

SCRUTINY COMMENTS ON DRAFT SCHEME OF MINING IN RESPECT OF SOHGARA GRAPHITE MINE OF M/S VINIRA MINERALS OVER AN AREA OF 12.885 HECT. LOCATED IN VILLAGE- SOHGARA, DISTRICT –PALAMU OF JHARKHAND STATE SUBMITTED UNDER RULE 12 OF MCDR, 1988.

TEXT:

1. The Geo-referenced mining lease map prepared using DGPS shall be superimposed on Geo-referenced vectorised cadastral map. The same shall have to be submitted in compliance to CCOM's circular no. 2/2010, dated 06.04.2010 and its addendum dated 21.09.2011& 11.06.2014. The above map will be the base for preparation of all statutory plans as required under Rule-28 of MCDR,1988.

2.The Mining lease showing all Khasra numbers/Survey number on a Cadastral map (Khasra Plan) on original Plan(not the photocopy) duly certified by the State Govt. on prescribed scale, has not been submitted along with the document.

3. Cover page: The validity of the submitted document should be corrected as 2016-17 to 2020-21. The execution date, expiry date and period of lease should also be mentioned on the cover page.

The correct Rule under which the document is being submitted should be mentioned on the cover page. It should be owner only not both.

List of Plates should be corrected in context to plate no.

4. "Introduction": Page no. 1: Third para needs to be corrected as the lessee is not authorized person to tackle the illegal operation in the area. Further, in the last line "livelihood will increase" should be corrected as "livelihood will change". The details of lease viz. date of execution, date of expiry etc. need also to be incorporated under this chapter. Nothing has been mentioned about grant of ML area with its letter reference and date & period of lease granted.

5. Item 1.0. GENERAL: a) Name of applicant/lessee/Rule 45 Registration no.: The name of lessee, P.O & P.S and Registration no. of lessee under Rule-45 may be corrected. The mobile no. of both the partners need to be given. **There is mismatch in shape of ML area and the plot nos. included therein between the lease area map submitted in the ensuing document as Annexure-I/51 and the lease area map submitted along with the approved Mining Plan as Annexure-II.**

b) Status of applicant/lessee: The photocopy of partnership deed as mentioned has not been enclosed. The copy of resolution of Nominated Owner should also be incorporated in the document.

Whether compliance of Part-VII, item no. 9 of the lease deed has been made may be specified, as item (c) of Part-1.0,Geology & Exploration (Which should be Part-A instead of Part-1.0 as per guideline) indicates occurrence of Felspathic-Quartz-Sillimanite-Graphite Schist where Sillimanite is a valuable mineral. Further, whether compliance of condition of lease deed as per Part—IX, item no. 9.5(a) & (b) has been made, need also to be specified.

f) Photocopy of RQP certificate has not been enclosed.

Item no. (g) & (h) are not required under Item no. 1(General), as per guideline. Item no. (g) should be given in Part-A(Geology & Exploration) and item no. (h) should be given in Item no. 2.0(Location & Accessibility).

Regarding item no. (g), Form-J for notice of sinking of Borehole under Rule-47 of MCDR, 1988 has not been incorporated. The period of drilling may also be furnished.

6. Item no. 2.0 Location and Accessibility: The information under this para should be recasted as per guideline in three different heads (a, b & c).

Page no. 5: The Lat/Long of any boundary point has not been given. The Topo Sheet no. should be reconciled properly with the Key Plan(Plate no. 1). The Latitude & Longitude given should be reconciled properly with the Key Plan(Plate no. 1).

Page no. 6: The date of expiry of lease should be taken from date of execution of lease, the same needs to be corrected. The name of the person whose mobile no. has been given may be spelt clearly.

b) Details of applied/lease area with location map: The table format given in the guideline should be followed to indicate the details of lease area. The type of Government Non-Forest land should be mentioned.

Contd...2/.

Existence of public road: The distance of Sohgara village from the lease area should be mentioned. The type of road passing along the western end of the ML area should be mentioned.

Topo Sheet No.: Topo sheet no. with Latitude & Longitude of all boundary pillars should be given along with Survey of India Topo Sheet number.

c) General location map: The Key plan should be drawn afresh as photocopy is not legible. The Key Plan submitted (Photocopy) shows reference of 04 nos. of Topo Sheet whereas mention has been made of only one Topo Sheet in the text.

The Key Plan need to be submitted based on original Topo Sheet and not on photo copy of topo sheet. The Key Plan should bear pre-dominant wind direction and Wind rose diagram.

