

Valefjell Blue Relinquishment Report

The Valefjell Blue licences were retained by Transition Elements in 2023, after relinquishment of the larger Valefjell licenced area. 2 permits were kept, covering a total area of 14 square kilometres in the area north of Kragerø, in Vestfold.

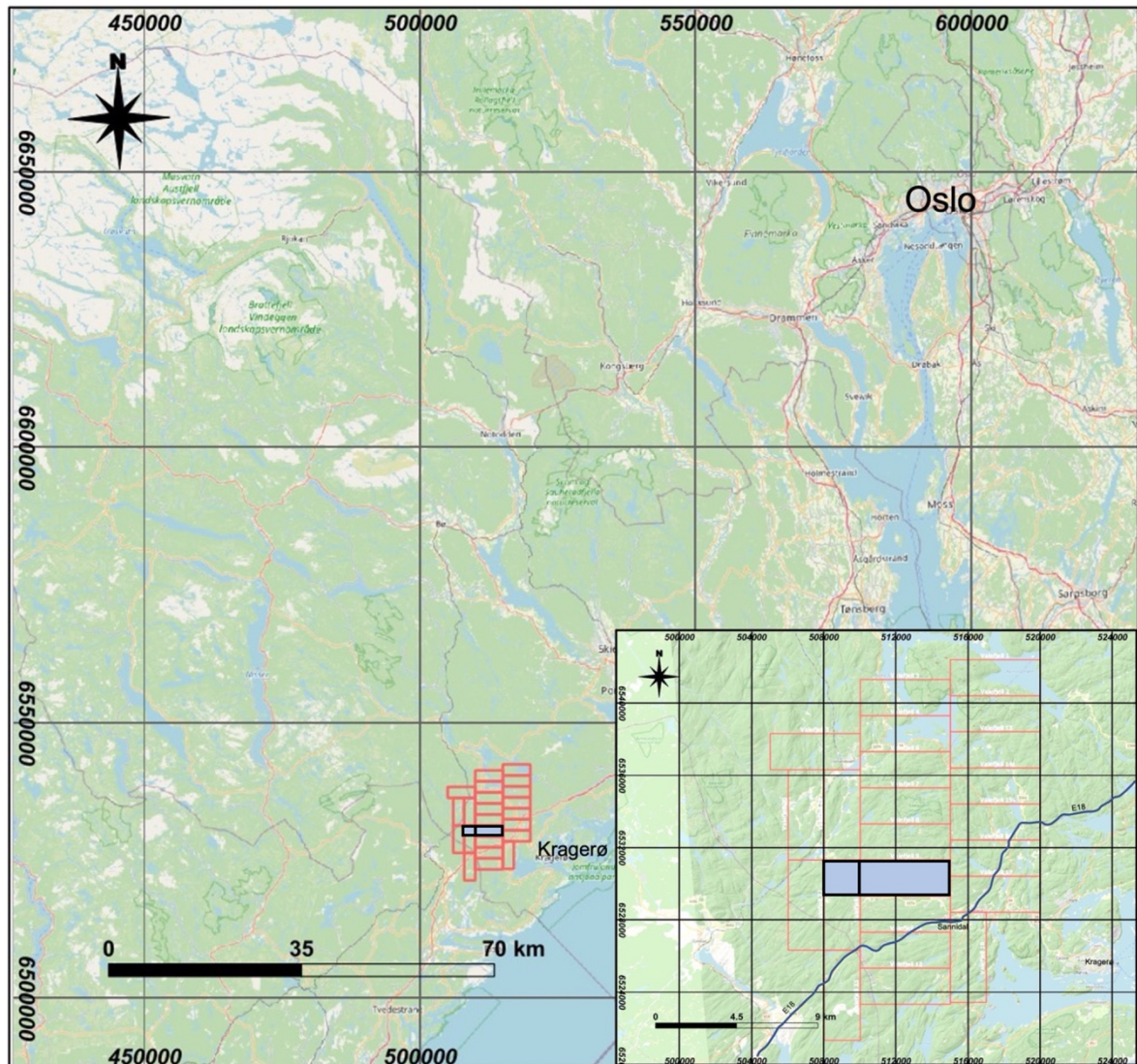


Figure 1. Location map for the Valefjell Blue exploration permits, showing the original Valefjell licences in red and the retained Valefjell Blue licences in blue.

