

**SCRUTINY COMMENTS ON EXAMINATION OF MODIFICATION IN APPROVED MINING PLAN FOR PURNADIH GRAPHITE MINE OF M/S MOHAN MINERALS, PROP. SHRI MUKESH CHARAN, OVER AN EXTENT OF 81.75 HECTARES, LOCATED IN MOUZA PURNADIH, UNDER SATBARWA P.S OF PALAMAU DISTRICT OF JHARKHAND STATE, SUBMITTED UNDER RULE 22(6) OF MCR, 1960.**

(1) On examination of the front cover of the modification document, the name of the village(s) in which the lease hold area is located is missing, which should be furnished.

(2) The DGPS surveyed map/plan showing UTM data has not been submitted in compliance to CCOMs circular No.2/2010, regarding geo-reference cadastral map. Moreover, the undertaking submitted in compliance to the CCOM's circular No. 2/2010 is not acceptable at its present form.

(3) On examination of the copy of the lease deed enclosed as annexure-2 to the document, few pages of the same is not clearly legible, thereby a fresh copy of the lease deed should be submitted replacing the enclosed one for more informative.

(4) The photo copy of the I.D proof of the applicant has been enclosed as annexure-3 but the permanent & present address with documentary proof in favour of Shri Mukesh Charan has not been enclosed, which should be submitted.

(5) In case of individual or partner, a declaration/affidavit should be submitted to know whether he is working in other firms/company/organization etc.

(6) The chemical analysis report in support of grade of the graphite from Sun-Tech has been enclosed as annexure-7 but the report is old one, analysed on 16.05.2013, instead a fresh report for the same should be submitted. Besides, the copy of the certificate of accreditation from NABL in support of Sun-Tech also not enclosed.

(7) The flue gas, effluent, soil and noise level monitoring reports in support of Purnadih graphite mine of M/s Mohan Minerals has not been enclosed, which should be submitted for ease in monitoring.

(8) The measured mineral resources have been computed by surface area method & enclosed as annexure-8 to the document, instead the same should be calculated by cross sectional method upto the existing depth of all the quarries available in the lease area for clarity.

(9) The excavation planning for the period from 2015-16 to 2019-20 has been computed & enclosed as annexure-12 but the length, width of benches proposed in topsoil, overburden & graphite ore zone has not been furnished. Besides, the location co-ordinates considered for the purpose is missing, which should also be furnished by adding more columns in the tabular annexure. Moreover, the recovery of graphite ore is considered as 60% but the basis on which such recovery is considered should be justified with valid reasons. So, also the grade of the recoverable graphite may be furnished supported by authenticated chemical analysis report. Likewise, the waste generation is indicated to be 40% 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 & in relevant plates.

(10) A copy of TOR, dated 14.03.2014 has been enclosed as annexure-10 to the document; instead, the copy of the MoEF clearance in respect of Purnadih graphite mine of M/s Mohan Minerals should be submitted.

(11) The photo copy of violation letter, dated 08.06.2011 & show-cause notice dated 16.10.2012 has been enclosed as annexure-12 along with the compliance letter from the party, instead the violation letters & show-cause notices issued by IBM, Ranchi and compliance status thereof during the last five years should be submitted for more informative.

