

SCRUTINY COMMENTS ON EXAMINATION OF MODIFICATION IN THE APPROVED MINING PLAN OF BHUSAR BAUXITE MINE OF M/S HINDALCO INDUSTRIES LTD., OVER AN EXTENT OF 65.31 HECTARES, LOCATED IN MOUZA/VILLAGE BHUSAR, UNDER KISKO P.S OF LOHARDAGA DISTRICT OF JHARKHAND STATE, SUBMITTED UNDER RULE 22(6) OF MCR, 1960.

- (1) The DGPS surveyed map/plan submitted showing UTM data instead of GPS data in compliance to CCOMs circular No.2/2010 and its addendum dated 21.09.2011 & 11.06.2014 regarding geo-reference cadastral map has not been submitted. Moreover, the undertaking submitted in compliance to the CCOM's circular No. 2/2010 is not acceptable at present.
- (2) The copy of the approval letter of modification in the approved mining plan, over an extent of 65.31ha has been enclosed as annexure-1A but original lease was 84.77ha but no FMCP for the surrendered area has been submitted to IBM so far.
- (3) The lease renewal application in Form J has been enclosed as annexure-2 but the same is not clearly legible, thereby a fresh & legible copy of the same should be submitted.
- (4) The photo copy of lease deed has been enclosed as annexure-3, but the lease map attached to the lease deed is missing, which should be submitted.
- (5) The list of board of directors has been enclosed as annexure-4A but the phone/fax/e-mail id of none of the directors has been furnished. Therefore, a fresh list of the board of directors should be submitted incorporating the above information.
- (6) The Photo I.D proof of the nominated owner has been enclosed as annexure-4A but the same is not clearly legible; thereby the same should be replaced by a fresh & legible copy for clarity.
- (7) The excavation planning for the period from 2015-16 to 2019-20 has been computed & enclosed as annexure-7 but the length & width of benches proposed in topsoil, morrum, laterite & bauxite has not been furnished, which may be mentioned. Besides, the location co-ordinates/ cross sections considered for the purpose and RLs of the excavation planning are missing, which should be furnished by adding more columns in the tabular annexure. Moreover, the recovery of bauxite ore is considered as 90% but the basis on which such recovery is considered should be justified with valid reasons. So, also the grade of the recoverable bauxite may be furnished supported by authenticated chemical analysis report for clarity. Likewise, the waste generation is indicated to be 10% but the basis for such generation has been considered also not mentioned, which should be furnished indicating the grade of such waste material. Accordingly, necessary corrections/modifications may also be made in connected paras in the text relevant plates.
- (8) The copy of the consent to operate from Jharkhand State Pollution Control Board has been enclosed as annexure-8 has already expired, thereby a valid consent to operate should be submitted.
- (9) The photo copies of letters for reduction of lease area from AMO, Lohardaga addressed to Director of Mines has been enclosed as annexure-10, instead the same should be obtained from the Director of Mines, Govt. of Jharkhand & enclosed along with the document for its authenticity.
- (10) A flow sheet of the crushing plant has been enclosed as annexure-18 but the name of the mine is missing, which should be indicated for more informative.
- (11) The litho logs of the already drilled boreholes have been enclosed as annexure-19 but the boreholes are coring or non-coring type has not been specified. Moreover, no photograph of the borehole logs has been submitted.
- (12) Few photographs in support of reclamation, afforestation & boundary pillars has been enclosed as annexure-20 but no photographs for lease area, existing exploration & working quarry has been enclosed & the same should be submitted for more informative.

(13) The photo copy of the bank guarantee valid upto 31.03.2016 has been enclosed as annexure-21 but the modification document has been submitted for the period from 2015-16 to 2019-20, thereby a valid bank guarantee matching to the ensuing modification period should be submitted replacing the enclosed one for clarity.

(14) A copy of the feasibility report of the mine has not been enclosed as annexure to the document, which should be submitted.

(15) The detailed calculations for reserves/resources have not been enclosed as annexure to the document, which should be estimated considering the existing boreholes & existing quarries available in the lease area by cross sectional method for clarity.

(16) The extract minutes of meeting of the board of directors held on 31st October 2009 in connection with nomination of Occupier under Mines Act and Explosives Act/ Rules for Pakhar mines of Jarkhand has been enclosed along with the modification document, instead a resolution of the board of directors nominating a person as owner of Bhusar bauxite mine, over an extent of 65.31ha should be submitted. In this case Shri A.K. Agarwala has signed the document in his capacity as the Director cum nominated owner but a board resolution nominating Shri Agarwala as owner of the aforesaid mine has not been enclosed. For information, unless a person has been nominated as the owner of the said mine, he cannot sign a document in his individual capacity or by designation. Therefore, the above resolution should be replaced by a fresh one, as required under the statute.