An Area Plan showing plot nos., type of land & approach road to the location should also be enclosed along with the document. The approach road should indicate major location on either end of the road.

7. Item no. 3.0 Details of approved Mining Plan/Scheme of Mining:

Para 3.1 (Date & Reference of earlier approved Mining Plan): The Mining Plan approval letter reference no. needs to be corrected.

Para 3.3 (Review of Approved Mining Plan): 3.3.1. Exploration- The reason for not achieving the targeted nos. of BH may be explained along with the details of BH given viz. Type of BH (coring/non-coring), if coring type, then size of drill bit used, maximum, minimum, average depth of hole & total meterage drilled.

3.3.2. Reserve- Heading of the table 3.2 should be net mineable reserve and in column no.2 it should be net mineable reserve.

3.3.3. Quality- In the Table 3.3, below 10% graphite a range has been mentioned as 0.80-1.57, what does it indicate may be explained.

3.3.4. Mine Development- There is difference between OB removal and total excavation, accordingly the table should be modified. The figure furnished for the year 2011-12 & 2012-13 (Actual) do not conform with the figure already furnished in the Annual Return for the year under reference. The same should be reconciled properly. Further, what constitutes OB material should also be spelt clearly. Under Remarks column, the date from which the mine became non-operative may also be mentioned along with submission of Temporary Discontinuance (TD) notice under Rule- 24(1) of MCDR, 1988. The copy of TD notice should also be enclosed as Annexure.

3.3.5. Production- The total of production target needs to be corrected. Actual achievement for the year 2012-13 needs to be corrected from Annual Return submitted by the party to the IBM, Ranchi and accordingly the total of actual achievement should also be corrected.

3.3.6. Afforestation- The table 3.7 should also include type of species planted along with area covered under plantation and location of plantation in a year wise manner. Accordingly the same should be reflected in the Environment Plan (Plate no. VII).

Para no. 3.4. Compliance status of violation: The status of violation should be given in the following tabular format supported with Annexure containing copies of violation letter/show cause notice & reply letter from the party.

Sl.No.	Letter reference with type of correspondence like Violation letter /Show Cause Notice	Violation of Rule/Rules pointed out	Reply Status

Para 3.5. Details of suspension order/closure/prohibitory order issued: Copy of Temporary Discontinuance notice has not been incorporated in the document as Annexure.

Para 3.6. Modification in Mining Plan: The Rule quoted for submission of Scheme of Mining may be corrected.

Contd...3/.

Part-A:

CHAPTER 1.0. Geology and Exploration: a) Topography and Drainage- The topography mentioned in the para does not match with Surface Plan, Geological Plan etc. The max. & min. RL given should be checked and corrected.

In the Geological Plan the type of land must be shown.

Climate- The climate part has not been furnished in detail. It should contain month wise duration of season along with maximum and minimum temperature during that period. Accordingly humidity part should also be discussed season wise. The data so furnished should be supported with source of information as on date. The spelling mistake should be taken care of.

Nothing has been discussed about drainage pattern and vegetation of the area.

Different items of the para like topography, drainage pattern, vegetation etc. should be furnished /discussed separately under separate sub heading.

b) Regional Geology: The reference of establishment of rock formation sequence should be given properly with Memoir no. , date etc. From the given Geological succession it is not clear whether it is of local/lease area or for entire region of Palamau. The same may be spelt clearly. The regional strike of of the rocks given needs to be reconciled with the field data. The para does not speak about Regional Geology (Type and mode of Mineralization of graphite body, its structural control, grade of metamorphism etc) with reference to location of lease as required in the format. The spelling mistake may be taken care of.

c) Detail description of Geology: On the basis of available Geological map and B.H data, approximate dimension of the ore zone with structural features in the area may also be spelt in the para. Nothing has been mentioned about the quartzo-felspathic body that has intruded the graphite body in the lease area. The generalized lithological section of the lease area should also be given. Whether Sillimanite has been found to occur in the lease area may also be spelt. Last line of the first para needs to be clarified.

In the second para the trial pit section needs to be incorporated in the document. The spelling mistake may be taken care of.

In the third para it has been mentioned that the Graphite vein and its associated litho units occur as enechelon pattern within the Granite body, the coloured photographs in support of the same need to be submitted along with the document.

Description of deposit: There is no scarp line on the West of quarry-1, the same may be corrected.