- (12) Few photographs of the existing quarries and boundary has been enclosed as annexure-14 but no photographs in support of existing dump, plantation & existing exploration has been enclosed, which should be submitted. Besides, captions for the photographs of the quarries has not been given, which should be indicated for clarity.
- (13) A copy of the explosive procurement license and a copy of the blasters license as required for carrying out blasting operation in the mine have not been enclosed along with the document, which should be submitted.
- (14) A copy of the valid consent to operate the mine from Jharkhand State Pollution Control Board has not been enclosed, which should be submitted.
- (15) The copy of the valid Bank Guarantee matching to the ensuing modification period has not been enclosed, which should be submitted for ease in monitoring.
- (16) In 3<sup>rd</sup> para of the introduction chapter, it is mentioned that, the mine is located in Mouza Purnadih but the village name is missing, which should be furnished.
- (17) In last para of the introduction chapter, a mention has been made for extension of the lease for a period of 50 years, which should be checked and corrected suitably.
- (18) In 1<sup>st</sup> line of the para, a mention has been made about the status of existing dump outside the lease area and the same has already been re-handled in the past, thereby reference for such non-existing dump is uncalled for and the para may be revised accordingly. Besides, the size/capacity and location co-ordinates of the existing dump, located near southern boundary of the lease area is missing, which should be furnished. Moreover, the dimension of parapet wall and garland drain constructed around the toe of the dump may also be indicated and number of terraces & height of each terrace made in the dump may also be furnished for more informative. [Para 3.3(iii)]
- (19) In 2<sup>nd</sup> table given in the page under reference, the location co-ordinates of the existing dump(s) is missing, which should be furnished by adding one more column in the table. (Page No.7)
- (20) The topography, drainage, vegetation & climatic condition of the unspecified area has been furnished, which is not proper, instead the name of the lease area indicating the location of the graphite area should be clearly indicated. Accordingly, the same may also be furnished in connected paras in the text for more informative. [Para 1.0(a)]
- (21) The rainfall data for the months from January to December has been furnished in tabular form but the information/data pertains to which financial/calendar has not been mentioned, should be specified & latest available report on the above account may also be submitted. (Page No.10)
- (22) Under the heading of the para, **local geology** of the unspecified area has been furnished; instead, the name of the area should be specified for clarity. [Para 1.0(c)]
- (23) The dimension of all existing quarries are given but the location co-ordinates of such quarries are missing, which should be furnished for more informative. [Para 1.0(e)(i)]
- (24) Under the heading **Samples analysis**, there is a mention that, analysis of one composite sample was carried out by Sun-Tech but the manner in which the samples are collected and analysed has not been clearly indicated, which should be discussed and the para may be revised accordingly. [Para 1.0(e)(iii)]
- (25) Below the 1<sup>st</sup> table given in the page under reference, there is a mention that, on the basis of exploration carried out in the lease area; the reserves have been categories under G1 & G2 categories, which is not correct, since no exploration in the form of trial pits, trenches & boreholes have been undertaken in the lease area except the existing scattered quarries available in the lease area. Therefore, the page may be revised accordingly. (Page No.14)

- (26) There are 15 nos. of inclined boreholes are proposed during the years 2013-14 & 2014-15 but the financial years are already completed, thereby the para may be revised accordingly. Besides, in the table given in the para under reference, the proposed exploration in the form of boreholes have been mentioned against the year 2016-17 & 2017-18 but the location co-ordinates of such boreholes are missing, which should be furnished by adding one more column in the table. Moreover, the total meterage of the boreholes furnished in last column of the table should be checked and corrected. In the light of the above, the entire potential area of mineralisation should be proposed under exploration during the next two years of the mining operations and the para may be revised. [Para 1.0(i)]
- (27) The reserves computed under proved (111) & probable (122) categories have been furnished in 3<sup>rd</sup> table given in the page under reference but no information regarding the reserves given in the last approved scheme of mining and depletion/updating status thereof is furnished. Besides, as on what date, the reserves have been updated may also be indicated for ease in monitoring. (Page No. 20)
- (28) Existing method of mining has not been discussed as per the heading of the para, which should be furnished, mentioning the existing dimension of the quarry(s) & it's working/non-working status. In addition to the above, the existing status of dump, reclamation & rehabilitation etc. may also be furnished. Besides, 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 quarry is proposed to be developed /extended, the same may also be furnished. 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)]
- (29) Under the heading, proposed method of mining, the commencement of the mining operations are indicated to be in 1995, instead the actual date of commencement should be furnished. (Page No. 22)
- (30) Under the heading **Mining Strategy**, it is mentioned that, the mine is worked by OTFM method, instead the current strategy of mine working should be discussed in detail and the para may be revised accordingly. (Page No. 30)
- (31) Under the heading **Bench Design and Formation**, the bench formation status for the plan period of two years is indicated, whereas the modification document has been submitted for the five year period. Besides, specific bench formation status (height, width of the benches) in soil, overburden and in graphite ore zone has not been given, which should be furnished and the para may be revised accordingly. (Page No. 23)
- (32) (i) In 2<sup>nd</sup> column, 5<sup>th</sup> row of the 1<sup>st</sup> table, given under the heading **Insitu Tentative Excavation**, there are three quarries have been proposed to be excavated during the year 2019-20, which is not permitted, instead only one or two quarries should be proposed. (ii) The location co-ordinates of excavation planning is missing in the table, which should be furnished by adding one more column. (iii) The bench/RL of the excavation planning for each year of the proposed five year period has not been given, which should also be furnished by adding one more column in the table. (iv) The recovery percentage of the graphite & percentage of intercalated waste generation may also be furnished indicating the basis for such recovery/generation in the specific column. Accordingly, corresponding incorporations /modifications may also be made in connected paras in the text & relevant plates. [Para 2.0(B)(I)]
- (33) 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 overburden & graphite 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)]

