

**Ministry of Mines  
National Mineral Exploration Trust**

**Minutes of the 44<sup>th</sup> Technical-cum-Cost Committee (TCC) meeting held on 25<sup>th</sup> and 26<sup>th</sup>  
August, 2022 through video conferencing at Ministry of Mines, Shastri Bhawan, New  
Delhi**

---

The 44<sup>th</sup> Technical-cum-Cost Committee [TCC] meeting of National Mineral Exploration Trust [NMET] was held under the chairmanship of Shri Janardan Prasad, Additional Director General, Geological Survey of India [ADG, GSI] and Chairman, TCC, NMET on 25<sup>th</sup> and 26<sup>th</sup> August, 2022 at Ministry of Mines, Shastri Bhawan, New Delhi through video conferencing. The TCC members and representatives of Exploration Agencies [EAs] participated through their respective VC nodes. The list of participants is in **annexure-1**.

Shri Suresh Chander, Director, GSI and Member Secretary, TCC NMET, welcomed Shri Janardan Prasad, ADG, GSI & Chairman, TCC; Members of the TCC and participants representing various EAs. He conveyed that total 10 nos. of new project proposals have been received from different EAs for technical cum cost evaluation by the committee.

Shri Janardan Prasad, ADG, GSI, and Chairman, TCC welcomed the members and other participants from various EAs. He desired that a comprehensive summary of approved, ongoing and completed projects may be presented before the TCC in the next meeting by all the EAs. The proceeding of the meeting was initiated as per the circulated agenda.

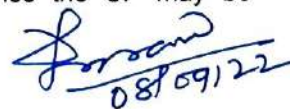
**Agenda-wise discussions are summarised as follows.**

**44.1: Technical evaluation of new project proposals:**

**44.1.1. Preliminary exploration (G3) for Graphite in Lamer-Panga block A (13.99 sq. km),  
District: Kalahandi, Odisha. [Implementing Agency: OMECL]**

- a) Geologically the area is exposed by the Eastern Ghat Supergroup of rocks represented by khondalite and charnockite groups with associated pegmatites and quartz veins.
- b) The lithounits present within this block are granite gneiss, pyroxene granulite (Basic charnockite), khondalite, and quartzite. The graphite is associated with the meta sedimentaries as quartz-graphite schist bands.
- c) It has been conveyed that the Geological Survey of India had carried out geological mapping in 1:12,500 scale in 1983-84 and reported four mineralized zones within the block. Graphite samples collected from the mineralized zones had shown Fixed Carbon ranging from 5.80% to 11.67%.
- d) The committee observed that the outcrops are scanty in nature, hence potential mineralized zones need to be identified through geological and geophysical methods in the 1<sup>st</sup> phase and the drilling may be carried out over the identified potential zones in 2<sup>nd</sup> phase. The committee further opined that initially the Self Potential (SP) may be implemented at 200m interval thereafter over identified zones the SP may be implemented at 100m interval.

  
08/09/2022

  
08/09/22

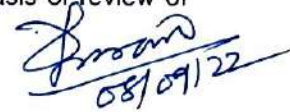
- e) The committee suggested to assess the orientation of the mineralised zone and accordingly the inclination of borehole angles be planned.
- f) The geological mapping (1:4,000 scale), 10line km of Self Potential (SP), trenching 200 cu. m, drilling 1000m (conditional), Bed rock sampling will be carried out in proposed block.
- g) The outcome of the geological and geophysical survey will be reviewed after eight months thereafter the decision on drilling will be taken in case of encouraging results. Initially first level drilling at vertical depth of 30m will be taken up.

***In view of the encouraging results from earlier GSI studies (Fixed Carbon values ranging from 5.80% to 11.67% in some samples) the committee recommended the proposal for approval of EC for Preliminary exploration (G3) for Graphite in Lamer-Panga block A (13.99 sq. km), District: Kalahandi, Odisha with an estimated cost of Rs. 232.66 Lakh (including GST) in time schedule of 16 months for carrying out the proposed work and submission of report as per annexure- 2A & 2B.***

**44.1.2. Preliminary exploration (G3) for Iron Ore in Thakurani block (1.399 sq. km) in District: Keonjhar, Odisha. [Implementing Agency: OMECL]**

- a) It has been submitted that the part of the proposed block is a taken-over lease of D. R. Patnaik mining lease and the block is adjacent to the Belkundi Fe & Mn Mines of OMDC Ltd. to the west and Thakurani Fe & Mn Mines of BPME Ltd. to the south. It is submitted that the proposed block is bound by the operational mining lease area.
- b) The Bonai-Keonjhar belt (BK belt) belt is U-shaped, well known horseshoe synclinorium consisting of eastern and western limbs. The Iron formations of the eastern limb are mostly restricted to Noamundi, Thakurani, Joda, Jaribahal, Malangtoli, Jilling, Jajang and Gurubeda area whereas the Iron deposit of western belt covers Kiriburu, Bolani, Kalta Barsuan and the Khandadhar area.
- c) Regionally, the area is represented by the principal Iron Ore formations viz., hard laminated ore, soft laminated Iron ore, Lateritic Iron ore, hard massive ore, Iron ore floats, and Banded Hematite Jasper (BHJ)/ Banded Hematite Quartzite (BHQ).
- d) It has been submitted that during field traverses the outcrops of Iron and Manganese are encountered within the block and also there is the existence of float ores of Iron in the northern part of the block. The mining activities for iron and manganese are operational in the nearby mining leases.
- e) In the adjoining blocks the borehole depth have been kept upto dolomite horizon at about 60m depth, and evidence of Iron and manganese occurrences are not recorded beyond dolomite horizon in the area. In view of this, the committee suggested to keep the maximum depth of boreholes upto 60m or upto dolomite horizon.
- f) The geological mapping (1:2,000 Scale) surface sampling, chemical analysis and drilling (conditional) will be carried out in proposed block. On the basis of review of

  
08/09/2022

  
08/09/22

geological mapping and chemical analysis, further drilling will be carried out.

- g) The committee suggested to take up 1000m drilling in 16 boreholes. The project will be reviewed after five months.

**The committee recommended the proposal for approval of EC for Preliminary exploration (G3) for Iron Ore in Thakurani block (1.399 sq. km) in District: Keonjhar, Odisha with an estimated cost of Rs. 223.08 Lakh (including GST) in time schedule of 10 months for carrying out the proposed work and submission of report as per annexure- 3A & 3B.**

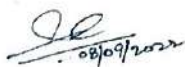
**44.1.3. Preliminary exploration (G3) for coal in North of Urtan North block (10.28 sq. km), Sohagpur coalfield, District: Anuppur, Madhya Pradesh. [Implementing Agency: CMPDI]**

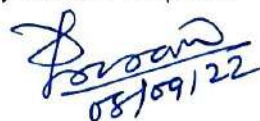
- a) North of Urtan north block is situated in the eastern part of Sohagpur Coalfield. The Sohagpur coalfield, in Central India, has been a traditional source of superior quality, low rank, high volatile coals.
- b) Geologically the area is represented by the Talchir, Barakar, Supra Barakar formations, Lameta beds, Deccan Trap, soil and alluvium cover. The Barakar formation is considered as the coal-bearing horizon in the block.
- c) Total six regional co-relatable coal seams/ carbonaceous seams and one local seam have been established in the area. All these coal seams are confined to only Barakar Formation. The quality of coal varies from W-IV to W-I in the adjoining block.
- d) The committee suggested to take up the exploration by deploying 3,000m drilling in 5 boreholes at 1600mx1600m grid pattern. All boreholes may be drilled upto Seam-I depth.
- e) The outcome of exploration work will be reviewed after completion of three boreholes or after eight months.

**The committee recommended the proposal for approval of EC for Preliminary exploration (G3) for coal in North of Urtan North block (10.28 sq. km), Sohagpur coalfield, District: Anuppur, Madhya Pradesh with an estimated cost of Rs. 345.22 Lakh (including GST) in time schedule of 12 months for carrying out the proposed work and submission of report as per annexure- 4A & 4B.**

**44.1.4. Preliminary exploration (G3) for coal in North of Saoner (15.16 sq. km), Kamptee coalfield, District: Nagpur, Maharashtra. [Implementing Agency: CMPDI]**

- a) Geologically the area is exposed by the Talchir, Barakar, Motur, Kamthi, formations of Gondwana supergroup followed by Lameta beds overlain by Deccan Trap and

  
08/09/2022

  
08/09/22

alluvium cover. Archaean metamorphics are found at the base of Gondwana supergroup of rocks.

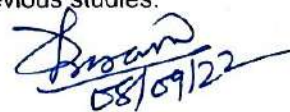
- b) The Kamptee coalfield is a horseshoe-shaped basin aligned in NW-SE direction covering an area of about 605 sq. km. Based on geophysical investigations carried out by GSI in the years 1958, 1971 and 1973, three sub-basins [Kamptee-Patansaongi, Bokhara, and Saoner-Bharatwada] were identified within the Kamptee coalfield.
- c) Kamptee-Patansaongi, and Bokhara sub-basins are separated by a metamorphic high around Mahadulla-Koradi area near Koradi Thermal power Station. Another metamorphic high separates the Kamptee-Patansaongi sub-basin from Saoner-Bharatwada sub-basin exposing Talchirs directly below the detrital mantle between the two sub-basins. Further, the Saoner-Bharatwada Sub Basin is separated from the Hingna-Bazargaon sub-basin by metamorphics occurring at shallow depths below the Deccan Trap.
- d) The Kamptee coalfield exhibits five important correlatable seams. It has been conveyed that the thickness of individual seams reducing from east to west. In the western part of the Kamptee coalfield i.e., "Saoner-Bharatwada sub basin" this phenomenon is more pronounced when traced from north to south. The grade of coal seam varies between G4 and G12.
- e) Based on detailed deliberations the committee suggested to take up the exploration activities by deploying 2250m drilling in seven boreholes on a 1600mx1600m grid pattern up to the depth of lowermost coal seam. It has been conveyed that the expected average thickness of coal seams in the area is about 20m.
- f) Committee suggested to modify the eastern boundary of block and make it straight line instead of curvilinear. The outcome of project will be reviewed after completion of three boreholes or after seven months.

***The committee recommended the proposal for approval of EC for Preliminary exploration (G3) for coal in North of Saoner (15.16 sq. km), Kamptee coalfield, District: Nagpur, Maharashtra with an estimated cost of Rs. 265.02 Lakh (including GST) in time schedule of 14 months for carrying out the proposed work and submission of report as per annexure- 5A & 5B.***

**44.1.5. General exploration (G2) for bauxite in Dhuluapat block (1.50 sq. km), Districts: Lohardaga and Gumla, Jharkhand. [Implementing Agency: CMPDI]**

- a) It has been submitted that the exploration of Bauxite in Dhuluapat area was carried out by GSI (1:10,000 scale) in FS: 1969-1971 by drilling 703m in 40 boreholes at 200mx200m grid pattern and 403.20 cu. m pitting.
- b) Based on exploration of GSI, 2.31 MT bauxite reserve at 46.78% Al<sub>2</sub>O<sub>3</sub> was established which includes 0.91MT higher grade bauxite reserve with 50.12% Al<sub>2</sub>O<sub>3</sub>. However, the resource estimation for aluminous laterite has not been done in previous studies.

