

Only through e-mail

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

F.No.6/4/2015-NMET/287

New Delhi 16th October, 2023

Subject: Circulation of Standard Operating Procedure (SOP) of Technical-cum-Cost Committee, NMET.

The SOP for Technical cum Cost Committee, NMET has been approved by the competent authority. These guidelines have been carefully crafted to ensure smooth functioning of NMET. It is of utmost importance that now onwards all stakeholders adhere to these approved guidelines without exception.

Kindly find enclosed the SOP for Technical cum Cost Committee, NMET for your kind perusal and necessary action.


[Dr. S. Ravi]
Chairman, TCC

To,

1. The Secretary, Dept. of Atomic Energy, Anushakti Bhawan, C.S.M. Marg, Mumbai- 400001.
2. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi- 110001.
3. The Secretary, Ministry of Petroleum and Natural Gas, Shastri Bhawan, New Delhi-110001.
4. The Joint Secretary and Financial Advisor, Ministry of Mines, Shastri Bhawan, New Delhi-110001.
5. The Director General, Geological Survey of India, 27, J. L. Nehru Road, Kolkata-700016.
6. The Controller General, Indian Bureau of Mines, 2nd Floor, Indira Bhawan, Civil Lines, Nagpur- 440001.
7. The Principal Secretary, Mineral Resources Department, Govt. of Madhya Pradesh, Mantralaya, Vallabh Bhawan, Bhopal- 462004.
8. The Principal Secretary, Industries, Energy and Labour Dept. 114 Annex Building Mantralaya, Mumbai- 400032.
9. The Additional Chief Secretary, Department of Mines and Petroleum Main Building Secretariat, Jaipur- 302005.
10. The Additional Chief Secretary, Industries, Investment Promotion and Commerce Dept. Industries Department Secretariat, Chennai- 600009.
11. Shri Alok Sharma, (Retd.) GM & HoD (Exploration), CMPDIL, 402, Lake Garden, Kanke Road, Ranchi- 834008.
12. Shri Naresh Nautiyal, Head (Business Development & Planning) (Retd.), MECL, 109, KT Nagar, Katol Road, Nagpur- 440013.

13. Dr. Yamuna Singh, Scientist-H, Atomic Minerals Directorate for Exploration and Research (Retd.), Flat G-7, Block G, Rainbow Vistas Rock Garden, Opp- IDL, Green Hills Road, Sanathnagar PO, Moosapet, Hyderabad- 500018.
14. Dr. Laxman Singh Shekhawat, Dy. Director General (Retd.), Geological Survey of India, 695 Shanti Nagar (Road No-3), Near Durgapura Railway Station, Durgapura, Jaipur- 302018.
15. Dr. Sahendra Singh, Associate Professor, Department of Applied Geology, Indian Institute of Technology (ISM), Dhanbad- 826004.

Copy to:

1. The Secretary (Mines), Government of Andhra Pradesh.
2. The Secretary (Geology and Mining), Government of Arunachal Pradesh.
3. The Principal Secretary, Department of Mines and Minerals, Government of Assam.
4. The Principal Secretary-cum-Mines Commissioner, Government of Bihar.
5. The Secretary, Mineral Resource Department, Government of Chhattisgarh.
6. The Principal Secretary, Department of Mines and Geology, Government of Goa.
7. The Addl. Chief Secretary (Industries), Government of Himachal Pradesh.
8. The Principal Secretary (Industry and Mines), Government of Gujarat.
9. The Commissioner Secretary (Industries and Commerce), Government of Jammu & Kashmir.
10. The Secretary (Industries, Mines and Geology), Government of Jharkhand.
11. The Secretary, (Industries and Commerce), Government of Karnataka.
12. The Principal Secretary, Industries Department, Government of Kerala.
13. The Secretary, Mineral Resource Department, Government of Madhya Pradesh.
14. The Addl. Chief Secretary (Industries and Mines), Government of Maharashtra.
15. The Commissioner and Secretary, Mining and Geology Department, Government of Meghalaya.
16. The Commissioner & Secretary, Geology and Mining, Government of Nagaland.
17. The Principal Secretary (Steel and Mines), Government of Odisha.
18. The Principal Secretary, Mines and Geology, Government of Punjab.
19. The Principal Secretary (Mines), Government of Rajasthan.
20. The Principal Secretary (Industries), Government of Tamil Nadu.
21. The Principal Secretary (Industries and Mines), Government of Telangana.
22. The Secretary (Mines and Geology), Government of Uttar Pradesh.
23. The Principal Secretary (Mines), Government of Uttarakhand.
24. The Secretary (Industry, Commerce and Enterprises), Government of West Bengal.
25. The Secretary, Department of Industries, Administration of Union Territory of Ladakh.
26. The Principal Secretary, Mines and Geology Department, Government of Sikkim.
27. The Secretary, Department of Industries and Commerce, Government of Tripura.
28. The Secretary, Commerce and Industries, Government of Mizoram.
29. The Secretary, Textiles, Commerce and Industry, Government of Manipur.

