**Ministry of Mines**
**National Mineral Exploration Trust**

**Minutes of the 39th Technical-cum-Cost Committee (TCC) meeting held on 29th and 30th March 2022 through videoconferencing at Geological Survey of India, DGCO, A-II Pushpa Bhawan, New Delhi**

The 39th 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 29th and 30th March 2022 at GSI, DGCO, A-II Pushpa Bhawan, New Delhi through videoconferencing. 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 briefly outlined the project proposals submitted by EAs on various mineral commodities. A total of eleven (11) [MECL (9) and DGM, Jharkhand (2)] new project proposals were discussed in the meeting and three ongoing projects were reviewed.

Shri Amit Saran, Director NMET welcomed the participants and conveyed that a total of 32 projects with an estimated cost of Rs. 748.22 crore has been approved during the current financial year (FY: 2021-22). It is expected that some of these projects will be converted into auctionable block and will enhance the pace of exploration and mining in the country.

Shri Janardan Prasad, ADG, GSI, and Chairman, TCC also welcomed the TCC members and other participants from various EAs. He expressed his satisfaction that out of 200 mineral exploration projects approved through NMET funding for exploration, a total of 18 resource bearing blocks have been handed over to State Governments for auction and till March 2022, six mineral blocks, funded through NMET, have been auctioned by State Government for different commodity.

The proceeding of the meeting was initiated as per the circulated agenda.

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

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

**39.1.1. Preliminary exploration (G3) for Limestone in Periyakurichi block (1.88 sq. km) District: Ariyalur, Tamil Nadu.**

**and**

**39.1.2. Preliminary exploration (G3) for Limestone in Sendurai & Maruvathur block (1.54 sq. km) District: Ariyalur, Tamil Nadu.**

a) The above said two projects were recommended for approval of EC in 23rd TCC meeting for General exploration (G2 stage) in February, 2020 along with the comment that the



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NMET secretariat must ensure that the approval of the EC may be conveyed only after the receipt of a certificate from the DGM, Tamil Nadu stating that the block will be put to e-auction after successful completion of exploration work. However, the EC has not accorded approval citing the reason that the limestone and iron exploration proposals should not be considered for NMET funding.

b) The above two project proposals (for G3 stage) were also discussed in 34th TCC meeting held in October, 2021 wherein the committee opined that these proposals may be fit for auctioning of Composite License (CL), however, if further exploration is warranted, a written consent /request from the State Government may be submitted to NMET.

c) In reference to OM dated 24.08.2021 of NMET, it has been reiterated that the proposals for exploration of minerals with bedded deposits will only be considered up to G3 level by NMET on the recommendation of the State Government of Tamil Nadu. Mineral exploration for limestone and Iron ore exploration may be considered up to G3 level through NMET fund for considering the requisite demand and availability, on request of the State Government.

d) Now, MECL has resubmitted the proposals for consideration of NMET funding after seeking approval from State Government of Tamil Nadu. The DGM, Tamil Nadu vide letter dated 25.2.2022 has accorded permission to MECL to place the proposals for the above said two blocks before the NMET for taking up G3 Level exploration after detailed field study and by referring to the concerned geological reports.

e) DGM, Tamil Nadu informed that the blocks are required to be explored up to G3 level before auctioning. In view of this, the committee considered the proposals for discussion.

f) The committee suggested taking up the preliminary exploration (G3 stage) with geological mapping (1: 4,000 scale), 400m drilling (5 boreholes), and collection of 200 samples in each of the projects. The five boreholes will be planned to form a polygon covering the entire block area of each block.

***The committee recommended the proposal for approval by EC for***

***(a) Preliminary exploration (G3) for Limestone in Periyakurichi block (1.88 sq. km) District: Ariyalur, Tamil Nadu with an estimated cost of Rs. 96.37 Lakhs including GST in time schedule of 8 months for carrying out the proposed work and submission of the report as per annexure- 2A & 2B.***

***(b) Preliminary exploration (G3) for Limestone in Sendurai & Maruvathur block (1.54 sq. km) District: Ariyalur, Tamil Nadu with an estimated cost of Rs. 95.74 Lakhs including GST in time schedule of 7 months for carrying out the proposed work and submission of the report as per annexure- 3A & 3B.***

**39.1.3. Preliminary exploration (G3) for Potash in Lakhasar East block, Lakhasar-Sub Basin, North Western Part of Rajasthan, District: Bikaner, Rajasthan.**

a) It has been submitted that the G3 stage exploration in the Lakhasar block has been carried out by MECL through NMET funding and total 14 co-relatable potash zones and eleven local zones have been identified. Among all these potash zones K1A1, K2A,

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K2A1, K2A2, K2C, K2C1, and K2C2 are well developed. The Potash zone (K2C) is most prominent, persistent, and potential and occurring in halite cycle H2.

b) MECL has conveyed that the halite cycle with an approximate thickness of 120m has been observed in the adjoining Lakhasar block and it is expected that a similar halite cycles and the potash zones are may be found in continuity and consistency throughout the Lakhasar sub-basin. Keeping this in view, MECL has proposed to take up G3 stage exploration in the Lakhasar East block in the eastern side of the Lakhasar block.

c) The committee reviewed the findings of the Lakhasar block and after detailed deliberations, it has been decided that the project may be taken up in the Lakhasar East block (7.16 sq. km) with 7700m drilling in 11 boreholes, as per the boreholes plan, to establish the continuity of Potash bands.

d) It has been decided that the dual-density and neutron logging will be carried out for five boreholes (3500m). The project will be reviewed after completion of six boreholes in the seventh month.

***The committee recommended the proposal for approval by EC for Preliminary exploration (G3) for Potash in Lakhasar East block, Lakhasar-Sub Basin, North Western Part of Rajasthan, District: Bikaner, Rajasthan with an estimated cost of Rs. 1550.68 Lakhs including GST in the time schedule of 18 months for carrying out the proposed work and submission of the report as per annexure- 4A & 4B.***

**39.1.4. Reconnaissance survey (G4) for Nickel, Copper and associated minerals in Dhans-Kumarwara-Murum block (132.00 sq. km), District: Rajnandgaon, Chhattisgarh.**

a) The project proposal was discussed in 36th TCC meeting held in December 2021 wherein the Committee suggested resubmitting the proposal after receiving necessary forest permissions in the next TCC meeting. Now MECL has submitted the consent letter dated 3.2.2022 of the forest department, Khairagarh, District: Rajnandgaon, Chhattisgarh.

b) Geologically the area is exposed by the metasedimentary [phyllites, quartzites, feldspathic grits, and sandstones] and metevolcanic [rhyolites, andesites, and associated tuffs] sequences.

c) The area has been subjected to intense shearing. The shear zones are usually trending N-S direction, vary in length from about 100m in Dhans area to about 3 km in Kumarwara area and in width from a few metres to 500m.

d) It has been submitted that the regional stream sediment survey was carried out by GSI during Field Season: 1975-1977 in the Malanjkhand extension area, central block, District: Rajnandgaon and it was recommended that the anomaly zones near Dhans, Kumarwara and Murum may further be investigated in detail for nickel and copper mineralization.

e) MECL has demarcated an anomalous zone for copper in west of Murum (21°53':80°52') and two anomalous zones for nickel near Dhans (21°40':80°45') and Kumarwara (21°37':80°50') on the basis of statistical analyses of 521 stream sediment samples, collected by GSI.

f) After detailed deliberations, the Committee opined that a smaller area (52.00 sq. km) exposing metavolcanic and metasedimentary rocks and represented by significant zones for copper and nickel mineralisation may be taken up for reconnaissance survey. The project may be taken up by implementing geological mapping (1: 12,500 scale) and sample collection at 400m x 400m grid pattern. Outcome of the work will be reviewed after five months.

g) The Committee suggested modifying the title of the block by incorporating the locality names falling within the proposed block.