  
08/09/2022

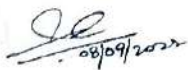
  
08/09/22


- c) It has been conveyed that the above findings were discussed during review meeting of DGM, Jharkhand on 7/06/2022 in presence of representatives of GSI, SU, Jharkhand and after detailed discussion it was decided that CMPDI may take up exploration by drilling in the area through NMET funding for assessment of resources as per MEMC rule.
- d) The principal rock formation of this area comprised of Chotanagpur granite gneiss resting over the unclassified metamorphics, followed by lameta beds overlain by laterite and bauxite.
- e) It has been submitted that the bauxite occurs as segregated sheets and lenses within the laterite capping over the diorite/granite/and granite gneisses. Bauxite is varying in thickness from 0.50m to 9.0m. The bands are persistent over a length of 500m but often they peter out abruptly within a short distance.
- f) Based on detailed deliberations the committee opined that the geological report and available geological data of GSI may be collated from Regional Headquarter, Kolkata/GSI, Patna Office and re-assesed by CMPDI.
- g) In case of absence of geological information in some gap areas, the proposal may be submitted only for carrying out exploration in the gap areas.

***The committee suggested to collate the geological report and reassess the available geological data collected by GSI and, if warranted, a revised proposal may be submitted for drilling in the gap areas and analyses of borehole samples for aluminous laterite.***

**44.1.6. Reconnaissance survey (G4) for coal in West of Ghugus and Bellora block (39.15 sq. km), Wardha Valley Coalfield, District: Yavatmal, Maharashtra. [Implementing Agency: CMPDI]**

- a) The proposal was discussed in the 43<sup>rd</sup> TCC meeting held in July, 2022 wherein the committee suggested to reassess the economic feasibility of the block and incorporate the geological data of GSI from the pre-explored Lathi-Kesurli block, thereafter, if required, a revised project proposal may be submitted in next TCC.
- b) Now, CMPDI has submitted the revised proposal with 1800m drilling in three boreholes (P1, P2 and P3) upto seam-I depth in the proposed block area.
- c) It has been submitted that MECL has also drilled five boreholes in the block, however, the drilling was terminated upto depth of Motur Formation and coal seams were not encountered.
- d) Based on detailed deliberations the committee suggested to take up the proposal with 1800m drilling in three boreholes (P1, P2 and P3) upto seam-I depth. The committee suggested to initially take up boreholes P3 (northern side) and in case of encouraging results the drilling in the remaining two boreholes may be taken up.
- e) The progress of exploration work will be reviewed after six month or completion of borehole P3 and its analyses.

  
08/09/2022

  
08/09/22

**The committee recommended the proposal for approval of EC for Reconnaissance survey (G4) for coal in West of Ghugus and Bellora block (39.15 sq. km), Wardha Valley Coalfield, District: Yavatmal, Maharashtra with an estimated cost of Rs. 215.77 Lakh (including GST) in time schedule of 12 months for carrying out the proposed work and submission of report as per annexure- 6A & 6B.**

**44.1.7. Preliminary exploration (G3) for coal in Brahmani North block (21.73 sq. km), Talcher Coalfield, District: Dhenkanal, Odisha. [Implementing Agency: CMPDI]**

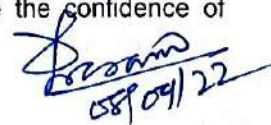
- a) The proposal was discussed in the 43<sup>rd</sup> TCC meeting held in July, 2022 wherein the committee suggested that the borehole data of GSI may be incorporated in the proposal, and if encouraging results are observed, a revised proposal for G3 stage may be submitted in next TCC.
- b) Now, CMPDI has submitted the revised G3 stage proposal with drilling of 2200m in five boreholes. It has been conveyed that the coal seam has been encountered at the depth of 303m in the boreholes drilled by GSI.
- c) Based on detailed deliberations the committee suggested to take up drilling in five boreholes [P1-550m, P2-350m, P3-200m, P4-350m, P5-200m]. Based on the adjoining geological evidences, total five coal seams have been expected to be encountered in the block.
- d) The progress of exploration work will be reviewed after six month or completion of 3 boreholes.

**The committee recommended the proposal for approval of EC for Preliminary exploration (G3) for coal in Brahmani North block (21.73 sq. km), Talcher Coalfield, District: Dhenkanal, Odisha with an estimated cost of Rs. 254.50 Lakh (including GST) in time schedule of 12 months for carrying out the proposed work and submission of report as per annexure- 7A & 7B.**

**44.1.8. Preliminary exploration (G3) for Gold in Kakol block (29.00 sq. km), District: Haveri, Karnataka. [Implementing Agency: MECL]**

- a) The proposal was sent to GSI for their considered comments. In response to this, GSI has conveyed that the G4 stage exploration in Kakol block (exactly with same coordinates) was carried out by GSI during Field Season: 2012-13. The geological memorandum was handed over to State Government on 01.10.2021 (Phase I) and the auction process was annulled by State Government.
- b) It has been conveyed that during 5<sup>th</sup> Joint Working Group (JWG) meeting held on 28.3.2022 in Bengaluru, Karnataka, the committee members had opined that further exploration (G3 stage) may be taken in this block to enhance the confidence of

  
08/09/2022

  
08/09/22

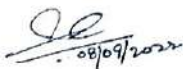
investors and later on put up for auction. It was also suggested to explore the possibilities of taking up the block under NMET funding.

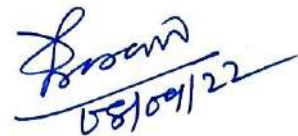
- c) Keeping this in view, the MECL has submitted the proposal for exploration through NMET funding.
- d) After detailed deliberations the committee opined that the block was handed over by the Ministry of Mines to State Government for auctioning as per the recent Mineral (Auction) Amendment Rule 2021. In view of this, a decision on consideration of such blocks may be taken by the Ministry of Mines thereafter all such proposals will be considered for NMET funding.

***The committee suggested to take up the matter to EC for taking a view on NMET funding of such projects already handed over by Ministry of Mines to State Government for auctioning.***

**44.1.9. Preliminary exploration (G3) for Basemetal (Cu, Pb, Zn) in Chintakuntala block (5.00 sq. km), District: Nalgonda, Telangana. [Implementing Agency: MECL]**

- a) It has been submitted that the two potential mineralised zones for basemetals have been demarcated by GSI in the proposed Chintakuntla block based on geochemical sampling and the presence of old workings.
- b) The block is occupied by granitoids of Peninsular Gneissic Complex (PGC)-II and, younger acid and basic intrusive. The visible sulphide mineralization is dominantly disseminated in nature, confined to second generation quartz and pegmatite veins. Multiple old working with dumps and old pits, and gossanized bodies are surface indicators of sulphide mineralization.
- c) The geochemical analyses of bedrock samples indicated that the quartz veins and pegmatite of phase-II generation are the major sulphide sources in the block. High Pb values (0.16%-7.5%) are observed in in-situ quartz veins as well as in old working dumps. Besides that, values of Cu and Mo elements are observed up to 0.25% and 0.19% respectively.
- d) The committee opined that the status on leasehold or lease free of the block may be submitted by the State Government of Telangana to NMET before approval of the block by the EC, NMET.
- e) Initially, geochemical, geological (1:2,000 scale) and geophysical (SP and IP only, 11 line km) survey may be taken up over the proposed block and potential zones may be demarcated. After review of the exploration work, 800m drilling will be carried out.
- f) In first phase the drilling at 400mx400m grid interval may be taken up thereafter the gap areas will be filled with 200mx200m grid pattern. Five boreholes with 60m vertical depth for first level may be taken up thereafter in case of encouraging results the second level drilling with 100m vertical depth may be taken up.

  
08/09/2022

  
08/09/22

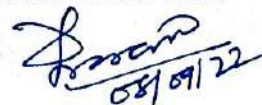
- g) The committee also suggested that the samples for gold analyses be pulverised upto 80-120 mesh size in field and the samples may be pulverised at 200 mesh size at laboratory for analyses.
- h) The progress of mineral exploration work in block will be reviewed after completion of geological and geophysical mapping after six months.

**The committee recommended the proposal for approval of EC for Preliminary exploration (G3) for Basemetal (Cu, Pb, Zn) in Chintakuntala block (5.00 sq. km), District: Nalgonda, Telangana with an estimated cost of Rs 232.19 Lakh (including GST) in time schedule of 14 months for carrying out the proposed work and submission of report as per annexure- 8A & 8B subject to submission of leasehold/leasefree status of block to NMET.**

**44.1.10. Preliminary exploration (G3) for Phosphorite in Kachaldara block (8.80 sq. km), District: Jhabua, Madhya Pradesh. [Implementing Agency: MECL]**

- a) Geologically the area is exposed by the Aravalli Group of rocks represented by phosphate-bearing dolomitic limestone-chert, quartzite, phyllite, feldspathic quartzite, gneissic feldspathic rocks and quartz veins.
- b) Dolomitic limestone is known for phosphate bodies in the area. Prominent outcrops are noticed between Amlamal and Rambhapur area. The dolomites contain an older inter-bedded phosphate horizon at places overlain by younger formations including another younger phosphate horizon, brown cherts, phyllites and powdery limestones.
- c) It has been submitted that GSI had identified eight phosphorite blocks viz., Amla, Amlamal, Kelkua, Kelkua Nala, Khatamba North, Khatamba South, Rassori and Piploda in Aravalli supergroup of rocks in 1972. GSI and MECL had explored the northern part of the proposed blocks i.e., Khatamba Block and Kelkua Nala block which were auctioned by state DGM. The proposed block is adjacent to previous explored block and falls in the extension of phosphorite-bearing cherty dolomite rock.
- d) It has been submitted that MECL had carried out detail exploration in Khatamba block during 1992. Total 50 nos. of boreholes (5011.40 meterage) drilled and 14.81MT reserve was estimated with 12.17 grade of  $P_2O_5$ .
- e) Further MECL had explored Kelkua Nala block in 1995-97 by deploying total 33 nos. of boreholes (2449.25m). Based on this 10.332 MT resource with 5%  $P_2O_5$  cut-off grade, 7.155 MT with 10%  $P_2O_5$  cut-off grade, 5.499 MT with 15%  $P_2O_5$  cut-off grade and 2.801 MT with 20%  $P_2O_5$  cut-off grade was established.
- f) The proposed block also covers the area exposed by the phyllite, meta-sub-graywacke and mica schist which may not be important for phosphate occurrences as the dolomitic limestone is the established horizon for phosphate mineralization in the area. Hence the proposed block area may be modified and restricted only in the dolomite and adjacent basaltic body. The borehole data and analytical results of Khatamba north block explored by GSI needs to be assessed before consideration of the block for funding.

  
08/09/2022

  
08/09/22

**Based on detailed deliberation the committee suggested to modify the block area and the area exposed or underlain by dolomitic limestone and basalt only may be proposed for G3 stage of exploration. A modified proposal, if required may be submitted in next TCC meeting.**

#### 44.2. Review of the Geological report/Ongoing projects

##### 44.2.1. General exploration (G2) for Copper in Naila Ki Dhani block, Eastern Khetri Copper Belt, District: Jhunjhunu, Rajasthan. [Implementing Agency: MECL]

- a) The project was recommended in 24<sup>th</sup> TCC meeting held on 07<sup>th</sup>, 08<sup>th</sup> and 09<sup>th</sup> October, 2020 with estimated cost of Rs. 807.59 Lakh & timeline of 16 months and approved in 17<sup>th</sup> EC meeting held on 05<sup>th</sup> November, 2020.
- b) MECL informed that exploration work has been completed and geological report has been peer reviewed.
- c) It was informed that there are seven lodes identified in the block, which are mainly hosted in sheared silicified, brecciated and albitised schists and quartzites trending NW-SE direction.
- d) The copper mineralization occurs in the form of sulphide minerals and sulphides occur as disseminations, specks, smears, stringers and veinlets of pyrite, chalcopyrite and pyrrhotite in decreasing order of abundance.
- e) The resource and grade in the Naila Ki Dhani block has been estimated.