30. The Principal Secretary, Department of Mines and Geology, Government of Haryana.

Copy to:

1. The Director, Department of Mines and Geology, Government of Andhra Pradesh.
2. The Director, Department of Geology and Mining, Government of Arunachal Pradesh.
3. The Director, Directorate of Geology and Mining, Government of Assam.
4. The Director, Department of Mines and Geology, Government of Bihar.
5. The Director, Directorate of Geology and Mining, Government of Chhattisgarh.
6. The Director of Mines and Geology, Government of Goa.
7. The Commissioner of Geology and Mining, Government of Gujarat.
8. The Director, Department of Industries, Government of Himachal Pradesh.
9. The Director, Department of Geology and Mining, Government of Jammu and Kashmir.
10. The Director (Mines), Directorate of Mines, Government of Jharkhand.
11. The Director, Department of Mines and Geology, Government of Karnataka.
12. The Director, Directorate of Mining and Geology, Government of Kerala.
13. The Director, Directorate of Geology and Mining, Government of Madhya Pradesh.
14. The Director, Directorate of Geology and Mining, Government of Maharashtra.
15. The Director, Directorate of Mineral Resources, Government of Meghalaya.
16. The Director, Directorate of Geology and Mining, Government of Nagaland.
17. The Director, Directorate of Geology, Government of Odisha.
18. The Director, Directorate of Mines and Minerals, Government of Punjab.
19. The Director, Mines and Geology Directorate, Government of Rajasthan.
20. The Commissioner of Geology and Mining, Government of Tamil Nadu.
21. The Director of Mines and Geology, Government of Telangana.
22. The Director, Directorate of Geology and Mining, Government of Uttar Pradesh.
23. The Director, Geology and Mining Unit, Government of Uttarakhand.
24. The Director, Directorate of Mines and Minerals, Government of West Bengal.
25. The Director, Directorate of Industries and Commerce, Government of Ladakh.
26. The Director, Department of Mines, Minerals and Geology, Government of Sikkim.
27. The Director, Department of Industries and Commerce, Government of Tripura.
28. The Director, Directorate of Geology and Mineral Resource, Government of Mizoram.
29. The Director, Department of Trade, Commerce and Industries, Government of Manipur.
30. The Director, Department of Mines and Geology, Government of Haryana.

Copy to:

1. The Additional Director General and Chairman, TCC-NMET, Southern Region, GSI Complex, Bandlaguda, Hyderabad-500068.
2. The Director, AMD, Department of Atomic Energy, AMD Complex, Begumpet, Hyderabad-500016.
3. The Chairman-cum-Managing Director, MECL, Dr. Babasaheb Ambedkar Bhawan, Seminary Hills, Nagpur-440006.
4. The Chairman-cum-Managing Director, CMPDIL, Gondwana Place, Kanke Road, Ranchi-834031.
5. The Dy. Director General, RSAS, GSI, Vasudha Bhavan, Kumaraswamy Layout, Bengaluru-560078.
6. The Chairman-cum-Managing Director, KIOCL Ltd, Block-II, Koramangala, Sarjapura Road, Bengaluru, Karnataka-560034.
7. The Chairman-Cum-Managing Director, NMDC Ltd., Khanij Bhavan, Castle Hills, Masab Tank, Hyderabad-500028.
8. The General Manager, Telangana State Mineral Development Corporation Limited, H. No.6-2-915, HMWSSB premises, Rear Block, 3rd Floor, Khairatabad, Hyderabad.
9. The Director, Directorate of Geology & Mining, Indirawati Bhawan, Block-4, First & Second Floor Naya Raipur, Chhattisgarh- 492002.
10. The GM (Exploration), OMECL, Govt. of Odisha. Odisha Mineral Exploration Corporation Ltd. 3rd Floor, Boyan Bhawan, Unit-3, Pandit Jawaharlal Nehru Marg, Bhubaneswar- 751001.
11. The Madhya Pradesh State Mining Corporation Ltd., Paryawas Bhawan, Block 'A', IInd floor, Jail Road, Arera Hills, Bhopal, Madhya Pradesh-462011.
12. The Director (Dept. of Mines & Geology), Govt. of Telangana, DRDK Building, Tank Bund Road, Hyderabad-500022.
13. The Chief Executive Officer, Mineral Exploration Research and Innovation Trust (MERIT), Department of Mines & Geology, 6th Floor, B-Wing, Sri Anjaneya Towers, Ibrahimpatnam, District: Krishna-521456.
14. The Managing Director, Odisha Mining Corporation, OMC House, Bhubaneswar-751 001.

Copy for information to:

1. PSO to Secretary/PPS to AS(SL)/PS to JS&FA, Ministry of Mines, Shastri Bhawan, New Delhi-110001.
2. Shri Janardan Prasad, ADG & HoD, SR & Chairman TCC-NMET, GSI Complex, Bandlaguda, Hyderabad- 500068.

GOVERNMENT OF INDIA
MINISTRY OF MINES
NATIONAL MINERAL EXPLORATION TRUST



STANDARD OPERATING PROCEDURE FOR SUBMISSION OF
EXPLORATION PROPOSALS TO
TECHNICAL CUM COST COMMITTEE (TCC)

CONTENT

- I INTRODUCTION
- II REQUISITION PROPOSAL
- III EXPLORATION/TECHNICAL PLAN
- IV TECHNICAL AND COST EVALUATION BY TCC
- V APPROVAL BY EXECUTIVE COMMITTEE
- VI FINANCIAL SANCTION (SANCTION ORDER) BY NMET
- VII FIELD INSPECTION VISIT BY MINISTRY OF MINES
- VIII MID-REVIEW OF THE PROJECT
- VIII FINAL REVIEW OF THE PROJECT
- IX PEER REVIEW OF GEOLOGICAL REPORT
- X FINAL REVIEW OF THE PROJECT
- XI SUBMISSION OF GEOLOGICAL REPORT

Annexure – I

Annexure – II

Annexure – III



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I. Introduction

With an objective to boost the mineral exploration activities in the country 'National Mineral Exploration Trust' (NMET) was established by the Central Government on 14 August, 2015. NMET is now a “non-profit Autonomous Body” after the recent amendments of Mines and Minerals (Development and Regulation) Act, notified on 28 March, 2021.