***The committee recommended the proposal for approval by EC for Reconnaissance survey (G4) for Nickel, Copper, and associated minerals in Salewara-Kumarwara-Murum block (52.00 sq. km), District: Rajnandgaon, Chhattisgarh with an estimated cost of Rs. 38.68 Lakhs including GST in the time schedule of 9 months for carrying out the proposed work and submission of the report as per annexure- 5A & 5B.***

**39.1.5. Preliminary exploration (G3) for phosphorite in Pahadi Kalan-Gora Kalan block, District: Lalitpur, Uttar Pradesh.**

a) The proposed block preliminary exploration (G3) for phosphorite in Pahadi Kalan-Gora Kalan block, was discussed in 37th meeting of TCC in January 2022 wherein the MECL had proposed to take up a reconnaissance survey (G4 stage). The proposal was recommended for approval of the Executive Committee, NMET. The EC in its 23rd meeting suggested taking up a G3 stage project after incorporating all available geological data as the adjacent Sonrai block was sufficiently explored up to the G2 stage. Now, MECL has submitted the project for preliminary exploration (G3).

b) DGM, UP informed that sufficient bidders may not participate, if the block is placed for Composite License (CL) auctioning, however, blocks can be suitably auctioned for Mining Lease (ML) after sufficient exploration and estimation of the resource.

c) It is pertinent to mention that the Sonrai Formation which is divisible into Barwar, Gorakalan, Tori, and Rohini members is the target zone for phosphorite occurrences. The Chert breccia is the well established potential lithological horizon for Phosphorite mineralisation in Sonrai Formation and a phosphate resource of 16.52 MT, with average grade of 14.24% $P_2O_5$, was estimated by MECL in Tori-Pisnari block which is located in the eastern side of the proposed block.

d) Keeping the above in view the committee reconsidered the proposal and suggested taking up the preliminary exploration project by implementing 11 boreholes at 800m interval. The outcome of the project will be reviewed after six months.

***The committee recommended the proposal for approval by EC for Preliminary exploration (G3) for phosphorite in Pahadi Kalan-Gora Kalan block, District: Lalitpur, Uttar Pradesh with an estimated cost of Rs. 361.50 Lakhs including GST in the time schedule of 12 months for carrying out the proposed work and submission of the report as per annexure- 6A & 6B.***

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**39.1.6. Reconnaissance survey (G4) for Graphite and Manganese in Salepali block (23.00 sq. km) District: Balangir, Odisha.**

a) The proposed exploration block lies in the northern part of the Eastern Ghats Super Group of rocks belonging to the meta sedimentary sequence of Precambrian Khondalite. The sequences are represented by Khondalite, Quartzite, and Calc-silicate rocks and have been intruded by granites.

b) It has been submitted that the graphite mineralization is restricted to the Khondalite suite and its migmatized equivalents. In surface manifestation, the graphite is crystalline and flaky in nature and occurs in a disseminated state with varying proportions, especially in quartz-feldspar-garnet-sillimanite-graphite schist. The manganese ore bodies occur as bands, lenses, pockets, veins, tabular bodies, and disseminations within the Khondalite group of rocks.

c) During the Field Season: 1968-69, GSI had carried out investigation for graphite in parts of Titlagarh, Sadar, and Patnagarh Sub-Division, District: Balangir, Odisha and reported manganese occurrences in the eastern side of Salepali village. GSI had also reported flaky nature of graphite with flakes size varying from 1cm to 0.5cm.

d) During FS: 1984-85, GSI GSI has already carried out geological mapping on 1:12,500 scale over 160.00 sq. km area along with 700m drilling in Salepali and Turekela areas of Balangir district, Orissa, wherein GSI has delineated an East-West trending potential graphite zone between Niljibahal and Rahenmal, which is the continuation of Sargimunda-Tara tract.

e) GSI, Eastern Region has submitted that the proposed block has already been explored for G4 level of investigation for graphite, hence similar kind of exploration may be duplication of the work in the same area.

f) The committee suggested not to take up the project to avoid duplication.

***Based on deliberations the committee suggested not to take up the Reconnaissance survey (G4) for Graphite and Manganese in Salepali Block (23.00 sq. km) District: Balangir, Odisha to avoid any duplication of exploration work.***

**39.1.7. General exploration (G2) for Manganese Ore in Tabalbanji block (1.52 sq. km), District: Balangir, Odisha.**

**and**

**39.1.8. General exploration (G2) for Manganese Ore in Khagsabahal (East and West) block (0.98 sq. km), District: Balangir, Odisha.**

a) The proposed two manganese blocks [Tabalbanji and Khagsabahal (East and West) block] were discussed in 31st TCC meeting in July, 2021 wherein DGM, Odisha had conveyed that the proposed two blocks are suitable for auctioning however, a final decision will be taken after deliberation in the State Expert Committee (SEC).

b) The above two projects were again discussed in 37th TCC meeting held in January 2022 wherein it was reiterated that for basemetals and other minerlas, in view of the option of conducting auction of blocks at G4 level for Composite License, proposals for funding from NMET for exploration up to G2 level may be considered only on recommendations



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of state government, after the state government has considered the possibility of auction of the block for Composite License.

c) In 37th TCC meeting, the committee has differed to discuss these two proposals and suggested to send the consent letter to NMET. So far, NMET has not received any consent from State Government of Odisha for consideration of proposals for G2 stage of exploration.

d) Now, MECL has again submitted the proposal for consideration of TCC.

***The Committee again deffered to discuss the proposals as the consent /request of the State Government of Odisha in accordance with the OM dated 24.08.2021 of NMET is yet to be received in NMET.***

**39.1.9. Reconnaissance survey (G4) for Copper, Lead, Zinc and Gold in Tarichar Khurd block (101.00 sq. km), District: Niwari, Madhya Pradesh. [Discussed in 38th TCC meeting]**

a) The proposal was discussed in the 38th TCC meeting wherein the committee has reserved its decision for want of clarification on the background information, geological milieu, and analytical results.

b) It is prudent to mention that a similar project titled "Reconnaissance survey (G4) for Copper, Lead, Zinc and Gold in Sanori block, District: Lalitpur, Uttar Pradesh" was discussed during the 36th TCC meeting wherein the committee suggested not to take up the said project for G4 exploration as the analytical results do not help in launching it.

c) In view of the above, the committee suggested to collect some of the samples (say 10 samples) from the proposed area and analyze them at the laboratory of MECL. In case of encouraging values, the project may be resubmitted in the next TCC.

***The committee suggested resubmitting the proposal after incorporating analytical results, in case encouraging values are recorded through sample analyses at the laboratory of MECL.***

**39.1.10. General exploration (G2) for Graphite in Purnadih block (0.37 sq. km), District: Palamu, Jharkhand.**

a) DGM, Jharkhand submitted the proposal for general exploration (G2) for graphite in Purandih block (0.37 sq. km), Palamu district, Jharkhand.

b) The project proposal was sent to GSI for their considered comments. It was informed that GSI has carried out Reconnaissance survey (G4) for graphite in proposed block of DMG, Jharkhand during FS: 2021-22 [item no. M2ASMIF-MEP/NC/ER/SU-JH/2021 /38273]. GSI conveyed that the proposal is for General exploration (G2) for graphite exploration in potential zone and may be taken up by DGM, Jharkhand.

c) The DGM, Jharkhand conveyed that mineral exploration work has already been started and 18 boreholes have been drilled through internal resources of State Government.

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d) The committee opined that the exploration has been initiated and is in progress as per their pre-scheduled field season program, it may not be evaluated at this stage.