(17) On examination of the index given for list of plates, it is found that, the plate submitted for development plan 2016-17 has not been properly numbered, as per the list of plate enclosed along with the document.

(18) In 3rd para of the introduction chapter, a reference for Form-J as annexure-2 has been given but the Form-J is not clearly legible, thereby a fresh copy of the same should be submitted for clarity.

(19) In 4th para of the introduction chapter, a mention has been made about the extension of lease period of 2020 as per the amended MMDR Act, 2015, which appears to be not correct, thereby appropriate corrections may be made accordingly.

(20) Under the heading **Present Status of the Lease**, a mention has been made about the prohibition of mining operations by the District Mining Officer vide certain letter reference but a copy of the such letter has not been enclosed along with the document, which should be done & the para may be revised accordingly. (Page No.3)

(21) It is found that, during the period from 2010-11 to 2014-15, the advancement of northern quarry faces were proposed towards north, west & eastern direction but actual achievements on the above account for each year of the last approved scheme of mining period has not been given, instead the achievements in waste generation has been furnished in tabular form, which is not proper. Therefore, the actual status of advancement of the quarry faces in each year of the aforesaid period should be furnished indicating the location co-ordinates/cross sections considered/name of the quarry(s) involved for the purpose for more informative. Besides, the reasons for deviation if any may also be indicated for ease in monitoring. [Para 3.3(ii)]

(22) The waste generation proposed in each year of the last approved scheme of mining period and achievement thereof has been furnished in tabular form but the name of the quarry(s)/location co-ordinates/cross sections considered for waste generation in each year has not been given, which should be furnished by adding more columns right to the table given in the pages under reference (Page No. 13)

(23) The production proposed in each year of the last approved scheme of mining period and achievement thereof has been furnished in tabular form but the name of the quarry(s)/location co-ordinates/cross sections considered for production in each year has not been given, which should be furnished by adding more columns right to the table given in the para under reference for ease in monitoring. [Para 3.3(iii)]

(24) The proposed plantation in each year of the last approved scheme of mining period and achievement thereof has been furnished in tabular form but the location co-ordinates of such plantation in each year has not been given, which should be furnished by adding more columns right to the table given in the para under reference for ease in monitoring. [Para 3.3(iv)]

(25) Under the heading **Reclamation and Rehabilitation**, the proposed status of reclamation & rehabilitation and achievements thereof in each year of the last approved scheme of mining period has not been clearly indicated, which should be furnished, mentioning the name of the quarry/ location co-ordinates of such activities for clarity. All should be presented in tabular form. [Para 3.3(v)]

(26) Under the heading **WASTE DUMP MANAGEMENT**, a mention has been made about the three old O.B dumps but the size/capacity & location co-ordinates of none of the dump has been given, which should be furnished for more informative. All should be presented in tabular form. [Para 3.3(vi)]

(27) The year wise proposed and actual backfilling has been furnished in tabular form but the name of the quarry/location co-ordinates/cross section considered for the purpose has not been given, which should be furnished with proper plate reference by adding more columns in the tables for ease in monitoring. (Page no.15)

(28) The valid reasons for submission of modification in the approved mining plan under Rule 22(6) of MCR, 1960 should be furnished instead of mentioning **not applicable**.(Para 3.6)

(29) The meteorological data for January to December has been furnished in tabular form but the information/data pertains to which calendar year has not been specified, which should be updated accordingly. (Page No.19)

(30) The rainfall data for 10 years from January to December has been furnished in tabular form but the information/data pertains to which calendar years has not been specified, which should be specified. (Page No.19)

(31) The existing reclamation & rehabilitation status of the mine has been given but nothing has been discussed about the existing method of mining practised in the mine so far, which should be briefed in detail for more informative. In addition to the above, the proposed method of mining furnished in the para under reference may also be revised by furnishing the proposed bench formation status both in overburden & in ore zone, dumping, reclamation & rehabilitation etc. for clarity. If the existing quarries are proposed to be developed /extended, the same may also be clearly mentioned. If the proposed workings are in the virgin area, the reasons for the same may also be furnished with valid reasons. In the light of the above, the para may be revised. [Para 2.0(A)(a)]

(32) An heading for **proposed method of mining** during the period from 2010-11 to 2014-15, which is uncalled for and must be erased and the method of mining proposed for the ensuing modification period of five years should be discussed considering all the parameters involved for clarity. (Page No.30)