The main activities of NMET are -

- Funding regional and detailed mineral exploration projects
- Prioritizing exploration of strategic and critical minerals
- Exploration of deep seated / concealed mineral deposits
- Facilitating greenfield/ brownfield regional exploration projects, geophysical survey, ground survey, aerial survey and geochemical survey, in Obvious Geological Potential (OGP) area
- Financial assistance for strengthening of Central Government organizations and State DGMs/DMGs through procurement of machinery/ equipment/ instruments/ software and other latest technology.
- Incentive to State Government for Auction of Mineral Blocks.
- Engagement of private notified exploration agencies.
- Other Initiatives like facilitating R&D activities in mineral exploration, mineral beneficiation, mineral processing and mineral extraction etc.



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II. Requisition Proposal

The exploration agencies i.e., Central Government PSUs, Notified Exploration Agencies (NEAs) and Notified Private Exploration Agencies (NPEAs) may submit a proposal as defined under various schemes in the prescribed format to NMET for funding.

To ensure adequate background information in mineral exploration proposals and to maintain uniformity, NMET has prescribed standard format for submission of project proposals by Exploration Agencies.

- The format for submission of project proposal for G4 stage is provided at **Annexure – I**.
- The format for submission of project proposal for G3 & G2 stage is provided at **Annexure – II**.

General instructions to Exploration Agencies for submission of project proposals to NMET:

- The exploration agencies need to submit quality proposals along with detail cost estimates based on the Schedule of Charges (SoC) for exploration projects of NMET available on website (<https://nmet.gov.in>). For other projects, the NEAs/NPEAs may devise procedure for determining cost estimates following the standard guidelines/practices in this regard.



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- Mineral exploration proposals of precious metal, basemetal, critical and strategic mineral will be considered for NMET funding on priority. Project proposals in respect of limestone, iron ore, graphite, bauxite and manganese etc. will be taken up only after considering the requisite demand and availability in the State/ country. Project proposals in respect of coal and lignite will not be considered for NMET funding except for coking coal or non-coking coal of grade 1 to 10.
- To ensure adequate background information in mineral exploration proposals and to maintain uniformity, NMET has prescribed a format for submission of project proposals. All project proposals should invariably be submitted as per the comprehensive format for G4, G3 and G2 stage exploration circulated to the States/Agencies for submission of proposal and also available on NMET website (<https://nmet.gov.in>).
- Mineral exploration proposal should invariably be submitted along with estimated cost of the project duly examined and concurred by associate finance of Exploration Agencies (EA) in accordance with canons of financial propriety. In case Standing Finance Committee (SFC)/ Expenditure Finance Committee (EFC) is required after recommendation of the project by TCC, it will be responsibility of the concerned Exploration Agency to get the SFC/EFC appraisal and approval of the competent authority.



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16/11/2023

- A certificate from the head of organization [OG/Principal Secretary/Secretary (Geology & Mining)/CMO/CEO/MO] in prescribed format (**Annexure-III**) shall be submitted by the exploration agency along with submission of the project proposal (format attached).
- To avoid delay in project implementation, the Exploration Agency shall obtain a certificate regarding the actual status of proposed block area/land (whether free hold/lease hold/reserved by the state) from the concerned State authority and submit along with the project proposal.
- As far as possible, proposed exploration block/area should not involve any area falling under National Parks/ Wildlife Sanctuaries/Biosphere Reserves etc. where such activities are not permitted. Further, if it is unavoidable/ inevitable to include areas where obtaining forest clearance or statutory clearances for restricted area/high security zones/ defense establishments is mandatory for taking up prospecting/ exploration, exploration agency shall submit an undertaking that it will obtain the same.
- Proposals which are already completed by any NEAs/NPEAs should not be submitted seeking post-facto sanction for NMET fund.
- State DGMs/DMGs seeking NMET fund should ensure that the approved projects are executed only by recognized NEAs/NPEAs. Besides, the respective state DGM/DMG should also ensure the quality of work of NPEAs through regular field visits to the project area by its own geologists.



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16/11/2023

- TCC meetings shall be held monthly, as per the tentative schedule circulated on NMET website (<https://nmet.gov.in>). Proposals received by 20th of every month will be discussed in the particular TCC. All proposals should be submitted both in soft copy and hard copy (4 copies) to the following address:

Email: nmet-mines@gov.in

Postal address: NMET Secretariat, Ministry of Mines,
Room No.114, F-wing, Shastri Bhawan,
New Delhi-110 001

III. Exploration/Technical Plan

The exploration agencies submitting the proposal for NMET funding should provide the detailed exploration plan having following details:

- a) Details of methodology,
- b) Time schedule,
- c) Nature and Quantum of Work (NQT),
- d) Cost and other logistics,
- e) Details of outsourcing component of the work proposed
- f) Justification for taking up the proposed exploration work, etc.

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IV. Technical and Cost Evaluation by TCC

Technical cum Cost Committee of NMET is duly formulated by the NMET upon approval of Chairman, Executive Committee (EC). It consists of a panel of experts in the field of mineral exploration.

The TCC shall examine and evaluate the proposal submitted by NEAs/NPEAs:

- Justification of the proposed projects for regional/preliminary/general/ detailed exploration, baseline surveys and R&D activities in mineral exploration, mineral beneficiation, mineral processing and mineral extraction etc.
- Nature and Quantum of various works/ jobs proposed in the project to ensure optimization.
- New and modern techniques introduced by the exploration agencies in the exploration proposals.
- Scrutiny and finalization of cost estimates submitted by exploration agencies for project proposals.
- Scrutiny and finalization of cost estimates of proposals for procurement of machinery / laboratory equipment / instruments etc. for State DGMs /DMGs, Central Government agencies like Geological Survey of India (GSI), Indian Bureau of Mines (IBM) or any other agency as approved by NMET from time to time.

