

Tkemplups Indian Band Water

The TIB water treatment plant is staffed by three TIB Band Members and are all EOCB certified operators. We have a great working relationship with the City of Kamloops Water treatment plant and have done numerous tours for courses being offered within the city for BCWWA and also for the Thompson Rivers University Water quality program.

History

The Tkemplups Indian Band Water treatment plant was constructed in 1998 after a small pilot program determined that conventional water treatment would be the best technology for the

water. The headwaters of Shuswap Lake feed the South Thompson river system and has many of the concerns that source water with agriculture, homes, highways and railway systems near it could have with potential and already occurring contamination issues. Seasonal turbidity events that have increased turbidity from 2 NTU to over 250 NTU have been recorded on the South Thompson river. Therefore it reinforced the idea of having a water treatment plant that could provide a safe, reliable drinking water to the TIB membership and to any customers on the TIB water distribution system.

Plant Process Summary

The TIB plant receives water from the South Thompson River via an 850 mm water intake pipe that leads into a raw water well located in a low-lift pump station below the main treatment plant. Irrigation pumps that provide irrigation water and also fire protection for Sun River's development are located in Low-lift station well. Also, an irrigation pump for band members is located in lower lift station. Four vertical turbine pumps supplying treatment plant with raw water are housed in low-lift building. They discharge into raw water header where injection points for coagulant are then water mixes with coagulant hydraulically through a flash mixer.

Water that has been mixed with coagulant begins forming floc that goes through flocculation and sedimentation basins. This allows heavier floc particles that have formed to settle out and then water goes under then over up flow clarifiers located in sedimentation basins.

The TIB plant has two dual media filters consisting of anthracite and sand and has a filtering rate of 8,300 m³ each. Currently, the filtration requirement has only required 50% of the capability of the filters for customer usage. Filters are



Aerial hot air balloon photo of Tkemplups Water Treatment Plant

TIB plant. The TIB water treatment plant was designed by KWL-CH2M. It took just under two years to complete the facility and on May 4th 1999 the Class 4 TIB water treatment plant was commissioned.

Raw Water Source

The South Thompson River supplies the TIB water treatment plant with a consistent raw water supply for treatment purposes and also irrigation

Treatment Plant (Kamloops)



Pipe Gallery-Main Treatment Plant

Flocculation-Sedimentation-Filtration Area



backwashed according to head loss on filters and turbidity readings on inline turbidity meters. Backwash for filters consist of an air scour, low wash, high wash, then second low-wash and finally a fill-up where filter is allowed to rest before filtering to waste for several minutes before being allowed back on-line to clear-well. Water for back wash comes from the clear well.

Filtered water going to clear well is dosed with sodium hypochlorite 12% and then goes through opposite end of clear well from distribution pumps to allow for contact time. A maze of rubber curtains hangs in clear well to assist in the CT and disinfection process. Water from clear well is then pumped to four different reservoirs

within the TIB distribution system.

TIB distribution system is a level II and has four reservoirs within the system. A 330 m³ reservoir located east of the plant supplies a more wide spread population as it is farm land. A large 3.5 million liter reservoir supplies an industrial park and also several modular home parks and the general band membership homes. Two reservoirs located above the Sun Rivers golf resort community are supplied by booster pumps off the main Mount Paul system.

Thanks to Darrel Bennett. An EOCP travel mug has been sent to him for this plant profile.



Tkemlups Indian Band Main Water Treatment Plant

Plant Design Parameters

Raw water intake in the South Thompson River
Design Flow (Ultimate)..... 48,300 m³

Raw Water Pump Station
Water Treatment Supply pumps
Number 4
Total Capacity 23,830 m³/d
Firm Capacity
(with largest pump out of service) 15,980 m³/d
TDH 20-23 m

Sun Rivers Irrigation pumps
Number..... 2
Capacity, each 7,130 m³/d
TDH..... 127.5 m

Floc Tanks
Type..... Hydraulic
Number 4 tanks, 3 cells each
Nominal retention time
@ 8,100 m³/d 69 minutes

Plate sedimentation tanks
Number..... 2
Maximum loading rate
@ 8,100 m³/d..... 0.54m/h

Filters
Type dual media
Number 2
Area/filter 34 m²
Maximum filtration rate
@ 8'100 m³/d 4.9 m/h

Treated Water Pump Station
Mount Paul System pumps
Number 4
Total Capacity..... 21,800 m³/d
Firm Capacity (with largest pump off) 14,710 m³/d

East Shuswap system pumps
Number 2
Capacity, each 1,140 m³/d
TDH..... 72 m

Backwash Pumps
Number 2
Capacity, each..... 24,500 m³/d
TDH..... 11 m