

Summary of Surface Water Quality

Frontier Lithium Inc (Frontier) is proposing to develop an open pit mine with supporting facilities, known as the PAK Lithium Project (Project). The Project is located approximately 175 km north of Red Lake. Indigenous communities in proximity to the Project include Deer Lake, North Spirit Lake, Sandy Lake and Keewaywin.

Baseline studies to characterize the natural background chemistry and water quality in waterbodies in the vicinity of the Project have been completed since 2015. Prior to 2018, surface water quality sample locations were conducted mainly on lakes and creeks located on or close to the study area. The baseline sampling program was expanded in 2018 to include locations on watersheds further downstream. **Frontier will be completing ongoing data collection in 2024.**

The assessment of baseline surface water quality is comprised of ten local subwatersheds, plus Whiteloon Lake. The purpose of the baseline assessment is to review and report on existing and recently collected baseline data to characterize the surface water quality-prior to construction of the Project.

Previous assessment reported naturally existing concentrations of aluminum, copper, chromium, iron, phosphorus, silver, and zinc to be higher than the Ontario Provincial Water Quality Objectives (PWQOs) at one or more of the surface water quality sample locations. However, metal concentrations were observed to be within the range of concentrations-typically found in lakes and streams within the Canadian Shield.

For this baseline study, surface water quality parameters were compared against the Ontario Provincial Water Quality Objectives (PWQOs) and the interim PWQOs (iPWQOs). Aluminum and iron were most frequently greater than the PWQOs across all local subwatersheds. Within the Canadian Shield, the hydrology is characterized by irregular flow patterns and strongly controlled by bedrock outcrops. Therefore, metal concentrations that are greater than the PWQOs are assumed to be due to background levels that reflect natural weathering processes and water-rock interactions as surface water comes into contact with rocks and soils in the local area.

