Ministry of Mines

National Mineral Exploration and Development Trust

Minutes of the 12th Joint Meeting of Technical-cum-Cost Committees held on 16th October 2026 through video conferencing mode

The 12th Joint Meeting of the Technical-cum-Cost Committees (TCC-I & TCC-II) of National Mineral Exploration and Development Trust (NMEDT) was held on 16th October 2026 in VC mode. The meeting was chaired by Dr. S. Ravi, Dy. Director General, Geological Survey of India (GSI).

The list of participants is provided in Annexure-2.

Dr. S. Ravi, Chairman, TCC-I & TCC-II, extended a warm welcome to all members and apprised them of the agenda of the meeting.

Agenda 12.1: Proposal under scheme for partial reimbursement of exploration expenses for the holder of Composite Licences

Agenda 12.1.1. Partial reimbursement of exploration expenses in respect of the Katghora (Lithium and REE) Composite Licence (CL) Block [Implementing Agency: Maiki South Mining Pvt. Ltd. (CL Holder)]

a. Composite Licence Holder M/s Maiki South Mining Private Limited (MSMPL) presented the status of the Katghora Lithium and REE Block (2.56 sq. km.), Korba district, Chhattisgarh, and sought partial reimbursement of exploration expenditure. The block comprises 86.63 ha of forest land, along with other Government and private land.
b. The agency outlined the project timeline, noting that prospecting commenced on 05.06.2025 envisaging phased exploration up to G2 level during FY 2025–26 to 2027–28, as per IBM's approved plan. G3 Phase-I is nearing completion, and the geological report is under preparation.
c. The block lies along the southwestern margin of the Chhotanagpur Gneissic Complex (CGC), adjoining the Bilaspur–Raigarh Belt within the eastern extension of the Central Indian Tectonic Zone (CITZ).
d. The dominant lithology comprises a gneiss–granitoid complex, including migmatitic granite gneiss, foliated monzogranite, porphyritic granite and coarse-grained leucogranite.
e. Metasedimentary and metavolcanic rocks, including quartzite, phyllite, mica schist and quartz-chlorite schist, occur as interbeds trending WNW–ESE.
f. Granitoid intrusions and pegmatite veins containing feldspar, quartz, muscovite, tourmaline, garnet and beryl intrude the gneiss and granite. The agency reported lepidolite occurrences in pegmatites as an indicator of potential lithium enrichment.
g. The agency informed the Committee about substantial completion of G3 Phase-I exploration, including geological mapping, topographical survey, DTM generation, channel sampling, core drilling and most analytical studies. Pitting and pit sampling achieved 79.2% and 85.7%, respectively, while BRS sampling exceeded the target at 125%; preparation of the geological report and expert interpretation is ongoing.
h. The agency presented surface geochemical results, with porphyritic gneiss recording the highest average Li (648.8 ppm) and TREE (537.2 ppm), followed by leucogranite (264.51 ppm Li; 56.79 ppm TREE) and pegmatite (124.83 ppm Li; 17.55 ppm TREE).

02.11.26 02/11/2026

i. The agency presented results from 10 boreholes (KTML-01 to KTML-10), indicating lithology-controlled lithium enrichment, with QABS and porphyritic granite showing the strongest enrichment, recording weighted average Li values of 569 ppm and 556 ppm, respectively.
j. Leucogranite and pegmatite exhibited comparatively lower enrichment, with weighted average Li values of 253 ppm and 133 ppm, respectively, despite constituting a major proportion of the drilled lithology.
k. The agency reported that lithium mineralisation is predominantly hosted in Li-bearing phengite, rather than lepidolite, within leucogranite, pegmatite, aplitic veins and locally porphyritic granite and amphibole–biotite schist, as established through mineralogical and geochemical studies.
l. The Committee observed that lithium values are generally low in the dominant leucogranite and pegmatite lithologies, with no significant enrichment across the block.
m. Elevated lithium values are confined to small, localised zones associated with porphyritic-granite enclaves and amphibole–biotite schist, indicating heterogeneous rather than pervasive mineralisation.
n. The Committee noted that lithium is predominantly hosted in Li-bearing phengite, not lepidolite as initially presented by the agency, and emphasised the need to establish the continuity, extent and resource potential of the anomalous zones.
o. The Committee observed that lithium distribution is without any well-defined zone or litho-unit exhibiting significant concentration, and that no economically significant lithium mineralisation has been established so far.
p. The Committee deliberated extensively on the proposal and observed that, owing to the absence of an approved Standard Operating Procedure (SoP), consideration of the proposal was delayed, during which a substantial quantum of exploration work had already been completed. The Committee opined that retrospective funding for the work undertaken prior to approval would not be admissible.
q. The Committee observed that the exploration carried out so far has not established any significant concentration of lithium or a well-defined zone of economically promising mineralisation within the block.
r. The Committee opined that the decision to continue or discontinue further exploration rests with the agency, being the Composite Licence holder. However, based on the exploration results and the absence of established significant lithium mineralisation, the Committee considered the proposal technically unfeasible.
s. The Committee referred the proposal to the PSC of NMEDT for consideration and decision on partial reimbursement of exploration expenses, observing that the proposal was not technically feasible based on the exploration results presented.

Recommendations of TCC:

The Committee observed that the exploration carried out so far has not established any significant lithium concentration or a well-defined zone of economically promising mineralisation within the block. Accordingly, the proposal was considered technically unfeasible and referred to the PSC of NMEDT for consideration and decision.

Agenda 12.1.2. Partial reimbursement of exploration expenses in respect of the Dombarahalli Phosphate (Apatite) and REE Composite Licence (CL) Block

02.11.26 02/11/2026

[Implementing Agency: Ramgad Minerals and Mining Limited (CL Holder)]

a. The agency did not attend the meeting or present the material. However, the Committee opined that if the agency has started the work, retrospective funding for the work undertaken prior to approval would not be admissible.

Recommendations of TCC:

The Committee clarified that retrospective funding for work undertaken prior to obtaining approval would not be admissible under the scheme.

12.2 Review of Ongoing Projects in Siwana Ring Complex

Agenda 12.2.1. Geological and Geophysical Investigation in part of Siwana Ring Complex, Balotra district, Rajasthan (Block A)

[Implementing Agency: Shijay Projects India Pvt. Ltd.]

a. The agency reported completion of geological mapping (86 sq. km.), gravity survey (1,077 stations), drilling (1,375 m) and DGPS fixation of all 11 borehole locations. ICP-MS analysis of 20 BRS samples is complete, while drill-core analysis, 10% check-sample analysis and WD-XRF analysis, including check samples, are in progress.
b. The agency reported collection of 20 BRS samples, comprising 9 channel and 11 grab samples, from different lithologies, including rhyolite, alkali/alkaline granite, basic volcanics, porphyritic rhyolite and rhyolite–basic volcanic contact zones.
c. The agency further informed that ICP-MS analysis of 20 surface BRS samples recorded TREE values ranging from 202.6 to 5,343.1 ppm, with the highest value recorded in alkaline granite (sample SPIPL/SURFACE/005).
d. The results indicated pronounced LREE enrichment, along with significant HREE concentrations, suggesting promising REE mineralisation and an anomaly threshold (mean + 2SD) of approximately 500 ppm.
e. The agency reported completion of the gravity survey at 1,077 stations on a 200 m × 400 m grid, preparation of Bouguer and residual gravity anomaly maps, and comparison with NAGMP data. Borehole locations and soil/sand thickness were also plotted over the residual gravity map.
f. The agency informed that the application for forest NOC was submitted on 1 July 2026 and the forest approval was received on 30 July 2026.
g. The agency reported completion of 11 boreholes (SPIPL/BHNO/001–011), achieving the approved drilling quantum of 1,375 m. Boreholes BH-002 and BH-007 encountered weathered rhyolite without core recovery; however, handheld XRF analysis indicated encouraging values in BH-002 at 28–29 m and 48–49 m. Core sampling and associated QA/QC activities are in progress in the remaining boreholes.
h. The agency presented drill-core REE analytical results indicating TREE values of up to 1,633.7 ppm in BH-01, 2,842.5 ppm in BH-05 and 5,024 ppm in BH-08. BH-05 recorded predominantly high TREE values, while three samples from BH-08 recorded values of 3,000 ppm or above.
i. The agency reported Nd concentrations ranging from 170–436 ppm in BH-05 and 185–397 ppm in BH-08, highlighting the encouraging REE enrichment in these boreholes, consistent with the preliminary handheld-XRF results.

02.11.26 02/11/2026

j. The agency presented four proposed G3 exploration blocks (East, West, South and Southwestern), delineated over the residual gravity anomaly map based on handheld-XRF results from four boreholes. Zirconium was considered a pathfinder element for REE, with enrichment recorded in BH-04 (3,481 ppm), BH-05 (5,987 ppm), BH-08 (8,963 ppm) and BH-11 (3,374 ppm), along with associated Y, Nb and Rb enrichment.
k. The Committee reviewed the progress of work and emphasised that the planning of Phase-II drilling should be based on a comprehensive evaluation of Phase-I exploration results, including geological, geophysical and geochemical data.
l. The Committee recommended expediting the chemical analysis of all Phase-I borehole core samples and undertaking an integrated assessment of the results from all 11 boreholes before finalising the Phase-II drilling programme.
m. The Committee advised that G3 exploration blocks may be delineated only after receipt and evaluation of the analytical results of boreholes. The area of each G3 block shall be about 2 sq. km.

Recommendations of TCC:

The Committee recommended expediting the chemical analysis of all Phase-I borehole core samples and undertaking an integrated assessment of the results from all 11the boreholes before finalising the Phase-II drilling programme. G3 exploration blocks shall be delineated based on the evaluated results, with the area of each block about to 2 sq. km.