Geological Background

The area lies within the Arendal succession of deformed and highly metamorphosed, largely siliciclastic, sequences of about 1.4 Ga old. The original sequence of sands and muds have

been deformed, intruded and metamorphosed, with at least two generations of granitic magmas, some of which have created migmatitic zones. There are also at least two generations of basaltic/mafic intrusions and some limited evidence that the area may contain ophiolitic rocks. The central and northern parts of the originally licenced area are occupied by a foliated gneiss. Whilst the geological map shows some differentiation, the field evidence indicates that this may consist of differences in classification by different field mappers, as the rocks appear to be largely consistent across large areas, varying only in the details of layering within the gneisses and the occurrence of large and small mafic and granitic intrusions. The southern parts of the area show more variation with quartzites, gneisses and some pelitic rocks, intruded by granites and basalts, all of which show folding on a variety of scales, from outcrop to map scale, see Figure 2, below. The Valefjell Blue area, as shown below, contained granitic, basaltic and quartzitic rocks.

Structurally the surrounding area includes a number of interesting features. In the north, there is a well-expressed fault jog with sigma faults joining the two bounding fault strands, see Figure 2. This type of feature is a common situation for developing economic levels of mineralization as the stress regimes around fault offsets promote the flow of mineralizing fluids into the jog zone. There is a small historical copper mine in this area. There are smaller fault jogs, one of which lies within the Valefjell Blue area. In the south, the more heterogenous geology showed well developed large-scale folding, with multiple locations where mafic dykes were intruded into quartzitic layers