Cut-off grade	Resource (Million Tonnes)	Average grade (Cu%)
0.20% Cu	5.01	0.62
0.50% Cu	2.31	1.04

- f) A combine resource and grade has been estimated for Naila Ki Dhani and Tonda blocks. The details are given below-

Cut-off grade	Resource (Million Tonnes)	Average grade (Cu%)
0.20% Cu	13.80	0.52
0.50% Cu	4.49	1.00

- g) The committee suggested to combine both blocks [Tonda and Naila Ki Dhani] for resource estimation and auction of the block.

**The committee noted the outcome of the exploration and suggested to submit the geological report to NMET secretariat.**

  
08/09/2022

  
08/09/22

**44.2.2. Preliminary exploration (G3) for Potash in Lakhasar sub basin, NW part of Rajasthan, District: Bikaner, Rajasthan. [Implementing Agency: MECL]**

- The project was recommended in 23<sup>rd</sup> TCC meeting held on 12<sup>th</sup> and 13<sup>th</sup> February, 2020 with estimated cost of Rs. 1753.53 Lakh and approved in 16<sup>th</sup> EC meeting held on 25<sup>th</sup> February, 2020.
- MECL informed that mineral exploration work has been completed and geological report has been peer reviewed.
- The resource estimated in the block based on the data of 22 boreholes of MECL (Phase-I and Phase-II) and 4 boreholes of GSI at 1%, 2% 3% and 5% K cut off by area of influence method.

The details are given below-

Cut-off category	Gross inferred resource (333) (million tonnes)	Net inferred resource (333) (million tonnes)	Grade (% k)	Gross reconnaissance resource (334) (million tonnes)	Net reconnaissance resource (334) (million tonnes)	Grade (% k)
1% K	333.300	266.640	2.52	74.218	59.375	2.54
2% K	150.093	120.074	3.82	32.612	26.089	3.82
3% K	87.587	70.070	4.74	19.193	15.355	4.75
5% K	25.941	20.752	7.81	5.606	4.485	7.95

Cut-off category	Total gross inferred + reconnaissance resource (million tonnes)	Grade (% k)	Total net inferred+ reconnaissance resource (million tonnes)	Grade (% k)
1% K	407.518	2.52	326.015	2.52
2% K	182.705	3.82	146.163	3.82
3% K	106.780	4.74	85.425	4.74
5% K	31.547	7.83	25.237	7.83

- It has been observed that the 333 resource constitute 82% of the total resource and rest 18% of the resource falls under 334 category. Thus the overall resource of the block has been classified under 333 category for the auction purpose.

***The committee noted the outcome of the exploration and suggested to submit the geological report to NMET secretariat.***

**44.2.3. Reconnaissance survey (G4) for Copper in Mincheri Block, District: Ballari, Karnataka. [Implementing Agency: MECL]**

- The project was recommended in 29<sup>th</sup> TCC meeting held on 11<sup>th</sup> and 12<sup>th</sup> March, 2022 with estimated cost of Rs. 203.48 Lakh in time schedule of 12 months and approved in 20<sup>th</sup> EC meeting held on 24<sup>th</sup> June, 2021.
- MECL informed that the exploration work has been completed and geological report has been peer reviewed.
- The occurrence of copper mineralisation is sporadic, discontinuous and present as small localised body with poor concentration of chalcopyrite specks / disseminations

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

in place where quartz vein intrusion are there exhibiting traces of sulphides and malachite encrustations and is located 2 km northwest of Sanjiveerayanakota village.

- d) Extent of mineralization could not be established and not recommended for further exploration.

***The committee noted the outcome of the project and suggested to submit the geological report to NMET secretariat.***

**44.2.4. Reconnaissance survey (G4) for Copper, Lead, Zinc, Graphite and associated minerals in Bagwari-Sukwari block, District: Sidhi, Madhya Pradesh. [Implementing Agency: MECL]**

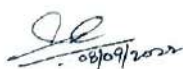
- a) The project was recommended in 35<sup>th</sup> meeting of TCC held on 29<sup>th</sup> and 30<sup>th</sup> November, 2021 with estimated cost of Rs. 141.75 Lakh in time schedule of 12 months and approved in 22<sup>nd</sup> EC meeting held on 22<sup>nd</sup> December, 2021.
- b) MECL informed that geological mapping and geochemical sampling has been completed. Chemical analysis of 5 bedrock samples showing Cu values greater than 1500ppm (1755.84ppm to 19590ppm)
- c) The rock exposures of banded-haematite-quartzite of the Sidhi Series, were found to overlie the older metamorphics in the area in the vicinity of the mineralised localities.
- d) The granitic rock is composed mainly of quartz, orthoclase, albite, muscovite biotite and hornblende. The area has undergone shearing which is evident from the slickenside surfaces reported on the basic rocks as well as the quartz veins near the contacts of the granitic area.
- e) The committee suggested to identify the host rock for copper mineralisation and carry out the trenching/pitting and chemical analysis as per the approved work components. The review of the work progress will be done after chemical analysis of samples for bedrock/stream/soil/trench/pit samples.

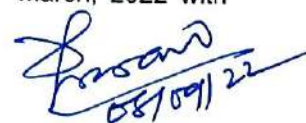
***The committee noted the outcome of the project and suggested to complete the trenching/pitting and chemical analysis. The outcome of the chemical analysis will be reviewed for further taking up drilling.***

**44.3. Timeline extension of the approved/ongoing projects**

**44.3.1. Preliminary exploration for Iron ore in Deojhar (Balita) block (3.99 sq. km), District: Keonjhar, Odisha. [Implementing Agency: OMC]**

- a) The project proposal was recommended in 38<sup>th</sup> TCC meeting held on 24<sup>th</sup> and 25<sup>th</sup> February, 2022 and approved in 23<sup>rd</sup> EC meeting held on 16<sup>th</sup> March, 2022 with estimated cost of ₹141.08 Lakh and timeline 3 months.





- b) OMC informed that geological mapping and drilling have been completed.
- c) It was informed that chemical analysis and report writing are in progress and requested for timeline extension upto 31<sup>st</sup> October, 2022 (4 months) for finalization and submission of the geological report to NMET Secretariat.
- d) The outcome of the block has been reviewed by the committee wherein it has been observed that the basalt has been intersected at the depth of about 50m in most of the boreholes, however, the exploration agency has continued drilling up to about 100m in each borehole.
- e) The committee expressed his dissatisfaction over the excess unwarranted drilling of about 200m in the block. The committee opined that the drilling up to 2-3m in the basalt can only be permitted and beyond that the cost of drilling in basalt was not required and may not be considered for reimbursement.
- f) The committee suggested that the float ore locations may be demarcated in the block and the final report may be submitted within four month extended time period.

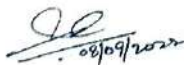
***The committee noted the outcome of the project and recommended for approval of 4 months (up to 31<sup>st</sup> October, 2022) timeline extension by EC for completion of sample analyses and submission of the geological report to NMET Secretariat.***

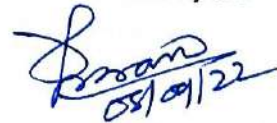
**44.3.2. Preliminary exploration for manganese ore in Lashi block (1.60 sq. km), District: Sundargarh, Odisha. [Implementing Agency: OMC]**

- a) The project proposal was recommended in 38<sup>th</sup> TCC meeting held on 24<sup>th</sup> and 25<sup>th</sup> February, 2022 and approved in 23<sup>rd</sup> EC meeting held on 16<sup>th</sup> March, 2022 with estimated cost of ₹180.41 Lakh and timeline 4 months.
- b) OMC informed that sampling and 821m drilling have been completed.
- g) It was informed that chemical analysis and report writing are in progress and requested for timeline extension upto 31<sup>st</sup> December, 2022 (6 months) for finalization and submission of the geological report to NMET Secretariat.
- h) The committee opined that the report will be reviewed again after completion of analyses and finalization of geological report.

***The committee noted the outcome of the project and recommended for approval of 6 months (up to 31<sup>st</sup> December, 2022) timeline extension by EC for completion of sample analyses and submission of the geological report to NMET Secretariat.***

**44.4.** The meeting ended with concluding remarks of the chairman and vote of thanks by the Director and member secretary, TCC, NMET.

  
08/09/2022

  
08/09/22

**List of TCC members attended 44<sup>th</sup> Technical-cum-Cost Committee (TCC) meeting of  
NMET held on 25<sup>th</sup> and 26<sup>th</sup> August, 2022 through videoconferencing**

S. No.	Name/Designation	Status	Remarks
1	Shri Janardan Prasad, Addl. Director General & HoD, GSI	Chairman, TCC, NMET	Attended via videoconference
2	Shri Ranjan Kumar Sinha, Controller General (Retd.), IBM	TCC Member	Attended via videoconference
3	Shri Naeem Ahmad, General Manager-Exploration (Retd.), CMPDI Ltd.	TCC Member	Attended via videoconference
4	Dr. Anjani Kumar, Dy. General Manager (Exploration) & HoD- Planning (Retd.), MECL	TCC Member	Not attended
5	Shri B. Saravanan, Additional Director, Atomic Minerals Directorate for Exploration and Research	TCC Member	Attended via videoconference
6	Shri Hemraj Suryavanshi, Addl. Director General (Retd.), GSI	TCC Member	Attended via videoconference
7	Shri Manoj Kumar Patel, Deputy Director General and RMH-II, GSI	TCC Member	Attended via videoconference
8	Shri Santosh Kumar Adhikari, Chief Mining Geologist, IBM	TCC Member	Attended via videoconference
9	Shri Vivek Kumar Sharma, Director, NMET, Ministry of Mines	TCC Member	Attended via videoconference
10	Shri Suresh Chander, Director, GSI	Member Secretary, TCC, NMET	Attended via videoconference
11	Shri Ravi Kumar Gupta, General Manager (Finance), HCL	TCC Member	Not attended
12	Shri P. K. Maharana, Dy. General Manager (Finance), NALCO	TCC Member	Attended via videoconference
13	Shri Vinay Pal, ACAO (Finance), GSI	TCC Member	Attended via videoconference

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

**Annexure-1**

**List of participants attended 44<sup>th</sup> Technical-cum-Cost Committee (TCC) meeting of NMET held on 25<sup>th</sup> and 26<sup>th</sup> August, 2022 through videoconferencing**