Agenda 12.2.2. Geological and Geophysical Investigation in part of Siwana Ring Complex, Balotra district, Rajasthan (Block B)
[Implementing Agency: MMPL Pvt. Ltd.]

a. The agency presented the physical progress of the approved Phase-I exploration programme. Desktop study, field reconnaissance, mapping updation, BRS sampling (41 samples against 40 planned), DGPS survey (16 stations) and ground gravity survey (1,625 stations) had been completed. Core drilling of 2,000 m through 16 boreholes had substantially progressed, with 1,890 m completed in 15 boreholes and the 16th borehole under progress.
b. The agency informed that Phase-II drilling (6,125 m) had also commenced, with 84 m completed in one borehole. Laboratory analysis of the 480 approved drill-core samples was in progress, with ICP-MS results received for 89 samples from BH-07, while the remaining 391 samples were under analysis..
c. The geochemical results of 41 BRS samples analysed through ICP-MS indicated significant REE enrichment, with TREE+Y values reaching approximately 4,480 ppm and an average of about 1,885 ppm. The samples exhibited predominantly LREE-enriched signatures, with LREE contributing approximately 75–87% of TREE. Positive associations of TREE+Y with Th, U and Nb, and moderate-to-good associations with Ta, Hf and Zr, were also reported. The agency clarified that the results represented different lithological units and spatially separated occurrences and not a single homogeneous dataset.
d. The agency presented the results of the integrated geophysical investigations, comprising ground gravity, residual gravity, aeromagnetic and radiometric surveys. The gravity survey delineated five distinct anomaly domains (Zones A–E), while integration of the geophysical datasets helped identify eight major lithological/structural boundaries

02.11.26 02/11/2026

and priority zones for shallow hard rock. Zone A exhibited the strongest positive gravity anomaly and coincided with basalt-bearing boreholes BH-14, BH-15 and BH-16. A shallow hard-rock target identified through geophysical interpretation was validated by BH-04, which intersected hard rock at 58 m depth.

e. The agency further presented the comparative assessment of core logging, HHXRF and ICP-MS results for boreholes BH-05 and BH-07. In BH-07, Zr exhibited moderate-to-strong positive correlations with LREE, HREE and Y, while LREE and HREE showed a very strong correlation. REE and Zr enrichment was particularly evident in the 70–100 m interval. The agency highlighted that the increasing enrichment towards the bottom of the borehole indicated the possibility of continuation of mineralisation below the existing drilling depth of 125 m, warranting deeper exploration.
f. Based on the geological, geochemical and geophysical findings of Phase-I, the agency proposed an infill drilling programme under Phase-II, increasing the drilling density to approximately one borehole per 4 sq. km., comprising 33 boreholes in total. The proposed borehole locations were selected considering the mineralisation trends established during Phase-I and the identified gravity anomalies. The agency also proposed increasing the borehole depth beyond 125 m, up to 175–200 m, to investigate the continuity of REE mineralisation at depth.
g. The agency further requested approval for an additional 100 BRS samples to improve the spatial coverage of geochemical sampling, particularly around the locations recording TREE+Y values exceeding 4,000 ppm. It also sought flexibility in finalising borehole locations based on the identified geophysical anomalies, even where such locations fall outside the prescribed regional grid, along with permission to undertake deeper drilling up to 175–200 m wherever geological and geochemical evidence warrants.
h. The agency suggested further G3-level exploration based on the favourable geological setting, significant REE enrichment recorded in BRS and borehole samples, and supporting geophysical signatures. Particular emphasis was placed on the occurrence of peralkaline granite, micro-granite and porphyritic rhyolite, which were considered prospective for REE mineralisation. The agency highlighted that the integrated exploration results obtained so far warranted further detailed investigation to establish the extent, continuity and depth persistence of the mineralisation.
i. The Committee reviewed the progress of work and recommended that the analytical results of all samples collected from the Phase-I boreholes be expedited and comprehensively evaluated before finalising the Phase-II infill drilling programme. The geochemical results should be correlated with geological and geophysical data to establish the extent, continuity and depth-wise distribution of REE mineralisation.
j. The Committee advised that the borehole plans of both Phase-I and Phase-II be shared with the Nodal Officer (Siwana), GSI, WR, for technical guidance. The locations of the proposed Phase-II infill boreholes should be finalised in consultation with the Nodal Officer, duly considering the integrated interpretation of geological, geochemical and geophysical data. The decision on additional BRS samples and deeper BH to be discussed in forthcoming meeting.
k. The Committee recommended that the area of G3-level exploration blocks be restricted to 2 sq. km. and emphasised the need to expedite the pending chemical analysis of drill-core samples to facilitate timely assessment of exploration results and planning of subsequent exploration activities.

02.11.26 02/11/2026

Recommendations of TCC:

The Committee recommended expediting the chemical analysis of Phase-I borehole samples and sharing the Phase-I and Phase-II borehole plans with the Nodal Officer (Siwana), GSI, WR, for guidance on infill drilling locations. The Committee further advised restricting the G3 exploration block area to 2 sq. km.

Agenda 12.2.3. Geological and Geophysical Investigation in part of Siwana Ring Complex, Balotra district, Rajasthan (Block C)
[Implementing Agency: Critical Mineral Trackers]

a. The agency presented the physical progress of Phase-I exploration, reporting completion of the approved surface activities (100%), including geological mapping and reinterpretation over 114 sq. km. and ground gravity survey (1,425 stations). A total of 1,722.8 m of drilling was completed against the approved 1,750 m (98.4%), covering 14 boreholes, with concrete pillaring completed at all locations.
b. The agency informed the Committee that Phase-I investigation had been completed and Phase-II, comprising delineation of G3 exploration zones, was in progress. The Phase-II borehole plan had been approved by GSI, Western Region.
c. The agency presented an integrated interpretation of surface geological mapping, ground gravity survey and geochemical results of 30 BRS and 420 core samples collected from 14 boreholes. Based on the integrated assessment, 10 prospective G3 exploration zones were delineated across the western, central and eastern parts of the block, covering a cumulative area of approximately 20 sq. km.
d. The agency informed that each of the 10 prospective zones covered approximately 2 sq. km., with eight zones centred around existing boreholes and two additional zones delineated based on geochemical enrichment in bedrock samples.
e. The agency explained that the delineation of prospective G3 zones was based on the integrated assessment of REE enrichment in bedrock and drill-core samples, residual gravity highs and gradients, and the associated geological and structural settings. The identified zones were considered prospective targets for further systematic G3-level exploration.
f. The Committee reviewed the proposal and observed that the analytical results of boreholes SBH-6, SBH-7 and SBH-8 were not significant. It further opined that deeper drilling in areas having substantial sand cover/alluvium thickness of around 100 m may not be economically viable and advised that such locations be carefully evaluated before undertaking further drilling.
g. The Committee advised the agency to establish the lateral and vertical extent (width and continuity) of the mineralised zones (MZ) and identify the fertile rhyolitic flows associated with REE enrichment to facilitate the delineation of prospective zones.
h. The Committee recommended that Phase-II boreholes be prioritised in the vicinity of Phase-I boreholes that have reported elevated REE values, duly considering the geological and geophysical characteristics. Suitable G3 exploration blocks may thereafter be delineated based on the analytical results of the Phase-II boreholes.
i. The Committee instructed the agency to maintain regular coordination with and provide periodic progress updates to the Nodal Officer (Siwana), GSI, WR, regarding the exploration activities and findings.

02.11.26 02/11/2026

Recommendations of TCC:

The Committee recommended prioritising Phase-II drilling near REE-enriched Phase-I boreholes, establishing the extent of mineralised zones and identifying fertile rhyolitic flows. Deeper drilling in areas with substantial sand/alluvial cover should be avoided on economic considerations. Suitable G3 blocks may be delineated based on Phase-II results, with regular progress updates to the Nodal Officer (Siwana), GSI, WR.

Agenda 12.2.4. Preliminary Exploration (G3) for REE and associated critical minerals in the NB 1 block (2.00 sq. km.) in the northern part of the Siwana Ring Complex, Balotra district, Rajasthan

[Implementing Agency: M/s Hindmetal Exploration Services Pvt. Ltd.]

a. Hindmetal Exploration Services Pvt. Ltd. (HESPL) presented the progress of work in the NB-1 block (2.00 sq. km.), located in the northern part of the Siwana Ring Complex, Balotra district, Rajasthan.
b. The agency apprised the Committee that the exposed outcrops across the three blocks predominantly comprise rhyolitic volcanic rocks, intruded by later-phase felsic and basic dykes. The volcanic flows exhibit an overall dip of 15–25° towards SE (150–170°).
c. A total of nine volcanic flows, comprising rhyolite, trachyte, trachydacite and porphyritic rhyolite, were mapped across the three blocks. Flows 8 and 9 in the NB-1 block were inferred to be concealed beneath soil cover.
d. Channel and bedrock sampling comprised 80 channel samples and 29 BRS samples against the approved quantum of 100 samples. The collected samples had been dispatched to the laboratory for chemical analysis.
e. Phase-I drilling of 750 m through five boreholes (NB1/BH-01 to NB1/BH-05), including core logging and sampling, had been completed. Laboratory analysis of 125 approved drill-core samples was pending, while the ground magnetic survey involving 250 stations was in progress.
f. The agency highlighted the prospective REE potential of the concealed Flow 8 and Flow 9 in the NB-1 block, drawing reference to the elevated REE potential reported in adjoining exposed flows (Flows 15, 16 and 17) in the NB-16 and NB-17 blocks. Further drilling was considered necessary to investigate the concealed flows and assess their REE potential.
g. The Committee recommended that the chemical analysis of borehole samples be expedited and the results correlated with the analytical data of BRS and channel samples. The integrated findings, particularly in view of the REE values below 1,000 ppm reported in the samples analysed so far, shall be presented before the Committee prior to initiation of Phase-II drilling.
h. The Committee advised the agency to expedite the pending sample analysis to facilitate timely assessment of REE mineralisation and planning of the Phase-II drilling programme.
i. The Committee instructed the agency to maintain regular coordination with and provide periodic progress updates to the Nodal Officer (Siwana), GSI, WR, regarding the progress and findings of the exploration work.

Recommendations of TCC:

The Committee recommended expediting the chemical analysis of all borehole, BRS and channel samples and presenting the integrated results before the Committee

02.11.26 02/11/2026

prior to initiating Phase-II drilling.

The agency was further advised to maintain regular coordination with and provide progress updates to the Nodal Officer (Siwana), GSI, WR.