(34) Under the heading **Blasting**, specific and concrete proposal for the same has not been given, which should be furnished and the para may be revised accordingly. (Page No.33)

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

(36) In 2<sup>nd</sup> column of the 2<sup>nd</sup> row of the 2<sup>nd</sup> table, the ultimate pit depth has been indicated to be 12.23m but the basis on which such depth has been considered should be specified, since no exploration has been undertaken so far in the mine upto that depth. (Page No. 34)

(37) In 2<sup>nd</sup> table given in the page under reference, the land use after the five year plan period has been furnished; instead the same by end of each year of the ensuing five year period is required to be submitted in separate tables for each year. (Page No.36)

(38) Year wise plantation has been proposed in tabular form but the location co-ordinates of such plantation is missing, which should be furnished by adding one more column right to the table for more informative. (Page No. 31)

(39) The depth of the water table both in summer & rainy seasons should be furnished and the para may be revised accordingly. [Para 3.0(a)]

(40) The quality of water encountered in the area is missing, which should be furnished for more informative. [Para 3.0(b)]

(41) The quantities of OB/SB/IB proposed to be generated in each year of the ensuing five year period has been furnished in 2<sup>nd</sup> & 3<sup>rd</sup> column of the 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)

(42) The graphite contains 10% fixed carbon but no chemical analysis report in support of such grade has been enclosed. Besides, the cut-off grade of graphite also not furnished and the same should be furnished considering the thresh hold value fixed for graphite. (Para 5.0)

(43) Under the heading **Site Services**, the proposed status for the same has been furnished but the existing site services if any may also be given for more informative & the para may be revised accordingly. Para 7.0)

(44) Under the heading **Employment Potential**, a full time Mining Engineer holding degree in mining engineering as required under Rule 42 of MCDR, 1988 has not been proposed, which should be incorporated. Besides, the manpower requirement on account of unskilled, semiskilled & skilled has also not been given, which should be furnished. (Page No. 46)

(45) The average rainfall data from January to December has been furnished in tabular form but the data pertains to which financial/calendar year has not been specified and latest available data should be furnished. (Page No. 50)

(46) Under the heading **Recreation Facility**, the facilities available to the local people of the surrounding area should be furnished in detail & the para may be revised accordingly. (Page No. 53)

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

(48) The plates, numbered as Plate No.4B & 12B is missing in the contents for list of plates, which should be furnished and the contents may be revised accordingly.

(49) Plate-1 (Key Plan): The details of the deficiencies found on the plate are as follows: (i) The index reference given for core zone is suspected to be for the lease area, thereby the notation should be changed accordingly. (ii) The index reference given for road is for village road or for public road has not been specified. Moreover, the same road is not to be seen on the plan portion of the plate, which should be marked. If the road is public road, to which important places both end of the road leads to may also be indicated. Likewise, the status of footpath marked in the index is not to be seen on the plan. (iii) The index reference given for forest land with density is not matching with that of the plan portion of the plate. (iv) Direction of flow of nala is missing on the plan portion of the plate. (v) The index reference given for village with population is not to be seen on the plan. (vi) Besides, 25cm long scale also not marked on the plate.