S. No.	Name/Designation	Email ID	Contact No	Organisation
1	Shri Janardan Prasad, ADG & HoD, GSI	janardan.prasad@gsi.gov.in	7763800788	Chairman, TCC
2	Shri Ranjan Kumar Sinha, Controller General (Retd.) IBM	sinhark57@rediffmail.com	9421777637	Member, TCC
3	Shri Hemraj Suryavanshi, ADG (Retd.), GSI	hemrajgsi@gmail.com	7477042176	Member, TCC
4	Shri Naeem Ahmed, General Manager (Retd.), CMPDI	ahmadnaeem17@yahoo.co.in	8588092153	Member, TCC
5	Shri B. Saravanan, AMD, Hyderabad	addldir-op1.amd@gov.in	8987571606	Member, TCC
6	Shri Manoj Kumar Patel, DDG and RMH-II, GSI	m.patel1@gsi.gov.in	9040011231	Member, TCC
7	Shri Santosh Kumar Adhikari, Chief Mining Geologist, IBM	skadhikari@ibm.gov.in	7588690545	Member, TCC
8	Shri Vivek Kumar Sharma, Director, NMET	vksharma.ofb@gov.in	7024570055	Member, TCC
9	Shri P. K. Maharana, DGM (F), NALCO	pmaharana@rediffmail.com	8500669500	Member, TCC
10	Shri Vinay Pal, ACAO, (Finance), GSI	vinay.pal@gsi.gov.in	8527368161	Member, TCC
11	Shri Suresh Chander, Director, GSI	suresh.chander@gsi.gov.in	9493860963	Member Secretary, TCC
12	Shri Maneesh Khar, Director, GSI	nmet-mines@gov.in	9462036108	NMET
13	Dr. Deshraj Trivedi, Senior Geologist	nmet-tcc@gov.in	9419244294	NMET
14	Shri Subhash Kumar, Senior Geologist	nmet-mines@gov.in	9868302624	NMET
15	Smt. Rupa Kundu, Senior Geologist	nmet-mines@gov.in	7838647652	NMET
16	Shri Shailendra Sinha, Director (Geology)	omecloffice@gmail.com	9937388703	OMECL
17	Dr. P. K. Nayak, Sr. Manager (Geology)	omecloffice@gmail.com	6372651516	OMECL
18	Dr. R. P. Singh, Manger (Geology)	gm.exploration.cmpdil@gmail.com	8987789047	CMPDI
19	Shri P. Ravindran, DGM (Exploration)	gm-exploration@mecl.co.in	7907649392	MECL, Nagpur
20	Shri S. K. Sinha Director (Mines)	dir-mines@jharkhandmail.gov.in	9470130780	DGM, Jharkhand
21	Shri P. C. Mishra, Joint Director (Geology)	directorgeology_odisha@yahoo.in	9861465695	DGM, Odisha
22	Shri H. P. Harish, Deputy Director (Plan)	dir-mines@karnataka.gov.in	9611951313	DGM, Karnataka
23	Dr. Suman Krishna Sit General Manager (Geology)	suman.sit@odishamining.in	7763807475	OMC

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

## Annexure-2A

Estimated cost for Preliminary exploration (G3) for Graphite in Lamer-Panga block A (13.99 sq. km), District: Kalahandi, Odisha.

[Block area- 13.99 sq. km; Average borehole vertical depth- 30m; Completion Time- 16 months]

S. No.	Item of Work	Unit	Rate as per NMET SoC 2020-21		Estimated cost of proposal		Remarks
			SoC item Sl. No.	Rate as per SoC (in Rs.)	Quantum of Work	Total Amount (Rs.)	
<b>A</b>	<b>GEOLOGICAL WORK</b>						
1	Charges for One Geologist - Field	per day	1.3	11,000	120	13,20,000	
2	Charges for One Geologist - HQ	per day	1.3	9,000	30	2,70,000	
3	Labour Charges for Geological mapping (2 Nos.) Base rate- 443/-	per day	5.7	443	240	1,06,320	Amount will be reimbursed as per notified rates by Central Labour Commission rates or respective State Govt. Whichever is higher
4	Charges for one Sampler	per day	1.5.2	5,100	35	1,78,500	
5	Labour Charges for sampling work (4 Nos.) Base rate- 443/-	per day	5.7	443	140	62,020	Amount will be reimbursed as per notified rates by Central Labour Commission rates or respective State Govt. Whichever is higher
6	Charges for 1 Surveyor	per day	1.6.1a	8,300	30	2,49,000	
7	Labour charges for Survey (4 Nos.) Base rate- 443/-	per day	5.7	443	120	53,160	Amount will be reimbursed as per notified rates by Central Labour Commission rates or respective State Govt. Whichever is higher
<b>Sub Total- A</b>						<b>22,39,000</b>	
<b>B</b>	<b>TRENCHING</b>						
1	Trenching	cu.m	2.1.1	3,330	200	6,66,000	10 trenches (2 trenches per each deposit)
<b>Sub Total- B</b>						<b>6,66,000</b>	

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

<b>C DRILLING (Outsourced)</b>							
1	Surface Drilling	per m	2.2.1.4	11,500	1000	1,15,00,000	
2	Land/Crop compensation	Per Bore hole	5.6	20,000	20	4,00,000	Amount will be reimbursed as per actuals or max. Rs. 20000 per BH with certification from local authorities
3	Construction of concrete pillar(12"x12"x30")	Per Bore hole/Pillar	2.2.7a	2,000	20	40,000	
4	Drill core preservation	Per m	5.3	1,590	250	3,97,500	
<b>Sub Total- C</b>						<b>1,23,37,500</b>	
<b>D GROUND GEOPHYSICAL (Outsourced)</b>							
1	Self-potential / Charged Potential	Line Km	3.3a	29,600	10	2,96,000	
<b>Sub Total- D</b>						<b>2,96,000</b>	
<b>E LABORATORY STUDIES (Outsourced)</b>							
1	<b>Chemical Analysis</b>						
	<b>i) Primary samples and Check samples for Graphite (Core Samples)</b>						
	a) Primary samples for Proximate Analysis (Ash, Moisture, V.M. and F.C.)	Nos	4.1.16	3,000	250	7,50,000	100 core sample + 100 channel sample + 50 grab sample
	b) Check sample Proximate Analysis (Ash, Moisture, V.M. and F.C.)	Nos	4.1.16	3,000	25	75,000	
	c) REE	Nos	4.1.13	5,380	10	53,800	
	<b>ii) Composite Samples for Graphite (Core Samples)</b>						
	a) Proximate Analysis (Ash, Moisture, V.M. and F.C.)	Nos	4.1.16	3,000	30	90,000	
	b) Total Sulphur (S)	Nos	4.2.14	1,900	10	19,000	
2	<b>Physical Analysis</b>						
i)	X-RD Studies	Nos	4.5.1	4,000	10	40,000	5 core samples + 5 grab samples
ii)	ICP -MS studies (34 trace elements)	Nos	4.1.14	7,731	10	77,310	
iii)	Preparation of thin section	Nos	4.3.1	2,353	10	23,530	
iv)	Petrographic studies	Nos	4.3.4	4,232	10	42,320	
v)	Preparation of polished section	Nos	4.3.2	1,549	10	15,490	

*J.P.*  
08/09/2022

*P. Rao*  
08/09/22

vi)	Mineralographic studies	Nos	4.3.4	4,232	10	42,320	
vii)	Bulk density	Nos	4.10	3,540	5	17,700	
<b>Sub Total- E</b>						<b>12,46,470</b>	
<b>Total A+B+C+D+E</b>						<b>1,67,84,970</b>	
<b>F</b>	<b>Tender preparation, publishing &amp; finalisation</b>	one time	2.3	2% of the approved project cost or 5 lakh whichever is lower will be paid one time to exploration agency.		<b>3,35,699</b>	will be reimbursed when copy of signed agreement/tender for outsourced component will be submitted.
<b>G</b>	<b>GEOLOGICAL REPORT PREPARATION</b>	One Number (5 Hard copies) along with soft copy	5.2	Project cost 150 to 300 Lakh : A minimum of Rs 7.5 lakh of 3% of the work whichever is more and Rs 3000/- per each additional copy		<b>7,50,000</b>	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
<b>H</b>	<b>PEER REVIEW</b>		As per EC decision			<b>10,000</b>	
<b>I</b>	<b>PREPARATION OF EXPLORATION PROPOSAL (2% of approved project cost or 3.8 lakh whichever is lower)</b>	One Number (5 Hard copies) along with soft copy	5.1			<b>3,35,699</b>	EA has to submit the Hard Copies and the soft copy of the final proposal along with Maps and Plan as suggested by the TCC-NMET in its meeting while clearing the proposal.
<b>J</b>	<b>OPERATIONAL CHARGES</b>		6.0 iii	In case total outsourced cost more than Rs. 1 Crore		<b>15,00,000</b>	will be reimbursed as per point 3 of NMET-SoC after recalculation when actual cost of outsourcing component will be provided. The copy of contract agreement for outsourced component and work completion report are also required to reimburse the operational charge
<b>Total F+G+H+I+J</b>						<b>29,31,399</b>	

*ee*  
08/09/2022

*Prasanna*  
08/07/22

Total A+B+C+D+E+F+G+H+I+J	1,97,16,369	
GST 18%	35,48,946	GST will be reimbursed as per actual and as per notified prescribed rate
Grand Total (A+B+C+D+E+F+G+H+I+18% GST)	2,32,65,315	<b>or say Rs. 232.66 Lakh</b>
<b>Note - 1. If any part of the project is outsourced, the amount will be reimbursed as per the Paragraph 3 of NMET SoC and Item no. 6 of NMET SoC. In case of execution of the project by EA on its own, a Certificate regarding non outsourcing of any component/project is required.</b>		

Annexure-2B

Schedule timeline for Preliminary exploration (G3) for Graphite in Lamer-Panga block A (13.99 sq. km), District: Kalahandi, Odisha.

S. No.	Item of Work	Months	1	2	3	4	5	6	7	8	Review	9	10	11	12	13	14	15	16		
1	Camp Setting		■																		
2	Geological Mapping		■	■	■	■	■	■													
3	Geological days		■	■	■	■	■	■					■	■	■	■	■				
4	Trenching		■	■	■	■	■	■													
5	Geophysical Survey (Self-potential)			■	■	■	■	■	■	■											
6	Geophysical Report Preparation								■	■											
7	Surface Drilling												■	■	■	■	■				
8	Sampling days				■	■	■	■	■	■			■	■	■	■	■				
9	Laboratory Studies							■	■	■											
10	Camp Winding																				
11	Report Writing with Peer Review															■	■	■	■	■	

Note 1: Commencement of project may be reckoned from the day the exploration acreage is available along with all statutory clearance.  
2: Timeloss on account of monsoon/ agricultural activities/forest clearance/local law and order problem/lockdown etc. will be additional to above timeline.

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

## Annexure-3A

Estimated cost for Preliminary exploration (G3) for Iron Ore in Thakurani block (1.399 sq. km) in District: Keonjhar, Odisha.  
[Block area- 1.399 sq. km; Nos. of borehole- 16; Average borehole depth- 60m; Completion Time- 10 months]

S. No.	Item of work	Unit	Rate as per NMET SOC 2020-21		Estimated cost of proposal		Remarks
			SOC item Sl. No.	Rate as per SOC in Rs.	Quantum of Work	Total Amount (in Rs.)	
<b>A</b>	<b>Geological Work</b>						
i	Charges for one Geologist per day at Field	Per day	1.3	11,000	120	13,20,000	
ii	Charges for one Geologist per day at HQ	Per day	1.3	9,000	30	2,70,000	
iii	Labour (2 Nos.) per party (Rs. 553/day/labour)	Per day	5.7	553	240	1,32,720	Amount will be reimbursed as per the notified rates by the Central Labour Commission rates or respective State Govt. whichever is higher.
iv	Charges for one Surveyor per day	Per day	1.6.1a	8,300	30	2,49,000	
v	Labour (2 Nos.) per party (Rs. 553/day/labour)	Per day	5.7	553	60	33,180	Amount will be reimbursed as per the notified rates by the Central Labour Commission rates or respective State Govt. whichever is higher.
vi	Charges for One Sampler per day	Per day	1.5.2	5,100	45	2,29,500	
vii	Labour (4 Nos.) per party (Rs. 553/day/labour)	Per day	5.7	553	180	99,540	Amount will be reimbursed as per the notified rates by the Central Labour Commission rates or respective State Govt. whichever is higher.
viii	Demarcation of lease boundary, Fixation of Borehole and determination of co-ordinates & Reduced Level (RL) of the boreholes by DGPS	Per point of observation	1.6.2	19,200	16	3,07,200	16 Boreholes
<b>Sub Total- A</b>						<b>26,41,140</b>	
<b>B</b>	<b>Drilling Work (Outsourced)</b>						
i	Drilling- Hard rock	Per m	2.2.1.4a	11,500	1,000	1,15,00,000	
ii	Drill core preservation	per m	5.3	1,590	320	5,08,800.00	
<b>Sub Total- B</b>						<b>1,20,08,800</b>	

