD-2, presented without the protective measures like retaining wall & the garland drain to be provided around the dump on the sloping on the bottom.

27. Environment Plan (Plate No.16): 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.

28. Slice plan-Plate No.23H, (B Block-982-MRL): The ore type color notation are not used for the slice plan presented, which ought to have been. The UPL reveals incomplete as per the field observation, the ore body is massive & continuous one, the ore body need to be worked out till the ML boundary of the Deccan Mining company leaving the 7.5m barrier, but as per the presentation it gives incorrect UPL.

29. Slice plan-Plate No.24A, (C Block-1066-MRL): the indexing is not given completely; the color notation is not used for ore types, though the number notations used. In the light of the above remarks, the remaining slice plan need to be attended appropriately.

30. The list of annexures given, which must be added with another column to give number of pages in each annexure for clarity. The annexures must be given with date and validity of the particular letter/ document as applicable to each letter, including the approved mining plan/ scheme etc. Name of the mine with lessee need to be given with the photographs.

(i). The permanent ground control points(GCP) needs to be enclosed with color photographs, for which only two GCP's, are found enclosed in the documents.

(ii). In each photographs, the name of the mine & company/ name of the lessee need to be given. Some photographs are found to be enclosed without any remarks/ to identify which mine is difficult.

(iii). In the consent letter it is expected to mention from the lessee and not from the applicant. It is also expected the 3rd modification submitted for approval to the 2nd approved RMP (review & updation of mining Plan.). in the light of the above remarks, the undertaking certificate need to be attended accordingly, wherever applicable. Shri. Dhiren Bhushan is Qualified Person, instead of mentioning Qualified Mining Engineer, it is expected to correct, the same in the appropriate places of the text & also in the plates if applicable.

(iv). Annexure-35, refers to Gulbarga electricity power supply and not written appropriately.

(v). Annexure-42, refers to sinking of bore holes in form-J, what is the progress of the same is not given.

(vi). From the annexures side, some other annexures are also added at the end, but those things not indicated in the list of annexures.