

Li Y, Ross M, 2016, Integration and analysis of legacy boulder data, new surficial geology, and radiometric data over the McArthur River uranium mine, Saskatchewan, Canada, Thesis Presentation, U Waterloo, ON

The McArthur River Uranium deposit in northern Saskatchewan, Canada, is covered by a 500-meter-thick sandstone succession and Quaternary sediments locally in excess of 50 meters in thickness. There is great interest in identifying glacially transported debris at the surface with features and compositional characteristics similar to that of the alteration halo that appears to extend to the buried bedrock surface. A large legacy dataset consisting of more than 2000 geochemical results and descriptions of sandstone boulder samples is available for the project. Alteration products, such as clay minerals, were determined based on sandstone geochemistry. However, different geochemistry methods used over the years may induce heterogeneity in the dataset. In addition, recent investigation shows that different tills may be present at the surface with unique composition and provenance. Airborne gamma-ray surveys can be used to map contrasting boulder fields or outcropping till units and 100-metre resolution data is available. The goal of this study is to revisit the legacy boulder data with more recent data. Specifically, this study will map radiometric patterns at the surface and investigate possible spatial relationships with boulder data. Integration and analysis of these datasets can be a promising approach to identify tills or large boulder fields of contrasting provenance and identify zones with a high potential for representing a local alteration footprint.

NSERC-CMIC Mineral Exploration Footprints Project Contribution 066.