Quarry & Trial Pit section along with its dimension should be incorporated in the para. The trend of rock given should be reconciled properly with the field data and accordingly the same may be shown in the Geological Plan(Plate no. IV). The variety of graphite occurring in the lease area should be spelt clearly whether it is flaky or amorphous.

Av. thickness of different litho units occurring in different quarry of the lease area should be given as per field observation and not based on BH log. The thickness shown in the BH log does not give true picture as the BHs given are vertical and the graphite bearing body shows a steep dip as per field observation. In that case true thickness of graphite bearing body and associated litho units can not be deciphered correctly.

There is difference between “Felspathoid” and “Felspathic”. Homogeneity in rock nomenclature should be maintained.

Physical & Chemical characteristics: In none of the quarry graphite vein has been shown. The Chemical analysis report submitted as Annexure- IV/19 do not bear any NABL certification. Further, out of 10 BH only 02 nos. of BH sample have been analyzed. The reason for the same may be clarified.

For sampling part, item no. 1.(e) of Part-A of the Guideline format may be referred.

The chemical analysis result from quarry no. 2 shown in the table at page no. 18 shows FC as 11.61% whereas the chemical analysis result furnished in Annexure-IV/19 of BH no. 2 & 4 shows FC content as 8.84 & 8.28% respectively. The variation in result needs to be clarified

d) Name of prospecting/exploration agency: The required details should be given properly.

e) Exploration already carried out: Details of exploration done by GSI and State Govt. need to be given.

i) Pits: The Trial Pit and Quarry section need to be incorporated.

ii) Bore holes: From the table given under the para it is not clear which type of borehole was given. Whether it was coring type or non-coring type may be spelt clearly. **Copy of Form-J has not been incorporated along with the document.** Mention the period/year of given borehole.

The BH log furnished in Annexure- IV/9 to IV/19 is incomplete. Thickness of every run should be given along with lithounits encountered and its chemical analysis. In case of core recovery, RQD has been shown as nil, the same should be clarified. Every BH log should contain collar RL & location of the same.

Page no. 20: Photocopy of exploration report has not been enclosed as Annexure-II as mentioned in the first para. Further, the para needs to be modified as per item no. 4 (Introduction chapter, page no. 1) above.

iii) Sample analysis: For sampling part, item no. 1.(e) of Part-A of the Guideline format may be referred.

Chemical analysis report of graphite sample from quarry no. 2 has not been enclosed. The discrepancy observed in chemical analysis report has already been given under last para of item no. (c) above.

iv) The expenditure incurred for exploration (Trial pitting & BH) should be furnished after obtaining from the party.

(f). Surface Plan (Plate no. III): (i) The TBM should be clearly shown on the Plan with proper symbol.

(iii) At least three(03) Ground Control Points (G.C.P) should be shown in Surface & Geological Plan as per laid down procedure with Fore bearing and back bearing from any nearest Lease Boundary Pillars (LBP). The GCP should be fixed points on the surface and be visible from the LBP.

(iii) The lease boundary should be shown properly using conventional colour code & symbol with location of boundary pillars(as per Ministry of Mines notification no. 710(E), dated 08.10.2014).

(iv) The quarry should be shown with proper elongation direction as per field observation.

(v) The 7.5m safety barrier has not been shown.

(vi) The road should be shown properly with specified colour code. The type of road should also mentioned in the index of the plan as well as in the text at item no. 2.0(Location and Accessibility).

(vii) Date of survey should be mentioned on the name plate of the plan.

(viii) The Raiyati land should be specified whether it is agricultural or non-agricultural land.

(g) Geological Plan (Plate no. IV): (i) Item no. (i) to (viii) above should be taken care of in this plan also.

(ii) Area explored under different level of exploration (G1, G2 etc) should be marked on the plan.

(iii) The UPL has not been shown on the plan.

(iv) The Proved zone should be re-defined as per discussion in the field. The influence length should not be taken as 50 m, it should be rectified as per discussion.

(v) As the BHs are vertical, the graphite body should be shown all along the BH where graphite zone has been encountered.

(vi) The quartzo-felspathic body that has cut across the Graphite bearing body in number of places in the lease area, as observed during the field visit, has not been shown in the Geological Plan.

(vii) The graphite bearing body & other litho units that are exposed in different quarries/pits should also be shown in the Geological plan.

(viii) There is mismatch between the topography shown in the Surface Plan, Geological Plan etc., depth of occurrence of graphite body shown in BH log and amount of dip & direction of graphite bearing body observed in the field. There must be some co-relation amongst above three aspects.