Agenda 12.2.5. Preliminary Exploration (G3) for REE and associated critical minerals in the NB 2 block (2.00 sq. km.) in the northern part of the Siwana Ring Complex, Balotra district, Rajasthan
[Implementing Agency: M/s Mining Tech Consultancy Services Limited]

a. The agency presented the progress of work against the approved exploration programme. Reinterpretation of existing ground and airborne geophysical data, detailed geological mapping at 1:2,000 scale (2 sq. km.), bedrock channel sampling (100 samples), drone-based topographic survey (2 sq. km.) and ground magnetic survey (250 stations) had been completed.
b. The agency further informed that processing and interpretation of the magnetic data were in progress.
c. The agency also apprised the Committee that, against the approved drilling programme of 3,000 m (Phase-I: 800 m and Phase-II: 2,200 m), a total of 311 m had been completed in three boreholes using two drilling rigs. Borehole NB2/PBH/05 was completed at 150 m, while drilling in NB2/PBH/11 and NB2/PBH/19 was in progress at 35 m and 126 m, respectively. The borehole plan had been finalised in consultation with GSI, WR, and mobilisation of additional rigs was in progress.
d. The agency further informed that two proposed Phase-I boreholes, NB2/PBH/03 and NB2/PBH/15, fall within forest land. The application for forest clearance had been submitted through the PARIVESH portal, and a site inspection of the NB-2 block had been conducted by the DFO, Siwana.
e. The agency presented the status of laboratory investigations. ICP-MS analysis had been completed for 38 of the 100 approved primary bedrock/trench samples, while the 10 check samples were pending. WD-XRF analysis had been completed for 8 of the 50 approved samples. Analysis of core samples was pending generation of drill-core material.
f. Geological mapping at 1:2,000 scale established the occurrence of rhyolite flows (Flows 6, 7, 10, 11 and 12) along with associated pyroclastic rocks. Petrographic examination of representative BRS samples (NB-2/CH-02/BRS/01 and NB-2/CH-19/BRS/01) identified both samples as porphyritic rhyolite.
g. The agency presented the processed ground magnetic survey results, wherein the Reduced-to-Pole (RTP) map indicated prominent magnetic anomalies trending NW–SE and E–W across the block. These anomalies were presented as important geophysical features for further geological interpretation and exploration targeting.
h. ICP-MS results of 38 BRS samples indicated TREE values ranging from 58.72 to 1,668.86 ppm, with an average of 908.67 ppm, while Y values ranged from 20.94 to 384.67 ppm, averaging 213.98 ppm. The highest recorded Zr value was approximately 2,459 ppm.
i. The Committee reviewed the progress of work and recommended that priority be accorded to the chemical analysis of borehole samples and that further drilling, particularly under Phase-II, be planned based on the analytical results and their correlation with the surface geochemical data. The reported REE values of up to

02.11.26 02/11/2026

approximately 1,670 ppm in surface samples may also be considered while finalising the drilling targets.

j. The Committee emphasised the need to expedite the analysis of all pending samples to facilitate timely assessment of REE mineralisation and formulation of the Phase-II drilling programme.
k. The Committee instructed the agency to maintain regular coordination with and provide periodic progress updates to the Nodal Officer (Siwana), GSI, WR, regarding the progress of exploration activities.

Recommendations of TCC:

The Committee recommended expediting the chemical analysis of all pending borehole and surface samples and planning further drilling under Phase-II based on the integrated analytical results.

The agency was further instructed to maintain regular coordination with and provide periodic progress updates to the Nodal Officer (Siwana), GSI, WR.

Agenda 12.2.6. Preliminary Exploration (G3) for REE and associated critical minerals in the NB 3 block (2.00 sq. km.) in the northern part of the Siwana Ring Complex, Balotra district, Rajasthan
[Implementing Agency: M/s United Exploration India Pvt. Ltd.]

a. The agency presented the progress of Phase-I work and informed about completion of detailed geological mapping with contouring over 2 sq. km. and the topographic survey over the same area.
b. The agency further informed that chemical analysis of surface samples was in progress, with XRF analysis completed for 16 of 55 samples and ICP-MS analysis for 56 of 385 samples. The approved drilling programme of 800 m in five boreholes had not commenced.
c. The agency also informed that the Form-C application for forest clearance was submitted on the PARIVESH portal on 01.04.2026, the EDS raised by the concerned authority was complied with on 10.06.2026, and forest clearance was received on 07.10.2026. The borehole-location and geophysical-survey plan was finalised on 01.09.2026 after interaction with GSI, Western Region, with the drilling machine placed in the field at BH-07 and drilling expected to commence in the fourth week of October 2026, and the ground magnetic survey is expected to commence in last week of October 2026.
d. The agency presented the geological mapping results at 1:2,000 scale, identifying seven volcanic flow units (Flows 6–12), comprising porphyritic rhyolite and amygdaloidal/vesicular basalt, along with welded tuff, volcanic breccia, mafic and felsic dykes, and thin ash beds. The flows exhibit a southerly dip of 25–30°, with Flow 7 (rhyolite) showing the maximum lateral extent of approximately 300 m. The northern part of the block is concealed beneath aeolian sand and soil cover, while the southern part comprises exposed flow units.
e. The agency reported two prominent joint sets trending N–S to NE–SW and E–W to ESE–WNW, with near-vertical to vertical dips, along with NNW–SSE to NW–SE trending dykes, indicating the structural framework of the block.
f. Petrographic studies identified porphyritic textures in both rhyolite and basalt. The rhyolite comprises quartz–feldspar phenocrysts, secondary calcite-filled vesicles and

02.11.26 02/11/2026

zircon, which was highlighted by the agency as an indicator of REE enrichment. The basalt exhibits intergranular to sub-ophitic textures with plagioclase and pyroxene, along with partially mineral-filled vesicles.

g. The Committee observed that, despite receipt of forest clearance and mobilisation of the drilling rig at the site, Phase-I drilling had not commenced. The agency was directed to expedite commencement and completion of the approved drilling programme.
h. The Committee emphasised the need to expedite the chemical analysis of all collected bedrock and channel samples, as no analytical results of the surface samples had been presented so far.
i. The Committee advised the agency to discuss the analytical results with the Nodal Officer (Siwana), GSI, WR, and maintain regular coordination for effective planning and execution of further exploration activities.

Recommendations of TCC:

The Committee directed the agency to expedite Phase-I drilling and chemical analysis of all collected surface samples and to discuss the analytical results with the Nodal Officer (Siwana), GSI, WR, for further guidance.

Agenda 12.2.7. Preliminary Exploration (G3) for REE and associated critical minerals in the NB 5 block (1.98 sq. km.) in the northern part of the Siwana Ring Complex, Balotra district, Rajasthan

[Implementing Agency: M/s GeoExplore Pvt. Ltd.]

a. The agency presented the progress of work and informed about completion of geophysical overlay analysis and detailed geological mapping over the entire block (1.98 sq. km.), along with collection of 30 BRS samples, 45 channel samples and trenching of 50 cu. m. across five trenches.
b. Drilling of five Phase-I boreholes was completed, with 736.84 m drilled against the approved 800 m.
c. HR-ICP-MS analysis of all 100 approved surface samples was completed, while analysis of 250 core samples was under progress. WD-XRF analysis of 29 out of 50 samples and XRD analysis of 5 out of 10 samples were completed.
d. The agency presented the geological mapping results at 1:2,000 scale, identifying eleven flow/rock units, predominantly comprising porphyritic rhyolite, along with alkali-olivine basalt, amygdaloidal basalt, tuff, rhyolite sill and felsic and basic dykes.
e. Based on first-vertical-derivative and Euler-deconvolution magnetic analyses, the agency interpreted a NE–SW trending, Aravalli-parallel fault system traversing the block as the primary structural control for mineralisation.
f. The agency informed that ICP-MS analysis of 75 BRS and channel samples indicated significant REE enrichment, with 43 samples (57%) recording TREE+Y values above 1,000 ppm. The highest enrichment was observed in Flow 17 (BRS average: 4,340 ppm; maximum: 6,509.63 ppm), followed by Flow 15 (BRS average: 1,956.56 ppm).
g. All 45 channel samples recorded anomalous TREE values, with a reported mean of 1,587.1 ppm and a maximum of 4,712.06 ppm, indicating widespread REE enrichment. The geochemical signature was predominantly LREE-dominated, with LREE contributing approximately 62–63% of TREE and Ce as the dominant element.
h. Analysis of 253 core samples indicated that 246 samples (97%) recorded TREE+Y values above 1,000 ppm, with the highest value of 7,011 ppm in BH-03. Trench

sampling also indicated significant enrichment, with the highest average TREE+Y value of 4,114 ppm recorded in Trench-5.

i. The agency sought the Committee's approval to undertake the Phase-II exploration programme, comprising a ground magnetic survey of 250 stations, drilling of 2,200 m through 19 boreholes, and continuation of further exploration activities in the block.
j. The Committee reviewed the progress of work and suggested expediting the chemical analysis of all Phase-I borehole (core) samples and correlating the results with the surface geochemical data to establish the extent and continuity of REE mineralisation.
k. It was further instructed that the analytical results of the NB-5 block shall be correlated with those of the adjoining NB-16 and NB-17 blocks of Hindmetal Exploration Services Pvt. Ltd., particularly with respect to REE enrichment in the corresponding volcanic flows. The integrated findings shall be presented before the Committee prior to finalisation of Phase-II drilling.
l. The Committee advised the agency to discuss the proposed Phase-II ground geophysical survey plan with the Nodal Officer (Siwana), GSI, WR, to ensure uniformity and consistency in survey grid spacing across the Siwana Ring Complex.
m. The Committee recommended that the Phase-II drilling programme be planned only after receipt and comprehensive evaluation of the analytical results of all Phase-I borehole samples.

Recommendations of TCC:

The Committee recommended expediting the chemical analysis of all Phase-I borehole samples and correlating the results with those of the adjoining NB-16 and NB-17 blocks.

The Phase-II geophysical survey plan shall be discussed with the Nodal Officer (Siwana), GSI, WR, to ensure uniformity in survey grid spacing. Further drilling shall be planned based on the comprehensive evaluation of Phase-I analytical results.

Agenda 12.2.8. Preliminary Exploration (G3) for REE and associated critical minerals in the modified NB 9 and NB 10 block (2.85 sq. km.) in the northern part of the Siwana Ring Complex, Balotra district, Rajasthan
[Implementing Agency: Mineral Exploration and Consultancy Ltd.]

a. The agency informed that desktop study and 1:2,000-scale geological mapping over 2.85 sq. km have been completed, while the topographic survey is in progress. Channel sampling and ICP-MS analysis of 25 samples have been completed, whereas the remaining channel/trench samples, borehole core sampling (250), are yet to be taken up.
b. The agency informed that Phase-I drilling (5 boreholes; 125–150 m depth each; 800 m total) is yet to commence due to the ongoing tendering process, wherein only one bidder participated. The agency during 10th meeting of Joint TCC had requested permission to undertake the allotted drilling component in-house instead of through outsourcing.
c. MECL informed that the process of open tendering was underway and the technical suitability of the participating agencies was under evaluation, with shortfall documents awaited. However, the agency reiterated its request for undertaking in-house drilling to

facilitate commencement of the drilling work.

d. The Committee deliberated on the matter and, considering the importance of expediting exploration activities in the Siwana Ring Complex, opined that a one-time relaxation may be considered for undertaking in-house drilling in lieu of outsourced drilling. Accordingly, the proposal was recommended for consideration by the PSC.
e. The cost was revised accordingly.

Recommendations of TCC:

The Committee recommended undertaking in-house drilling in lieu of outsourced drilling for approval of PSC, NMEDT.

The Committee recommended revision of cost of project from Rs. 825.26 lakhs to Rs. 818.78 lakh with a change in amount of (-) Rs 6.48 lakhs (~0.79% de-escalation), for approval of PSC, NMEDT as per Annexure 1.