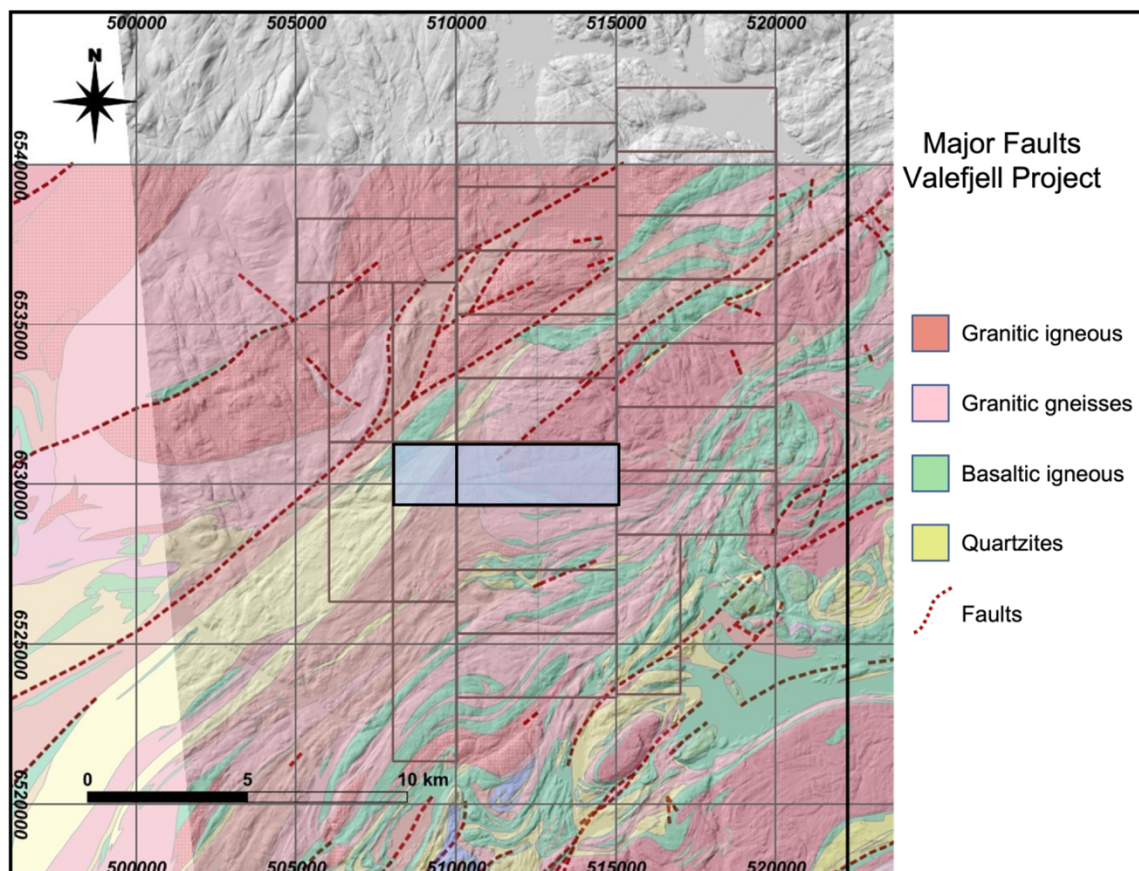


Figure 2. Map showing the geological units and major faults around the Valefjell Blue exploration permits

In addition, the area is correlated with the Kongsberg sector to the north, in Viken, which has considerable deposits, notably of silver and cobalt, Nijland et al, 2013. The Valefjell area has had little exploration activity, but with similar geology and history, it was thought to be potentially prospective for cobalt, copper, zinc and silver, as in the Kongsberg-Modum areas. A large area was selected for reconnaissance sampling, and evaluated with the Valefjell Blue area containing a cobalt response of 330ppm from stream sampling. This was deemed worth following up and the area retained when the surrounding licences were relinquished.

Specific areas of interest

A stream sampling survey was carried out in 2022 to evaluate the un-sampled areas within the exploration area boundaries. The geochemical results, seen in Figure 12, showed no results of anomalous concentrations for copper or nickel, with maximum responses in the hundreds of parts per million and a few small responses for cobalt. On the figure below all samples with colour are above the Australasian Institute of Mining and Metallurgy (AusIMM) global mean average soil values, but only one result, in the cobalt analyses, is at a level that could be regarded as actually significantly anomalous. This one result for cobalt had a concentration of 330 ppm, which matches the levels seen at the soil samples above deposits in Modum, in Viken.

Accordingly, at the close of 2022, the majority of the Valefjell area was allowed to lapse and exploration rights retained only in a 14 km² area, as indicated in the map below, Figure 4. This area was shown to contain a fault jog, where the anomalous reading was taken and 2023 work focused on evaluating this area for further evidence of economic cobalt mineralization.

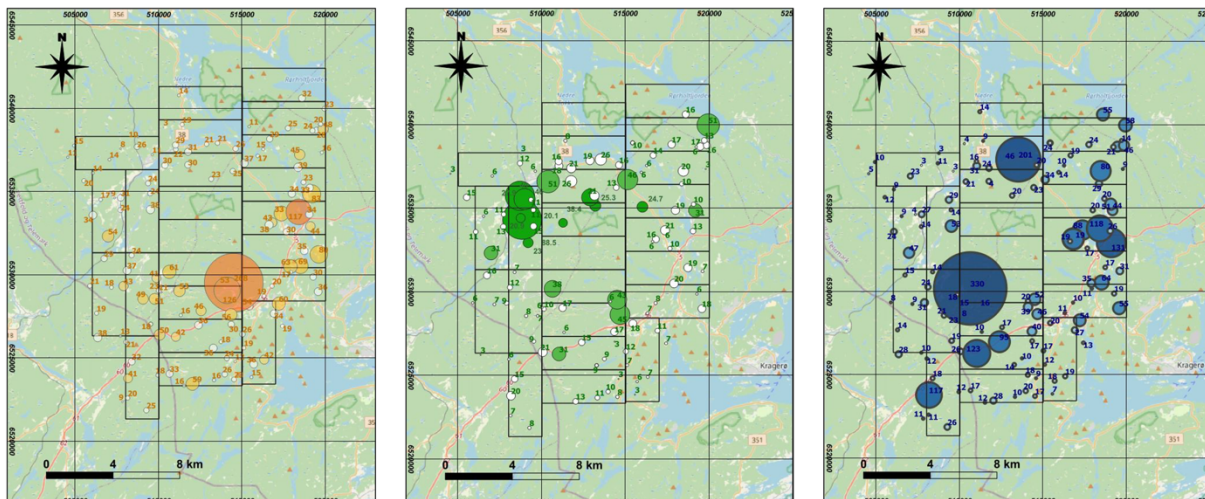


Figure 3. Stream sample analytical results for nickel (orange), copper, (green) and cobalt, (blue, 2022 field season). Size and shade indicate concentration in ppm, also shown by the figures adjacent to each point.