***In view of this, the committee suggested completing the ongoing project with their internal resources as at this stage proposal can't be evaluated for NMET funding and funding can be sought before initiation of the project.***

**39.1.11. Preliminary exploration (G3) for Graphite in Sikat block (1.00 sq. km), District: Garhwa, Jharkhand.**

a) DGM, Jharkhand submitted the proposal for preliminary exploration (G3) for graphite in Sikat block (1.00 sq. km) Garhwa district, Jharkhand.

b) The project proposal was sent to GSI for their considered comments. In response to this GSI has conveyed that exploration work has been carried out for G4 stage during FS: 2019-20 for graphite and vanadium.

c) Based on G4 stage of exploration, GSI has upgraded the block for G3 stage of exploration for graphite and vanadium and approved during in 61st CGPB meeting for implementation during FS: 2022-23 [M2ASMIF-MEP/NC/ER/SU-JH/2022/39902].

d) The proposed block of DMG, Jharkhand entirely overlaps with the G3 item of GSI for graphite and vanadium.

e) It is pertinent to mention that the G3 project of GSI is the culmination of the G4 stage project of graphite taken up by GSI during FS: 2019-20.

f) The committee observed that since GSI has already taken approval of 61st CGPB for implementation of G3 stage project in the said block, it may be appropriate to allow GSI to take up the project as per their schedule.

***Keeping the above in view, the committee suggested not to take up the proposal to avoid duplication work, efforts and resources.***

**39.2. Review of the ongoing projects**

**39.2.1. General exploration (G2) for copper in Tonda block, Eastern Khetri Copper Belt, District: Jhunjhunu, Rajasthan.**

a) The project was recommended in 24th TCC meeting held on 07th, 08th and 09th October, 2020 with estimated cost of Rs. 650.39 Lakh & with timeline of 14 months and approved in 17th EC meeting held on 05th November, 2020.

b) Drilling meterage has been revised in 30th TCC held on 8th and 9th June, 2021 and additional 245m of drilling in 18 boreholes (total drilling meterage of 3795.00m) has approved with additional cost of Rs. 38,36,740/-.

c) MECL informed that exploration work has been completed, Beneficiation studies under progress and geological report is under preparation.

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d) It was informed that additional drilling of 8.5m, geophysical borehole logging (253.5m) and 79 samples have been carried out with estimated cost of Rs. 5,75,132/-. For submission of geological report timeline extension is required till 30th June, 2022.

e) The committee suggested to complete the beneficiation studies and submit the geological report.

***The Committee approved the additional drilling, geophysical borehole logging and samples with estimated codt of Rs. 5,75,132/- (Annexure- 7) and recommended for approval by EC for timeline extension upto 30th June, 2022.***

**39.2.2. General exploration (G2) for Copper in Naila Ki Dhani Copper Block, Eastern Khetri Copper Belt, District- Jhunjhunu, Rajasthan.**

a) The project was recommended in 24th TCC meeting held on 07th, 08th and 09th October, 2020 with estimated cost of Rs. 807.59 Lakh & timeline of 16 months and approved in 17th EC meeting held on 05th November, 2020.

b) MECL informed that exploration work has been completed, Beneficiation studies under progress and geological report is under preparation. For submission of geological report timeline extension is required till 31st July, 2022.

c) The committee suggested to complete the beneficiation studies and submit the geological report.

***The Committee recommended for approved by EC for timeline extension upto 31st July, 2022.***

**39.2.2. Reconnaissance survey (G4) for copper in Mincheri Block (81.615 sq. km), District: Ballari, Karnataka.**

a) The project was recommended in 29th TCC meeting held on 11th and 12th March, 2022 with estimated cost of Rs. 203.48 Lakh in time schedule of 12 months and approved in 20th EC meeting held on 24th June, 2021.

b) MECL informed that the exploration work has been completed and chemical analysis is under progress, so all the chemical data is not available. It was requested that after completed all the chemical anlysis, it will be reviewed in next TCC meeting.

c) The committee suggested to integrate all the geological mapping, surface sampling, chemical analysis and boreholes data so that in nect TCC meeting, it will be reviewed.

**The committee noted the progress of exploration work and informed MECL that review will be done in next TCC meeting.**

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



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**List of TCC members attended 39th Technical-cum-Cost Committee (TCC) meeting of NMET held on 29th and 30th March 2022 through videoconferencing**

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

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**Annexure-1**

**List of participants attended 39th Technical-cum-Cost Committee (TCC) meeting of NMET held on 29th and 30th March, 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 Naeem Ahmed, EM (Retd.), CMPDI | ahmadnaeem17@yahoo.co.in | 8588092153 | Member, TCC |
| 4 | Dr. Anjani Kumar, DGM (Retd.), MECL | anjanikumar1957.ak@gmail.com | 9975350576 | Member, TCC |
| 5 | Shri Hemraj Suryavanshi, DDG and NMH-II, GSI | hem.raj@gsi.gov.in | 7477042176 | 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 Amit Saran, Director, NMET | amit.saran@nic.in | 9717647259 | Member, TCC |
| 9 | Shri Suresh Chander, Director, GSI | suresh.chander@gsi.gov.in | 9493860963 | Member Secretary, TCC |
| 10 | Shri P. K. Maharana, DGM (F), NALCO | pmaharana@rediffmail.com | 8500669500 | Member, TCC |
| 11 | Shri Vinay Pal ACAO, (Finance), GSI | vinay.pal@gsi.gov.in | 8527368161 | Member, TCC |
| 12 | Dr. Deshraj Trivedi, Senior Geologist | nmet-tcc@gov.in | 9419244294 | NMET |
| 13 | Shri Subhash Kumar, Senior Geologist | nmet-mines@gov.in | 9868302624 | NMET |
| 14 | Shri P. Ravindran, DGM (Exploration) | gm-exploration@mecl.co.in | 7907649392 | MECL, Nagpur |
| 15 | Shri V. K. Ojha Director (Geology) | dir-geology@jharkhandmail.gov.in | | DGM, Jharkhand |
| 16 | DGM representative | tndgmnmet@gmail.com | | DGM, Tamil Nadu |
| 17 | Shri Alok Prakash Jain, Suptdg. Geologist, Jaipur | supgeo.jaipur@rajasthan.gov.in | 9413301260 | DGM, Rajasthan |
| 18 | Mr. Kailash Dongre, Joint Director (Geology) | kailashdongre.kd@gmail.com | 9424282791 | DGM, Chhattisgarh |
| 19 | DGM representative | dgmupexp@gmail.com; | | DGM, UP |
| 20 | Shri P. C. Mishra, Joint Director (Geology) | directorgeology_odisha@yahoo.in | 9861465695 | DGM, Odisha |

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**Annexure-2A**

**Estimated cost for Preliminary exploration (G3) for Limestone in Periyakurichi block (1.88 sq. km) District: Ariyalur, Tamil Nadu.**

**[Block area- 1.88 sq. km; Nos. of Borehole- 5; Borehole depth range- upto 80m; Schedule timeline- 8 months]**

| S. No. | Item of Work | Unit | Rates as per NMET SoC 2020-21 | | Estimated Cost of the Proposal | | Remarks |
|---|---|---|---|---|---|---|---|
| | | | SoC-Item - Sl No. | Rates as per SoC | Qty. | Total Amount (Rs) | |
| A | **GEOLOGICAL WORK** | | | | | | |
| 1 | **Mapping, Borhole logging & Sampling & Report writing** | | | | | | |
| a | Charges for one Geologist per day at HQ | day | 1.3 | 9,000 | 60 | 5,40,000 | |
| b | Charges for one Geologist per day at field | day | 1.3 | 11,000 | 90 | 9,90,000 | |
| c | Labour for Geologist (2 Nos) Base rate – 431/- | day | 5.7 | 431 | 180 | 77,580 | Amount will be reimburse as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher |
| d | Charges for one Sampler per day (1 Party) | one sampler per day | 1.5.2 | 5,100 | 25 | 1,27,500 | |
| e | Labours for sampling work (4 Nos) Base rate - Rs. 431 | day | 5.7 | 431 | 100 | 43,100 | Amount will be reimburse as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher |
| 2 | **Survey (on 1:4000 Scale)** | | | | | | |
| a | Bore Hole Fixation and determination of co-ordinates & Reduced Level cf the boreholes and block cardinal pcints by DGPS | Per Point of observation | 1.6.2 | 19,200 | 56 | 10,75,200 | Block cardinal point- 50<br>Borehole- 5, 1 base station |
| b | Charges for Surveyor | one surveyor per day | 1.6.1a | 8,300 | 30 | 2,49,000 | |
| c | Labours (4 Nos) Base rate - Rs. 431 | day | 5.7 | 431 | 120 | 51,720 | Amount will be reimburse as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher |
| | | | | | **Sub Total- A** | **31,54,100** | |