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Checklist

TCC will also keep a special check on the following while examining and evaluating the proposal submitted by NEAs/NPEAs:

- NOC from the State Government for executing the work
- Comments from GSI on the proposed block to avoid any duplication of work, if already explored by GSI
- Forest permission for protected and reserved forest areas
- Project plan and methodology/ technique for exploration
- Cost Sheet evaluation as per the SoC of NMET
- NQT as per the scope of work for the project
- In-execution review timeline of the project
- Deliverables as per the allotted timeline

Special Invitees

- The representatives of concerned States DMGs from which the project has been formulated, shall be invited in the TCC meetings for their comments (both written & during discussion) on the project proposals and to provide the desired information as and when required.
- If an expert opinion is deemed necessary for evaluation of the project proposals, the Chairman shall invite such expert as a special invitee and sought his opinion both in written and during discussion.



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The TCC shall recommend project proposals that qualify both in technical and on cost parameters for approval of Executive Committee (EC) of NMET. Project proposals that require further modifications shall be discussed in upcoming TCC meeting when resubmitted by the exploration agency after incorporating suggested modifications.

V. Approval By Executive Committee

On recommendation of TCC, Executive Committee (EC) will evaluate and scrutinize the project proposal with the panel of its technical experts and accord approval for NMET funding.

VI. Financial Sanction (Sanction Order) by NMET

On approval of the project proposal by EC, approval shall be conveyed by NMET with Sanction Order to the Exploration Agencies.

Exploration agency shall submit the Monthly Progress Report (MPR) of the approved project in the prescribed format by 5th of every month to NMET by email.

The exploration agencies shall seek approval of NMET before undertaking any major deviation from approved work plan or deviation having cost implication of more than 10% of the original sanctioned cost, along with proper justification and shall undertake such work only after discussing the same in TCC meeting and subsequent approval by EC.



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16/11/2023

Exploration agency shall adhere to approved timelines and any request for extension of timeline, if required, shall be submitted along with proper justifications to TCC, NMET. The request in this regard shall be recommended by the TCC after detailed review of the project. On recommendation of TCC, the proposal will be put up to Executive Committee for approval of extension of timeline that will be conveyed to the exploration agency through OM issued by NMET.

VII. Field Inspection Visit by Ministry of Mines

The projects executed by the NEAs/NPEAs, will be evaluated by experts to ensure quality of work and adequacy of data at field level. For this purpose, NMET has introduced field inspection visit in each project at least once by the nominated officers of Ministry of Mines to review the activities of NEAs/NPEAs and inspect the work as per the approved targets (Nature and Quantum of Work, NQT) by the Executive Committee of NMET. In this regard, the following guidelines for Field Monitoring will be applicable:

- (i) Discussion on the status of the project being executed by the NPEA/NEA will be done during the field inspection visit by the officers.
- (ii) The officers would provide the requisite guidance and suggestions for execution of field component of the exploration project.



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- (iii) They will monitor on-field activities such as
 - a. Drilling which includes drill core logging, boreholes inspection, core sampling, monitoring of core samples, core preservation and transportation of the same to the nearest core repository etc.
 - b. Chemical sampling, sample preparations, storage of samples, packaging of samples, timely submission of samples to chemical laboratories, analysis completed and the outcome of chemical analysis etc.
 - c. Geophysical surveys which includes gravity survey, resistivity survey etc.
- (iv) They will scrutinize the data and samples collected by exploration agencies for analysis and interpretation.
- (v) They will monitor the entire exploration and on-field activities carried out by exploration agencies.
- (vi) They will provide necessary supervision and guidance to exploration agencies for timely completion of the project based on their field visit and provide necessary measures to overcome shortcomings, if any for completion of the project.
- (vii) They will submit a record note of their visit to NMET Secretariat and will also provide the details of the shortcomings/ suggestions to exploration agencies so that timely measures can be taken for improvement in execution of the project.
- (viii) They will also help in capacity building of the exploration agencies with their expertise.



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VIII. Mid-Review of the Project

TCC shall periodically review the progress of work being carried out by the exploration agencies. Exploration agencies shall carry out drilling as per the approved Exploratory Drilling Guidelines for NMET funded projects as circulated to all exploration agencies and also available on NMET website (<https://nmet.gov.in>).

TCC may recommend additional work component and suggestions thereof for NMET funded projects within the permissible cost limit to the Exploration Agencies as available on NMET website (<https://nmet.gov.in>).

IX. Peer Review of Geological Report

All reports of exploration projects funded through NMET shall be prepared as per the approved Report format circulated to all Exploration Agencies and also available on NMET website (<https://nmet.gov.in>). These reports shall be peer reviewed by the approved panel of experts.

Exploration Agencies shall attend all the modifications suggested by the Peer Reviewer to enhance the quality of report and submit the compliance report of the peer review comments along with the final Geological Report.

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X. Final Review of the Project

TCC shall review the work during the final stage being carried out by the exploration agencies. Exploration agencies shall present the quantum and targets achieved before the TCC after attending the modifications suggested by the Peer Reviewer.

TCC shall evaluate outcome of the report in TCC meeting. Once, the committee is satisfied with the work carried out, incorporation of all the relevant data in the report, exploration agencies may be allowed to submit the geological report.

XI. Submission of Geological Report

Exploration agency after completing the Geological Report (GR), shall intimate to NMET through email regarding completion of GR along with summary of achievements/ outcomes of the project.