(h) Geological Section: (i) The section line A-B should be straight from one end to other end of lease boundary. Based on one transverse section, the reserve/resource can not be calculated. Few more sections are required to be drawn for reserve/resource estimation. No section line has been taken on the Northern portion of the lease covering quarry no. 5. The same should be taken care of.

(ii) Geological section should indicate present features and not proposed one such as in section C-D showing proposed quarry.

(iii) No Geological formation has been shown in section C-D.

(iv) The vertical axis on both ends of section line need to be calibrated.

- (v) The UNFC code of area considered for different categories of reserve/resource estimation has not been marked on the geological section.
- (vi) Dip of strata should properly be shown on the section.
- (vii) Actual thickness of litho units encountered in the BH should be calculated using trigonometric method else ore reserve calculated may not give actual figure.
- (viii) The UPL should be shown in the section.

(I) Future exploration programme: (i) The GPS co-ordinates (Lat/Long) of proposed boreholes should be furnished in the para.

(ii) Direction & inclination of BH (from horizontal) has not been mentioned.

(iii) There is mismatch between the statement made in the para and the table following the para.

(iv) The proposed location of BH should be revised as some of the BHs have been proposed near 7.5m safety barrier.

(j) Reserve/Resource as per UNFC: (i) The Reserve/Resource estimation should be recasted as mentioned in para h(i) above.

(ii) Bulk density & Recovery factor are to be determined on the basis of field test as per guideline.

(iii) 50m length influence is not admissible in case of vein deposit unless there is evidence of mineral occurrence from proper exploration/exposure .

(iv) Geological Ore Reserve & Grade: The trend of graphite zone should be reconciled as per Part-A, item no. 1(b) in the above para.

(v) Table 1.1(Reserve as per UNFC code): The code of Probable reserve should be 122 as G2 level resource has been shown in table 1.2. The grade of graphite has not been mentioned in both the table 1.1 & 1.2.

(vi) Reserve/Resource as per UNFC with respect to threshold value should also be furnished in the table.

(vii) Feasibility/Pre-feasibility study report along with Financial analysis for economic viability of the deposit as specified under UNFC field guidance has not been incorporated.

(viii) The reserve/resource figure given in table- 1.1 should be given at the end of para (I) as per guideline.

(k) Detail calculation of reserve/resource: The dimension of mineralized zone with grade should be discussed in the para. Table 1.3 (Estimation of reserve/resource) should be re-casted as per Part-A, para 1.(h)(i) above.

(l) Mineral Reserve/Resource: (i) The para needs to be re-casted. Area covered under different level of exploration should be incorporated in Table- 1.2 along with Resource figure (Grade of mineral need to be given).

(ii) Based on level of exploration including area covered, the resource figure with respect to threshold value needs to be incorporated.

(iii) Based on revised reserve/resource figure the life of mine should be re-calculated.

CHAPTER 2.0. Mining:

a) Existing as well as proposed method for excavation: (i) The para needs to be modified as the OB exposed in the quarry does not conform to the thickness of OB mentioned in the para. Total depth to be excavated needs also to be modified accordingly.

(ii) 3m bench height in manual mining as well as use of explosive are to be explained in detail as no method has been furnished in support. The process to be adopted for the formation of 3m bench height need to be explained.

(iii) Instead of using explosive, non-explosive material may also be used if required to avoid loss in mining.

(iv) In case of shot hole drilling, as mentioned at para 2.(a), page no. 31, the machinery to be deployed needs to be spelt.

(v) With the help of only 10 BH, the entire lease area can not be explored in detail. The sentence needs to be corrected.

(vi) **Year wise development of benches:** Year wise development of benches should be shown properly and the Year wise Development Plan/Section (Plate no. V) needs to be revised accordingly. The top soil stack has not been shown in the Development Plan.

(vii) Separate, year wise development sections need to be incorporated as per guideline.

(viii) The year wise dump section needs to be revised as base RL of dump shown is not matching with the plan.

(ix) The litho units shown in section should at par with the index of the plan.

b) Year wise tentative excavation: Bench design & Formation- Dimension of benches to be developed along with its RL need to be discussed in the para.

I. Insitu Tentative Excavation: (a) The entire table 2.1 needs to be re-casted due to following reason:-

i. During the period of development 2016-17 to 2020-21, pit no. 3 has been shown to be developed. But in the Development Plan (Plate no. V) Quarry no. 3 has separate entity, it has not been shown to be merged with new proposed development, hence separate quarry (proposed to be developed) numbers should be given.

ii. Log of BH 3 does not show any indication of soil horizon, but Top soil generation has been shown in all the five years of proposed development.

iii. On multiplying the quantity of ore (in cu.m) with bulk density taken, the production shown in MT do not match.

iv. The ROM/Waste ratio do not match with the figure given in table 2.1.

