



भारतीय प्रौद्योगिकी संस्थान (भारतीय खनि विद्यापीठ), धनबाद

धनबाद, झारखण्ड, भारत, पिन - 826004

INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD

DHANBAD, JHARKHAND, INDIA, PIN - 826004

(An Instituted of National Importance under Ministry Of Education, Govt of India)



Dated the 29st June, 2026

From:
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Sub: Submission of peer reviewed report on “Geological Report on Preliminary Exploration (G-3 stage) of REE and associated Minerals in Umprikhola block, District- Kamrup (Metro), Assam Reg-

Ref.1.Your Office L. No. MECL / EXPL / File/ NMEDT / P.R. / 2026-27 / 152

Dated: 06/06/2026

2. NMET letter no. F. No. 44/1/2017-NMET/213 Dated 01/06/2026

Sir,

With reference to the letter cited above, please find enclosed peer reviewed report on the “Preliminary Exploration (G-3 stage) of REE and associated Minerals in Umprikhola block, District, Kamrup (Metro), Assam” with necessary comments/ suggestions for your kind perusal and further improvement at your end. It is requested to upload the Final Report in proper format of NMEDT.

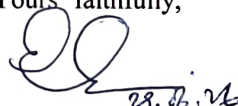
Thanking you,

Yours' faithfully,

Encl: As stated above

Sahendra Singh, Ph.D
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Copy for information to:

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Peer review of Geological Report on the “Preliminary Exploration (G-3 stage) of REE and associated Minerals in Umprikhola block, District-Kamrup (Metro), Assam”

The geological report has been prepared on the basis of preliminary exploration program (G-3 Stage) carried out on “Rare Earth Elements (REE) and associated minerals in the Umprikhola Block, District- Kamrup (Metro), Assam” by Mineral Exploration and Consultancy Limited (MECL), Nagpur under the National Mineral Exploration Trust (NMET) programme.

The exploration programme was recommended in the 3rd meeting of the Technical cost committee TCC-II, NMEDT and approved in the 39th EC meeting of NMEDT (24th January, 2025). The recommendation was intimated to MECL vide MoM letter No. F/No/23/560/2025-NMET/888 dated 24th February, 2025.

The above mentioned geological report represent a meticulous work on REE and associated minerals in the Umprikhola block, Kamrup district Assam for which the geoscientists and their supervisory officer(s) of MECL, Nagpur. The study area (Toposheet No. 78N/16) is situated along the northern fringe of the Shillong Plateau and lies west of the Um-Ngot Lineament, bounded to the north by the Brahmaputra Fault System. The area forms part of the tectonically active Shillong–Meghalaya Plateau, which represents an uplifted Precambrian crustal block separated from the Indian Peninsular Shield by the Garo–Rajmahal Gap (Evans, 1964). The block lies between latitude 26°01'49.598" N to 26°03'05.954" N and longitude 91°52'24.380" E to 91°54'12.534" E, covering an area of about 4.80 sq. km and forms part of Survey of India Toposheet No. 78N/16. The exploration programme comprises detailed geological mapping on 1:4000 scale, topographic survey, collection of bedrock/channel samples, petrographic studies, mineragraphic investigations and geochemical analysis.

Predominantly the lithology of the area is represented by granite gneiss, biotite gneiss, amphibolite, diorite/meta-granodiorite, pink granite, pegmatitic veins, quartzo-feldspathic veins and quartz veins. Granite gneiss is intruded by dioritic and felsic intrusive phases. Pegmatitic and quartzo feldspathic veins occur extensively along fractures, joints and foliation planes, indicating strong structural and late-stage magmatic-hydrothermal activity. The regional structural trend is predominantly NE–SW and is represented by foliations, fractures and lineaments.

The exploration investigation indicates that the Umprikhola Block contains localized and structurally controlled REE mineralisation, mostly associated with evolved felsic intrusive activity, pegmatitic emplacement and hydrothermal alteration. It has been suggested that the mineralisation is discontinuous, erratic and lacks significant lateral and vertical continuity. However, sporadic anomalous REE concentrations have been reported from the area.

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Overall the geological report is very well written, organized along with very neat and clean illustration. However, there is scope of improvement in some of the aspects, which included reference citation of figures and tables, which is a prerequisite of any geological report of any organization like Mineral Exploration and Consultancy Limited. The following points are to be considered to further enhance the overall quality of the report.

The observations in terms of the above mentioned references are as undermentioned.

- i. References missing in Text Fig 7.1 (page No-28); Text Fig 7.2(page No-29); Text Fig 7.3(page No-31); Table-7.2(page No-30);
- ii. It's always better to write "Field photograph" instead of only "photograph" i.e. page No-33
- iii. There are few spelling mistakes i.e. written "Easter" instead of "Eastern" and "Ilmanite" instead of "Ilmenite" (page No-34). The report/write-up must be checked for any spelling errors/mistake.
- iv. In all the photomicrograph, abbreviations of the mineral present in the thin section always preferable, with their full form mentioned in the list of abbreviations.
- v. The whole report must be checked for the scale in the field photograph i.e. No.7.11c
- vi. Short form and abbreviations must be mentioned uniformly through the report, which have been represented in a different manner i.e. ICP MS, ICPMS, ICP-MS
- vii. It would have been better, if sample no. could be mentioned within the chondrite normalized REE spider diagram i.e. Text Fig 7.8, page 60.
- viii. Quality of some of the map/photograph can be improved i.e. Text Fig 8.1

The report submitted by Mineral Exploration and Consultancy Ltd on the G-3 level exploratory work has been prepared in a very systematic and scientific way and is exhaustive, which provides background of the project, details of previous work and details of work done. Details of all exploratory work and laboratory work carried out under this project and their results are very well described in text and maps/figures. Personnel associated with the project are well qualified and experienced and exploratory / laboratory work of the project has been done in a professional manner.

Since only localized REE concentration associated within the pegmatitic veins, quartzo-feldspathic veins and evolved felsic intrusive phases was established during the present stage of investigation, further exploratory drilling was not recommended within the Umprikhola block. Due to non-encouraging result for REE in the area, resource estimation was not carried out and hence beneficiation study was out of the scope of the approved quantum of work.

The present investigation does not establish economically viable mineralisation warranting further detailed exploration or drilling within the block. However, considering the favourable geological environment comprising evolved felsic intrusive, pegmatitic activity and structurally controlled vein emplacement, adjoining areas, which exhibit similar geological

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setup, particularly pegmatitic and quartzo-feldspathic vein systems, may be evaluated for further REE mineralisation.

MECL commenced the field work on 15th November 2025 and completed the first phase of exploration by April, 2026. The results of the first phase were reviewed in the 25th Meeting of TCC-II held on 17th March 2026, wherein the committee opined that no further work is required in this block as the values of REE are not significant and the committee advised against further exploration including drilling. Accordingly, MECL was advised to prepare and submit the Geological Report to NMEDT by 23rd July, 2026.

The geological report has been prepared by Mineral Exploration and Consultancy Ltd as per the MERT format of NGDR.

The DS and HoD, NMEDT, New Delhi and the HOD (Exploration), MECL, Nagpur are gracefully thanked for assigning me the job for peer review of the Report.

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