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|---|---|---|---|---|---|---|---|
| **B** | **DRILLING** | | | | | | |
| 1 | Drilling -Soft rock | m | 2.2.1.1b | 5,242 | 400 | 20,96,800 | |
| 2 | Land / Crop Compansation (in case the BH falls in agreecultural Land) | per BH | 5.6 | 20,000 | 5 | 1,00,000 | Amount will be reimburse as per actuals or max. Rs. 20000 per BH with certification from local authorities |
| 3 | Construction of concrete Pillar (12"x12"x30") | per borehole | 2.2.7a | 2,000 | 5 | 10,000 | |
| 4 | Transportation of Drill Rig & Truck associated per drill | Km | 2.2.8 | 36 | 3,000 | 1,08,000 | Certification in this regard is required to be provided |
| 5 | Monthly Accomodation Charges for drilling Camp (up to 2 Rigs) | month | 2.2.9 | 50,000 | 3 | 1,50,000 | |
| 6 | Drilling Camp Setting Cost | Nos | 2.2.9a | 2,50,000 | 1 | 2,50,000 | Certification in this regard is required to be provided |
| 7 | Drilling Camp Winding up Cost | Nos | 2.2.9b | 2,50,000 | 1 | 2,50,000 | |
| 8 | Road Making (Flat Terrain) | Km | 2.2.10a | 22,020 | 3 | 66,060 | Road Making will be considered as per the requirement and Road Making Charges will be reimbursed for max. 3 km. |
| 9 | Drill Core Preservation | per m | 5.3 | 1,590 | 200 | 3,18,000 | This amount will be reimbursed after successful delivery of the cores to concerned libraries/authorities |
| | | | | | **Sub Total- B** | **33,48,860** | |
| **C** | **LABORATORY STUDIES** | | | | | | |
| **1** | **Chemical Analysis** | | | | | | |
| **i)** | **Primary samples** | | | | | | |
| | a. For 6 radicals i.e. CaO, MgO, $Al_2O_3$, $SiO_2$, $Fe_2O_3$ and LOI | Nos | 4.1.15a | 4,200 | 200 | 8,40,000 | |
| **ii)** | **Check samples Internal (5%) and External(10%)** | | | | | | |
| | a. For 6 radicals i.e. CaO, MgO, $Al_2O_3$, $SiO_2$, $Fe_2O_3$ and LOI | Nos | 4.1.15a | 4,200 | 30 | 1,26,000 | |
| **iii)** | **Composite Samples** | | | | | | |
| | a) For 12 radicals (CaO, MgO, $Al_2O_3$, $SiO_2$, $Fe_2O_3$, $SO_3$, $P_2O_5$ , LOI, $MnO_2$, $K_2O$, $Na_2O$ and Cl.) | Nos | 4.1.15a | 4,200 | 25 | 1,05,000 | |
| **iv)** | **Petrological samples (Bh Core Samples)** | | | | | | |
| i | Preparation of thin section | Nos | 4.3.1 | 2,353 | 5 | 11,765 | |
| ii | Study of Thin Section | Nos | 4.3.4 | 4,232 | 5 | 21,160 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| iii) | Photmicrographs | Nos | 4.3.7 | 280 | 5 | 1,400 | |
| v) | **Specific Gravity Determination** | | | | | | |
| | Specific Gravity Determination | No. | 4.8.1 | 1,605 | 5 | 8,025 | |
| | | | | | **Sub Total- C** | **11,13,350** | |
| D | | | | | **Sub Total (A to C)** | **76,16,310** | |
| E | **Geological Report Preparation** | | **5.2 (ii)** | For the projects exceeding Rs. 50 Lakhs but less than 150 Lakhs: A Minimum of Rs. 7.5 lakhs or 5% of the work whichever is more | | **3,80,816** | EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET. |
| F | **Preparation of Exploration Proposal (5 Hard copies with a soft copy)** | 5 Hard copies with a soft copy | **5.1** | 2% of the Cost or Rs. 3.8 Lakhs whichever is lower | | **1,59,943** | 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. |
| G | **Peer review Charges** | | **As per EC decision** | | | **10,000** | |
| H | **Total Estimated Cost without GST** | | | | | **81,67,068** | |
| I | **Provision for GST (18% of H)** | | | | | **14,70,072** | GST will be reimburse as per actual and as per notified prescribed rate |
| J | **Total Estimated Cost with GST** | | | | | **96,37,140** | ***Or say Rs. 96.37 Lakh*** |

***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 execusion of the project by NEA on its own, a Certifiate regarding non outsourcing of any component/project is required.***

Annexure-2B

Schedule timeline for Preliminary exploration (G3) for Limestone in Periyakurichi block (1.88 sq. km) District: Ariyalur, Tamil Nadu.

| S. No. | Activities | Unit | MONTHS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | Camp Setting | Month | | | | | | | | |
| 2 | Surface Drilling (1 rig) | m. | | | | | | | | |
| 3 | Survey Party days | day | | | | | | | | |
| 4 | Geologist days in field | day | | | | | | | | |
| 5 | Sampling days | day | | | | | | | | |
| 6 | Laboratory Studies | Nos. | | | | | | | | |
| 7 | Camp Winding | Month | | | | | | | | |
| 8 | Geologist days in HQ | day | | | | | | | | |
| 9 | Geological Report Writing with Peer Review | Month | | | | | | | | |
| 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 may be additional to above time line. | | | | | | | | | | |

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**Annexure-3A**

**Estimated cost for Preliminary exploration (G3) for Limestone in Sendurai & Maruvathur block (1.54 sq. km) District: Ariyalur, Tamil Nadu.**

