SURFACE WATER

TENAS PROJECT

Telkwa Mining Assessed the Potential Project Related Effects on the Surface Water Valued Component

Valued Component	Subcomponent	Potential Effects Assessed
Surface Water	Surface Water Quantity	• Change in Mean Annual Discharge (MAD) • Change in Seasonal Flow Distribution • Change in Low Flows and High Flows
	Surface Water Quality	• Change in Modelled Parameter Concentrations • Change in Other Measurable Water Quality Parameters

Baseline studies for the Project conducted in 2017 through 2020.

Surface Water Quantity

- Tenas Creek, Four Creek, Goathorn Creek, Telkwa River, and the Bulkley River were selected as representative drainages.
- Streamflow regime is snowmelt-dominated with the majority of runoff occurring in the spring and early summer due to melting winter snowpack. This is typically followed by a period of low flow throughout the late summer and early fall when the inputs from snow have diminished.
- In the fall, short duration high intensity rain events may produce substantial high flow events with naturally elevated concentrations of suspended particles.
- Annual low flows occur during the winter.

Surface Water Quality

- The Telkwa and Bulkley Rivers have exceeded the BC water quality guidelines for total and dissolved aluminum, total iron, and total copper.
- Goathorn and Tenas Creeks have exceeded the BC water quality guidelines for total and dissolved aluminum, total iron, and dissolved copper.
- Four Creek has exceeded BC water quality guidelines for dissolved and total aluminum and dissolved and total iron.

Water Quality Guidelines

There are a variety of different provincial water quality guidelines that can be used to compare modelled project parameter concentrations to evaluate potential impacts. The guidelines selected for the Project were the chronic BC water quality guidelines for the protection of aquatic life. BC guidelines are some of the most stringent in the developed world even when compared against Alaska and California.

Key result is the project does not cause any exceedances of these guidelines beyond existing baseline conditions.



Example Mitigation Measures

- Monitor seepage, groundwater, and surface water levels, and quality/quantity downstream and upstream of the Project as per the monitoring programs set up in the Minesite Water Management Plan.
- Establish trigger levels that require the implementation of contingency mitigations measures described in the Discharge Management Plan.
- Monitor and control water discharges from Tenas Control Pond to a tributary of Goathorn Creek based on downstream water flow rates and water quality to meet in-stream guidelines and flow requirements during the Operation, and Decommissioning and Reclamation phases.
- Provide results of water quality sampling and quantity monitoring via the BC Ministry of Environment and Climate Change Strategy website.
- Maximize the use of contact water for all Project water needs (i.e., use contact water for process water for the Coal Processing Plant and equipment washbays before withdrawing additional water from the Project Area).

Residual Effects

- The Project is expected to change summer and winter streamflow from baseline conditions in sections of Four and Tenas Creeks.
- Potential residual effect on Surface Water Quality for both the change in parameter concentrations and the change in other measurable parameters is limited to within the watersheds of Four and Tenas Creeks.
- No significant adverse Residual effects are expected for surface water due to the Project.

TELKWA MINING LIMITED