(b) What constitutes Mineral reject needs to be explained along with its chemical analysis report from NABL accredited laboratory or from a Govt. laboratory. Whether it is grade or size reject should also be discussed.

(c) The constitution of OB/Waste need also to be mentioned clearly.

(d) **Production target (Page no. 33):** The table needs to be revised in light of above. Further, the soil should not be included in total Waste calculation as it has been mentioned as top soil in table 2.1. The stripping ratio should be Tes/cu.m.

(e) In case of top soil generation, it should be stacked separately for future use, which has not been shown in the development plan(Plate no. V).

(c) Individual year wise development: (i) Specific year should be mentioned instead of 1st year, 2nd year etc.

(ii) Number & dimension of benches to be developed in different horizons (OB & Mineral) separately in each year should be mentioned in each year of development along with their top & bottom RL.

(iii) The tables showing year-wise quantum of OB removal & mineral production show bench height of 3m. The same needs to be elaborated as how 3m bench shall be formed without using any machinery. How explosive shall be used without any machinery to break the harder strata as mentioned at para 2.(a) of the document.

Further, the sectional reference has not been given for area calculation in each year of development.

(d) Salient features of proposed method of working:

(i) **Method of working:** The para needs to be revised in light of previous paras regarding height of bench & total thickness of OB (based on BH 1, 2 & 3). The haul road should be so designed that the lead distance be minimum through a shorter route and accordingly the gradient of road shall also vary. The same needs also to be shown in the development & other related plans.

(ii) **Level of mechanization:** Fork Shovel may be explained. Name the place where the ore will be transported. Whether the lessee has its own graphite processing plant should also be spelt clearly with details of the same.

(iii) **Drilling & Blasting:** Whether lessee has explosive license, blasting permission from DGMS along with availability of blaster certificate, has not been discussed in the para. Copy of the same are required to be enclosed in the document.

Burden & Spacing should be mentioned properly. The use of Safety fuse & OD has not been incorporated. Yield per hole & powder factor need to be calculated.

(iv) **Storage of explosive:** The magazine as mentioned has not been shown in Surface Plan, Geological Plan, Development Plan, etc.

(e) Lay out of mine working: The development plan & section need to be revised as mentioned in earlier paragraphs [Para no. 2.(a), year wise development of benches].

(f) Conceptual Mine Planning: The Conceptual Plan (Plate no. VI) needs to drawn afresh in light of observation at item no. (e) above. Further, the RL of working should be given in the Conceptual Plan. The dump RL at conceptual stage has been given as 296.2m whereas the dump RL after 5 years development (2016-17 to 2020-21) has been given as 305.53m. The same needs to be reconciled properly.

Conceptual section has not been incorporated including the dump section at conceptual stage.

(i) **Available reserve & resource:** The para needs to be re-casted in view of revised resource calculation.

(ii) **Proposed exploration:** The para should be reconciled properly with para 1.(i), Future Exploration Programme, page no. 22. The table following the para needs to be revised.

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(iii) Anticipated excavation: The statement made in the para should be reconciled properly with the table "Production Targets" given in para 2.(b).(ii) on page no. 33, wherein it can be seen that the proposed production is maximum in first year thereafter it has gradual decreasing trend. Accordingly the para needs to be revised.

(iv) **Recovery of ROM:** The recovery % as mentioned in the para does not conform with table 2.1 & tables given under para 2.(c), Bench development over next five years, on page no. 33-36.

(v) **Disposal of waste & backfilling of voids:** It should be spelt clearly, from which five year plan period, the backfilling will commence. The statement made for backfilling has not been reflected in the Conceptual Plan (Plate no. VI).

(vi) Land degradation/Reclamation/Afforestation: The commencement of reclamation should be at par with item no. (v) above. Spelling mistake should be taken care of.

It has been mentioned that plantation will be done over next five years plan period while nothing has been mentioned about ensuing five years plan period (2016-17 to 2020-21). Type of saplings to be planted, total area shall be covered under plantation schedule etc. need to be given in the para.

(vii) **Year wise afforestation schedule:** Specific year should be mentioned like 2016-17, 2017-18 etc. Along lease boundary no plantation has been shown in Environment Management Plan (Plate no. VIII). Year wise plantation should be shown in Environment Management Plan (Plate no. VIII).