02.11.26

02/11/2026

Annexure-1

Revised Cost for Preliminary Exploration (G3) for REE and associated critical minerals in the modified NB9 and NB 10 block (2.85 sq. km) in the northern part of the Siwana Ring Complex, Balotra district, Rajasthan. Block area- 2.85 sq. km; Nos. of Boreholes-32 Nos.; Borehole depth range: 125m each; Total Drilling: 4000 m; Schedule timeline- 12 months (Phase 1 to be completed in 4 months and Phase 2 be completed in 8 months). Review after: 3rd, 6th and 9th months

S. No.	Job Description	Unit	SoC-Item - Sl	Rates as per SoC (2025-26)	Estimated Cost of the Proposal		Revised Estimated Cost of the Proposal		Remarks
					Qty.	Total Amount (Rs)	Revised Qty.	Total Amount (Rs)	
	Phase I								
A	**Geophysical Survey (Phase 1) (Reinterpretation of existing ground and airborne database, characterize the GP signals with the rock types and host lithology by overlay analysis)**								
i	Geophysicist: at HQ	Mandays	3.18 a	10500	30	315000	30	315000	
	Sub Total A					**315000**		**315000**	
B	**Geological Mapping (DM) (1:2000) with contouring (1st Phase)**								
i	Detailed Mapping with contouring (1:2000 scale)	per sq. km.	1.1	18300	2.85	52155	2.85	52155	
	Sub Total B					**52155**		**52155**	
C	**Pitting/Trenching**								
i	Trenching	per cu m	2.1.1	4125	75	309375	0	0	Quantum Dropped in 8th Joint TCC
	BRS and Trench Samples (Channel Samples: 150 samples)				150		50		Quantification of surface samples (To be collected in 1st phase 75 Trench + 75 BRS). Revised 50 BRS Sample
	Sub Total C					**309375**		**0**	
D	**Other Charges related to Phase I work**								
i	Geologist: In field	Mandays	1.2.1a	14500	120	1740000	120	1740000	
ii	Geologist: at HQ	Mandays	1.2.1a	10500	30	315000	30	315000	
iii	Labour charges (for sample collection, packaging, carrying, 2 Nos)	Mandays	5.8	541	240	129840	240	129840	As per rates prescribed by Central Labour Commission rates or respective State Govt. whichever is higher

02.11.26

02/11/2026

iv	Charges for one sampler per day (for sample preparation)	Mandays	1.2.1b	7850	62	486700	62	486700	
v	Labour charges (4 Nos for sample preparation)	Mandays	5.8	541	248	134168	248	134168	As per rates prescribed by Central Labour Commission rates or respective State Govt. whichever is higher
vi	Surveyor (for mapping & contouring)	Mandays	1.3.1	10500	45	472500	45	472500	GM at scale 1:2000, contour interval 2 m
vii	Labour charges (4 labours)	Mandays	5.8	541	180	97380	180	97380	
viii	Demarcation of lease boundary, Fixation of borehole and determination of co-ordinates & Reduced Level (RL) of the boreholes by DGPS (including charges for labours deployed for the work)	Per point of Observation	1.3.2	24000	38	912000	38	912000	32 BH + 6 Cardinal points
	Sub Total D					**4287588**		**4287588**	
E	**Drilling (1st Phase) (in-house)**								
i	Drilling (Hard rock) (HQ Size)	per m	2.2.1.1d	10000	800	8000000	800	8000000	5 BH (Depth range 125 m to 150m each/may vary) Grid to be prepared on 200*400 m for 2 sq. km area. 1st phase BH (5 Nos.) to be planned from this grid and these 5 BH (of 1st phase) to be distributed uniformly to represent the whole area. Samples 50 from each BH maximum 250 from 5 BHs.
ii	Land Compensation	Per Borehole	5.6	30000	5	150000	5	150000	As per actuals as certified by local authorities subject to a maximum of 30,000 per bore hole
iii	Concrete Pillar Construction	Per Borehole	2.2.7	2000	5	10000	5	10000	
iv	Borehole Plugging by cement	Lumpsum per borehole	2.2.8	10000	5	50000	5	50000	
	Sub Total E					**8210000**		**8210000**	

02.11.26

02/11/2026

F	**Laboratory Studies**								
i	HR-ICP MS (REE & Trace)	Per sample	4.1.16f	7400	400	2960000	300	2220000	Original Quantum (250 Core samples + 150 Surface samples) Revised (250 Core Sample + 50 Surface Sample)
ii	HR-ICP MS (REE & Trace) 10% check samples	Per sample	4.1.16f	7400	40	296000	40	296000	As per actuals
iii	Major oxides (WD XRF)- (oxides+ traces -24 elements)	Per sample	4.1.17a	4200	50	210000	50	210000	
iv	Major oxides (WD XRF)- (oxides+ traces -24 elements) 10% check samples	Per sample	4.1.17a	4200	5	21000	5	21000	As per actuals
v	XRD analysis for identification of minerals (Random)	Per sample	4.5.2	4000	10	40000	10	40000	
	Physical & Petrological Studies							0	
vi	Preparation of polished thin section of rock	Per sample	4.3.2	800	10	8000	10	8000	
vii	Complete petrographic /ore microscopic study/mineragraphic report of rock sample (along with 5 nos. digital photo micrographs)	Per sample	4.3.4	2800	10	28000	10	28000	
viii	EPMA	Per hour	4.4.1	10500	10	105000	10	105000	
	Sub Total F					**3668000**		**2928000**	
	Total A+B+C+D+E+F					**16842118**		**15792743**	
G	**GP Investigation (2nd Phase) (Prior to IInd phase of Drilling)**								
i	Magnetic Survey (10-30 line km)	Per station	3.2a (i)	1800	375	675000	375	675000	7.5 Lkm. 2.5 Lkm per sq.km of area with a line spacing of 200 m. Station interval is 20 m. 25 station per profile line. 25*5= 125 stations per sq. km. Total 375 stations
	Sub Total G					**675000**		**675000**	
H	**Geological Work (Mainly Core Logging)**								

02.11.26

02/11/2026

i	Geologist: In field (For Core Logging)	Mandays	1.2.1a	14500	120	1740000	120	1740000	
ii	Labour charges (for sample collection, packaging, carrying, 2 Nos)	Mandays	5.8	541	240	129840	240	129840	
iii	Geologist: at HQ	Mandays	1.2.1a	10500	30	315000	30	315000	
iv	Charges for one sampler per day (for sample preparation)	Mandays	1.2.1b	7850	206	1617100	206	1617100	
v	Labour charges (4 Nos for sample preparation)	Mandays	5.8	541	824	445784	824	445784	
	Sub Total H					**4247724**		**4247724**	
I	**Drilling (IInd Phase) (in-house)**								
i	Drilling (Hard rock) (HQ Size)	per m	2.2.1.1d	10000	3200	32000000	3200	32000000	Approx 27 BH (as per 200*400 m grid)
ii	Land Compensation	Per Borehole	5.6	30000	27	810000	27	810000	
iii	Concrete Pillar Construction	Per Borehole	2.2.7	2000	27	54000	27	54000	
iv	Borehole Plugging	Lumpsum per borehole	2.2.8	10000	27	270000	27	270000	
	Sub Total I					**33134000**		**33134000**	
	Total Drilling cost of Phase I + Phase II		**(1500 m core to be preserved; 1 complete BH and remaining from mineralised zones)**			**40000000**		**40000000**	Total cost of 4000 m drilling of both phase.
J	**Laboratory Studies**								
i	HR-ICP MS (REE & Trace)	Per sample	4.1.16f	7400	1500	11100000	1500	11100000	(1500 Core samples, Approx. 50 samples from each BH)
ii	HR-ICP MS (REE & Trace) 10% check samples	Per sample	4.1.16f	7400	150	1110000	150	1110000	As per actuals
	Physical & Petrological Studies								
iii	Preparation of polished thin section of rock	Per sample	4.3.2	800	10	8000	10	8000	

02.11.26

02/11/2026

iv	Complete petrographic /ore microscopic study/mineragraphic report of rock sample (along with 5 nos. digital photo micrographs)	Per sample	4.3.4	2800	10	28000	10	28000	
v	Specific Gravity	Per sample	4.8.1	2500	5	12500	5	12500	
	Sub Total J					**12258500**		**12258500**	
	Total A+B+C+D+E+F+G+H+I+J					**67157342**		**66107967**	
	Total outsourced component (if any)					**40000000**		**0**	
K	**In case of outsourcing of work, the Technical Supervision cost shall be 10% of the sum of all the outsourced work components with a maximum ceiling of Rs 20 lakh**		**6**			**2000000**		**0**	
	Miscellaneous Charges (Transportation of Drilling Rig, Accommodation for Drill Camp, Camp setting and winding, construction of Approach road	**Lumpsum**	2.2.9	For Drilling cost more than 2 Crore : 10% of the Drilling Cost with a maximum ceiling of ~ 25 lakh.	-	0		**2500000**	**For Both Phase I & Phase II Drilling**
L	**Total Cost**					**69157342**		**68607967**	
M	Geological Report Preparation		5.2 (iii)	Total cost of the project exceeding 150 lakh		**750000**		**750000**	As per SoC
N	Peer Review by External Expert	As per EC decision		30000		**30000**		**30000**	

02.11.26

02/11/2026

O	Project Cost without GST					69937342		69387967	
P	GST - 18%					12588722		12489834	
Q	Total Project Cost(With GST)					82526064		81877801	
R	Rs. in Lakh					825.26		818.78	
					Change in Amount			(-) 648263	
Note:					Change in Amount (Lakh)			(-) 6.48	*0.79 % de-escalation*
1	Strict adherence to the Ministry of Finance's and GFR guidelines is mandatory. Every transaction must adhere to GFR rule 21.								
2	In case of delay/non- performance, the appropriate action will be taken by competent authority against delinquent agency as per prevailing Govt. of India rules/guidelines on procurement.								
3	If any part of the project is outsourced, the amount will be reimbursed as per the SoC Sl. No. 6 of NMEDT SoC. In case of execution of the project by NEA/NPEA on its own, a Certificate regarding non outsourcing of any component/project is required.								
4	Necessary efforts should be made to minimize any adverse impact on the environment during exploration activities.								
5	Any item of work not mentioned above shall be added as per SoC.								
6	All the Geological Reports and data are to be uploaded on NGDR as per MERT template by the agency								