(33) Under the heading **Bench Design and Formation**, there is a mention that, the height of the benches are usually kept below 6m in consonance with DGMS permission granted in 1990, which is not proper, instead, the height of the benches proposed to be developed should be specified. Again, it is found that, a note on prohibition of mining operations has also be given under the heading of the para, which has no relevance with the bench design and formation. Therefore, it is advised not to furnish any irreverent information at any other places at any point of time in future. Besides, it is found that, the development of the quarry face A & B are proposed, where no specific information/ data in the following account has been furnished: (i) Removal of OB from three benches have been proposed but nothing has been given about the lithology of such three imaginary benches. (ii) Bench formation status on topsoil, morrion & laterite is missing and without any valid data for the same, the practical bench formation is not possible.

(iii) It is learnt that, out of 4 benches, there in OB zone and the bottom most one is in bauxite zone & the version lacks scientific approach in a fully mechanised mine. Therefore, the lithology of the borehole data should be co-related with the bench design & formation for systematic and scientific mining. Unless the correct lithological data is ascertained, the practical bench formation is not possible. In view of the above, the accurate data for bench formation for each year of the development should be furnished, instead of furnishing generalised picture of three benches in OB & one bench in ore. (iv) The present status of two old OB dumps are given and it is irreverent to bench design & during the ensuing modification period, possibilities of bench formation in those dumps are not expected. So, the entire document should revise in such a manner that only the filtered data at appropriate places are available. (Page No. 30)

(34) Under the heading **Method of Mining**, presently, the mining operations are being done by fully mechanised method by forming three to four benches but nothing has been given about the bench formation status in soil, morrum and/or laterite and bauxite ore zone. Besides, the height, width & length of individual benches may also be furnished indicating the bench specifications/parameters for more informative. Besides, the proposed status of dumping, reclamation & rehabilitation etc. may also be furnished for clarity. If the existing quarries are proposed to be developed /extended, the same may also be clearly mentioned. If the proposed workings are in the virgin area, the reasons for the same may also be furnished with valid reasons. In the light of the above, the para may be revised. (Page no.31)

(35) (i) Under the heading **Insitu Tentative Excavation**, the proposed status of overburden removal, generation of waste & production target for the period from 2015-16 to 2019-20 has been furnished in tabular form but the bench/RL of the excavation planning has not been given, which should also be furnished by adding one more column in the table. (ii) On an average, there are two nos. of quarries are proposed under excavation planning during the years 2017-17, 2017-18, 2018-19 & 2019-20, which should be justified with valid reasons or either only one quarry should be proposed. (iii) The recovery percentage of the bauxite & waste generation is missing, which should also be furnished. Accordingly, corresponding incorporations /modifications may also be made in connected paras in the text & relevant plates. [Para 2.0(b)(i)]

(36) The name of the quarry(s)/location co-ordinates of the proposed workings should be furnished indicating the direction of advancement of quarry faces. Besides, the tentative dimension of the benches proposed to be made in topsoil, laterite/morrum & bauxite ore zone may also be specified. All should be presented in tabular form. In the light of the above, the information furnished in para 2.0(e) may also be revised. [Para 2.0(d)]

(37) Detailed calculations of drilling & blasting matching to the excavation planning have not been furnished, which may be submitted. Besides, OMS & powder factor of the explosives may also be computed & furnished. (Page No. 40)

(38) The para is meant for conceptual mine planning, whereas, no information regarding the same has been furnished. Therefore, the excavation planning beyond the proposed modification period should be furnished on account of development, production, dumping, reclamation, rehabilitation & afforestation up to the end of the lease period. Besides, it is also found that, the occurrence of bauxite is found below the lairs of topsoil, morrum/laterite but the same has not been discussed in the refer para. Therefore, the factual information about the topsoil, morrum/laterite is required to be furnished indicating, the quantities of topsoil, morrum/laterite proposed to be generated by end of the conceptual period supported by calculations for more informative. [Para 2.0(f)]

(39) In 2nd row of the 2nd table, the ultimate pit depth is indicated to be 18m, which should be checked and corrected based on the available exploration data. (Page No.41)

(40) The land use at the end of plan period has been furnished in 1st table of the page under reference; instead the extent of area proposed to be degraded in each year of the ensuing modification period should be furnished in separate tables. Accordingly, corresponding changes may also be made at other places of the document for ease in monitoring. (Page No.43)

(41) The quality of water encountered in the area is missing, which should be furnished for ease in monitoring. [Para 3.0(c)]