(viii) **Post Mining Land Use after next five years:** The land to be used should be reconciled for excavation & dump area as these two figures are not matching with Development & Conceptual Plan.

The information under the para should be divided into three parts viz. (a) Existing land use pattern, (b) Land use pattern after five years plan period & (c) Land use pattern at conceptual stage. The extent of area proposed to be degraded in different heads in each year of the entire five year period should be furnished in tabular form.

CHAPTER 3.0. Mine Drainage:

a) **Min. & Max. depth of water table:** The location of village well should be shown in all the plans. Location of well should be specific from which quarry it is 60m South.

Water Table of the area should be mentioned after procuring the same from concerned authority.

b) **Min. & Max. depth of working area:** The Min. & Max. depth of working area should be mentioned correctly in conformation with five years development plan (Plate no. V).

c) **Quantity & quality of water likely to be encountered:** The data furnished should be supported with back-up calculation. The period of accumulation of water should be mentioned. The annual rainfall furnished in the para differs from that furnished in para 1.(a) in Geology & Exploration chapter under para Topography, Drainage & Vegetation. The rainfall data should be procured from the State Meteorological Department. The pumping arrangement required to pump out the accumulated water during the rainy season has not been spelt.

Nothing has been spelt about quality of water and its analysis report from NABL accredited laboratory.

d) **Regional & local drainage pattern:** It has been mentioned that 2800 cu.m water will be accumulated at the end of five year plan period. The yearly accumulation of water should be furnished with supporting calculation based on which yearly pumping arrangement has to be made and not in the manner of five yearly basis as furnished in the para.

What will be necessity of dust suppression after post monsoon period may be clarified. Remaining water can only be pumped out to nearby surface after getting concurrence from Raiyats.

CHAPTER 4.0. Stacking of Mineral Reject/ Sub-grade material & Disposal of waste:

a) Nature & quantity of top soil, OB/Waste and Mineral reject to be disposed off: Table 4.1- Refer table no. 2.1, the figure shown as mineral reject (30%) has been referred in the table 4.1 as quarry waste. The same needs to be clarified. Further, soil should not be included in total waste. Table no. 4.1 needs to be revised.

The table given in the guideline along with the para has not been incorporated.

b) **Proper dumping ground:** Separate dumping ground for Soil & OB/Waste should be shown in the development plan, Environment Management plan, Conceptual plan & Financial Assurance plan(not submitted along with the document). The last para needs to be revised as proposed dump area has not been proven to be barren since BHs have been proposed in that area during ensuing five year plan period(2016-17 to 2020-21), hence it is yet to be proven to be non-mineralized.

c) **Manner of disposal of waste:** The total OB/Waste material to be generated during five year plan period (2016-17 to 2020-21) is to be reconciled as the figure of 12669 cu.m includes soil also. Soil should not be taken as waste. The height of dump so mentioned does not match with the figure given in para (b) above.

CHAPTER 5.0. Use of mineral & Mineral reject:

- a) **Requirement of end-use industry specifically:** The para needs to be reconciled with the flow chart in context to FC content of crude graphite & that of beneficiated graphite.
- b) **Brief requirement of intermediate industry:** The requirement of different buyers depend not only on % of FC but also on variety of graphite and size specification. The para should be revised accordingly.
- e) **Details of processes adopted to upgrade the ROM:** Lessee has its own processing plant at Satbarwa, details of which should be incorporated.

CHAPTER 6.0. Processing of ROM:

- a) **Processing/beneficiation of ROM:** The para should be revised. It should be specific i.c.t lessee's own processing plant at Satbarwa. Details of processing plant owned by the lessee should be discussed.
- b) **Material balance chart with flow sheet:** The flow chart given should be specific to captive processing plant of lessee. It would be better if flow sheet of the plant be given in place of flow chart.
- c) **Disposal method for tailing:** Proper information be given.
- d) **Quantity & quality of tailing/reject:** Information given needs to be corrected. Proper information with respect to mineral reject generation at mine and tailing generation at plant should be given.
- e) **Specify quantity & type of chemicals:** The purpose for use of Pine oil should also be explained in the para.
- f) **Specify quantity & type of chemicals to be stored:** Quantity has not been mentioned.
- g) **Quantity of water requirement:** Proper information should be given.

Entire chapter has to be revised & re-casted.