**[Block area- 1.54 sq. km; Nos. of Borehole- 5; Borehole depth range- upto 80m; Schedule timeline- 7 months]**

| S. No. | Item of Work | Unit | Rates as per NMET SoC 2020-21 | | Estimated Cost of the Proposal | | Remarks |
|---|---|---|---|---|---|---|---|
| | | | SoC-Item - Sl No. | Rates as per SoC | Qty. | Total Amount (Rs) | |
| A | **GEOLOGICAL WORK** | | | | | | |
| 1 | **Mapping, Borhole logging & Sampling & Report writing** | | | | | | |
| a | Charges for one Geologist per day at HQ | day | 1.3 | 9,000 | 60 | 5,40,000 | |
| b | Charges for one Geologist per day at field | day | 1.3 | 11,000 | 90 | 9,90,000 | |
| c | Labour for Geologist (2 Nos) Base rate – 431/- | day | 5.7 | 431 | 180 | 77,580 | Amount will be reimburse as per the notified rates 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 | 25 | 1,27,500 | |
| e | Labours for sampling work (4 Nos) Base rate - Rs. 431 | day | 5.7 | 431 | 100 | 43,100 | Amount will be reimburse as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher |
| 2 | **Survey (on 1:4000 Scale)** | | | | | | |
| a | Bore Hole Fixation and determination of co-ordinates & Reduced Level of the boreholes and block cardinal points by DGPS | Per Point of observation | 1.6.2 | 19,200 | 56 | 10,75,200 | Block cardinal point- 51<br>Borehole- 5 |
| b | Charges of one Surveyor (1 Party) | one surveyor per day | 1.6.1a | 8,300 | 25 | 2,07,500 | |
| c | Labours (4 Nos) Base rate - Rs. 431 | day | 5.7 | 431 | 100 | 43,100 | Amount will be reimburse as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher |
| | | | | | **Sub Total- A** | **31,03,980** | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **B** | **DRILLING** | | | | | | |
| 1 | Drilling -Soft rock | m | 2.2.1.1b | 5,242 | 400 | 20,96,800 | |
| 2 | Land / Crop Compansation (in case the BH falls in agreecultural Land) | per BH | 5.6 | 20,000 | 5 | 1,00,000 | Amount will be reimburse as per actuals or max. Rs. 20000 per BH with certification from local authorities |
| 3 | Construction of concrete Pillar (12"x12"x30") | per borehole | 2.2.7a | 2,000 | 5 | 10,000 | |
| 4 | Transportation of Drill Rig & Truck associated per drill | Km | 2.2.8 | 36 | 3,000 | 1,08,000 | Certification in this regard is required to be provided |
| 5 | Monthly Accomodation Charges for drilling Camp (up to 2 R gs) | month | 2.2.9 | 50,000 | 3 | 1,50,000 | |
| 6 | Drilling Camp Setting Cost | Nos | 2.2.9a | 2,50,000 | 1 | 2,50,000 | Certification in this regard is required to be provided |
| 7 | Drilling Camp Winding up Cost | Nos | 2.2.9b | 2,50,000 | 1 | 2,50,000 | |
| 8 | Road Making (Flat Terrain) | Km | 2.2.10a | 22,020 | 3 | 66,060 | Road Making will be considered as per the requirement and Road Making Charges will be reimbursed for max. 3 km. |
| 9 | Drill Core Preservation | per m | 5.3 | 1,590 | 200 | 3,18,000 | This amount will be reimbursed after successful delivery of the cores to concerned libraries/authorities |
| | | | | | **Sub Total- B** | **33,48,860** | |
| **C** | **LABORATORY STUDIES** | | | | | | |
| **1** | **Chemical Analysis** | | | | | | |
| **i)** | **Primary samples** | | | | | | |
| | a. For 6 radicals i.e. CaO, MgO, $Al_2O_3$, $SiO_2$, $Fe_2O_3$ and LOI | Nos | 4.1.15a | 4,200 | 200 | 8,40,000 | |
| **ii)** | **Check samples Internal (5%) and External(10%)** | | | | | | |
| | a. For 6 radicals i.e. CaO, MgO, $Al_2O_3$, $SiO_2$, $Fe_2O_3$ and LOI | Nos | 4.1.15a | 4,200 | 30 | 1,26,000 | |
| **iii)** | **Composite Samples** | | | | | | |
| | a) For 12 radicals (CaO, MgO, $Al_2O_3$, $SiO_2$, $Fe_2O_3$, $SO_3$, $P_2O_5$ , LOI, $MnO_2$, $K_2O$, $Na_2O$ and Cl.) | Nos | 4.1.15a | 4,200 | 25 | 1,05,000 | |



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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| iv) | **Petrological samples ( Bh Core Samples)** | | | | | | |
| i | Preparation of thin section | Nos | 4.3.1 | 2,353 | 5 | 11,765 | |
| ii | Study of Thin Section | Nos | 4.3.4 | 4,232 | 5 | 21,160 | |
| iii) | Photmicrographs | Nos | 4.3.7 | 280 | 5 | 1,400 | |
| v) | **Specific Gravity Determination** | | | | | | |
| | Specific Gravity Determination | No. | 4.8.1 | 1,605 | 5 | 8,025 | |
| | **Total - C** | | | | | **11,13,350** | |
| D | **Sub Total (A to C)** | | | | | **75,66,190** | |
| E | **Geological Report Preparation** | 5 Hard copies with a soft copy | **5.2** | For the projects exceeding Rs. 50 Lakhs but less than 150 Lakhs: A Minimum of Rs. 2.5 lakhs or 5% of the work whichever is more | | **3,78,310** | EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET. |
| F | **Preparation of Exploration Proposal (5 Hard copies with a soft copy)** | 5 Hard copies with a soft copy | **5.1** | 2% of the Cost or Rs. 3.8 Lakhs whichever is lower | | **1,58,890** | 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. |
| G | **Peer review Charges** | | **As per EC decision** | | | **10,000** | |
| H | **Total Estimated Cost without GST** | | | | | **81,13,389** | |
| I | **Provision for GST (18% of H)** | | | | | **14,60,410** | GST will be reimburse as per actual and as per notified prescribed rate |
| J | **Total Estimated Cost with GST** | | | | | **95,73,800** | ***Or Say Rs. 95.74 Lakh*** |
| ***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 execusion of the project by NEA on its own, a Certifiate regarding non outsourcing of any component/project is required.*** | | | | | | | |

Annexure-3B

Schedule timeline for Preliminary exploration (G3) for Limestone in Sendurai & Maruvathur block (1.54 sq. km) District: Ariyalur, Tamil Nadu.

| S. No. | Activities | Unit | MONTHS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | Camp Setting | Month | | | | | | | |
| 2 | Surface Drilling (1 rig) | m. | | | | | | | |
| 3 | Survey Party days | day | | | | | | | |
| 4 | Geologist days in field | day | | | | | | | |
| 6 | Sampling days | day | | | | | | | |
| 7 | Laboratory Studies | Nos. | | | | | | | |
| 8 | Camp Winding | Month | | | | | | | |
| 5 | Geologist days in HQ | day | | | | | | | |
| 9 | Geological Report Writing with Peer Review | Month | | | | | | | |
| 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 may be additional to above time line. | | | | | | | | | |

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**Annexure-4A**

**Estimated cost for Preliminary exploration (G3) for Potash in Lakhasar East block, Lakhasar-Sub Basin, North Western Part of Rajasthan, District: Bikaner, Rajasthan.**

**[Block area- 7.16 sq. km; Nos. of Borehole- 11; Borehole depth range- 685m to 710m; Schedule timeline- 18 months]**

| S.N | Item of Work | Unit | Rates as per NMET SoC 2020-21 | | Estimated Cost of the Proposal | | Remarks |
|---|---|---|---|---|---|---|---|
| | | | SoC-Item -Sl No. | Rates as per SoC | Qty. | Total Amount (Rs) | |
| A | **GEOLOGICAL WORK** | | | | | | |
| 1 | **Borehole logging & sampling & report writing** | | | | | | |
| a | Charges for one Geologist per day at HQ | day | 1.3 | 9,000 | 60 | 5,40,000 | |
| b | Charges for Geologist party per day at field | day | 1.3 | 11,000 | 300 | 33,00,000 | |
| c | 1 party Labour (2 Nos each party) Base rate - Rs.437/- | day | 5.7 | 437 | 600 | 2,62,200 | Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher |
| d | Charges for one Sampler per day (1 Party) | one sampler per day | 1.5.2 | 5,100 | 250 | 12,75,000 | |
| e | Labours (4 Nos) Base rate - Rs. 437/- | day | 5.7 | 437 | 1,000 | 4,37,000 | Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher |
| 2 | **Survey (on 1:10000 Scale)** | | | | | | |
| a | Bore Hole Fixation and determination of co-ordinates & Reduced Level of the boreholes and Boundary points by DGPS | Per Point of observation | 1.6.2 | 19,200 | 11 | 2,11,200 | BH-11 nos., Cardinal Pt.-5nos. & Base station-1 No |
| | | | | | **Sub Total- A** | **60,25,400** | |
| B | **DRILLING** | | | | | | |
| 1 | Drilling up to 300m (Hard | m | 2.2.1.4a | 11,500 | 3,300 | 3,79,50,000 | Soc-Page No-2, Clause No. II: Note on |