Exploration agency shall submit final Geological Report in both hardcopy (two copies) and softcopy (in compact disk) to NMET.



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Proposal _____ for _____ Block,
_____ District, _____ State for
Reconnaissance Survey (G4 Stage) under NMET.

(Basemetals/ Ferrous/ Non-Ferrous/ Industrial/Strategic & Critical/
Precious metals etc.)

By

_____Agency

Place:

Date:

Summary of the Block for Reconnaissance Survey (G4 Stage)
GENERAL INFORMATION ABOUT THE BLOCK

	Features	Details
	Block ID	
	Exploration Agency	
	Commodity	
	Mineral Belt	
	Completion Period with entire Time schedule to complete the project	
	Objectives	
	Whether the work will be carried out by the proposed agency or through outsourcing and details thereof. Components to be outsourced and name of the outsource agency	
	Name/ Number of Geoscientists	
	Expected Field days (Geology) Geological Party Days	
1.	Location	
	Latitude	
	Longitude	
	Villages	
	Tehsil/ Taluk	
	District	
	State	
2.	Area (hectares/ square kilometres)	
	Block Area	
	Forest Area	
	Government Land Area	
	Private Land Area	
3.	Accessibility	
	Nearest Rail Head	
	Road	
	Airport	
4.	Hydrography	
	Local Surface Drainage Pattern (Channels)	
	Rivers/ Streams	
5.	Climate	
	Mean Annual Rainfall	
	Temperatures (December) (Minimum) Temperatures (June) (Maximum)	
6.	Topography	
	Toposheet Number	
	Morphology of the Area	
7	Availability of baseline geoscience data	
	Geological Map (1:50K/ 25K)	Available / Not Available

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16/11/2023

	Geochemical Map	Available / Not Available
	Geophysical Map (Aeromagnetic, ground geophysical, Regional as well as local scale GP maps)	Available / Not Available
8.	Justification for taking up Reconnaissance Survey / Regional Exploration	Details should be furnished with surface/ subsurface (pits/old work) geological, geochemical. Geophysical data. In case of exploration proposed near the active mine area, sufficient justification should be given by collecting surface samples in suitable location which represent the mineralisation from the area proposed for current exploration work along with analytical data

Detailed description on the following titles to be made in the Detailed Proposal.

1. Block Summary

Physiography

Background Geology (Regional Geology, Geology of the Block)

Mineral potentiality based on geology, geophysics, ground geochemistry etc.

Scope for proposed exploration

Observation and Recommendations of previous work

2. Previous Work

Previous Exploration in adjoining area (Regional area); All the sample (bedrock), borehole location should be plotted on the geological map and analytical data should be discussed briefly

Previous Exploration in the proposed block area: All the sample (bedrock), borehole location should be plotted on the geological map and analytical data should be discussed briefly

3. Block description

Block Corner points Cardinal Points	Latitude	Longitude
A		
B		
C		
D		
E etc.		

4. Planned Methodology

5. Nature Quantum and Target

G4 stage GR should be submitted for G3 stage proposal and G3 stage GR for G2 proposals
succinct details of the previous stage exploration

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16/11/2023

Nature and Quantum of work proposed

Components	G4 Stage
Aerial reconnaissance	Remote sensing, airborne geophysical survey, ASTER data study etc.
Geological Survey	i) 1:50000/1:25000/ 1:12500/1:10000 ii) Assessment of lithology, structure, surface mineralization and analysis of old history of mining, if any.
Geochemical Survey	i) Regional Grab / chip / Stream Sediment / Soil Sampling ii) Recording of broad geomorphology, drainage, etc.
Geophysical Survey	Aero-geophysical / Regional ground geophysical survey (Refer another table below)
Pitting/ Trenching	Five to fifteen trenches to expose mineralized zone. The location of Pitting and trenching should be judiciously planned to cover the entire mineralized body, to delineate the strike extension and also for planning scout boreholes. Sample length to be specified
Scout drilling / Systematic drilling	Few boreholes if required along the positive profiles delineated by surface sampling/pitting trenching
Grab and Chip sampling	A few samples from bedrock (few representative samples from all the exposed rocks in the area for first-hand information and more samples from rocks which host the mineralization). Few representative samples to be subjected to Davis tube recovery test in case of BMQ.
Core sample	Sample from mineralized zones as well as hanging wall/footwall side to be collected. Sample length to be specified
Petrographic and mineragraphic studies	Principal rock types, mineral assemblage, identification of minerals of interest
Synthesis of all available data	i) Integration of regional geophysical, geological and geochemical data. ii) Synthesis of all available data and Report writing

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16/11/2023

Borehole spacing (As per MEMC, 2015)

Type of deposit	Bedded stratiform and Tabular deposit of regular habit minerals to be identified	Bedded stratiform and tabular deposits of irregular habit (Minerals to be identified)	Lenticular bodies occurring en echelon Lenses, pockets. (Different minerals)
G4 Stage	Scout drilling, if necessary (In line with grid specified by the Central Government / IBM time to time).	Scout drilling, if necessary (In line with grid specified by the Central Government / IBM time to time).	Scout drilling, if necessary (In line with grid specified by the Central Government / IBM time to time).
Remarks	For shallow surficial deposits continuing to a depth of up to 6 m from surface pitting in grid spacing for various levels of prospecting may suffice. For deposits continuing further in depth, drilling is recommended.	For shallow surficial deposits continuing to a depth of up to 6m from surface pitting in grid spacing for various levels of prospecting may suffice. For deposits continuing further in depth, drilling is recommended.	-----
(Vertical depth of intersection of mineralized zone should be specified (first level), number of boreholes, approximate borehole spacing, approximate length of boreholes may be specified)			

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Geophysical Studies

General specifications of geophysical studies for various commodities is practice by GSI are as below, however, the parameters likely to vary depending on the local geological set-up. In general, after delineation of surface indication of mineralization and surface mineralization control, areas are selected for regional ground geophysical data acquisition and its studies.