02.11.26

02/11/2026

Agenda 12.2.9. Preliminary Exploration (G3) for REE and associated critical minerals in the NB 11 block (2.00 sq. km.) in the northern part of the Siwana Ring Complex, Balotra district, Rajasthan
[Implementing Agency: FCI Aravali Gypsum and Minerals India Limited]

a. The agency informed that the reinterpretation of existing ground and airborne geophysical data, geological mapping at 1:2,000 scale covering 2 sq. km., and pitting/trenching (50 cu. m.) had been completed.
b. Regarding sampling and laboratory analysis, the agency reported collection of 70 out of 100 approved BRS samples. Of the 350 approved HR-ICP-MS analyses, 108 samples had been submitted, with results received for 33 samples. Further, 20 out of 50 WD-XRF analyses had been completed.
c. The agency presented the drilling progress against the approved quantum of 800 m across 5 boreholes for Phase-I. Drilling of BH-3 has been completed to 109 m, BH-1 is currently stuck at 66 m, and drilling of BH-2 commenced on 16.10.2026.
d. The agency informed that rock exposure is limited to approximately 0.1 sq. km., with the remaining area covered by alluvium. While GSI had earlier reported four rhyolitic flows during its G4-level reconnaissance survey, the agency's mapping has identified seven flows within the block. GSI advised retaining the existing nomenclature for the four previously identified flows and numbering the additional flows in continuation of the existing sequence.
e. The rhyolitic flows generally trend ENE–WSW to E–W and dip 20–30° towards the SSE to south, locally reaching 60–65°. TAS classification indicates rhyolite, trachyte, trachyandesite and dacite, belonging to a high-K calc-alkaline to shoshonitic series.
f. The agency presented the REE geochemical results of 33 samples analysed by ICP-MS to date. The TREE (Sc+Y) values were reported to reach a maximum of 3,354.46 ppm in Flow-19, followed by 3,289.65 ppm in Flow-18 and 2,814.17 ppm in Flow-21, with an average of 2,059.02 ppm for the bedrock samples.
g. The Committee reviewed the progress of work and noted that Flow-18 has indicated significant REE enrichment, with TREE values exceeding 2,000 ppm.
h. The Committee emphasised the need to evaluate the borehole analytical results in conjunction with the BRS/Channel sample results to establish the continuity and extent of REE mineralisation.
i. The Committee instructed that the agency shall complete Phase-I drilling and chemical analysis of all borehole samples, correlate the results with BRS/Channel sample data, and present the integrated findings before the Committee prior to initiating Phase-II drilling.
j. The agency shall regularly coordinate with and provide progress updates to the Nodal Officer (Siwana), GSI, WR, for technical guidance.

Recommendations of TCC:

The Committee recommended completion of Phase-I drilling and sample analysis, correlation of borehole results with BRS/Channel data, and presentation of findings before Phase-II drilling. Regular coordination with the Nodal Officer (Siwana), GSI, WR, was also advised.

02.11.26 02/11/2026

Agenda 12.2.10. Preliminary Exploration (G3) for REE and associated critical minerals in the NB 12 block (2.00 sq. km.) in the northern part of the Siwana Ring Complex, Balotra district, Rajasthan

[Implementing Agency: Natural Resource Division, Tata Steel Ltd.]

a. The agency presented the progress of work and reported completion of desktop geophysical synthesis, geological mapping and DGPS survey over 2.0 sq. km. each. Of the approved 60 BRS/CHS samples, 56 have been collected and analysed.
b. The agency apprised the Committee of completion of Phase-I drilling in all five approved boreholes, achieving the total approved depth of 800 m. Core logging, sample marking and photography have also been completed for all boreholes.
c. Sample preparation and analysis have been completed for one borehole (RJS/NB12/05). Of the approved analytical quantum, 117 out of 275 HR-ICP-MS analyses and 10 out of 55 WD-XRF analyses have been completed, while XRD analysis is yet to commence. The agency also informed that the magnetic survey has been completed.
d. The agency presented the lithological sequence encountered in borehole RJS/NB12/05, comprising weathered rhyolite and porphyritic to non-porphyritic grey and brown rhyolite flows (Flows 24–27), with felsic dyke/microgranite intrusions at 94.50–95.40 m and 104.50–108.40 m.
e. TAS classification of BRS/CHS samples indicated predominantly rhyolitic composition, with minor dacite, trachyte, trachyandesite and andesite. Petrographic studies identified monazite associated with hornblende phenocrysts in rhyolite (NBA-48; TREE 1,869 ppm) and arfvedsonite along quartz in a silica vein, indicating REE-bearing accessory mineralisation.
f. The agency informed that REE geochemical results for 107 core samples from borehole RJS/NB12/05 indicate an average Total REE+Sc+Y content of 2,813.80 ppm (range: 213.50–9,576.93 ppm), approximately 26 times the average crustal abundance (107 ppm; Taylor and McLennan, 1985). The entire drilled interval from 56 m to 167 m was reported to be REE-mineralised, with a highly enriched zone between 103 m and 111 m recording Total REE values exceeding 9,000 ppm (0.9%).
g. Based on the analytical results from one borehole each in NB-12 and NB-13, the agency reported continuous REE mineralisation (TREE >1,000 ppm) over intervals of approximately 90–110 m in each borehole.
h. The agency sought the Committee's guidance on optimising the approved core sampling quantum in view of the extensive mineralised intervals and requested approval for Phase-II drilling.
i. The Committee reviewed the progress of work and noted significant REE enrichment in the felsic dyke/microgranite intrusions within rhyolitic flows, with Flows 25 and 26 recording values exceeding 6,000 ppm in certain bands, based on the results of one borehole.
j. The Committee suggested that the agency undertake detailed characterisation of the felsic dyke/microgranite intrusions and expedite chemical analysis of all Phase-I borehole samples.
k. The Committee advised using handheld XRF for preliminary core scanning and assessment of REE enrichment. The integrated analytical findings shall be presented before the Committee prior to initiation of Phase-II drilling, with regular progress

02.11.26 02/11/2026

updates to the Nodal Officer (Siwana), GSI, WR.

Recommendations of TCC:

The Committee recommended expediting Phase-I sample analysis, detailed characterisation of felsic intrusions, and use of handheld XRF for preliminary core assessment before planning Phase-II drilling. Regular coordination with the Nodal Officer (Siwana), GSI, WR, was advised.

Agenda 12.2.11. Preliminary Exploration (G3) for REE and associated critical minerals in the NB 13 block (2.00 sq. km.) in the northern part of the Siwana Ring Complex, Balotra district, Rajasthan
[Implementing Agency: Natural Resource Division, Tata Steel Ltd.]

a. The agency presented the progress of work and reported completion of desktop geophysical synthesis, geological mapping and DGPS survey over 2.0 sq. km. each. Of the approved 60 BRS/CHS samples, 46 have been collected and analysed.
b. The agency further informed about completion of Phase-I drilling in all five boreholes, achieving a total of 816 m against the approved 800 m. Core logging, sample marking and photography have also been completed.
c. Sample preparation and analysis have been completed for one borehole (RJS/NB13/01). The magnetic survey has also been completed.
d. The agency reported that borehole RJS/NB13/01 encountered a sequence of weathered and fresh rhyolite flows (Flows 18–26), comprising porphyritic, non-porphyritic and pyroclastic varieties, along with felsic dyke intrusions and a basal dark-grey basalt flow.
e. TAS classification of BRS/CHS samples indicated predominantly rhyolitic composition, with some samples classified as trachyte and trachyandesite.
f. Petrographic studies identified monazite grains associated with hornblende phenocrysts in rhyolite and arfvedsonite-bearing silica veins, indicating the presence of REE-bearing accessory minerals.
g. The agency presented REE geochemical results of 110 core samples from borehole RJS/NB13/01, indicating an average Total REE+Sc+Y content of 1,170.93 ppm (range: 337.41–3,725.21 ppm), approximately 11 times the average crustal abundance of 107 ppm.
h. REE-enriched intervals were reported at 46–91 m and 117–119 m depth, with an average concentration of 1,619 ppm across these intervals.
i. Based on results from one borehole each in NB-12 and NB-13, the agency reported REE mineralisation (TREE >1,000 ppm) extending over approximately 90–110 m in each borehole.
j. The agency sought the Committee's guidance on optimising the approved core sampling quantum in view of the extensive mineralised intervals and requested approval for Phase-II drilling.
k. The Committee reviewed the progress of work and noted significant REE enrichment in Flows 20, 23, 24 and 25 based on the analytical results of one borehole.
l. The Committee emphasised the need for complete chemical analysis of Phase-I borehole samples to establish the extent and continuity of REE mineralisation.

02.11.26 02/11/2026

m. The Committee also advised that the agency shall expedite the analysis of all remaining core samples and present the integrated findings before the Committee for planning Phase-II drilling.
n. The Committee advised the use of handheld XRF for preliminary core scanning and assessment of REE enrichment, along with regular coordination with the Nodal Officer (Siwana), GSI, WR.

Recommendations of TCC:

The Committee recommended expediting Phase-I sample analysis and use of handheld XRF for preliminary core assessment before planning Phase-II drilling. Regular coordination with the Nodal Officer (Siwana), GSI, WR, was advised.

Agenda 12.2.12. Preliminary Exploration (G3) for REE and associated critical minerals in the NB 14 block (2.42 sq. km.) in the northern part of the Siwana Ring Complex, Balotra district, Rajasthan
[Implementing Agency: M/s Gemcokati Exploration Pvt. Ltd.]

a. The agency presented the progress of work and reported completion of detailed geological mapping (2.42 sq. km.), geophysical reinterpretation and NAGMP data overlay analysis. 62 BRS samples were collected against 60 approved.
b. A total of 1,268 m of drilling has been completed (5 BH of Phase-I + 3 BH of Phase-II). Of the approved 380 ICP-MS analyses, 353 samples were reported as analysed/submitted.
c. The agency reported completion of all five boreholes of Phase-I and three boreholes of Phase-II as recommended by SU: Rajasthan, Western Region, GSI, Jaipur, achieving a total drilling of 1,268 m.
d. The agency reported completion of the ground magnetic survey and informed that locations of the remaining 20 boreholes had been delineated based on the anomaly map and forwarded to DDG, SU: Rajasthan, GSI, Jaipur, for approval. The agency sought the Committee's approval of the proposed borehole locations.
e. The Committee reviewed the progress of work and noted completion of Phase-I drilling and drilling of three boreholes under Phase-II.
f. The Committee emphasised the need for standardisation of data generation in accordance with the norms followed by other agencies.
g. The agency shall coordinate with the Nodal Officer (Siwana), GSI, WR, and expedite chemical analysis of samples from completed boreholes.
h. The integrated findings shall be presented before the Committee prior to planning further Phase-II drilling.

Recommendations of TCC:

The Committee recommended standardising data generation in consultation with the Nodal Officer (Siwana), GSI, WR, expediting chemical analysis of completed boreholes, and presenting the integrated findings before planning further Phase-II drilling.