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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Rock) | | | | | | Potash Drilling |
| 2 | Drilling 301 to 600 m (Hard Rock) | m | 2.2.1.4b | 12,420 | 3,300 | 4 09,86,000 | |
| | Drilling 600 to 900 m (Hard Rock) | m | 2.2.1.4c | 13,225 | 1,100 | 1 45,47,500 | |
| 3 | Borehole deviation Survey by Multishot Camera | m | 2.2.6 | 330 | 7,700 | 25,41,000 | |
| 4 | Land / Crop Compensation (in case the BH falls in agricultural Land) | per BH | 5.6 | 20,000 | 11 | 2,20,000 | Amount will be reimbursed as per actuals or max. Rs. 20000 per BH with certification from local authorities |
| 5 | Construction of concrete Pillar (12"x12"x30") | per borehole | 2.2.7a | 2,000 | 11 | 22,000 | |
| 6 | Borehole plugging by cement | m | 2.2.7b | 150 | 7,700 | 11,55,000 | |
| 7 | Transportation of Drill Rig & Truck associated per drill | Km | 2.2.8 | 36 | 7,398 | 2,66,328 | |
| 8 | Monthly Accommodation Charges for drilling Camp (For 3 Rigs 50000 + (50000 X 50%) X 1) = 75000 | month | 2.2.9 | 75,000 | 11 | 8,25,000 | |
| 9 | Drilling Camp Setting Cost | Nos | 2.2.9a | 2,50,000 | 3 | 7,50,000 | Certification in this regard is required to be provided |
| 10 | Drilling Camp Winding up Cost | Nos | 2.2.9b | 2,50,000 | 3 | 7,50,000 | |
| 11 | Road Making (Flat Terrain) | Km | 2.2.10a | 22,020 | 3 | 66,060 | Road Making will be considered as per the requirement and Road Making Charges will be reimbursed accordingly. |
| 12 | Drill Core Preservation | per m | 5.3 | 1,590 | 1,900 | 30,21,000 | This amount will be reimbursed after successful delivery of the cores to concerned libraries/authorities |
| | | | | | **Sub Total- B** | **10,30,99,888** | |
| **C** | **BOREHOLE GEOPHYSICAL LOGGING** | | | | | | |
| 1 | Dual Density | m | 3.11d | 102 | 3,500 | 3,57,000 | for 5 Bhs |
| 2 | Neutron | m | 3.11f | 74 | 3,500 | 2,59,000 | for 5 Bhs |



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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | Expert charges for Geophysicist in HQ | day | 3.18 | 9,000 | 15 | 1,35,000 | |
| 4 | Expert charges for Geophysicist in Field | day | 3.18 | 11,000 | 30 | 3,30,000 | |
| | | | | | **Sub Total- C** | **10,81,000** | |
| **D** | **LABORATORY STUDIES** | | | | | | |
| **1** | **Chemical Analysis** | | | | | | |
| **i)** | **Primary samples** | | | | | | |
| | a. Analysis of 9 radicals i.e. K, Na, Water insolubles, Mg, Cl, Br, I, Li & CaSO4 | Nos | 4.1.1 | 8,157 | 2,000 | 1,63,14,000 | |
| **ii)** | **Check samples Internal (5%) and External(10%)** | | | | | | |
| | a. Analysis of 9 radicals i.e. K, Na, Mg, Cl, Br, I, Li, CaSO4 & Water insolubles | Nos | 4.1.1 | 8,157 | 300 | 24,47,100 | |
| iii) | XRD analysis for identification of minerals (Random) | Nos | 4.5.1 | 4,000 | 10 | 40,000 | |
| **2** | **Specific Gravity Determination** | | | | | | |
| | Specific Gravity Determination | No. | 4.8.1 | 1,605 | 10 | 16,050 | |
| | | | | | **Sub Total- D** | **1,88,17,150** | |
| **E** | | | | | **Total A to D** | **12,90,23,438** | |
| **F** | **Geological Report Preparation** | 5 Hard copies with a soft copy | **5.2 (iv)** | **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 a max.** | | **20,00,000** | EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET. |



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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | **amount of Rs. 20 lakhs** | | | |
| **G** | **Peer review Charges** | | **As per EC decision** | | | **10,000** | |
| | Preparation of Exploration Proposal (5 Hard copies with a soft copy), | 5 Hard copies with a soft copy | 5.1 | 2% of the Cost or Rs. 3.8 Lakhs whichever is lower | | **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. |
| **H** | **Total Estimated Cost without GST** | | | | | **13,14,13,438** | |
| **I** | **Provision for GST (18% of G)** | | | | | **2,36,54,419** | GST will be reimbursed as per actual and as per notified prescribed rate |
| **J** | **Total Estimated Cost with GST** | | | | | **15,50,67,857** | ***Or Say Rs. 1550.68 Lakh*** |
| ***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 execusion of the project by NEA on its own, a Certifiate regarding non outsourcing of any component/project is required.*** | | | | | | | |

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**Annexure-4B**

## Schedule timeline for Preliminary exploration (G3) for Potash in Lakhasar East block, Lakhasar-Sub Basin, North Western Part of Rajasthan, District: Bikaner, Rajasthan.

| S. No. | Activities | Unit | MONTHS | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 1 | Camp Setting | day | | | | | | | | Review after six borehole drillied | | | | | | | | | | | |
| 2 | Core Drilling (3 rigs) | m. | | | | | | | | | | | | | | | | | | | |
| 3 | Survey days | day | | | | | | | | | | | | | | | | | | | |
| 4 | Geophysical Days- Field | | | | | | | | | | | | | | | | | | | | |
| 5 | Geologist days- Field | day | | | | | | | | | | | | | | | | | | | |
| 6 | Sampling days, | day | | | | | | | | | | | | | | | | | | | |
| 7 | Camp Winding | day | | | | | | | | | | | | | | | | | | | |
| 8 | Laboratory Studies | Nos. | | | | | | | | | | | | | | | | | | | |
| 9 | Geologist days- HQ | day | | | | | | | | | | | | | | | | | | | |
| 10 | Geophysical Days- HQ | | | | | | | | | | | | | | | | | | | | |
| 11 | Report Writing & Peer review | day | | | | | | | | | | | | | | | | | | | |

NOTE:

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

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**Annexure-5A**

**Estimated cost for Reconnaissance survey (G4) for Nickel, Copper, and associated minerals in Salewara-Kumarwara-Murum block (52.00 sq. km), District: Rajnandgaon, Chhattisgarh.**

**[Block area- 52.00 sq. km; Schedule timeline- 9 months]**

| S. No. | Item of Work | Unit | Rates as per NMET SoC 2020-21 | | Estimated Cost of the Proposal | | Remarks |
|---|---|---|---|---|---|---|---|
| | | | SoC-Item - Sl No. | Rates as per SoC | Qty. | Total Amount (Rs) | |
| A | **GEOLOGICAL WORK** | | | | | | |
| a | Charges for one Geologist per day at HQ for monitoring, data processing etc. (1 no.) | day | 1.3 | 9,000 | 30 | 2,70,000 | |
| b | Charges for one Geologist per day at field for mapping, channel sampling and logging (2 no./2 party) | day | 1.3 | 11,000 | 120 | 13,20,000 | |
| c | Labour (2 Nos) Base rate - Rs.437/- | day | 5.7 | 437 | 240 | 1,04,880 | Amount will be reimburse as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher |
| e | Charges for one Sampler per day (1 Party) for geochemical, channel and core samples | one sampler per day | 1.5.2 | 5,100 | 45 | 2,29,500 | |
| f | Labours (4 Nos) Base rate - Rs. 437/- | day | 5.7 | 437 | 180 | 78,660 | Amount will be reimburse as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher |
| | | | | | **SubTotal- A** | **20,03,040** | |
| B | **LABORATORY STUDIES** | | | | | | |
| a | **Chemical Analysis** | | | | | | |
| | **Primary & Check Samples from Surface outcrop and Soil samples** | | | | | | |
| i) | **Primary samples** | | | | | | |
| | a.For Co, Ni, Cu, Pb, Zn | Nos | 4.1.7a | 2,506 | 340 | 8,52,040 | |
| ii) | **Internal check samples (5%)** | | | | | | |
| | a.For Co, Ni, Cu, Pb, Zn | Nos | 4.1.7a | 2,506 | 17 | 42,602 | |
| ii) | **External check samples (10%)** | | | | | | |