Commodity	Parameters	Technique	G4 stage (Reconnaissance Survey)
Chromite	Method	Gravity	1-2 km or GPM data can be used
	Spacing		
	Method	Magnetic	1-2 km or GPM data can be used
	Spacing		
Manganese	Method	Gravity	1-2 km or GPM data can be used
	Spacing		
	Method	Magnetic	1-2 km or GPM data can be used
	Spacing		
Basemetal	Method	Gravity	1-2 km
	Spacing		
	Method	Magnetic	1-2 km
	Spacing		
	Method	Electrical Resistivity, IP, SP	Profiles as per objective
	Spacing		
Iron Ore	Method	Magnetic	1-2 km grid, Regional
	Spacing		
REE & RM	Method	Gravity	--
	Spacing		
	Method	Resistivity	--
	Spacing		
	Method	Radiometric	--
	Spacing		
Gold/ PGE & Ni/ Basemetal	Method	IP / Resistivity	Traversing, 200 m – 400 m traverse interval, 10-20 m Station interval
	Spacing		
	Method	Magnetic	Traversing, 200 m – 400 m traverse interval, 10-20 m Station interval
	Spacing		
	Method	SP	Traversing, 200 m – 400 m traverse interval, 10-20 m Station interval
	Spacing		
Graphite	Method	SP	Traversing, 200 m – 400 m traverse interval, 10-20 m Station interval
	Spacing		
	Method	Gravity	Traversing, 200 m – 400 m traverse interval, 10-20 m Station interval
	Spacing		
	Method	Magnetic	Traversing, 200 m – 400 m traverse interval, 10-20 m Station interval
	Spacing		

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16/11/2024

Diamond	Method	Gravity	Random grid, 1-2 Km
	Spacing		
	Method	Magnetic	Random grid, 1-2 Km
	Spacing		
	Method	Resistivity	Random grid, 1-2 Km
	Spacing		
Gemstone	Method	Methods, profiles, spacing will be as per the nature of host rocks	
	Spacing		
Potash and Phosphorite	Method	Methods, profiles, spacing will be as per the nature and association of these deposits 2D & 3D Seismic, radiometric survey	
	Spacing		
Tin, Tungsten and Molybdenum	Method	Methods, profiles, spacing will be as per the nature and association of these deposits	

6. Manpower deployment
7. Break-up of expenditure
8. References

List of Plates

Plate 1: Geological map on 1:50,000 with location

index. Plate 2: Geological map/s on 1:50,000.

Plate 3: Ground geophysical map/s (NGPM) on

1:50,000. Plate 4: Aeromagnetic map/s.

Plate 5: Proposed block boundary over Geological map.

Plate 6: Proposed block boundary over Land use/ Accessibility map. Not required at this stage. Plate 7: Proposed block boundary over topographic map on 1:50,000.

Any other relevant plates.

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.Annexure - II

Proposal **for** _____ **Block,**
_____ **District,** _____ **State for**
G3 or G2 Stage Mineral Exploration under NMET.

**(Basemetals/ Ferrous/ Non-Ferrous/ Industrial/Strategic & Critical/
Precious metals etc.)**

By

_____ **Agency**

Place:

Date:

Summary of the Block for G3 or G2 Stage Mineral Exploration

	Features	Details
	Block ID	
	Current Exploration Agency	For G3 or G2
	Previous Exploration Agency	G4/G3 stage GR Producing Agency
	G4 stage Geological Report (Previous stage Geological Report)	G4 stage GR should be submitted for G3 stage proposal and G3 stage GR for G2 proposal
	Commodity	
	Mineral Belt	
	Completion Period with entire Time schedule to complete the project	
	Objectives	
	Whether the work will be carried out by the proposed agency or throughoutsourcing and details thereof. Components to be outsourced and name of the outsource agency	
	Name/ Number of Geoscientists	
	Expected Field days (Geology) Geological Party Days	
1.	Location	
	Latitude	
	Longitude	
	Villages	
	Tehsil/ Taluk	
	District	
	State	
2.	Area (hectares/ square kilometres)	
	Block Area	
	Forest Area	
	Government Land Area	
	Private Land Area	
3.	Accessibility	
	Nearest Rail Head	
	Road	
	Airport	
4.	Hydrography	
	Local Surface Drainage Pattern (Channels)	
	Rivers/ Streams	
5.	Climate	
	Mean Annual Rainfall	
	Temperatures (December) (Minimum) Temperatures (June) (Maximum)	
6.	Topography	
	Toposheet Number	
	Morphology of the Area	
7.	Availability of baseline geoscience data	
	Geological Map (1:50K/ 25K)	Available / Not Available

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	Geochemical Map	Available / Not Available
	Geophysical Map (Aeromagnetic, ground geophysical, Regional as well as local scale GP maps)	Available / Not Available
8.	Justification for taking up Reconnaissance Survey / Regional Exploration	Details should be furnished with surface/subsurface geological, geochemical. Geophysical data along with resource data (resource, average grade, cut-off, strike length, depth extension already proved with the confidence level). In case of exploration proposed near the active mine area, sufficient justification should be given by collecting surface samples in suitable location which represent the mineralization from the area proposed for current exploration work along with analytical data

