Original

Cu, Zn, and Ni concentrations in till of the Henninga-Kaminak-Quartzite Lake Area, District of Keewatin

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The attached maps are preliminary compilations of Cu, Zn, and Ni concentrations in clay (-2μ) separates from till samples collected in the Kaminak Lake area during the summers of 1970, 1971, and 1973. Samples were also analyzed for Pb, Co, and Ag, but those results are not figured here. Sample spacing within the heavier border is generally one per square mile; samples within the lighter boundary were collected at 0.8 mile intervals along northeast-trending lines that were four miles apart. The analytical techniques and rationale and plans of sample spacing are discussed and illustrated by Ridler and Shilts, 1974.

The base map is compiled from Bell, 1971; Davidson, 1970a, 1970b; Ridler and Shilts, 1974, and from unpublished compilations by R.H. Ridler, mining company files, and the author. Many lithologic units are generalized and there is some slight distortion of the base with respect to the anomaly map.

Distribution of trace elements

The significance and origin of many of the areas of high Cu-Zn-Ni concentration have not been interpreted yet, but most of the contoured areas can be related to known mineralization or to bedrock environments favourable to mineralization. Ridler and Shilts, 1974, discuss the central part of maps in this report, but new data from the 1973 sampling program are presented for the southwest and northeast edges of the published maps. Open File report #190 gives results of detailed 1973 sampling program in the Spi-Carr Lake area.

No attempt will be made to discuss most of the anomalies on these maps, but two unexpected aspects of the maps bear pointing out. The first is the linear zone of Cu and Zn enrichment that is drawn over the Aphebian basic volcanic unit within the Hurwitz Group outcrop area. Till particularly rich in Cu and Zn occurs from where this unit crosses the neck separating the two main basins of Quartzite Lake, west along the lake for about five miles. Smaller Cu-Zn anomalies occur sporadically westward along the Hurwitz trough and anomalies occur north of Spi and Carr Lakes that could be related to an unmapped extension of Aphebian

volcanics (R. Beavon, pers. comm., 1973). In the absence of any reported significant mineralization within the Hurwitz in this area, it must be concluded that these anomalies are related to sub-economic, disseminated sulphides within the volcanics.

A second prominent feature of the maps is the sharp discontinuity in Cu-Zn values that occurs between the Kaminak and Henninga-Turquetil batholiths. Tills in the vicinity of the latter batholiths are markedly enriched in Cu, Zn, and, in some places Ni compared to those derived from the intrusive-extrusive complexes north and east of them. A significant dispersal train of Cu and Ni heads in an east-northeast-striking basic volcanic-gabbroic complex between the north edges of Yandle and Henninga Lakes. The size and prominence of the indicator train suggest that it may be related to widely disseminated, sub-economic sulphides within this unit, but the possibility of economic "pods" of Cu-Ni mineralization occurring near the train's source cannot be ruled out. Several other Cu-Ni highs that are unique to the sampled area occur around the Henninga batholith.

Illustrations

Figure 1 Cu and Ni concentrations in clay (-2μ) separates, Kaminak Lake Area.

Figure 2 Zn concentrations in clay (-2μ) separates, Kaminak Lake Area.

References

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