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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | a.For Co, Ni, Cu, Pb, Zn | Nos | 4.1.7a | 2,506 | 34 | 85,204 | |
| b | **Physical & Petrological Stusies** | | | | | | |
| i) | Preparation of thin section | Nos | 4.3.1 | 2,353 | 10 | 23,530 | |
| ii) | Complete petrographic study report | Nos | 4.3.4 | 4,232 | 10 | 42,320 | |
| v) | Digital Photographs | Nos | 4.3.7 | 280 | 10 | 2,800 | |
| | | | | | **SubTotal- B** | **10,48,496** | |
| C | | | | | **Total A to B** | **30,51,536** | |
| D | **Geological Report Preparation** | **5 Hard copies with a soft copy** | **5.2 (i)** | For the projects up to Rs. 50 Lakhs : A Minimum of Rs. 1.5 lakhs or 5% of the work whichever is more | | **1,52,577** | EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET. |
| E | **Peer review Charges** | | **As per EC decision** | | | **10,000** | |
| F | **Preparation of Exploration Proposal (5 Hard copies with a soft copy)** | **5 Hard copies with a soft copy** | **5.1** | **2% of the Cost or Rs. 3.8 Lakhs whichever is lower** | | **64,082** | 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. |
| G | **Total Estimated Cost without GST** | | | | | **32,78,195** | |
| H | **Provision for GST (18% of K)** | | | | | **5,90,075** | GST will be reimburse as per actual and as per notified prescribed rate |
| I | **Total Estimated Cost with GST** | | | | | **38,68,270** | ***or Say Rs. 38.68 Lakh*** |
| **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 execusion of the project by NEA on its own, a Certifiate regarding non outsourcing of any component/project is required.*** | | | | | | | |

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**Annexure-5B**

**Schedule timeline for Reconnaissance survey (G4) for Nickel, Copper, and associated minerals in Salewara-Kumarwara-Murum block (52.00 sq. km), District: Rajnandgaon, Chhattisgarh.**

| | | | 1 | 2 | 3 | 4 | 5 | Review | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Camp Setting/Forest Clearence | **Month** | | | | | | | | | | |
| 2 | Geological Mapping & Sampling | **Party days** | | | | | | | | | | |
| 3 | Geologst days- Field | **Party days** | | | | | | | | | | |
| 4 | Sampling days | **Party days** | | | | | | | | | | |
| 5 | Laboratory Studies | **Nos.** | | | | | | | | | | |
| 6 | Report Writing | **Months** | | | | | | | | | | |
| 7 | Peer Review | | | | | | | | | | | |

**Note:**

1. Commencement of project may be reckoned from the day the exploration acreage s available along with all statutory clearances including forest clearence.
2. Time loss on account of monsoon/agricultural activity/forest clearance/local aw & order problem may be additional to above time line.

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Annexure-6A

**Estimated cost for Preliminary exploration (G3) for phosphorite in Pahadi Kalan-Gora Kalan block, District: Lalitpur, Uttar Pradesh.**

**[Block area- 13.93 sq. km; Nos. of Borehole- 11; Borehole depth- 100m; Schedule timeline- 12 months]**

| S. No. | Item of Work | Unit | Rates as per NMET SoC 2020-21 | | Estimated Cost of the Proposal | | Remarks |
|---|---|---|---|---|---|---|---|
| | | | SoC-Item -Sl No. | Rates as per SoC | Qty. | Total Amount (Rs) | |
| A | **GEOLOGICAL WORK** | | | | | | |
| 1 | **Mapping (1:10,000),Borhole logging,sampling & report writing** | | | | | | |
| a | Charges for one Geologist per day at HQ for monitoring, data processing etc. | day | 1.3 | 9,000 | 60 | 5,40,000 | |
| b | Charges for one Geologist per day at field for mapping, channel sampling and logging. | day | 1.3 | 11,000 | 150 | 16,50,000 | |
| c | Labour Charges for Geologist; Base rate - Rs. 437/ per day | day | 5.7 | 437 | 300 | 1,31,100 | Amount will be reimburse as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher |
| d | Charges for Sampler (1 party) | one sampler per day | 1.5.2 | 5,100 | 100 | 5,10,000 | |
| e | Labour Charges (4 Nos)for Sampling Work; Base rate - Rs. 437/ per day | day | 5.7 | 437 | 400 | 1,74,800 | Amount will be reimburse as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher |
| | | | | | **Sub Total- A** | **30,05,900** | |
| B | **EXCAVATION** | | | | | | |
| 1 | Trenching | per Cu.m | 2.1.1 | 3,330 | 300 | 9,99,000 | |
| | | | | | **Sub Total- B** | **9,99,000** | |
| C | **Survey (1:10,000)** | | | | | | |
| a | Bore Hole Fixation and determination of co-ordinates & Reduced Level of the boreholes and boundary points | Per Point of observation | 1.6.2 | 19,200 | 11 | 2,11,200 | 11 nos. BH points, |