Phase 2 exploration activities

Exploration activity consisted of a comprehensive soil sampling program returning over 465 soil samples on a 50 x 50 m grid across the jog area and within the watershed surrounding it. The work was executed by two teams of two samplers over May and June 2024.

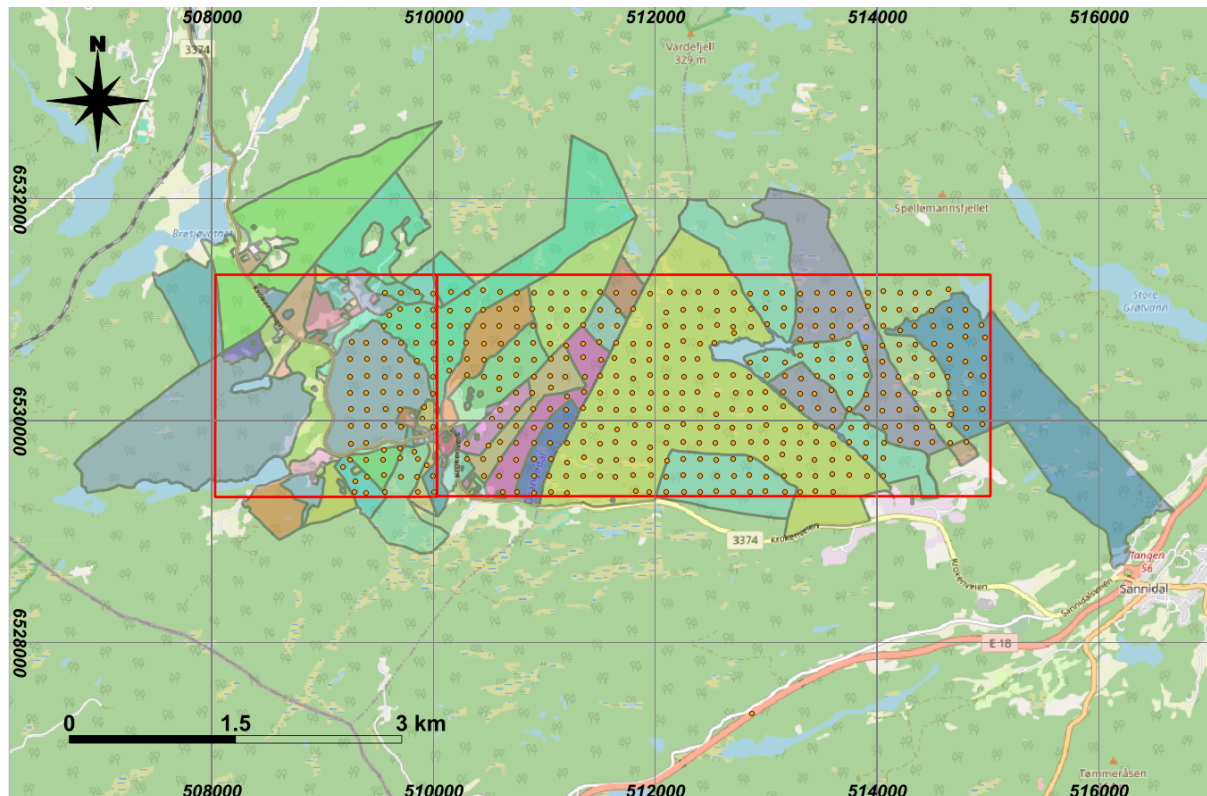


Figure 4. Map showing the soil sampling grid, 2023 field season.

The results of the analysis of these samples showed no cobalt results comparable with the 330 ppm measurement obtained by the stream sampling survey. The results that were returned showed the cobalt, copper and zinc levels were all within typical background levels for that lithology, see Figure 5. For cobalt this manifested as values below 10 ppm in granitic and quartzitic lithologies and below 80 ppm in mafic lithologies. As the analysis results appeared to vary in correspondence with the sample host geology, an adjustment was made to the geological map, to better accord with the geochemistry and the lidar topography, see Figure 6. This model, in full accordance with the facts and allowing the reinterpretation of the geological map, left no evidence of concentrated mineralisation by cobalt, copper or nickel. The work provided no targets for further exploration.