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Detailed description on the following titles to be made in the Detailed Proposal:

1. Block Summary

Physiography

Background Geology (Regional Geology, Geology of the Block)

Mineral potentiality based on geology, geophysics, ground geochemistry etc. Scope for proposed exploration

Recommendations of G4/G3 stage Mineral Exploration Report

Objectives

2. Previous Work

Attach complete Previous Geological Report G4 stage for G3 stage projects; both G4 and G3 stage reports for G2 stage projects

Previous Exploration in adjoining area (Regional area); All the sample (bedrock), borehole location should be plotted on the geological map and analytical data should be discussed briefly

Previous Exploration in the proposed block area: All the sample (bedrock), borehole location should be plotted on the geological map and analytical data should be discussed briefly

3. Block description

Block Corner points / Cardinal Points	Latitude	Longitude
A B C D E etc.,		

4. Planned Methodology

5. Nature Quantum and Target

G4 stage GR should be submitted for G3 stage proposal and G3 stage GR for G2 proposals
succinct details of the previous stage exploration

Nature and Quantum of work proposed

Components	G3 Stage	G2 Stage
Aerial reconnaissance	Required if not covered in previous stage RF 1:4000/1:2000/1:1000	Use G3 Stage work
Geological Survey	RF 1:5000/ 1:2000	Use G3 stage maps
Geochemical Survey	Geochemical sampling (Chip/ Channel/ Pit/ Trench/ Core/ Soil)	Detailed Geochemical sampling Channel/ Pit/ Trench/ Core/ Soil/ in systematic manner
Geophysical Survey	Detailed ground geophysical work, borehole geophysical survey logging (Refer another table below)	Borehole geophysical logging special geophysical traverses for problem solving, if required (refer another table below)
Pitting/ Trenching	Pitting/ trenching to exposed mineralized zone.	Refine: Systematic pitting and trenching at regular interval along each borehole profile for surface/ subsurface correlation, resource calculation and also to define the ore body in soil covered area
Scout drilling / Systematic drilling	Refer another table below	Refer another table below
Grab and Chip sampling	Systematic sampling of few representative samples to be subjected to Davis tube recovery test in case of BMQ	Refine Sampling: Systematic sampling

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Petrographic and mineragraphic studies	Reocks of the deposit (host rock for mineralization), alterations connected with mineralization, target mineral phases (ore and gangue metal/ minerals), paragenesis, primary/ secondary zones	Petrographic character of rocks including grain size, texture, controls of mineralization etc.
Synthesis of all available data	i) Integration of regional/ detailed geophysical, geological and geochemical data, if not done earlier (should be given in softcopy in shape file)	i) Integration of detailed geophysical, geological and geochemical data, if not done earlier (should be given in softcopy in shape file) ii) Synthesis of all available data and Report writing
Not required in the quantum of work	ii) Synthesis of all available data and Report writing	

Borehole spacing (As per MEMC, 2015)

Type of deposit	Bedded stratiform and Tabular deposit of regular habit minerals to be identified	Bedded stratiform and tabular deposits of irregular habit (Minerals to be identified)	Lenticular bodies occurring en echelon Lenses, pockets. (Different minerals)
G3 Stage	800 m to 400 m	400 m or closer	Borehole spacing along strike may be kept 200-100 m or closer interval
G2 Stage	200 m or closer	200 m to 100 m or closer	Borehole spacing along strike may be kept 100-500 m or closer interval
Remarks	i) For shallow surficial deposits continuing to a depth of up to 6 m from surface pitting in grid spacing for various levels of prospecting may suffice. For deposits continuing further in depth, drilling is recommended. ii) Abiotic geo-environmental studies, geo-technical studies and bulk beneficiation studies to be conducted at G2 stage. iii) 10% internal check samples of drill cores is recommended at G2 stage. iv) 5% external check samples of drill cores is recommended at G2 stage.	i) For shallow surficial deposits continuing to a depth of up to 6m from surface pitting in grid spacing for various levels of prospecting may suffice. For deposits continuing further in depth, drilling is recommended. ii) Abiotic geo-environmental studies, geo-technical studies and bulk beneficiation studies to be conducted at G2 stage. iii) 10% internal check samples of drill cores is recommended at G2 stage. iv) 5% external check samples of drill cores is recommended at G2 stage.	i) Exploratory mine openings-open pit or underground with bulk determination of grades wherever necessary at G2 stage. ii) Abiotic geo-environmental studies, geo-technical studies and bulk beneficiation studies to be conducted at G2 stage. iii) 10% internal check samples of drill cores is recommended at G2 stage. iv) 5% external check samples of drill cores is recommended at G2 stage.
(Vertical depth of intersection of mineralized zone for different level boreholes should be specified, number of boreholes (first, second, third), borehole spacing, approximate length of different level of boreholes may also be specified)			

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16/11/2023

Geophysical Studies

General specifications of geophysical studies for various commodities is practice by GSI are as below, however, the parameters likely to vary depending on the local geological set-up and nature and behavior of ore body.