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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | and base station by DGPS | | | | | | |
| | | | | | **Sub Total- C** | **2,11,200** | |
| **D** | **DRILLING** | | | | | | |
| 1 | Drilling up to 300m (Hard rock) | m | 2.2.1.4a | 11,500 | 1,085 | 1,24,77,500 | |
| 2 | Borehole deviation Survey by multishot camera | m | 2.2.6 | 330 | 1,085 | 3,58,050 | |
| 3 | Land / Crop Compansation (in case the BH falls in agreecultural Land) | per BH | 5.6 | 20,000 | 11 | 2,20,000 | Amount will be reimburse as per actuals or max. Rs. 20000 per BH with certification from local authorities |
| 4 | Construction of concrete Pillar (12"x12"x30") | per borehole | 2.2.7a | 2,000 | 11 | 22,000 | |
| 5 | Transportation of Drill Rig & Truck associated per drill (2 rigs) | Km | 2.2.8 | 36 | 2,000 | 72,000 | Certification in this regard is required to be provided |
| 6 | Monthly Accomodation Charges for drilling Camp (2 Rigs) | month | 2.2.9 | 50,000 | 3 | 1,50,000 | |
| 7 | Drilling Camp Setting Cost | Nos | 2.2.9a | 2,50,000 | 2 | 5,00,000 | Certification in this regard is required to be provided |
| 8 | Drilling Camp Winding up Cost | Nos | 2.2.9b | 2,50,000 | 2 | 5,00,000 | |
| 9 | Road Making Charges | Km | 2.2.10a | 22,020 | 6 | 1,32,120 | Road Making will be considered as per the requirement and Road Making Charges will be reimbursed for max. 6 km. |
| 10 | Drill Core Preservation | per m | 5.3 | 1,590 | 550 | 8,74,500 | This amount will be reimbursed after successful delivery of the cores to concerned libraries/authorities |
| | | | | | **Sub Total- D** | **1,53,06,170** | |
| **E** | **LABORATORY STUDIES** | | | | | | |
| **1** | **Chemical Analysis** | | | | | | |
| **i)** | **Primary samples (BRS/Channel)** | | | | | | |
| | a. For 5 radicals i.e. P2O5, SiO2, Al2O3, Fe2O3 and LOI | Nos | 4.1.3 | 9,805 | 100 | 9,80,500 | |
| | **Check samples Internal (5%) and External(10%)** | | | | | | |
| | a. For 5 radicals i.e. P2O5, SiO2, Al2O3, Fe2O3 and LOI | Nos | 4.1.3 | 9,805 | 15 | 1,47,075 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ii) | **Primary samples (Trench)** | | | | | | |
| | a. For 5 radicals i.e. P2O5, SiO2, Al2O3, Fe2O3 and LOI | Nos | 4.1.3 | 9,805 | 200 | 19,61,000 | |
| | **Check samples Internal (5%) and External(10%)** | | | | | | |
| | a. For 5 radicals i.e. P2O5, SiO2, Al2O3, Fe2O3 and LOI | Nos | 4.1.3 | 9,805 | 30 | 2,94,150 | |
| iii) | **Primary samples (Bh Core)** | | | | | | |
| | a. For 5 radicals i.e. P2O5, SiO2, Al2O3, Fe2O3 and LOI | Nos | 4.1.3 | 9,805 | 500 | 49,02,500 | |
| iv) | **Check samples Internal (5%) and External(10%)** | | | | | | |
| | a. For 5 radicals i.e. P2O5, SiO2, Al2O3, Fe2O3 and LOI | Nos | 4.1.3 | 9,805 | 75 | 7,35,375 | |
| v) | **Composite Samples** | | | | | | |
| | a. composite samples will be analyzed for 14 radicals i.e. P2O5, SiO2, Al2O3, Fe2O3, LOI, CaO, MgO, TiO2, Na2O, K2 O, F, Cl,V2O5 and organic carbon | Nos | 4.1.3 | 9,805 | 45 | 4,41,225 | |
| | b. Trace element study by ICP-MS (34 elements) Ti, V, Cr, Ni, Ga, Cr, Co, Cu, Pb, Zn, Ba, Sr, Rb, Zr, Y, Nb, Ce, Nd, Ta Cd, Sb, Sc, As, Th, U | Nos | 4.1.14 | 7,731 | 20 | 1,54,620 | |
| | c. XRD study | Nos | 4.5.1 | 4,000 | 10 | 40,000 | |
| vi) | **Petrographic Study** | | | | | | |
| 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 | |
| vii) | **Mineragraphic Study** | Nos | | | | | |
| i | Preparation of polished section | Nos | 4.3.3 | 1,549 | 10 | 15,490 | |
| ii | Study of polished section | Nos | 4.3.4 | 4,232 | 10 | 42,320 | |
| iii | Digital Photographs for thin and polished | Nos | 4.3.7 | 280 | 15 | 4,200 | |
| viii) | **Specific Gravity Determination** | | | | | | |
| | Specific Gravity Determination | No. | 4.8.1 | 1,605 | 10 | 16,050 | |



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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| IX) | **Whole rock analysis (Major oxides)** | No. | 4.1.15a | 4,200 | 10 | 42,000 | |
| | | | | | **Sub Total- E** | **98,42,355** | |
| F | | | | | **Total (A to E)** | **2,93,64,625** | |
| G | **Geological Report Preparation** | **5 Hard copies with a soft copy** | 5.2 (iii) | For the projects exceeding Rs. 150 Lakhs but less than 300 Lakhs: A Minimum of Rs. 7.5 lakhs or 3% of the work whichever is more | | **8,80,939** | EA has to submit the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET. |
| H | **Preparation of Exploration Proposal (5 Hard copies with a soft copy)** | **5 Hard copies with a soft copy** | 5.1 | 2% of the Cost or Rs. 3.8 Lakhs whichever is lower | | **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. |
| I | **Peer review Charges** | | As per EC decision | | | **10,000** | |
| J | **Total Estimated Cost without GST** | | | | | **3,06,35,564** | |
| K | **Provision for GST (18% of GST)** | | | | | **55,14,401** | GST will be reimburse as per actual and as per notified prescribed rate |
| L | **Total Estimated Cost with GST** | | | | | **3,61,49,965** | ***or Say Rs. 361.50 Lakh*** |

***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 execusion of the project by NEA on its own, a Certifiate regarding non outsourcing of any component/project is required.***

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Annexure-6B

**Schedule timeline for Preliminary exploration (G3) for phosphorite in Pahadi Kalan-Gora Kalan block, District: Lalitpur, Uttar Pradesh.**

| S. No. | Activities | Unit | MONTHS | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | Review | 7 | 8 | 9 | 10 | 11 | 12 |
| 1 | Camp Mobilisation | Month | | | | | | | | | | | | | |
| 2 | Geologist days- Field | day | | | | | | | | | | | | | |
| 3 | Laboratory Studies | Nos. | | | | | | | | | | | | | |
| 4 | Surface Dr lling (2 rig) | Month | | | | | | | | | | | | | |
| 5 | Survey Party days | day | | | | | | | | | | | | | |
| 6 | Sampling cays | day | | | | | | | | | | | | | |
| 7 | Laboratory Studies for Borehole | Nos. | | | | | | | | | | | | | |
| 8 | Camp Demobilisation | Month | | | | | | | | | | | | | |
| 9 | Geologist days in HQ | day | | | | | | | | | | | | | |
| 10 | Geological Report Writing with Peer review | Month | | | | | | | | | | | | | |

**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 may be additional to above time line.

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Annexure-7

| General exploration (G2) for copper in Tonda block, Eastern Khetri Copper Belt, District: Jhunjhunu, Rajasthan. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| S. No. | Item of Work | Unit | SoC-Item - Sl No. | Rates as per SoC | Originally Approved Qty. | Approved Qty. in 30th TCC | Total Approved Qty. | Actual Qty | Additional Qty | Additional Amount |
| A | **Drilling** | | | | | | | | | |
| 1 | Core Drilling (upto 300m) | m | 2.2.1.4a | 11,500 | 3,250 | 120 | 3,370 | 3395.00 | 25 | 2,87,500 |
| 2 | Core Drilling (301 to 600m) | m | 2.2.1.4b | 12,420 | 300 | 125 | 425 | 408.50 | (16.50) | (2,04,930) |
| 3 | Borehole deviation Survey by Multishot Camera | m | 2.2.6 | 330 | 3,550 | | 3,550 | 3803.50 | 253.50 | 83,655 |
| | **Sub Total (A)** | | | **23,920** | **3,550** | **245** | **3,795** | **3,804** | **8.50** | **1,66,225** |
| B | **Borehole Geophysical Logging** | | | | | | | | | |
| 1 | Base log | Per m | 3.11a | 151 | 3,550 | | 3,550 | 3803.50 | 253.50 | 38,278.50 |
| 2 | Induced Polarosation (I.P) | Per m | 3.11p | 93 | 3,550 | | 3,550 | 3803.50 | 253.50 | 23,575.50 |
| 3 | Resistivity | Per m | 3.11c | 39 | 3,550 | | 3,550 | 3803.50 | 253.50 | 9,886.50 |
| 4 | SP | Per m | 3.11b | 39 | 3,550 | | 3,550 | 3803.50 | 253.50 | 9,886.50 |
| 5 | Spectral Gamma | Per m | 3.11o | 164 | 3,550 | | 3,550 | 3803.50 | 253.50 | 41,574 |
| | **Sub Total (B)** | | | | | | | | | **1,23,201** |
| C | **Chemical Analysis** | | | | | | | | | |
| 1 | Primary samples for Cu | Nos | 4.1.7a | 2,506 | 300 | | 300 | 379.00 | 79 | 1,97,974 |
| 2 | Internal Check for Cu | Nos | 4.1.7a | 2,506 | 15 | | 15 | 15.00 | - | - |
| 3 | External check for Cu | Nos | 4.1.7a | 2,506 | 30 | | 30 | 30.00 | - | - |
| | **Sub Total (C)** | | | | | | | | | **1,97,974** |
| | **TOTAL (A+B+C)** | | | | | | | | | **4,87,400** |
| | **GST -18%** | | | | | | | | | **87,732** |
| | **ADDITIONAL COST WITH GST** | | | | | | | | | **5,75,132** |



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