*[Signature]*  
08/09/22

*[Signature]*  
08/09/22

<b>C</b>	<b>Laboratory Studies (Outsourced)</b>						
<b>i</b>	<b>Chemical Analysis</b>						
	<b>Primary Samples</b> (Surface Samples + Core Samples + Check Samples)						
	Chemical analysis for nine radicals (Fe%, Mn%, SiO <sub>2</sub> %, Fe <sub>2</sub> O <sub>3</sub> %, Al <sub>2</sub> O <sub>3</sub> %, P%, S%, Insolubles & LOI)	per Nos.	4.1.15a	4,200	350	14,70,000	20 nos. Surface samples, 300 nos. Core samples, 30 nos. check samples)
	<b>Composite samples</b>						
	Chemical analysis for nine radicals (Fe%, Mn%, SiO <sub>2</sub> %, Fe <sub>2</sub> O <sub>3</sub> %, Al <sub>2</sub> O <sub>3</sub> %, P%, S%, Insolubles & LOI)	per Nos.	4.1.15a	4,200	16	67,200	
<b>ii</b>	<b>Physical Analysis</b>						
	Preparation of standard thin section of rock	per Nos.	4.3.1	2,353	10	23,530	
	Complete Petrographic Studies	per Nos.	4.3.4	4,232	10	42,320	
	Preparation of polished thin section of rock/ wafer	per Nos.	4.3.2	1,549	10	15,490	
	Complete Minerographic Studies	per Nos.	4.3.4	4,232	10	42,320	
<b>iii</b>	<b>Analysis of rock sample for determination of a package by 34 elements by ICPMS</b>	per Nos.	4.1.14	7,731	10	77,310	(20 Trace elements + 14 REE)
<b>iv</b>	<b>Bulk Density Determination</b>	per Nos.	4.10	3,540	10	35,400	
	<b>Sub Total- C</b>					<b>17,73,570</b>	
<b>D</b>	<b>Sub Total- D (A+B+C)</b>					<b>1,64,23,510</b>	
<b>E</b>	Preparation of Exploration Proposal	One Number (5 Hard copies) along with soft copy	5.1	2% of approved project cost or 3.8 lakh whichever is lower		3,28,470	EA has to submit the Hard Copies and the soft copy of the final proposal along with Maps and Plan as suggested by the TCC-NMET in its meeting while clearing the proposal.

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

F	Geological Report Preparation	Cost per 5 Hard copies of report along with soft copy	5.2	<b>Project between ₹150 lakh to ₹300 lakh:</b> Minimum of ₹7.5 Lakh or 3% of the work whichever is more and ₹3000/ each additional copy.	7,50,000	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
G	Tendering Process Cost	One time, in case of outsourced component	2.3	2% of the approved project cost or 5 Lakh whichever is lower will be paid one time to EA	3,28,470	will be reimbursed when copy of signed agreement/tender for outsourced component will be submitted.
H	Operational Charges		6.0 iii	In case of total outsourced cost more than ₹ 1 Crore	10,64,118	will be reimbursed as per point 3 of NMET-SoC after recalculation when actual cost of outsourcing component will be provided. The copy of contract agreement for outsourced component and work completion report are also required to reimburse the operational charge
I	Peer Review		As per EC decision		10,000	
J	Total Estimated cost without GST (18%) (D+E+F+G+H+I)				1,89,04,568	
K	GST (18%)				34,02,822	GST will be reimbursed as per actual and as per notified prescribed rate
L	Grand Total (J+K)				2,23,07,391	<b>or say Rs. 223.08 Lakh</b>
<b>Note - 1. If any part of the project is outsourced, the amount will be reimbursed as per the Paragraph 3 of NMET SoC and Item no. 6 of NMET SoC. In case of execution of the project by EA on its own, a Certificate regarding non outsourcing of any component/project is required.</b>						

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

Schedule timeline for Preliminary exploration (G3) for Iron Ore in Thakurani block (1.399 sq. km) in District: Keonjhar, Odisha.

S. No.	Activities	Unit	Months												
			1	2	3	4	5	Review	6	7	8	9	10		
1	Geological Mapping		█	█											
2	Geologist days		█	█	█	█	█								
3	Survey days														
4	Surface Drilling					█	█								
5	Sampling days/ core sampling														
6	Laboratory Studies												█	█	
7	Geologist days (HQ)												█	█	█
8	Geological Report Writing and Peer review											█	█	█	

Note 1: Commencement of project may be reckoned from the day the exploration acreage is available along with all statutory clearance  
 2. Timeloss on account of monsoon/ agriculture activity/ forest clearance/ local law & order problem/ lockdown etc. will be additional to above timeline.

*[Handwritten signature]*  
 08/09/2022

*[Handwritten signature]*  
 08/09/22

## Annexure-4A

Estimated cost for Preliminary exploration (G3) for coal in North of Urtan North block (10.28 sq. km), Sohagpur coalfield, District: Anuppur, Madhya Pradesh.

[Block area- 10.28 sq. km; Nos. of borehole- 5 (1600x1600m); Borehole depth range- 550-750m; Completion Time- 12 months]

S. No.	Item Work	Item no in Soc	Unit	Rates as per SoC of NMET	Rate (Rs.)	Qty.	Amount (Rs.)	Remarks
<b>I- Field operations (Outsourcing)</b>								
<b>A</b>	<b>DRILLING</b>							
1	Drilling (As per MoC Rate 2020-21)	2.2.1.1b	m	6,775	6,775	3,000	2,03,25,000	Copy of MoC approved Rate is required
<b>B</b>	<b>GEOPHYSICAL STUDIES</b>							
1	Borehole Geophysical logging (As per MoC Rate 2020-21)	3.11	m	470	566	3000	16,98,000	Copy of MoC approved Rate is required
<b>Field operations Total (A+B)</b>							<b>2,20,23,000</b>	reimbursement of outsource component will be made as per Para 3 of NMET-SoC
<b>II- Field Work (In House)</b>								
<b>A</b>	<b>GEOLOGICAL WORK</b>							
2a	Geological days-Field - 1 Geologist	1.5.1a	Day	11,000	11,000	120	13,20,000	
2b	Geological days-HQ ( Data processing & Report Preparation)-1 Geologist	1.6.1b	Day	9,000	9,000	30	2,70,000	
<b>Sub Total- A</b>							<b>15,90,000</b>	
<b>B</b>	<b>GEOPHYSICAL STUDIES</b>							
3a	Geophysicist days-Field	3.19	Day	11,000	11,000	10	1,10,000	
3b	Geophysicist days-HQ (Data processing & Report Preparation)	3.19	Day	9,000	9,000	7	63,000	
<b>Sub Total- B</b>							<b>1,73,000</b>	
<b>Field Work Total (A+B)</b>							<b>17,63,000</b>	

*[Signature]*  
08/09/22

*[Signature]*  
08/09/22

<b>III-Laboratory Studies (In House)</b>							
<b>1</b>	<b>Band By Band Analysis</b>						
a	Ash+Moisture	4.2.6	per sample	700	700	250	1,75,000
b	House Keeping	4.2.1	per sample	115	115	250	28,750
c	Sample preparation	4.2.2	per sample	500	500	250	1,25,000
<b>2</b>	<b>Overall analysis</b>						
a	Proximate analysis	4.2.7	per sample	935	935	45	42,075
b	Moisture at 60% RH & 40C	4.2.8	per sample	1,010	1,010	45	45,450
c	GCV	4.2.11	per sample	1,505	1,505	45	67,725
d	Sample preparation & House Keeping	4.2.3	per sample	795	795	45	35,775
<b>3</b>	<b>Special Test</b>						
a	Ultimate analysis	4.2.17	per sample	9,945	9,945	15	1,49,175
b	Total Sulphur	4.2.14	per sample	1,900	1,900	15	28,500
c	Distribution of Sulpher	4.2.15	per sample	3,695	3,695	15	55,425
d	HGI including sample preparation	4.2.18	per sample	3,805	3,805	15	57,075
e	AFT (Ash Fusion Temperature)	4.2.20	per sample	2,745	2,745	15	41,175
f	Ash analysis	4.2.25	per sample	325	325	15	4,875
h	Ash sample preparation 800°C from coke for analysis	4.2.5	per sample	875	875	15	13,125
i	Roga Index(Instead of caking Index)	4.2.22	per sample	5,365	5,365	15	80,475
j	Swelling Index	4.2.23	per sample	2,745	2,745	15	41,175
k	LTGK coke type	4.2.24		4,550	4,550	15	68,250
<b>4</b>	<b>Petrographic analysis</b>						
a	Pellet preparation	4.3.14a	per sample	1,160	1,160	10	11,600
b	Maceral Analysis (with photomicrography)	4.3.14e	per sample	25,000	25,000	10	2,50,000
c	Microlitho type Analysis (with photomicrography)	4.3.14g	per sample	25,000	25,000	10	2,50,000
d	Mean Ro%	4.3.14j	per sample	16,345	16,345	10	1,63,450
	<b>Laboratory Studies Total</b>						<b>17,34,075</b>

*Signature*  
08/09/2022

*Signature*  
08/09/22

<b>IV. Miscellaneous Charges (In House)</b>								
a	Preparation of Exploration Proposal	5.1	lump sum	3,80,000	3,80,000		3,80,000	EA has to submit the Hard Copies and the soft copy of the final proposal along with Maps and Plan as suggested by the TCC-NMET in its meeting while clearing the proposal.
b	Outsourcing process cost (2% of approved project cost or 5 Lakh, whichever is lower)	2.3	lump sum	5,00,000	5,00,000		5,00,000	will be reimbursed when copy of signed agreement/tender for outsourced component will be submitted.
c	Operational charges for CMPDI	Point 3 of SOC			15,00,000		15,00,000	will be reimbursed as per point 3 of NMET-SoC after recalculation when actual cost of outsourcing component will be provided. The copy of contract agreement for outsourced component and work completion report are also required to reimburse the operational charge
d	DGPS Survey of boundary, borehole points (5 boreholes & 15 boundary point)	1.6.2	per point	19,200	19,200	20	3,84,000	As per actual point
e	Borehole pillaring	2.2.7	Per bh	2,000	2,000	5	10,000	
f	Land crop compensation	5.6	Per bh	20,000	20,000	5	1,00,000	Amount will be reimbursed as per actuals or max. Rs. 20000 per BH with certification from local authorities
g	Geological Report preparation (3% or 2000000 Max)	5.2					8,51,822	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
h	Peer review			10,000	10,000		10,000	
<b>Miscellaneous Charges Total</b>							<b>37,35,822</b>	
<b>Total (I- Field op +II- Field work +III- Lab+ IV -Misc.)</b>							<b>2,92,55,897</b>	
GST (@18%)							52,66,061	GST will be reimbursed as per actual and as per notified prescribed rate
<b>Grand Total</b>							<b>3,45,21,958</b>	<b>or say Rs. 345.22 Lakh</b>
Note-1) Above rate of drilling, GPL, Chemical, are budgeted rates.								
2) There are numerous items in chemical analysis. The CIMFR rates will be applied for actual payment.								