(42) The rainfall data for January to December has been furnished in tabular form but the information/data pertains to which calendar years has not been specified, which should be updated accordingly. (Page No. 46)

(43) The quantities of soil proposed to be generated in each year of the ensuing modification period has been furnished in 2nd column of the 1st table given in the para under reference but the location co-ordinates/cross sections considered for the purpose is missing, which should be furnished by adding one more column right to the table. [Para 4.0(a)]

(44) The location co-ordinates and size/capacity of the old dumps should be furnished for more informative. [Para 4.0(b)]

(45) Under the heading **Sub-Grade Mineral**, the proposed generation status of sub-grade materials in each year of the ensuing modification period is missing, which should be computed & furnished and the para may be revised accordingly. [Para 4.0(c)]

(46) The cut-off grade of bauxite is indicated to be 40% Al₂O₃ contains but the same is not matching with that of the chemical analysis report enclosed as annexure-17. Therefore, the data may be reconciled. (Para 5.0)

(47) Under the heading **Recreation Facility**, the facilities available to the local people of the surrounding area should be furnished & rest of things should be erased. (Page No. 63)

(48) Quarry wise extent of area proposed to be degraded in each year of the ensuing five year period should be furnished. Besides, quarry wise rehabilitation & afforestation for each year of the aforesaid period may also be furnished. All should be furnished in tabular form and rest of the things should be erased. (Para 8.3.1)

(49) Dimension (L x B x D) of the void available for backfilling has been furnished in 3rd row of the tables furnished in the pages under reference but the names of the quarries involved is missing, which should be furnished. (Page No. 70 to 74)

(50) Updated status of bank guarantee should be furnished under the heading **Computation of financial assurance** and necessary corrections may also be made accordingly. (Page No. 77)

(51) Plate-1 (Key Plan): The details of the deficiencies found on the plate are as follows: (i) The index reference given for 5km buffer zone is not matching with that of the plan portion of the plate. (ii) The index reference given for metal road is also not matching with that of plan, which should be clearly demarcated on the plan for ease in monitoring. (iii) The index reference given for forest land with density is not matching with that of the plan. (iv) Besides, the population of the villages falling within 5km radius of the lease area has also not been clearly marked.

(52) Authenticated Lease Area Plan: (i) The plate has not been named /numbered as per the contents for list of plate. (ii) The legend given for lease area is not matching with that of the plan portion of the plate. (iii) The plan has been signed by the Manager, which also cannot be considered as authenticated lease map, thereby the map should be signed only by the competent authority of State DMG, Jharkhand for its authenticity.

(53) Plate-3 (Surface Plan): (i) The old existing dumps referred in the text has not been positioned on this plate, which should be marked properly. (ii) The pillar numbers BGP-56, BGP-57 & BGP-58 are considered as GCP-1, GCP-2 & GCP-3 respectively, which is not correct. Therefore, at least three permanent ground control points situated outside the lease area should be selected and latitude & longitude of these ground control points may be furnished. Besides, these ground control stations need to be linked with the boundary pillars.

(54) Plate-4 (Geological Plan): The conceptual limit/ultimate pit limit has not been properly marked on the plate, which should be done and the plate may be revised accordingly. Accordingly, corresponding modifications may also be made on the plate submitted for geological sections.

(55) Plate-10 (Environment Plan): The 500 meter radius from the lease area has not been marked, which should be done and all the existing features available within that should be clearly depicted and the plate may be revised accordingly.

GEOLOGY PART

PART-A- 1. GEOLOGY AND RESERVE:

GEOLOGY:

I. Geological plan: (Plate no. 4) i) the area already explored under different level of exploration may be marked on the geological plan and UNFC code for area considered for categories of reserve/resources estimation may also be marked on geological cross-section.

ii) The quarry nos. A, A1 and B have not been shown on the geological plan submitted.

iii) In the surface geological plan two OB dumps (stabilised) have been shown whereas in this plate only one stabilised dump has been shown.

iv) The mineralised zone and non-mineralised zone has not been marked on the geological plan and also there is no index given for the same.

The above discrepancies may be corrected and re-submitted along with the document.

II. RESERVE/RESOURCE ESTIMATION: Furnish detailed calculation of reserve/resources section wise and annexed with the document for more informative.

II. KASRA MAP: i) The kasra map of the lease area submitted along with document is not legible and also not authenticate as there is no signature & seal of competent Authority. Therefore, the digitized kasra map of the lease area may be obtained from the competent authority and re-submitted along with the document for further needful action.

All the pages of annexures enclosed with the document should be attested by the RQP.