Commodity	Parameters	Technique	G3 stage (Preliminary Exploration)	G2 stage (General Exploration)	
Chromite	Method	Gravity	1-0.5 km grid / 500-200m	Along traverse at 50-20 m station interval	
	Spacing				
	Method	Magnetic	1-0.5 km grid / 500-200m	Along traverse at 50-20 m station interval	
	Spacing				
Manganese	Method	Gravity	1-0.5 km grid / 500-200m	Along traverse at 50-20 m station interval	
	Spacing				
	Method	Magnetic Resistivity	1-0.5 km grid / 500-200m	Along traverse at 50-20 m station interval	
	Spacing				
Basemetal	Method	Gravity	200 m-500 m grid/ 200-100 m	----	
	Spacing				
	Method	Magnetic	200 m-500 m grid/ 200-100 m	----	
	Spacing				
	Method	Electrical Resistivity, IP, SP	Profiles as per objective		
	Spacing				
Iron Ore	Method	Magnetic Gravity	1-2 km grid, Regional Semi Regional 500-200 m	50m -100 m traverse interval, 10-20 m station interval	
	Spacing				
REE & RM	Method	Gravity	200 m-1 km grid, Semi Regional 500-200 m	50m -100 m traverse interval, 10-20 m station interval	
	Spacing				
	Method	Resistivity	200 m-1 km grid, Semi Regional 500-200 m	Traversing, 50m-100 m traverse interval, 10-20 m station interval	
	Spacing				
	Method	Radiometric	200 m-1 km grid, Semi Regional 500-200 m	Traversing, 50m-100 m traverse interval, 10-20 m station interval	
	Spacing				
Gold/ PGE & Ni/ Basemetals	Method	IP / Resistivity	Traversing, 100 m – 200 m (50-25m) traverse interval, 10-20 m (3-5 m) station interval	Traversing , 50 m-100 m (25m or lesser) traverse interval, 10-20 m (3-5 m or closer) station interval	
	Spacing				
	Method	Magnetic	Traversing, 100 m – 200 m traverse interval, 10-20 mStation interval	Traversing, 50m-100 m traverse interval, 10-20 m station interval	
	Spacing				
	Method 3	SP	Traversing, 100 m – 200 m traverse interval, 10-20 mStation interval	Traversing, 50m-100 m traverse interval, 10-20 m station interval	
	Spacing				
Graphite	Method	SP	Traversing, 100 m – 200 m traverse interval, 10-20 mStation interval	Traversing, 50m-100 m traverse interval, 10-20 m station interval	
	Spacing				
	Method	SP	Traversing, 100 m – 200 traverse interval, 10-20 m Station interval	Traversing, 50 m – 100 traverse interval, 10-20 m Station interval	
	Spacing				
	Method		Traversing,	Traversing,	

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16/11/2023

	Spacing	Magnetic	100 m – 200 traverse interval, 10-20 m Station interval	50 m – 100 traverse interval, 10-20 m Station interval
	Method	Resistivity	Traversing, 100 m – 200 traverse interval, 10-20 m Station interval	Traversing, 50 m – 100 traverse interval, 10-20 m Station interval
	Spacing			
Diamond	Method	Gravity	Random grid, 1km – 500 m/ 500-200m	Traversing, 50 m – 100 traverse interval, 10-20 m Station interval
	Spacing			
	Method	Magnetic	Random grid, 1km – 500 m/ 500-200m	Traversing, 50 m – 100 traverse interval, 10-20 m Station interval
	Spacing			
	Method	Resistivity	Random grid, 1km – 500 m/ 500-200m	Traversing, 50 m – 100 traverse interval, 10-20 m Station interval
	Spacing			
Gemstone	Method	Methods, profiles, spacing will be as per the nature of host rocks		
	Spacing			
Potash and Phosphorite	Method	Methods, profiles, spacing will be as per the nature and association of these deposits		
	Spacing	Seismic/ 2D & 3D Seismic/ radiometric survey		
Tin, Tungsten and Molybdenum	Method	Methods, profiles, spacing will be as per the nature of host rocks and nature of these deposits To delineate the shear zones & lithological boundaries		

Note: if further refinement or closer interval data is required at G2 stage exploration it will be decided based on the inference made from G3 stage exploration with proper justification.

6. Exploratory Drilling (Refer another document on exploratory drilling)
7. Manpower deployment
8. Break-up of expenditure
9. References

List of Plates

- Plate 1: Geological map on 1:50,000 and 1:25000/ 1:12500/ 1:10000 with location index.
- Plate 2: Geological map/s on 1:50,000 and 1:25000/ 1:12500/ 1:10000 (any other sample data collected in random or local grid may be plotted over geological map).
- Plate 3: Ground geophysical map/s (NGPM) on 1:50,000 and 1:25000/ 1:12500/ 1:10000.
- Plate 4: Aeromagnetic map/s.
- Plate 5: Proposed block boundary over existing Geological map.
- Plate 6: Proposed Borehole Location Map,
- Plate 7: Tentative Geological Borehole Sections.
- Plate 8: Proposed block boundary over Land use/ Accessibility map.
- Plate 9: Proposed block boundary over topographic map on 1:50,000.
- Any other relevant plates.

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16/11/2023

**FORMAT FOR CERTIFICATE TO BE SUBMITTED ALONG WITH
PROJECT PROPOSAL**

(To be given on letter head)

To
The Director & HoD
National Mineral Exploration Trust (NMET)
Ministry of Mines
F-114, Shastri Bhawan
New Delhi-11 0001

It is certified that:

1. Project titled "....." along with estimated cost Rs. Crore is submitted for consideration of NMET funding.
2. The project proposal is prepared following the guidelines prescribed in Minerals (Evidence of Mineral Contents) Rules, 2015 in case of mineral exploration project proposals.
3. The proposal has been duly examined and concurred by associate finance in accordance with canons of financial propriety.
4. The same project proposal or project proposal with similar objectives has not been submitted to any other funding agency by this organization and the project proposal bears no duplication with existing work/ ongoing project undertaken by this agency.

Date

Yours faithfully,

Place

Signature

[Name & designation of Head of the Organization]
[DG/Principal Secretary/Secretary (Geology &
Mining)/CMD/CEO/MD]