3) For Drilling the approved rates of MoC for FY 2022-23 has been considered.			
4) For Geophysical logging the approved rates of MoC for FY 2020-21 has been taken other rates are as per approved SoC rates.			
5) The Drilling rate for coal is Rs 6775/- is as per approved rate of Promotional exploration MoC.			
6) GPL rates is Rs 470/- per meter of minimum 6 parameters, the break up is as follow			
	<b>Probe</b>	<b>SoC item No</b>	<b>Rate 2020-21 (in Rs.)</b>
1	Base Log	3.11a	162
2	Dual Density	3.11d	110
3	Natural Gamma	3.11h	96
4	Caliper	3.11g	20
5	SPR	3.11i	41
6	Resistivity	3.11c	41
7	Deviation	3.11m	96
	<b>Total</b>		<b>566</b>
7) Rs 10000/- for Peer review is budgeted rate.			

Annexure-4B

Schedule timeline for Preliminary exploration (G3) for coal in North of Urtan North block (10.28 sq. km), Sohagpur coalfield, District: Anuppur, Madhya Pradesh.

S. No	Activities	Months	Months														
			1	2	3	4	5	6	7	8	9	10	11	12			
1	Outsourcing																
2	Mobilising																
3	Drilling (Nos of rigs-1 rigs)																
4	Borehole Geophysical logging																
5	Survey days																
6	Geologist days, Field																
7	Geophysicist days, Field																
8	Laboratory Studies (Band By Band)																
9	Laboratory Studies (Overall)																
10	Laboratory Studies (Special) & (Petrography)																
11	Geologist days, HQ																
12	Geophysicist days, HQ																
13	Report Writing & Peer Review																
Note: Please add activities accordingly and timeline (months)																	
Total Time Period of Completion of Project																	

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

Estimated cost for Preliminary exploration (G3) for coal in North of Saoner (15.16 sq. km), Kamptee coalfield, District: Nagpur, Maharashtra.

[Block area- 15.16 sq. km; Nos. of borehole- 7 (1600x1600m); Borehole depth range- 200-500m; Completion Time- 14 months]

S. No	Item Work	Item no in Soc	Unit	Rates as per SoC of NMET	Rate (Rs.)	Qty.	Amount (Rs.)	Remarks
<b>I- Field operations</b>								
<b>A</b>	<b>DRILLING</b>							
	Drilling	2.2.1.1b	m	6,775	6,775	2,250	15,243,750	Copy of MoC approved Rate is required
<b>B</b>	<b>GEOPHYSICAL STUDIES</b>							
	Borehole Geophysical logging	3.11	m	656	470	2,250	10,57,500	Copy of MoC approved Rate is required
<b>Field operations Total (A+B)</b>							<b>1,63,01,250</b>	reimbursement of outsource component will be made as per Para 3 of NMET-SoC
<b>II- Field Study</b>								
<b>A</b>	<b>GEOLOGICAL WORK</b>							
2a	Geological Party days-Field (Mapping, Field work)- 1 Geologist	1.5.1a	Day	11,000	11,000	120	13,20,000	
2b	Geological Party days-HQ 1 Geologist	1.5.1a	Day	9,000	9,000	30	2,70,000	
<b>Sub Total- A</b>							<b>15,90,000</b>	
<b>B</b>	<b>GEOPHYSICAL STUDIES</b>							
2a	Geophysicist days-Field	3.19	Day	11,000	11,000	12	1,32,000	
2c	Geophysicist days-HQ	3.19	Day	9,000	9,000	7	63,000	
<b>Sub Total- B</b>							<b>1,95,000</b>	
<b>Field Work Total (A+B)</b>							<b>17,85,000</b>	

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

<b>III-Laboratory Studies</b>								
<b>1</b>	<b>Band By Band Analysis</b>							
a	Ash+Moisture	4.2.6	per sample	700	700	410	2,87,000	
b	House Keeping	4.2.1	per sample	115	115	410	47,150	
c	Sample preparation for Band by Band Analysis	4.2.2	per sample	500	500	410	2,05,000	
<b>2</b>	<b>Overall analysis</b>							
a	Proximate analysis	4.2.7	per sample	935	935	35	32,725	As per actual
b	Moisture at 60% RH & 40C	4.2.8	per sample	1,010	1,010	35	35,350	
c	GCV	4.2.11	per sample	1,505	1,505	35	52,675	
d	Sample preparation & House Keeping	4.2.3	per sample	795	795	35	27,825	
<b>3</b>	<b>Special Test</b>							
a	Ultimate analysis	4.2.17	per sample	9,945	9,945	10	99,450	
b	Total Sulphur	4.2.14	per sample	1,900	1,900	10	19,000	
c	Distribution of Sulphur	4.2.15	per sample	3,695	3,695	10	36,950	
d	Phosphorus	4.2.21	per sample	2,480	2,480	10	24,800	
e	HGI including sample preparation	4.2.18	per sample	3,805	3,805	10	38,050	
f	AFT (Ash Fusion Temperature)	4.2.20	per sample	2,745	2,745	10	27,450	
g	Ash analysis	4.2.25	per sample	325	325	10	3,250	
<b>4</b>	<b>Petrographic analysis</b>							
a	Pellet preparation	4.3.14a	per sample	1,160	1,160	5	5,800	
b	Maceral Analysis (with photomicrography)	4.3.14e	per sample	25,000	25,000	5	1,25,000	
c	Microlitho type Analysis (with photomicrography)	4.3.14g	per sample	25,000	25,000	5	1,25,000	
d	Mean Ro%	4.3.14j	per sample	16,345	16,345	5	81,725	
<b>Laboratory Studies Total</b>							<b>1,27,42,00</b>	
<b>IV. Miscellaneous Charges</b>								
a	Preparation of Exploration Proposal	5.1	lump sum	3,80,000	3,80,000		3,80,000	EA has to submit the Hard Copies and the soft copy of the final proposal along with Maps and Plan as suggested by the TCC-NMET in its meeting while clearing the proposal.

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

b	Outsourcing process cost (2% of approved project cost or 5 Lakh, whichever is lower)	2.3	lump sum	5,00,000			3,26,025	will be reimbursed when copy of signed agreement/tender for outsourced component will be submitted.	
c	Operational charges for CMPDI	Point 3 of SOC			15,00,000		11,90,063	will be reimbursed as per point 3 of NMET-SoC after recalculation when actual cost of outsourcing component will be provided. The copy of contract agreement for outsourced component and work completion report are also required to reimburse the operational charge	
d	Geological Report preparation (3% of work value or 7.5 Lakh Max)	5.2					7,50,000	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.	
e	Borehole pillaring	2.2.7	Per bh	2,000	2,000	7	14,000		
f	Land crop compensation	5.6	Per bh	20,000	20,000	7	1,40,000	Amount will be reimbursed as per actuals or max. Rs. 20000 per BH with certification from local authorities	
g	DGPS Survey of boundary, borehole points (7 boreholes & 8 boundary point)	1.6.2	per point	19,200	19,200	15	2,88,000		
h	Peer review			10,000	10,000		10,000		
	<b>Miscellaneous Charges Total</b>						<b>30,98,087</b>		
	<b>Total (I- Field op +II Field Study +III Lab+ IV Misc.)</b>							<b>2,24,58,538</b>	
						GST (@18%)	40,42,537	GST will be reimbursed as per actual and as per notified prescribed rate	
						<b>Grand Total</b>	<b>2,65,01,074</b>	<b>or say Rs. 265.02 Lakh</b>	
	Note- 1) Above rate of drilling, GPL, Chemical are budgeted rates.								
	2) There are numerous items in chemical analysis. The CIMFR rates will be applied for actual payment.								

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

3) The Drilling rate for coal is Rs 6775/- is as per approved rate of Promotional exploration MoC.			
4) For Geophysical Survey the approved rates of MoC for FY 2020-21 has been taken other rates are as per approved SoC rates.			
5) GPL rates is Rs 470/- per meter of minimum 6 parameters, the break up is as follow			
	<b>Probe</b>	<b>SoC item No</b>	<b>Rate 2020-21 (in Rs.)</b>
	1 Base Log	3.11a	162
	2 Dual Density	3.11d	110
	3 Natural Gamma	3.11h	96
	4 Caliper	3.11g	20
	5 SPR	3.11i	41
	6 Resistivity	3.11c	41
	<b>Total</b>		<b>470</b>
6) Rs 10000/- for Peer review is budgeted rate.			

Annexure-5B

Schedule timeline for Preliminary exploration (G3) for coal in North of Saoner (15.16 sq. km), Kamptee coalfield, District: Nagpur, Maharashtra.

S. No.	Activities	Months	Months														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1	Outsourcing																
2	Mobilising																
3	Drilling (Nos of rigs-1 rigs)																
4	Borehole Geophysical logging																
5	Survey days																
6	Geologist days, Field																
7	Geophysicist days, Field																
8	Laboratory Studies (Band By Band)																
9	Laboratory Studies (Overall)																
10	Laboratory Studies (Special) & (Petrography)																
11	Geologist days, HQ																
12	Geophysicist days, HQ																
13	Report Writing & Peer Review																
Note: Please add activities accordingly and timeline (months)																	
Total Time Period of Completion of Project-																	

*[Signature]*  
08/09/22

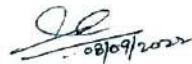
*[Signature]*  
08/09/22

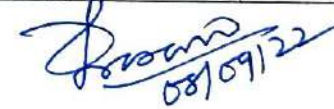
## Annexure-6A

Estimated cost for Reconnaissance survey (G4) for coal in West of Ghugus and Bellora block (39.15 sq. km), Wardha Valley Coalfield, District: Yavatmal, Maharashtra.

[Block area- 39.15 sq. km; Nos. of borehole- 3 (1600x1600m); Borehole depth range- 530-750m; Completion Time- 12 months]

S. No.	Item Work	Item no in Soc	Unit	Rates as per SoC of NMET	Rate (Rs.)	Qty.	Amount (Rs.)	Remarks
<b>I- Field operations (Outsourcing)</b>								
<b>A</b>	<b>DRILLING</b>							
1	Drilling (As per MoC Rate 2020-21)	2.2.1.1b	m	6,775	6,775	1,800	1,21,95,000	Copy of MoC approved Rate is required
<b>B</b>	<b>GEOPHYSICAL STUDIES</b>							
1	Borehole Geophysical logging (As per MoC Rate 2020-21)	3.11	m	470	566	1,800	10,18,800	Copy of MoC approved Rate is required
<b>Field operations Total (A+B)</b>							<b>1,32,13,800</b>	reimbursement of outsource component will be made as per Para 3 of NMET-SoC
<b>II- Field Work (In House)</b>								
<b>A</b>	<b>GEOLOGICAL WORK</b>							
2a	Geological days-Field - 1 Geologist	1.5.1b	Day	11,000	11,000	120	13,20,000	
2b	Geological days-HQ ( Data processing & Report Preparation)-1 Geologist	1.5.1b	Day	9,000	9,000	30	2,70,000	
<b>Sub Total- A</b>							<b>15,90,000</b>	
<b>B</b>	<b>GEOPHYSICAL STUDIES</b>							
3a	Geophysicist days-Field	3.19	Day	11,000	11,000	5	55,000	
3b	Geophysicist days-HQ ( Data processing & Report Preparation)	3.19	Day	9,000	9,000	6	54,000	
<b>Sub Total- B</b>							<b>1,09,000</b>	
<b>Field Work Total (A+B)</b>							<b>16,99,000</b>	