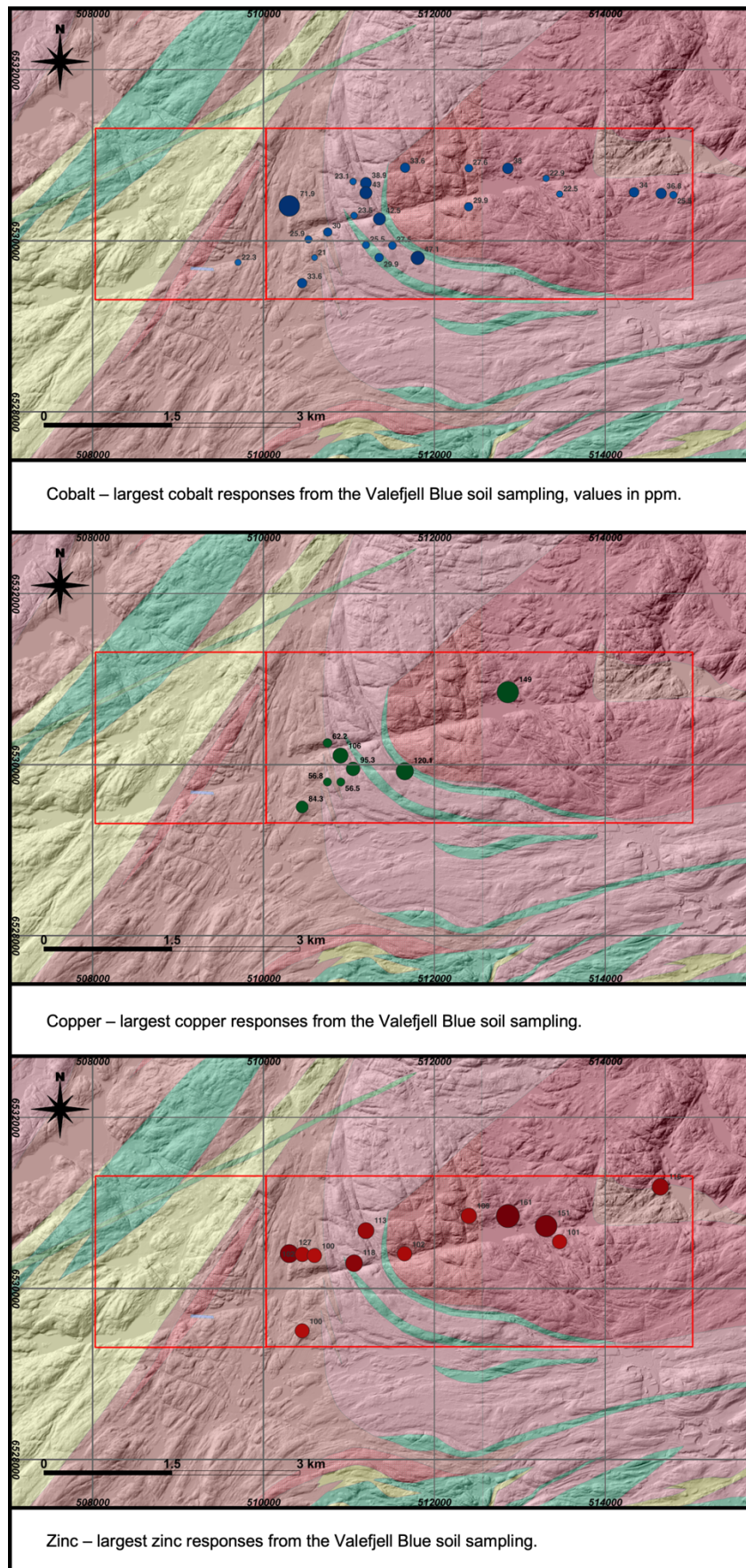
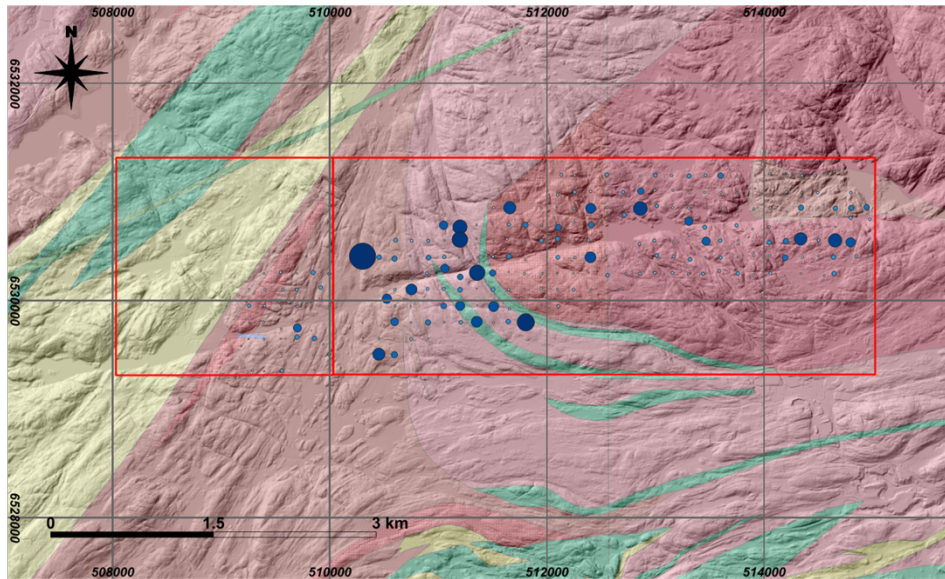