02.11.26 02/11/2026

Agenda 12.2.13. Preliminary Exploration (G3) for REE and associated critical minerals in the NB 15 block (2.00 sq. km.) in the northern part of the Siwana Ring Complex, Balotra district, Rajasthan
[Implementing Agency: M/s Ocean Drilling and Exploration Private Limited]

a. The agency presented progress of work and reported completion of detailed geological mapping (2 sq. km.), trenching (50 cu. m.) and collection of all 100 approved BRS/channel samples. Phase-I drilling of 700 m has been completed against the approved quantum of 800 m across five boreholes.
b. The agency reported receipt of HR-ICP-MS results for 216 out of 350 approved samples and 22 out of 35 check samples. Further, WD-XRF results were received for 40 out of 50 major-oxide samples and 2 out of 5 check samples.
c. The agency presented Phase-I borehole analytical results, indicating average TREE+Y values of 2,230.79 ppm in NB15RJBS-05, 891.56 ppm in NB15RJBS-12 and 2,381.63 ppm in NB15RJBS-19. Borehole NB15RJBS-19 recorded a maximum of 3,742.44 ppm, with 19 samples exceeding 2,000 ppm and 8 exceeding 2,500 ppm.
d. The agency presented the lithological profile of borehole NB15RJBS-21 (Phase-II), drilled to approximately 123–125 m, comprising successive rhyolite varieties, including fractured, vesicular, iron-stained and layered rhyolite, along with rhyolitic breccia. Calcite veining, iron staining and local brecciation were also observed.
e. The agency reported completion of the Phase-II ground magnetic survey, with approximately 300 stations acquired against 250 approved, at 100 m traverse and 20 m station intervals along E–W traverses. Phase-II drilling has commenced, with 125 m completed in one borehole (NB15RJBS-21) against the approved 2,200 m across 19 boreholes.
f. The agency presented the ground magnetic survey results, indicating TMI anomalies ranging from -5,033 nT to +7,438 nT. The northern and southern parts of the block exhibit high and low magnetic anomalies, respectively, separated by a steep gradient interpreted as a possible major structural corridor.
g. Based on RTP-filtered data, four magnetic zones were delineated, comprising two high-anomaly zones (Zones 1 and 4), a central transition zone (Zone 2) interpreted as a possible hydrothermal pathway, and a magnetic low zone (Zone 3). The locations of the completed boreholes were correlated with these zones and compared with the regional aeromagnetic data.
h. The Committee reviewed the progress of work and noted completion of Phase-I drilling and commencement of Phase-II drilling with one borehole completed.
i. The Committee emphasised the need for comprehensive evaluation of Phase-I drilling results before undertaking further drilling.
j. The agency shall expedite chemical analysis of all Phase-I borehole samples and present the findings before the Committee prior to proceeding with further Phase-II drilling. Regular progress updates shall be shared with the Nodal Officer (Siwana), GSI, WR.

Recommendations of TCC:

The Committee recommended expediting chemical analysis of all Phase-I borehole samples and presenting the findings before undertaking further Phase-II

02.11.26 02/11/2026

drilling, with regular progress updates to the Nodal Officer (Siwana), GSI, WR.

Agenda 12.2.14. Preliminary Exploration (G3) for REE and associated critical minerals in the NB 16 block (2.00 sq. km.) in the northern part of the Siwana Ring Complex, Balotra district, Rajasthan
[Implementing Agency: M/s Hindmetal Exploration Services Pvt. Ltd.]

a. The agency presented progress of work and reported completion of the desktop study, geological mapping (2 sq. km.), drone-based topographic survey (2 sq. km.) and Phase-I drilling (750 m across five boreholes), including core logging and sampling. A total of 82 channel and 30 BRS samples have been collected and dispatched for analysis. Core sample analysis is pending, while the ground magnetic survey is in progress.
b. The agency informed the Committee that the exposed lithologies across the NB-16 block comprise predominantly rhyolitic volcanic rocks, intruded by later-phase felsic and basic dykes. Nine volcanic flows (Flows 7–17) comprising rhyolite, trachyte, trachydacite and porphyritic rhyolite were mapped, generally dipping 15–25° towards SE (150–170°). Flows 8 and 9 are concealed beneath soil cover.
c. The agency reported elevated REE concentrations in Flows 15, 16 and 17 in the southern parts of NB-16 and NB-17 blocks, indicating comparatively higher REE prospectivity.
d. BRS samples recorded average TREE values of 1,815 ppm, 1,679 ppm and 1,998 ppm in Flows 15, 16 and 17, respectively, while corresponding channel sample averages were 2,131 ppm, 2,227 ppm and 2,294 ppm.
e. The average ∑REE+Y content across Flows 15–17 was reported as 2,221 ppm, comprising LREE of 1,328 ppm and HREE of 894 ppm.
f. HESPL sought the Committee's approval for four proposed Phase-II boreholes (600 m) in the southern part of NB-16 block, based on channel sample assays indicating TREE values exceeding 2,000 ppm.
g. The Committee reviewed the progress of work and noted significant REE enrichment (TREE >2,000 ppm) in Flow-15 based on BRS/channel sample results.
h. The Committee emphasised the need to correlate borehole analytical results with BRS/channel sample data to establish the extent and continuity of mineralisation.
i. The agency shall complete the chemical analysis of Phase-I borehole samples and present the integrated findings before the Committee for review prior to initiating Phase-II drilling. Regular progress updates shall be shared with the Nodal Officer (Siwana), GSI, WR.

Recommendations of TCC:

The Committee recommended completing and correlating Phase-I borehole and BRS/channel sample analyses and presenting the findings before Phase-II drilling, with regular progress updates to the Nodal Officer (Siwana), GSI, WR.

Agenda 12.2.15. Preliminary Exploration (G3) for REE and associated critical minerals in the NB 17 block (2.00 sq. km.) in the northern part of the Siwana Ring Complex, Balotra district, Rajasthan
[Implementing Agency: M/s Hindmetal Exploration Services Pvt. Ltd.]

02.11.26 02/11/2026

a. The agency presented the progress of work and informed the Committee about completion of the desktop study, geological mapping (2 sq. km.), drone-based topographic survey (2 sq. km.), collection and despatch of 82 channel and 29 BRS samples, and Phase-I drilling (750 m in five boreholes), along with core logging and sampling in the NB-17 block. Analysis of 125 core samples is pending, while the ground magnetic survey (250 stations) is in progress.
b. The agency reported that the exposed areas across the NB-17 block comprise rhyolitic volcanic rocks intruded by later-phase felsic and basic dykes. Nine volcanic flows (Flows 7–17, as per historical mapping), comprising rhyolite, trachyte, trachydacite and porphyritic rhyolite, have been mapped, with an overall SE dip of 15–25° (150–170°). Flows 8 and 9 are concealed beneath soil cover.
c. The agency reported elevated REE values in Flows 15, 16 and 17, mapped in the southern parts of the NB-17 block, indicating comparatively higher REE prospectivity.
d. The BRS samples recorded maximum/average TREE values of 2,362/1,815 ppm in Flow 15, 2,536/1,679 ppm in Flow 16 and 2,159/1,998 ppm in Flow 17.
e. The channel samples recorded maximum/average TREE values of 3,000/2,131 ppm in Flow 15, 3,122/2,227 ppm in Flow 16 and 2,581/2,294 ppm in Flow 17.
f. The average ∑REE+Y across Flows 15–17 was reported at 2,221 ppm, comprising 1,328 ppm LREE and 894 ppm HREE.
g. HESPL requested the Committee's approval for undertaking three Phase-II boreholes (450 m) in the southern part of the NB-17 block, based on channel-sample assay results indicating TREE values exceeding 2,000 ppm.
h. The Committee reviewed the progress of work and noted significant REE enrichment (TREE >2,000 ppm) in Flow-16 & 17 based on BRS/channel sample results.
i. The Committee emphasised the need to correlate borehole analytical results with BRS/channel sample data to establish the extent and continuity of mineralisation.
j. The agency shall complete the chemical analysis of Phase-I borehole samples and present the integrated findings before the Committee for review prior to initiating Phase-II drilling. Regular progress updates shall be shared with the Nodal Officer (Siwana), GSI, WR.

Recommendations of TCC:

The Committee recommended completing and correlating Phase-I borehole and BRS/channel sample analyses and presenting the findings before Phase-II drilling, with regular progress updates to the Nodal Officer (Siwana), GSI, WR.

Agenda 12.2.16. Preliminary Exploration (G3) for REE and associated critical minerals in the NB 18 block (2.00 sq. km.) in the northern part of the Siwana Ring Complex, Balotra district, Rajasthan
[Implementing Agency: Natural Resource Division, Tata Steel Ltd.]

a. The agency presented progress of work and reported completion of desktop geophysical synthesis, geological mapping and drone-based topographic survey (2.0 sq. km. each), collection of 59 out of 60 approved BRS/CHS samples, and completion of 59 out of 110 chemical analyses.

02.11.26 02/11/2026

b. The agency reported completion of Phase-I drilling (800 m in five boreholes), along with core logging, sample marking and photography. Sample preparation and analysis have been completed for one borehole (RJS/NB18/05). HR-ICP-MS analysis of 164 out of 275 core samples and WD-XRF analysis of 17 out of 55 samples are in progress.
c. The agency reported completion of the Phase-II ground magnetic survey (250 stations). Phase-II drilling (19 boreholes, 2,200 m) and associated studies are yet to be taken up.
d. The agency further informed the Committee that borehole RJS/NB18/05 encountered porphyritic and pyroclastic brown to brown-red rhyolite (Flows 15 and 16), porphyritic grey rhyolite (Flow 14, 123–127 m) and amygdular dark-grey basalt/rhyolite (Flow 13, 150–154 m), beneath the sand/soil and loose surface cover.
e. The agency informed that TAS classification of BRS/CHS samples from the NB-18 block indicates predominantly rhyolitic composition, with some samples classified as trachyte and basaltic trachyandesite. Petrographic studies identified monazite grains associated with hornblende phenocrysts in rhyolite and arfvedsonite-bearing silica veins, indicating REE-bearing accessory mineralisation.
f. The agency informed that analysis of 154 core samples from borehole RJS/NB18/05 recorded average Total REE+Sc+Y of 891.52 ppm, ranging from 32.66 to 1,897.75 ppm, approximately eight times the average crustal abundance of 107 ppm (Taylor and McLennan, 1985).
g. The Committee reviewed the progress of work and observed that the analytical results of borehole RJS/NB18/05 indicate moderate REE values in Flows 13, 14 and 15.
h. The Committee recommended expediting the chemical analysis of all remaining borehole core samples and presenting the consolidated findings before the Committee prior to planning further Phase-II drilling.
i. The agency was advised to regularly update the Nodal Officer (Siwana), GSI, WR, regarding the progress of exploration activities.