  
08/09/2022

  
08/09/22

<b>III-Laboratory Studies (In House)</b>								
<b>1</b>	<b>Band By Band Analysis</b>							
a	Ash+Moisture	4.2.6	per sample	700	700	180	1,26,000	
b	House Keeping	4.2.1	per sample	115	115	180	20,700	
c	Sample preparation for Band by Band Analysis	4.2.2	per sample	500	500	180	90,000	
<b>2</b>	<b>Overall analysis</b>							
a	Proximate analysis	4.2.7	per sample	935	935	12	11,220	
b	Moisture at 60% RH & 40C	4.2.8	per sample	1,010	1,010	12	12,120	
c	GCV	4.2.11	per sample	1,505	1,505	12	18,060	
d	Sample preparation & House Keeping	4.2.3	per sample	795	795	12	9,540	
<b>3</b>	<b>Special Test</b>							
a	Ultimate analysis	4.2.17	per sample	9,945	9,945	5	49,725	
b	Total Sulphur	4.2.14	per sample	1,900	1,900	5	9,500	
c	Distribution of Sulphur	4.2.15	per sample	3,695	3,695	5	18,475	
d	HGI including sample preparation	4.2.18	per sample	3,805	3,805	5	19,025	
e	AFT (Ash Fusion Temperature)	4.2.20	per sample	2,745	2,745	5	13,725	
f	Ash analysis	4.2.25	per sample	13,644	13,644	5	68,220	
<b>4</b>	<b>Petrographic analysis</b>							
a	Pellet preparation	4.3.14a	per sample	1,160	1,160	5	5,800	
b	Maceral Analysis (with photomicrography)	4.3.14e	per sample	25,000	25,000	5	1,25,000	
c	Microlitho type Analysis (with photomicrography)	4.3.14g	per sample	25,000	25,000	5	1,25,000	
d	Mean Ro%	4.3.14j	per sample	16,345	16,345	5	81,725	
<b>Laboratory Studies Total</b>							<b>8,03,835</b>	
<b>IV. Miscellaneous Charges (In House)</b>								
a	Preparation of Exploration Proposal	5.1	lump sum	3,80,000	3,80,000		3,65,905	EA has to submit the Hard Copies and the soft copy of the final proposal along with Maps and Plan as suggested by the TCC-NMET in its meeting while clearing the proposal.

*JL*  
08/09/2022

*Prasad*  
08/09/22

b	Outsourcing process cost (2% of approved project cost or 5 Lakh, whichever is lower)	2.3	lump sum	5,00,000	5,00,000		2,64,276	will be reimbursed when copy of signed agreement/tender for outsourced component will be submitted.
c	Operational charges for CMPDI	Point 3 of SOC			15,00,000		10,35,690	will be reimbursed as per point 3 of NMET-SoC after recalculation when actual cost of outsourcing component will be provided. The copy of contract agreement for outsourced component and work completion report are also required to reimburse the operational charge
d	DGPS Survey of boundary, borehole points (3 boreholes & 1 base point)	1.6.2	per point	19,200	19,200	4	76,800	
e	Borehole pillaring	2.2.7	Per bh	2,000	2,000	3	6,000	
f	Land crop compensation	5.6	Per bh	20,000	20,000	3	60,000	Amount will be reimbursed as per actuals or max. Rs. 20000 per BH with certification from local authorities
g	Geological Report preparation	5.2					7,50,000	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
h	Peer review			10,000	10,000		10,000	
<b>Miscellaneous Charges Total</b>							<b>25,68,671</b>	
<b>Total (I- Field op +II- Field work + III- Lab+ IV -Misc)</b>							<b>1,82,85,306</b>	
GST (@18%)							32,91,355	GST will be reimbursed as per actual and as per notified prescribed rate
<b>Grand Total</b>							<b>2,15,76,661</b>	<b>or say Rs. 215.77 Lakh</b>

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

Note- 1) Above rate of drilling, GPL, Chemical, are budgeted rates.			
2) There are numerous items in chemical analysis. The CIMFR rates will be applied for actual payment.			
3) For Drilling the approved rates of MoC for FY 2022-23 has been considered.			
4) For Geophysical logging the approved rates of MoC for FY 2020-21 has been taken other rates are as per approved SoC rates.			
5) The Drilling rate for coal is Rs 6775/- is as per approved rate of Promotional exploration MoC.			
6) GPL rates is Rs 566/- per meter of minimum 7 parameters, the break up is as follow			
	<b>Probe</b>	<b>SoC item No</b>	<b>Rate 2020-21 (in Rs.)</b>
1	Base Log	3.11a	162
2	Dual Density	3.11d	110
3	Natural Gamma	3.11h	96
4	Caliper	3.11g	20
5	SPR	3.11i	41
6	Resistivity	3.11c	41
7	Deviation	3.11m	96
	<b>Total</b>		<b>566</b>
7) Rs 10000/- for Peer review is budgeted rate.			

**Annexure-6B**

**Schedule timeline for Reconnaissance survey (G4) for coal in West of Ghugus and Bellora block (39.15 sq. km), Wardha Valley Coalfield, District: Yavatmal, Maharashtra.**

S. No.	Activities	Months	Months												
			1	2	3	4	5	6	7	8	9	10	11	12	
1	Outsourcing		■	■	■	■									
2	Mobilising					■									
3	Drilling (Nos of rigs-1 rigs)						■	■	■						
4	Borehole Geophysical logging						■	■	■						
5	Survey days						■	■	■						
6	Geologist days, Field						■	■	■						
7	Geophysicist days, Field						■	■	■						
8	Laboratory Studies (Band By Band)							■	■						
9	Laboratory Studies (Overall)							■	■						
10	Laboratory Studies (Special) & (Petrography)									■	■	■	■	■	
11	Geologist days, HQ										■	■	■	■	
12	Geophysicist days, HQ										■	■	■	■	
13	Report Writing & Peer Review											■	■	■	■
Note: Please add activities accordingly and timeline (months)															
Total Time Period of Completion of Project-															

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

Estimated cost for Preliminary exploration (G3) for coal in Brahmani North block (21.73 sq. km), Talcher Coalfield, District: Dhenkanal, Odisha.

[Block area- 21.73 sq. km; Nos. of borehole- 5 (1600x1600m); Borehole depth range- 200-550m; Completion Time- 12 months]

S. No.	Item Work	Item no in Soc	Unit	Rates as per SoC of NMET	Rate (Rs.)	Qty.	Amount (Rs.)	Remarks
<b>I- Field operations</b>								
<b>A</b>	<b>DRILLING</b>							
1	Drilling	2.2.1.1b	m	6,775	6,775	2,200	1,49,05,000	Copy of MoC approved Rate is required
<b>B</b>	<b>GEOPHYSICAL STUDIES</b>							
1	Borehole Geophysical logging	3.11	m	656	470	2,200	10,34,000	Copy of MoC approved Rate is required
<b>Field operations Total (A+B)</b>							<b>1,59,39,000</b>	reimbursement of outsource component will be made as per Para 3 of NMET-SoC
<b>II- Field Study</b>								
<b>A</b>	<b>GEOLOGICAL WORK</b>							
2a	Geological days-Field (Mapping, Field work)- 1 Geologist	1.5.1a	Day	11,000	11,000	120	13,20,000	
2b	Geological days-HQ 1 Geologist	1.5.1a	Day	9,000	9,000	30	2,70,000	
<b>Sub Total- A</b>							<b>15,90,000</b>	
<b>B</b>	<b>GEOPHYSICAL STUDIES</b>							
2a	Geophysicist days- Field	3.19	Day	11,000	11,000	7	77,000	
2c	Geophysicist days-HQ	3.19	Day	9,000	9,000	10	90,000	
<b>Sub Total- B</b>							<b>1,67,000</b>	
<b>Field Work Total (A+B)</b>							<b>17,57,000</b>	
<b>III-Laboratory Studies</b>								
<b>1</b>	<b>Band By Band Analysis</b>							
a	Ash+Moisture	4.2.6	per sample	700	700	600	4,20,000	

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

b	House Keeping	4.2.1	per sample	115	115	600	69,000	
c	Sample preparation for Band by Band Analysis	4.2.2	per sample	500	500	600	3,00,000	
<b>2</b>	<b>Overall analysis</b>							
a	Proximate analysis	4.2.7	per sample	935	935	65	60,775	
b	Moisture at 60% RH & 40C	4.2.8	per sample	1,010	1,010	65	65,650	
c	GCV	4.2.11	per sample	1,505	1,505	65	97,825	
d	Sample preparation & House Keeping	4.2.3	per sample	795	795	65	51,675	
<b>3</b>	<b>Special Test</b>							
a	Ultimate analysis	4.2.17	per sample	9,945	9,945	12	1,19,340	
b	Total Sulphur	4.2.14	per sample	1,900	1,900	12	22,800	
c	Distribution of Sulphur	4.2.15	per sample	3,695	3,695	12	44,340	
d	Phosphorus	4.2.21	per sample	2,480	2,480	12	29,760	
e	HGI including sample preparation	4.2.18	per sample	3,805	3,805	12	45,660	
f	AFT (Ash Fusion Temperature)	4.2.20	per sample	2,745	2,745	12	32,940	
g	Ash analysis	4.2.25	per sample	13,644	13,644	12	163,728	
<b>4</b>	<b>Petrographic analysis</b>							
a	Pellet preparation	4.3.14a	per sample	1,160	1,160	12	13,920	
b	Maceral Analysis (with photomicrography)	4.3.14e	per sample	25,000	25,000	12	3,00,000	
c	Microlitho type Analysis (with photomicrography)	4.3.14g	per sample	25,000	25,000	12	3,00,000	
d	Mean Ro%	4.3.14j	per sample	16,345	16,345	12	1,96,140	
<b>Laboratory Studies Total</b>							<b>23,33,553</b>	
<b>IV. Miscellaneous Charges</b>								
a	Preparation of Exploration Proposal	5.1	lump sum	3,80,000	3,80,000		3,80,000	EA has to submit the Hard Copies and the soft copy of the final proposal along with Maps and Plan as suggested by the TCC-NMET in its meeting while clearing the proposal.
b	Geological Report preparation (3% of work value or 7.5 Lakh Max)	5.2					7,50,000	EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

c	Borehole pillaring	2.2.7	Per bh	2,000	2,000	5	10,000		
d	Land crop compensation	5.6	Per bh	20,000	20,000	5	1,00,000	Amount will be reimbursed as per actuals or max. Rs. 20000 per BH with certification from local authorities	
e	DGPS Survey of boundary, borehole points (5 boreholes & 10 boundary point)	1.6.2	per point	19,200	19,200	15	2,88,000		
f	Peer review			10,000	10,000		10,000		
							<b>Miscellaneous Charges Total</b>	<b>15,38,000</b>	
							<b>Total (I- Field op +II Field Study +III Lab+ IV Misc.)</b>	<b>2,15,67,553</b>	
							GST (@18%)	38,82,160	GST will be reimbursed as per actual and as per notified prescribed rate
							<b>Grand Total</b>	<b>2,54,49,713</b>	<b>or say Rs. 254.50 Lakh</b>
Note- 1) Above rate of drilling, GPL, Chemical are budgeted rates.									
2) There are numerous items in chemical analysis. The CIMFR rates will be applied for actual payment.									
3) The Drilling rate for coal is Rs 6775/- is as per approved rate of Promotional exploration MoC.									
4) For Geophysical Survey the approved rates of MoC for FY 2020-21 has been taken other rates are as per approved SoC rates.									
5) GPL rates is Rs 470/- per meter of minimum 6 parameters, the break up is as follow									
	<b>Probe</b>	<b>SoC item No</b>	<b>Rate 2020-21 (in Rs.)</b>						
	1 Base Log	3.11a	162						
	2 Dual Density	3.11d	110						
	3 Natural Gamma	3.11h	96						
	4 Caliper	3.11g	20						
	5 SPR	3.11i	41						
	6 Resistivity	3.11c	41						
	<b>Total</b>		<b>470</b>						
6) Rs 10000/- for Peer review is budgeted rate.									