CHAPTER 7.0. Others:

- a) **Site services:** The period of operation of mine & the date from which the mine has become non-operative should be given. Whether Temporary Discontinuance notice (T.D notice) under Rule-24 of MCDR, 1988 has been submitted may also be spelt along with copy of T.D notice to be incorporated as annexure.
- b) **Employment potential:** Copy of blaster certificate along with copy of explosive license & blasting permission should also be enclosed in the document. The OMS should be given in MT.

CHAPTER 8.0. Progressive Mine Closure Plan:

8.1. Environment Base Line Information:

- a) **Leasehold area:** The type of Govt. NF Land needs to be mentioned.
- b) **Existing land use pattern:** (i) **Existing land use pattern:** Since two types of land is there in the lease area, the existing land use pattern shown in the table should include type of land used separately. Further, the table should contain existing land use pattern and not land to be used. The same should be corrected. The para may also include information as per item no. 2.(f)(viii) above.
(ii) **Human settlement:** The population of Adivasis, Harizans etc. should be given in percentage(%). In addition, the population of SC, ST, OBC & Gen category should also be mentioned. The distance of school & medical amenities also be given in the para. The date as on the demographic profile has been furnished should be mentioned.
(iii) **Water regime:** Distance of Maila river, Nawadih reservoir, Kolli nalla and the well in Sohgara village should be mentioned. The Maila river and Nawadih reservoir be shown in the Key Plan also for better understanding. The water body within 500m from lease area should also be shown in Environment Plan and Environment Management Plan.
(v) **Ambient Noise level:** It should be "within permissible limit" instead of "within threshold limit". Whether noise level monitoring was done in the lease area may be discussed.
(vii) **Climatic condition:** The para needs to be revised as per para no. 1.(a) of Part-A. The given rainfall data should speak about as on date and source of information.

8.2. Environment Impact Assessment:

- i) **Land area:** The fourth para needs to be revised. Adverse comment should be avoided. Entire sub-para of "Land Area" needs to be re-casted as per observation at para no. 8.1(b), Existing land use pattern.
Under the heading of "Environment Impact Assessment" what actions are to be initiated/taken to safeguard the environment, aesthetic beauty of the area, land degradation etc. are to be discussed.
- (ii) **Air quality:** Whether any air monitoring was done in the lease area may also be specified.
- (iii) **Water quality:** The NABL accredited lab. Analysis report should be furnished.

(iv) **Noise level:** It is repetition of para 8.1(v). The noise level along with its mitigation measures if any shall have to be discussed.

(v) **Vibration level:** The statement should be reconciled with para (a) of Chapter 2.0(Mining).

(vi) **Water regime: (a) Surface water:** In the accumulated quarry water some portion of graphite will be mixed with the water. The same should be taken care of before discharging the accumulated water on to the surface.

(b) Ground water: The distance of nearest well should be given. Height of parapet wall should be reconciled with para 4(c). The schedule of plantation should be spelt. On which stack the saplings will be planted may be mentioned.

(ix) Socio Economics: Percentage of SC, ST, OBC & others be discussed in the para.

(x) Historical Monument: Distance of Betla National Park and Malay dam should be given (both aerial & road distance).

8.3. Progressive Reclamation Plan: The specific year from which reclamation shall commence should be spelt. The Reclamation proposal has not been shown in Conceptual Plan(Plate no. VI).

The table following the para showing mined out area at the beginning, additional area proposed, area reclaimed and rehabilitated and mined out area at the end of the year needs to be reconciled with para 2(c), Individual year wise development, for the additional area proposed during the year. Table no. should be given.

Year wise afforestation schedule: Year wise afforestation should be shown in Development as well as Environment Management Plan (Plate no. V & VIII respectively).

8.3.1. Mined out land: The figure for excavation and dumping should be reconciled with para 8.1(a).

8.3.2. Top soil Management: Top soil exists in the lease area which should be stored separately and be shown in the Development Plan, Environment Management Plan, Conceptual Plan etc. The top soil generation has been shown in table- 2.1(Insitu Tentative Excavation).

The chemical analysis report of top soil fro NABL accredited lab should be enclosed in the document.

8.3.3. Tailing dam management: No information has been given. The tailing dam of processing plant at Satbarwa may be given.

Table- 8.2. Summary of year wise proposal for item no. 8.3: Cost of watch & care per sapling is too low, the same needs to be reviewed.

8.6. Financial Assurance: The additional area required for excavation & dumping should be reconciled as per para 2.(f)(viii) above.

