GROUNDWATER

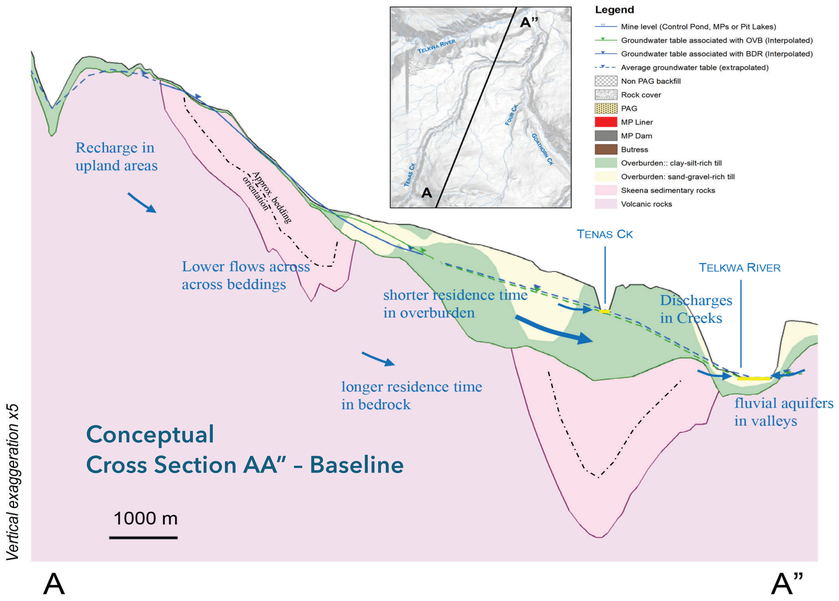
TENAS PROJECT

Telkwa Mining Assessed the Potential Project-related Effects on the Groundwater Valued Component

Valued Component	Subcomponent	Potential Effects Assessed
Groundwater	Groundwater Quantity	• Change in Groundwater Level in Areas of Private Wells • Change in Groundwater Discharge Rates to Creeks and Rivers
	Groundwater Quality	• Change in Groundwater Quality in Areas of Private Wells • Change in Quality of Groundwater Discharging to Creeks and Rivers

Groundwater Quantity

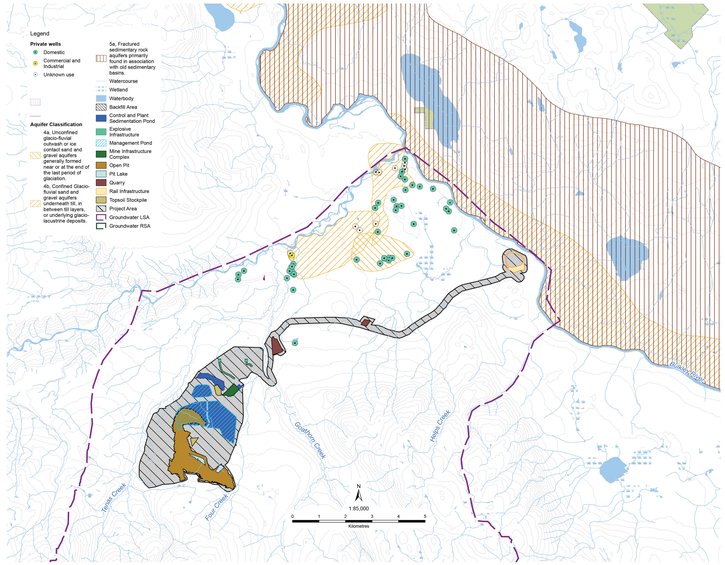
- Conceptually, the groundwater system is divided into two sub-systems: deep bedrock and shallow overburden.
- Groundwater in both systems flows towards the valleys, moving away from the open pit towards Tenas Creek, the Telkwa River, and Goathorn Creek.
- Static water levels are generally less than 2 metres below ground surface (mbgs) in the south part of the Project Area, to more than 20 mbgs in the north part of the Project Area, where overburden thickens.



Groundwater Quality

- The overburden system is characterised by local unconfined systems with relatively short residence times and low concentrations of dissolved solids, while the bedrock system has a large lateral extent and is characterised by confined flow, relatively long residence times in the subsurface, and higher concentrations of dissolved solids.
- Baseline groundwater samples exceeded the BC Water Quality Guidelines (WQG) for the protection of Freshwater Aquatic Life (FAL) for fluoride, ammonia, and dissolved aluminum, cadmium, chromium, copper, iron, and silver, and the BC WQG Drinking Water Standards (DWS) for fluoride, and dissolved iron, cobalt, manganese, and mercury.
- Five private wells were sampled as part of the baseline program and exceedances of the BC WQG FAL and DWS guidelines for total arsenic, total manganese, total and dissolved iron, total phosphorus, and total organic carbon were observed.

Aquifers and Private Wells within the Groundwater Local Study Area



Example Mitigation Measures

- The management ponds, and the Tenas Control Pond have been designed with low permeability liners to minimize the seepage of water from underneath these facilities into the groundwater system.
- Identify and segregate potentially acid generating (PAG) material while mining the open pit, and place PAG material in management ponds and submerge PAG material to prevent acid rock drainage (ARD).
- After the Operation Phase is complete, the open pit will be allowed to flood with a combination of contact and non-contact water to raise groundwater levels closer to current conditions.

Residual Effects

- Changes to groundwater levels will be localized and are not predicted to reach any of the private domestic wells affecting their production capabilities. Seepage from mine sources has the potential to reach the groundwater system utilized by private domestic well users but when mixed with background groundwater, no constituent is predicted to exceed the BC WQG DWS.
- Changes in groundwater quality and discharge rates to watercourses and rivers are not expected to result in a change that will alter their integrity within the Regional Study Area by more than 5%, which defined as an acceptable limit.

TELKWA MINING LIMITED

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