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

Schedule timeline for Preliminary exploration (G3) for coal in Brahmani North block (21.73 sq. km), Talcher Coalfield, District: Dhenkanal, Odisha.

S. No.	Activities	Months	Months													
			1	2	3	4	5	6	Review	7	8	9	10	11	12	
1	Mobilising		■													
2	Drilling (Nos of rigs-1 rigs)			■	■	■	■	■								
3	Borehole Geophysical logging			■	■	■	■	■								
4	Survey days			■	■	■	■	■								
5	Geologist days, Field			■	■	■	■	■								
6	Geophysicist days, Field			■	■	■	■	■								
7	Laboratory Studies (Band By Band)								■							
8	Laboratory Studies (Overall)								■							
9	Laboratory Studies (Special) & (Petrography)									■	■					
10	Geologist days, HQ											■	■	■	■	■
11	Geophysicist days, HQ											■	■	■	■	■
12	Report Writing & Peer Review											■	■	■	■	■
Note: Please add activities accordingly and timeline (months)																
Total Time Period of Completion of Project-																

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

## Annexure-8A

Estimated cost for Preliminary exploration (G3) for Basemetal (Cu, Pb, Zn) in Chintakuntala block (5.00 sq. km), District: Nalgonda, Telangana.

[Block area- 5.00 sq. km; Nos. of borehole- 10; Borehole depth range- 60-80m; Completion Time- 14 months]

S. No.	Item of Work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal		Remarks
			SoC-Item - SI No.	Rates as per SoC	Qty.	Total Amount (Rs.)	
<b>A</b>	<b>Geological Mapping (DM), Other Geological Work &amp; Surveying</b>						
<b>i</b>	<b>Mapping, sampling, Trenching, Borehole logging &amp; sampling &amp; report writing</b>						
a	Charges for Geologist per day at HQ for interpretation & Report writing	day	1.3	9,000	60	5,40,000	
b	Charges for Geologist per day at field for mapping, geochemical sampling, trenching, logging, sampling	day	1.2	11,000	150	16,50,000	
c	Labours Charges; Base rate - Rs.443	day	5.7	443	300	1,32,900	Amount will be reimbursed as per the notified rates for unskilled labour by the Central Labour Commissioner or respective State Govt. whichever is higher
d	Charges for one Sampler per day	one sampler per day	1.5.2	5,100	50	2,55,000	
e	Labours (4 Nos) Base rate - Rs.443	day	5.7	443	200	88,600	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
<b>ii</b>	<b>Survey</b>						
a	DGPS Survey of Block Boundary cardinal points and Bore Hole Fixation and determination of co-ordinates & Reduced Level of the boreholes by DGPS.	Per Point of observation	1.6.2	19,200	15	2,88,000	5 Points for Block Boundary + 10 BH Points
b	Charges of Surveyor	one surveyor per day	1.6.1a	8,300	45	3,73,500	

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

c	Labours Charges for survey work; Base rate - Rs. 443	day	5.7	443	180	79,740	Amount will be reimburse as per the notified rates for unskilled labour by the Central Labour Commissioner or respective State Govt. whichever is higher
<b>Sub Total- A</b>						<b>34,07,740</b>	
<b>B Ground Geophysical Survey</b>							
1	Self potential (SP) (8-20 line km)	Line km	3.3a	29,600	11	3,25,600	
2	Induced Polarisation (I.P) (10-20 line km)	Line km	3.4a	69,950	11	7,69,450	
3	Charges for geophysicist party days (Field)	day	3.18	11,000	60	6,60,000	
45	Labours Charges for survey work; Base rate - Rs. 443	day	5.7	443	120	53,160	Amount will be reimburse as per the notified rates for unskilled labour by the Central Labour Commissioner or respective State Govt. whichever is higher
5	Charges for geophysicist party days (HQ) for data processing & interpretation	day	3.18	9,000	30	2,70,000	
<b>Sub Total- B</b>						<b>20,78,210</b>	
<b>C Trenching/Pitting</b>							
a)	Excavation of Trenches	per cu.m	2.1.1.	3,330	200	6,66,000	
<b>Sub Total- C</b>						<b>6,66,000</b>	
<b>D DRILLING</b>							
a	Drilling up to 300m (Hard Rock)	m	2.2.1.4a	11,500	800	92,00,000	
b	Borehole deviation Survey by Multishot Camera	m	2.2.6	330	160	52,800	
c	Land / Crop Compensation (in case the BH falls in agricultural Land)	per BH	5.6	20,000	10	2,00,000	Amount will be reimbursed as per actuals or max. Rs. 20000 per BH with certification from local authorities
d	Construction of concrete Pillar (12"x12"x30")	per borehole	2.2.7a	2,000	10	20,000	
e	Transportation of Drill Rig & Truck associated per drill (1 rigs)	Km	2.2.8	36	2,600	93,600	650 km to & fro from Nagpur/ Rig
f	Monthly Accommodation Charges for drilling Camp (up to 2 Rigs)	month	2.2.9	50,000	4	2,00,000	
g	Drilling Camp Setting Cost	Nos	2.2.9a	2,50,000	1	2,50,000	
h	Drilling Camp Winding up Cost	Nos	2.2.9b	2,50,000	1	2,50,000	

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

i	Road Making (Flat Terrain)	Km	2.2.10a	22,020	5	1,10,100	Road Making will be considered as per the requirement and Road Making Charges will be reimbursed for max. 5 km.
j	Drill Core Preservation	per m	5.3	1,590	280	4,45,200	
<b>Sub Total- D</b>						<b>1,08,21,700</b>	
<b>E Borehole Geophysical Logging</b>							
a	Induced Polarisation (I.P)	Per m	3.11p	93	800	74,400	
b	Self potential (SP)	Per m	3.11b	39	800	31,200	
c	Charges for Geophysicist per day at field	day	3.18	11,000	10	1,10,000	
d	Labour (2 Nos) Base rate - Rs.443	day	5.7	443	20	8,860	Amount will be reimburse as per the notified rates for unskilled labour by the Central Labour Commissioner or respective State Govt. whichever is higher
<b>Sub Total- E</b>						<b>2,24,460</b>	
<b>F LABORATORY STUDIES</b>							
<b>Chemical Analysis</b>							
<b>i) (Chip samples/channel sample</b>							
	a. for Cu, Pb, Zn, Co and Mo	Nos	4.1.7a	2,506	50	1,25,300	
<b>ii) Primary Trench Samples</b>							
	a. for Cu, Pb, Zn, Co and Mo	Nos	4.1.7a	2,506	150	3,75,900	
	b. Au by Fire Assay	Nos	4.1.5a	2,380	10	23,800	
<b>ii) Chip/Channel Check samples Internal &amp; External (5%+10% = 15%)</b>							
	a. for Cu, Pb, Zn, Co and Mo	Nos	4.1.7a	2,506	8	18,795	
	b) For Au (Gold) by Fire Assay	Nos	4.1.5a	2,380	3	7,140	
<b>iii) Trench Check samples Internal &amp; External (5%+10% = 15%)</b>							
	a. for Cu, Pb, Zn, Co and Mo	Nos	4.1.7a	2,506	23	56,385	
	b) For Au (Gold) by Fire Assay	Nos	4.1.5a	2,380	2	3,570	
<b>iv) Primary samples (Bh Core )</b>							
	a. for Cu, Pb, Zn, Co and Mo	Nos	4.1.7a	2,506	200	5,01,200	
	b. Au by Fire Assay	Nos	4.1.5a	2,380	20	47,600	
<b>v) Bh Core Check samples Internal 5% + External 10%</b>							
	a. for Cu, Ni, Mo, Co & W	Nos	4.1.7a	2,506	30	75,180	
	b) For Au (Gold) by Fire Assay	Nos	4.1.5a	2,380	3	7,140	

*[Signature]*  
08/09/2022

*[Signature]*  
08/09/22

<b>vi)</b>	<b>Composite Samples</b>						
	a) For 5 Radicals (Cu, Pb, Zn, Co and Mo)	Nos	4.1.7a	2,506	20	50,120	
	b) For Au (Gold) by Fire Assay	Nos	4.1.5a	2,380	5	11,900	
	c) ICP-MS (34 Elements)	Nos	4.1.14	7,731	10	77,310	
<b>vii)</b>	<b>Petrological samples (Surface &amp; Bh Core Samples)</b>						
i	Preparation of thin section	Nos	4.3.1	2,353	10	23,530	
ii	Study of Thin Section	Nos	4.3.4	4,232	10	42,320	
<b>viii)</b>	<b>Mineragraphic Studies (Surface &amp; Bh Core Samples)</b>						
a	Preparation of polished section	Nos	4.3.2	1,549	10	15,490	
b	Study of Polished Section	Nos	4.3.4	4,232	10	42,320	
c	Digital Photographs	Nos	4.3.7	280	20	5,600	
<b>ix)</b>	<b>Specific Gravity Determination</b>						
	Specific Gravity Determination	No.	4.8.1	1,605	10	16,050	
						<b>Sub Total- F</b>	<b>15,26,650</b>
<b>G</b>	<b>Total A to F</b>						<b>1,87,24,760</b>
<b>H</b>	<b>Geological Report Preparation</b>	5 Hard copies with a soft copy	5.2	For the projects having cost more than Rs. 300 lakhs - A minimum of Rs. 9 lakhs or 3% of the value of work whichever is more subject to Max. Rs. 20 lakhs		5,61,743	Reimbursement will be made after submission of the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
<b>I</b>	<b>Peer review Charges</b>		As per EC decision			10,000	
<b>J</b>	<b>Preparation of Exploration Proposal (5 Hard copies with a soft copy)</b>	5 Hard copies with a soft copy	5.1	2% of the Cost or Rs. 3.8 Lakhs whichever is lower		3,80,000	will be reimbursed after submission of the Hard Copies and the soft copy of the final proposal along with Maps and Plan as suggested by the TCC-NMET in its meeting while clearing the proposal.

<b>K</b>	<b>Total Estimated Cost without GST</b>	<b>1,96,76,503</b>	
<b>L</b>	<b>Provision for GST (18% of L)</b>	<b>35,41,771</b>	GST will be reimbursed as per actual and as per notified prescribed rate
<b>M</b>	<b>Total Estimated Cost with GST</b>	<b>2,32,18,273</b>	<b>or say Rs. 232.19 Lakh</b>

*Note - If any part of the project is outsourced, the amount will be reimbursed as per the Paragraph 3 of NMET SoC and Item no. 6 of NMET SoC. In case of execution of the project by NEA on its own, a Certificate regarding non outsourcing of any component/project is required.*

**Annexure-8B**

**Schedule timeline for Preliminary exploration (G3) for Basemetal (Cu, Pb, Zn) in Chintakuntala block (5.00 sq. km), District: Nalgonda, Telangana.**

S. No.	Activities	MONTHS													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Camp Setting	█													
2	Ground Geophysical Survey		█	█	█	█	█								
3	Geophysicist days (HQ)														
4	Trenching work				█	█	█								
5	Core Drilling (2 rigs)														
6	Borehole Geophysical Studies		█	█	█	█	█								
7	Survey days		█	█	█	█	█								
8	Geologist days for field		█	█	█	█	█								
9	Geophysicist days for Geophysical survey														
10	Sampling days, Core Sampling														
11	Camp Winding														
12	Laboratory Studies														
13	Geologist days at HQ														
14	Report Writing														
15	Peer Review														

Review

NOTE -1 Commencement of project may be reckoned from the day the exploration acreage is available along with all statutory clearances.  
 2 Time loss on account of monsoon/agricultural activity/forest clearance/local law & order problem/ lockdown etc. will be additional to above time line.

*[Signature]*  
08/09/2022

*[Signature]*  
08/07/22