Recommendations of TCC:

The Committee recommended expediting the chemical analysis of all borehole core samples and presenting the consolidated results before planning further Phase-II drilling. Regular progress updates shall be shared with the Nodal Officer (Siwana), GSI, WR.

Agenda 12.2.17. Preliminary Exploration (G3) for REE and associated critical minerals in the SB 1 block (2.00 sq. km.) in the southern part of the Siwana Ring Complex, Balotra district, Rajasthan
[Implementing Agency: M/s Geo Marine Solutions Pvt. Ltd.]

a. The agency presented the progress of work and reported completion of geophysical reinterpretation, detailed geological mapping (2.16 sq. km.), topographic survey, collection of 92 BRS/channel samples and drilling of 625.5 m in five boreholes.
b. The agency reported completion of ICP-MS analysis of 362 samples, including 35 check samples, 50 WD-XRF analyses, and 10 polished thin sections with associated petrographic, ore-microscopic and mineragraphic studies.

02.11.26 02/11/2026

c. The agency clarified that deviations from the systematic grid pattern of Phase-I boreholes were due to local constraints and stated that the matter had been discussed during the 10th Joint TCC.
d. Regarding core sampling, the agency clarified that every alternate 1 m length of core was sampled, while dyke intervals were sampled over their actual lengths.
e. The agency reported that the 25 BRS samples recorded TREE values of 134.56–4,837.06 ppm and TREE+Y values of 184.72–6,400 ppm, while the 26 channel samples recorded TREE values of 793.69–3,003.2 ppm and TREE+Y values of 984.44–3,740.58 ppm.
f. Analysis of 311 drill-core samples from five Phase-I boreholes recorded an overall average TREE+Y value of 1,388.34 ppm, with a maximum of 4,162.34 ppm. Of these, 238 samples (257.3 m) recorded TREE+Y above 1,000 ppm, while 33 samples (34.3 m) exceeded 2,000 ppm.
g. The agency reported that the highest-grade intervals were associated with felsic dykes in BH-04 and BH-05, with TREE+Y+Sc values reaching 4,207.63 ppm. Correlation analysis indicated strong positive correlations of TREE and TREE+Y with Th, U, Y, Nb, Ta and Zr across BRS, channel and drill-core samples.
h. The agency informed that check-sample results had been shared with GSI, WR, and that it was seeking guidance from the Joint TCC for Phase-II exploration planning.
i. The agency stated that the proposed Phase-II borehole plan follows the MEMC Guidelines and the 400 m × 200 m grid prescribed under the NMEDT guidelines at the time of project approval.
j. The Committee reviewed the progress of work and observed that the agency had not consulted GSI, WR, during the planning of Phase-I drilling and that the results obtained so far were not encouraging.
k. The Committee noted that the microgranite/felsic dykes encountered were very thin (few centimetres) and did not favour inclined drilling solely to target these narrow intrusions at depth.
l. The Committee advised the agency to share and discuss the complete analytical results of Phase-I borehole samples with the Nodal Officer (Siwana), GSI, WR, and formulate the Phase-II exploration programme in consultation with GSI, WR, ensuring adherence to the prescribed exploration norms.

Recommendations of TCC:

The Committee recommended that the agency discuss the complete Phase-I borehole analytical results with the Nodal Officer (Siwana), GSI, WR, and finalise the Phase-II exploration programme in consultation with GSI, WR, in accordance with the prescribed exploration norms.

Agenda 12.2.18. Preliminary Exploration (G3) for REE and associated critical minerals in the SB 2 block (2.00 sq. km.) in the southern part of the Siwana Ring Complex, Balotra district, Rajasthan
[Implementing Agency: M/s Mining Tech Consultancy Services Limited]

a. The agency presented the progress of work and reported completion of geophysical database reinterpretation, geological mapping, bedrock channel sampling, drone-based

02.11.26 02/11/2026

topographic survey and ground magnetic data acquisition. Magnetic data processing is in progress.

b. The agency reported completion of ICP-MS analysis of 34 out of 100 primary samples and WD-XRF analysis of 6 out of 50 samples.
c. The agency informed that Phase-I drilling in the SB-2 block is yet to commence, with rig mobilisation in progress. The agency presented a proposed drilling plan comprising five Phase-I boreholes and 21 Phase-II boreholes, totalling 3,000 m, of which one Phase-I borehole (PBH/005) falls within forest land.
d. The agency informed the Committee that the application for forest clearance of the boreholes falling on forest land has been filed on the PARIVESH portal, and that a site inspection at the SB-2 block by the DFO, Siwana, is to follow.
e. The agency reported that 1:2,000-scale geological mapping identified rhyolite Flows 32, 33 and 34, along with pyroclastics and dykes. Petrographic studies of representative BRS samples identified rhyolite (SB-2/CH-05/BRS/01) and dolerite (SB-2/CH-19/BRS/01).
f. The agency presented the results of the 34 BRS samples analysed by ICP-MS: TREE ranged from about 303.78 to 2,517.43 ppm, averaging 1,079.84 ppm, and Y from about 95.67 to 617.26 ppm, averaging 279.23 ppm, with the highest Zr value recorded at about 5,338 ppm.
g. The Committee reviewed the progress of work and advised the agency to pursue the matter with the Forest Department for obtaining the requisite forest clearance at the earliest to facilitate commencement of drilling, and to expedite Phase-I drilling and the pending sample analyses.
h. The agency was directed to provide regular progress updates to the Nodal Officer (Siwana), GSI, WR, regarding exploration activities.

Recommendations of TCC:

The Committee recommended expediting forest clearance, Phase-I drilling and pending sample analyses. The agency was further advised to provide regular progress updates to the Nodal Officer (Siwana), GSI, WR.

Agenda 12.2.19. Preliminary Exploration (G3) for REE and associated critical minerals in the SB 3 block (2.00 sq. km.) in the southern part of the Siwana Ring Complex, Balotra district, Rajasthan
[Implementing Agency: M/s Mining Tech Consultancy Services Limited]

a. The agency presented progress of work and reported completion of geophysical database reinterpretation, geological mapping, bedrock channel sampling, drone-based topographic survey and ground magnetic data acquisition. Magnetic data processing is ongoing.
b. The agency reported completion of ICP-MS analysis of 22 out of 100 primary samples and WD-XRF analysis of 5 out of 50 samples. Preparation and petrographic study of 9 out of 10 thin sections have been completed.
c. The agency informed the Committee that drilling has not yet commenced in the SB-3 block; rig mobilisation is in progress and Phase-I drilling is expected to commence soon. The agency presented the proposed borehole plan – 5 Phase-I boreholes (SB3/PBH/09,

12, 19, 02 and 05, of which PBH/02 and PBH/05 fall on forest land) and 24 Phase-II boreholes, totalling 3,000 m of drilling.

d. The agency informed the Committee that the application for forest clearance for boreholes falling within forest land has been submitted through the PARIVESH portal, and that a site inspection of the SB-3 block by the DFO, Siwana, is awaited.
e. The agency reported that 1:2,000-scale geological mapping identified rhyolite Flows 34 to 38, along with a dyke. Petrographic studies of representative BRS samples identified rhyolite porphyry (SB-3/CH-11/BRS/01) and rhyolite (SB-3/CH-31/BRS/01).
f. The agency reported that ICP-MS analysis of 22 BRS samples recorded TREE values ranging from 809.15 to 1,453.15 ppm (average 1,063.78 ppm) and Y values ranging from 235.09 to 363.17 ppm (average 288.84 ppm), with a maximum Zr value of approximately 2,673 ppm.
g. The Committee reviewed the progress of work and advised the agency to pursue the matter with the Forest Department for obtaining the requisite forest clearance at the earliest to facilitate commencement of drilling, and to expedite Phase-I drilling and the pending sample analyses.
h. The agency was directed to provide regular progress updates to the Nodal Officer (Siwana), GSI, WR, regarding exploration activities.

Recommendations of TCC:

The Committee recommended expediting forest clearance, Phase-I drilling and pending sample analyses. The agency was further advised to provide regular progress updates to the Nodal Officer (Siwana), GSI, WR.

12.3: Review of Ongoing RMT Projects

Agenda 12.3.1. Regional Mineral Targeting in parts of Assam-Meghalaya Gneissic Complex (AMGC) and associated granites for identification of prospective blocks in West Khasi Hills and East Garo Hills Districts, Meghalaya

[Implementing Agency: MMPL Pvt. Ltd.]

a. The agency presented progress of work under Phase II and reported completion of reconnaissance geological mapping at 1:50,000 scale over approximately 1,770 sq. km., BRS collection (200 samples) and petrographic studies (100 samples). Pitting of 76 cu. m. (19 pits) and trenching of 164 cu. m. (4 trenches) have been completed against the approved quantities of 100 cu. m. and 300 cu. m., respectively.
b. The agency informed that geochemical analysis of surface samples, including major oxides and trace elements, has largely been completed. Analysis of pit and trench samples and external check samples is partly completed, while certain gold, PGE, FeO and XRD results are awaited.
c. Based on field reconnaissance and validation, the agency identified four prospective zones (Zones I, III, IV and V), comprising granitoids, biotite gneiss, quartz schist and Mahadek Formation sediments, prospective for REE, VTM, BMQ, sillimanite, uranium-thorium, glauconite and base-metal mineralisation.
d. The agency presented the identified ore-mineral associations, indicating VTM mineralisation along granitoid–biotite gneiss contacts and mafic units; REE associated

mainly with porphyritic and medium-grained granites; BMQ within metasedimentary and metamorphic units; and sillimanite associated with sillimanite-bearing quartz schist.