Figure 5. Map showing the soil sampling analysis results for cobalt, copper and nickel, 2023 field season.



Given the tendency for the higher cobalt values to lie along the mafic dykes, a slight adjustment to the geological map is proposed below, to make the geology more consistent with both the geochemistry and the lidar topography

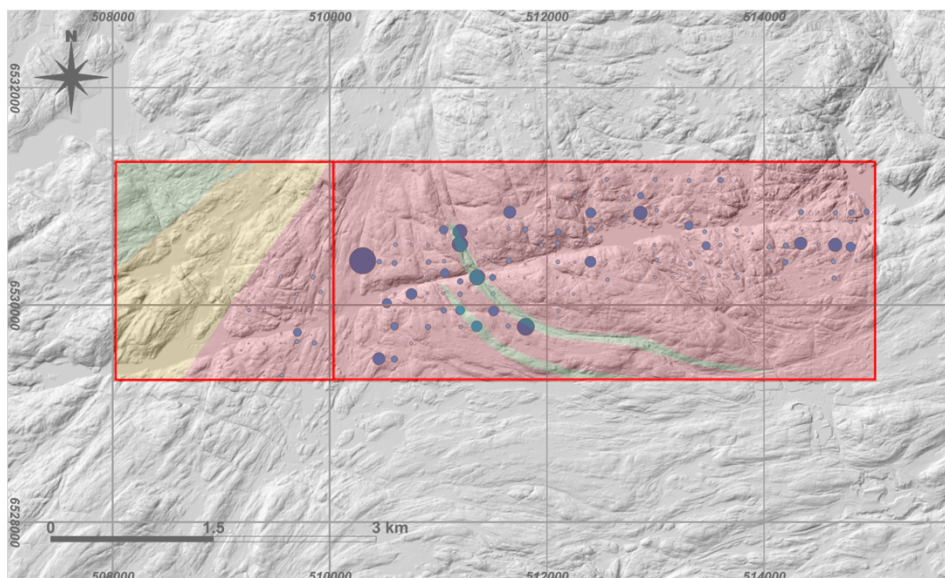


Figure 6. Map showing the relationship between the analysis results and the local geology.

Summary

In December 2023, with no further evidence of economic mineralization, Transition Elements decided to relinquish the remaining Valefjell area licences. It was the conclusion of review work that analysis results were consistent with the presence of only background concentrations of metals once the sample host geology was taken into account and did not support the presence of a deposit within the remaining area. Any mineralization that did exist would not be commercial.

References

The Bamble sector, Norway: a review, *T. Nijland, D. Harlov and T. Andersen, Geoscience Frontiers, 2014, 1-24*

Assessing the Copper and Nickel Prospectivity of Project 1 within the Valefjell Exploration Licence Area, Southeast Norway, *Edward Smith, 2022, MSc Thesis, University of Exeter*