(50) Plate-3 (Surface Plan): (i) During the field visit, it was found that, the quarry No.10 has been extended upto the lease boundary in between the boundary pillars MM-1 & MM-2 and also near boundary pillar MM-52 without leaving 7.5m safety barrier. Therefore, the 7.5m safety barrier should be reclaimed and photographs in support of such reclamation may also be submitted. In the light of the above, all the relevant plates submitted along with the document may also be revised accordingly. (ii) The bench mark which is located within the lease area is considered as GCP-1 and the boundary pillar nos. MM-42, MM-43 & MM-44 are considered as the GCP-2, GCP-3 & GCP-4 respectively, which is not acceptable, instead atleast three permanent ground control points situated outside the lease area should be selected and latitude & longitude of these ground control points need be furnished. Besides, these ground control stations need to be linked with the boundary pillars. (iv) Moreover, Surveyors signature is missing on the plate, which should be signed by a competent surveyor.

(51) Plate-5 (Development Plan 2015-16): The existing dump located in between the gridlines 00-200S & 500E-800E has not been utilised for proposed for dumping rather a new dump has been proposed in between the gridline 100N-200S & 1100E-1400E without re-handling/rehabilitating the old one. Therefore, either the existing dump should be proposed for dumping or rehabilitated. If the existing dump is not suitable for dumping, the same should be rehabilitated and then only the proposed dump in the new location is permitted. Moreover, the dump sections for the proposed dump also not given, which should be drawn.

In the light of the above, the plate submitted showing the development plan & sections for the year 2016-17 to 2018-19 may also be revised accordingly.

(52) Plate-9 (Development Plan 2019-20): The excavation planning proposed in existing quarry-5 is not permitted; instead the existing quarry-1 should be expanded laterally. Besides, the new dump proposed across the 800E also not permitted. Therefore, the excavation planning proposed during the ensuing five year period should be restricted only to the quarry-1 & 2 with dumping proposal restricted to one location only. Accordingly, necessary modifications/incorporations may also be made in connected paras in the text and the plate submitted for environment management plan, conceptual plan, conceptual sections and progressive mine closure plan may also be revised.

**GEOLOGY PART**

**PART-A- 1. GEOLOGY AND EXPLORATION:** The discrepancies/deficiencies observed in the Geology part of the submitted document are given below for kind information.

1. Item no. 1(e) (i) (page no.12):

Quarry No.1 - It is stated that two graphite veins are exposed in the quarry whereas three veins are shown in the Geological plan (plate no. 4)

Quarry No. 3 & 5- It is stated that seven graphite veins are exposed in these quarries whereas six veins are shown in the Geological plan (plate no. 4) (page no. 12 & 13)

Quarry no. 8 & 9- It is stated that three (03) graphite veins are exposed in the quarry whereas only two (02) veins are shown in the Geological plan (plate no. 4) (page no.13).

Quarry no. 12- It is stated that three (03) graphite veins are exposed in the quarry whereas eight (08) veins are shown in the Geological plan (plate no. 4) (page no. 14).

2. Item no. 1 (i): Under this para, it is stated that fifteen (15) numbers of boreholes are proposed to be drilled during the plan period 2013-14 & 2014-15 whereas in the tabular form given below shows twenty one (21) numbers of boreholes are proposed to be drilled for the plan period 2015-16 & 2016-17. Which statement is correct, please clarify and necessary correction may also be made.

3. The Mineral Resources have been computed by surface area method & enclosed as annexure -8 to the document; instead the same should be estimated by cross- sectional method up to the existing depth of all quarries present in the lease area for more clarity. .

4. Some spelling errors at page no. 10 & 11 have been observed in the text part may be rectified.

5. Latitude and longitude of lease area given on Key Plan (plate no. 01) is deviated by 500 m.

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

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