PLATES:

- i. All the plans/sections should be revised as given under different paras mentioned above.
- ii. The foliation trend of Graphite vein should be shown in the Geological Plan properly as per field observation.

Part-B

CHAPTER-9: Certificates/Undertakings/Consent:

The consent letter/undertaking etc. from the applicant is not proper it needs to be revised. Item no. 01 is improper, item no. 02 is not acceptable at this stage as organizations have been authorized by the State Govt. of Jharkhand, item no. 03 is incomplete & item no. 04 is improper.

Cerificate of RQP: Reference of amendment in MCDR needs to be corrected. Date of certificate be given. Copy of RQP certificate has not been enclosed.

GENERAL:

- i. All the tables incorporated in the text should be numbered for ease of reference.
- ii. The para nos. of the guideline should be maintained.
- iii. In place of Progressive Mine Closure Plan, the Financial Assurance Plan as per item no. 10.(viii) of the guideline should be incorporated.
- iv. Before submission of the document, item no. 11 & 12 of the guideline should be referred.
- v. Surface Plan, Geological Plan, Development Plan and Conceptual Plan should bear date of survey. The plans should be prepared as per present survey (not more than six months back).

Additional Short comings in Sohgara Graphite Mine of M/s Vinira Minerals.

(1) Few photographs in support of existing quarries has been enclosed as annexure to the document but the name of the quarries & their location co-ordinates has not been given, which should be indicated. Besides, no photographs in support of existing exploration, boundary pillars & afforestation etc. has been enclosed & the same may also be submitted for more informative.

(2) A valid consent to operate the mine from JHSPCB has not been enclosed, which should be submitted.

(3) A copy of the MoEF clearance has not been enclosed as annexure to the document, which should be submitted.

(4) A copy of the valid Bank Guarantee matching to the ensuing of five years period of the scheme of mining has not been enclosed and the same 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 lease map authenticated by the competent authority of State DMG has not been enclosed along with the document, which should be submitted.

(7) In all the plates submitted along with the scheme of mining should be certified by the RQP indicating that, the plans & sections are prepared based on the lease map authenticated by the State Govt. of Jharkhand.

(8) Plate-III (Surface Plan): (i) The lease boundary has been marked with colour black; instead the same should be marked with colour red. (ii) Numbering of the boundary pillars are missing, which should be done. Besides, pillar co-ordinates of all the boundary pillars may also be furnished in tabular form on the body of the plate. (iii) At least three ground control points (GCP) has not been selected outside the lease area, which should be done and these ground control points should be linked with the boundary pillars. (iv) Status of existing dump(s) & stacks etc. has not been depicted on this plan, which should be marked. Accordingly, corresponding incorporations/modifications may also be made in all the relevant plates submitted along with the document.

(9) Plate-V (Five Year Development Plan & Section): (i) The index reference for each of the proposed activities for each year of the ensuing scheme of mining period including excavation planning & dumping etc. has not been furnished and the same also not to be seen on the plan portion of the plate. (ii) The excavation planning has been proposed around the existing borehole BH-3 but year wise proposal for the same has not been marked with different colour codes. Besides, the development sections and dump sections are also not matching with the plan. (iii) On examination of the development sections, the different litho units of the lease area is missing, which should be furnished. Besides, the proposed status of dumping in each year of the ensuing five year period has not been depicted, which should be drawn & proper index reference for the same may also be furnished. Moreover, the dumping has not been proposed in a dump like manner. In the light of the above, the relevant plates may also be revised.

(10) Plate-VI (Conceptual Plan): (i) Index reference for many of the features marked on the plan is missing, which should be furnished.

(ii) During the conceptual period, a good number of boreholes are proposed, which is not permitted, instead the entire potential area of mineralization should be explored during the 1st two years of the ensuing scheme of mining period and suitable proposal to that effect may be incorporated in geology chapter in the text.

(iii) It is also found that, the existing quarries are not excavated even after the conceptual period. Moreover, the same also not been reclaimed & rehabilitated rather the conceptual limits are marked around certain boreholes, which is not the right approach for preparing the conceptual plan & sections. In the light of the above, corresponding incorporations / modifications may also be made in connected paras in the text & relevant plates.

(11) Plate-VIII (Environment Management Plan): The plate has not been prepared depicting the proposed excavation, dumping, reclamation, rehabilitation and afforestation for each year of the ensuing scheme of mining period and the very purpose of submission of the plate is defeated. In the light of the above, plate submitted for progressive mine closure plan may also be revised accordingly.

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