e. The agency presented the results of pitting and trenching undertaken across different mineral targets. VTM samples recorded average Fe(T) of 52.10%, TiO_2 of 14.00% and V_2O_5 of 1.29%, while BMQ samples recorded average Fe(T) of 31.87%. Sillimanite samples recorded average Al_2O_3 of 43.07%. REE analysis of 26 BRS samples recorded average TREE of 1,105.66 ppm, with 11 samples exceeding 1,000 ppm. Results of the five REE pits are awaited.
f. The agency presented the petrographic findings from representative samples, identifying allanite and titanite in porphyritic granite, magnetite-rich mafic rocks, banded magnetite quartzite, sillimanite-bearing quartz schist and other lithologies.
g. Based on integrated geological, geochemical, geophysical and field investigations, the agency refined the prospective areas into one VTM zone, one BMQ zone, three REE-enrichment zones, two glauconite-sandstone zones, one sillimanite zone and one sulphide zone.
h. The agency proposed Phase-III exploration (September 2026–February 2027), comprising gravity-magnetic and IP-resistivity surveys, additional pitting and trenching, detailed petrographic, fluid-inclusion and isotopic studies, and AI/ML-based integration of phase-wise datasets for mineral prospectivity mapping and target prioritisation.
i. The agency presented five blocks, covering approximately 298 sq. km., delineated for Phase-III geophysical investigations, comprising one VTM block, one BMQ block, two sulphide blocks and one REE block. The proposed work includes gravity and magnetic surveys at 500 m grid spacing (1,192 stations) and profile-based ERT, IP, SP and magnetic surveys covering 100 line-km. Block-3 was identified as the highest-priority area for investigating gossan occurrences, amphibolite contacts and structural intersections.
j. The agency further presented a priority area of approximately 600 sq. km. between Blocks 2 and 3 for deep-seated sulphide exploration, based on integrated geological, gravity, magnetic and structural interpretations. The proposed investigations aim to establish the three-dimensional subsurface architecture and identify concealed mineralised corridors, subject to further geological and geophysical validation.
k. The agency concluded that Phase-II investigations had substantially validated and refined the prospective zones identified during Phase-I and recommended progression to Phase-III, with focused geophysical investigations and additional pitting-trenching in prioritised areas.
l. The Committee reviewed the progress of work and emphasised that detailed traverse mapping of identified mineral-occurrence locales and prospective geological domains, identified through desktop studies, shall be undertaken at 1:25,000 scale, along with systematic channel sampling.
m. The agency was advised to collate and integrate all available primary exploration data from previously explored G3/G4 blocks and STM/mineral survey areas falling within the RMT area, including borehole, BRS, pit and trench data, and suitably plot these on the 1:25,000-scale traverse map.
n. The Committee directed the agency to present the 1:25,000-scale traverse map, along with the analytical results of channel samples and additional information generated with

02.11.26 02/11/2026

respect to the existing 1:50,000-scale map, before the Committee for review prior to initiation of Phase-III activities.

o. The Committee clarified that the quantum and scope of geophysical surveys under Phase-III shall be decided based on the outcome of the 1:25,000-scale mapping and review of the associated exploration data.

Recommendations of TCC:

The Committee recommended undertaking detailed traverse mapping at 1:25,000 scale in identified prospective zones, incorporating all available primary exploration data from G3/G4 and STM/mineral survey areas, along with systematic channel sampling.

The agency shall present the traverse maps and analytical results before the Committee for review, based on which the scope of Phase-III geophysical surveys shall be finalised.

Agenda 12.3.2. Regional Mineral Targeting and integrated mineral system studies for identification of prospective blocks for Graphite, Niobium, REE and associated mineralisation in Yellikod- Azhikod areas, near Achankovil shear zone, Southern Granulite Terrain, Kerala and Tamil Nadu

[Implementing Agency: M/s Geo Marine Solutions Pvt. Ltd.]

a. The agency presented the progress of work and highlighted the exploration challenges in the Vellikod–Azhikod area, where historical mine workings and outcrops are largely concealed beneath thick soil, laterite and vegetation, restricting conventional geological mapping. Several previously identified Self-Potential (SP) anomalies remain untested, and the extent and continuity of reported REE and sulphide mineralisation require further delineation.
b. The agency presented the existing channel-sample results from Quarry-1 near Marthandam, indicating peak TREE values of 1,647 ppm in gossan Zone 4, with Zones 1, 3 and 4 recording values exceeding 1,300 ppm. REE values exceeding 3,200 ppm were reported from a syenite locality east of the gossan trend.
c. The agency also reported Cu enrichment up to 1,152 ppm, associated with Co and Ni enrichment in Zones 1 and 4, and WO_3 enrichment up to 524 ppm in Quarry-2 channel samples. It was noted that the mineralisation is established at isolated quarry faces and sampling locations, while its lateral and subsurface extent remains to be assessed.
d. The agency proposed geophysical investigations over two blocks covering approximately 137.6 sq. km., comprising a Northern Block (59.76 sq. km.) targeting graphite and a Southern Block (77.80 sq. km.) targeting sulphide and REE mineralisation.
e. For the Northern Block, the agency proposed drone-borne magnetic surveying at 50 m line spacing, followed by SP surveys over shortlisted targets to investigate concealed conductive horizons beneath the laterite and soil cover. For the Southern Block, drone-borne magnetic and radiometric surveys were proposed at 50 m and 100 m line spacing, respectively.

02.11.26 02/11/2026

f. The agency presented the proposed use of a Horsefly UAV-mounted Medusa MS-1000 gamma-ray spectrometer for radiometric surveying, highlighting the potential of K, U and Th distribution and associated elemental ratios for lithological mapping and first-pass REE targeting, particularly in syenite and pegmatite host rocks.
g. The agency proposed integrating the magnetic, radiometric and SP survey results with existing geological, structural and geochemical data, including channel-sample results, for delineation and prioritisation of prospective targets and subsequent selection of drill locations.
h. The Committee deliberated on the proposed drone-based geophysical survey and suggested undertaking a pilot survey in one block, preferably the Northern Block, considering its comparatively smaller area.
i. The Committee recommended conducting drone-based magnetic and radiometric surveys in the selected block at 100 m line spacing and 1,000 m tie-line spacing.
j. The Committee emphasised that the survey profile lines should be oriented across the prevailing geological and tectonic fabric to ensure effective delineation of geological structures.
k. The Committee shall review the results of the pilot survey before deciding on undertaking further drone-based geophysical surveys in the remaining block(s).

Recommendations of TCC:

The Committee recommended undertaking a pilot drone-based magnetic and radiometric survey in the Northern Block at 100 m line spacing and 1,000 m tie-line spacing, with survey profiles oriented across the prevailing geological fabric. Further drone-based geophysical surveys shall be considered based on the review of the pilot survey results. The cost revision for the drone survey was deferred again.

Agenda 12.4: Finalisation of the Standard Operating Procedure (SoP) for imposition of Liquidated Damages (LD) for delays in execution of exploration activities under NMEDT-funded projects.

The Committee was apprised that the Executive Committee (EC), in its 47th meeting, had approved the provision for imposition of Liquidated Damages (LD) in cases of delay in the execution of exploration activities under NMEDT-funded projects. In this regard, it was considered necessary to formulate a Standard Operating Procedure (SoP) to prescribe the modalities, conditions and procedure for imposition of LD charges. The Committee was informed that NMEDT had prepared a draft SoP, which was placed before the members for consideration. After deliberations, the Chairman advised that the draft SoP be circulated among all Committee members for their comments and suggestions. The comments received shall be examined and the draft document shall be placed before the Committee in a subsequent meeting for detailed deliberation and finalisation, before initiating further necessary action.

Agenda 12.5: Finalisation of the mechanism for allocation of prospective blocks delineated through Regional Geological and Geophysical Studies in the Siwana Ring Complex, Rajasthan, to different agencies.

02.11.26 02/11/2026

The Committee observed that the exploration agencies had delineated G3 exploration blocks of varying sizes, resulting in a lack of uniformity in block dimensions. The Committee opined that, as far as practicable, blocks of a standardised size of approximately 2 sq. km. may be delineated for G3-level exploration to ensure uniformity. The Committee further noted that the chemical analytical results of core samples from several regional exploration blocks were still awaited. Accordingly, it was advised that the delineation and finalisation of G3 exploration blocks should be undertaken only after receipt and comprehensive evaluation of the complete analytical results, so that the blocks are supported by adequate geological and geochemical evidence.

Annexure -2

List of participants who attended 12th Joint Meeting of Technical-cum-Cost Committees (TCC-I & TCC-II) of NMEDT held on 16th October 2026 through VC mode

S.no	Name	Designation	Email ID	Contact No	Organization
1.	Dr. S. Ravi	Dy. Director General, GSITI, Hyderabad	s.ravi1@gsi.gov.in	9441138834	Chairman, TCC-I & TCC-II
2.	Shri. I.R. Kirmani	ADG (Retd.), GSI	irkirmani@yahoo.com	9414014723	Member TCC-I
3.	Shri. M. Mohan	Dy. Director General (Retd.), GSI	mariappan.mohan@gmail.com	9423686547	Member TCC-I
4.	Shri. K. Koteswara Rao	Dy.D.G. (Retd.) GSI	kkrao1957@gmail.com	9000117969	Member TCC-I
5.	Sh. A. R. Mukundhan	Regional Director, AMD, South Central Region	mukuagaram@rediffmail.com	6303606347	Member TCC-I
6.	Dr. E.V.S.S.K. Babu	Scientist (G), NGRI	evsskbabu@ngri.res.in	9441535852	Member TCC-I
7.	Shri. S.K. Adhikari	Chief Mining Geologist, IBM, Nagpur	skadhikari@ibm.gov.in	7588690545	Member TCC-I
8.	Shri. S Dhanendran	Director, GSI TI Hyderabad	s.dhanendran@gsi.gov.in	9944882204	Member Secretary TCC-I
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11.	Shri. D.S.Jeere	Director, GSI, RSAS Bengaluru.	dattatreya.jeere@gsi.gov.in	–	Member TCC-II
12.	Shri M.K.Patel	Dy. Director General (Retired), GSI	patelmk27@gmail.com	9040011231	Member TCC-II
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14.	Sh. Sunil Vashisth	GM (Retired), Hindustan Zinc Limited, Udaipur	sunilhzl@gmail.com	9829059236	Member TCC-II
15.	Shri. Anoop Kumar	CAO, GSI, CHQ Kolkata	anoop.kumar2@gsi.gov.in	–	Member TCC-II
16.	Representatives from M/s Maiki South Mining Pvt. Ltd.				
17.	Representatives from M/s Ramgad Minerals and Mining Limited				
18.	Representatives from M/s Shijay Projects India Pvt. Ltd.				
19.	Representatives from M/s MMPL Pvt. Ltd.				
20.	Representatives from M/s Critical Mineral Tracker				
21.	Representatives from M/s Hindmetal Exploration Services Pvt. Ltd.				
22.	Representatives from M/s Mining Tech Consultancy Services Limited				
23.	Representatives from M/s United Exploration India Pvt. Ltd.				
24.	Representatives from M/s GeoExplore Pvt. Ltd.				
25.	Representatives from Mineral Exploration and Consultancy Ltd.				
26.	Representatives from FCI Aravali Gypsum and Minerals India Limited				
27.	Representatives from M/s Natural Resource Division, Tata Steel Ltd.				
28.	Representatives from M/s Gemcokati Exploration Pvt. Ltd.				
29.	Representatives from M/s Ocean Drilling and Exploration Private Limited				
30	Representatives from M/s Geo Marine Solutions Pvt. Ltd.				