

BETHEL WATER DISTRICT CHAPMAN BROOK WATERSHED

EXECUTIVE SUMMARY

The Bethel Water District serves approximately 1,280 people from Chapman Brook. A smaller number, approximately 130 people located in West Bethel, are supplied from drilled wells operated by the Water District. The 2,107-acre watershed of Chapman Brook is located in Newry, Bethel and Riley Township. The watershed is entirely forested with no development other than the dam and small intake structure located on the bank of the stream.

No significant land use threats were identified during the reconnaissance of the watershed. The principal activities to monitor in the watershed include recreational use, timber harvesting and logging road development/maintenance. The Water District has posted water supply signs at the intake to discourage public use near the intake. In the case of a forest fire burn, the brook would receive direct runoff. This would likely result in increased turbidity from erosion and the transport of residues, constituents, etc. derived from burned organic matter.

The Water District intake is located in a small impoundment created by a dam across the brook. The water is delivered by gravity through a pipeline to a small treatment building located within a mile to the south along the Water District access road. The water is disinfected by chlorination and fluoride is added. The unfiltered water is monitored further downstream before distribution to customers. Routine monitoring of raw water for coliform bacteria and turbidity, and annual testing for nitrate, TE2 and TE3 parameters have indicated good water quality from this source, i.e., showing all test parameters reported below applicable public drinking water standards.

Based on the largely undeveloped nature of the watershed, rural setting, existing protection strategies and ongoing public awareness program of the Water District, the overall susceptibility of the Chapman Brook water supply is considered to be low. Forest management practices and the control of human activities should include strategies and public awareness to prevent forest fires.

SWAP RANKING AND RECOMMENDATIONS

The SWAP assessment factors indicate that overall susceptibility of the water quality in Chapman Brook is low. This conclusion is based on the general conditions observed, including the extensive ownership protection, the natural forested land cover and the absence of potential threats from land use activities. Specific factors considered in assessing the overall risk are summarized below.

CHAPMAN BROOK SURFACE WATER ASSESSMENT

Zone	Measure	Findings	Risk Level
Watershed	Ambient Water Quality	Class GPA, in full compliance.	Low
	Existing Conditions	Natural forested land cover; land use activities are limited to timber harvest and minimal recreational use.	Low
	Future Development	Future development is unlikely-limited by extensive Water District ownership and remoteness of watershed.	Low
	Overall		Low
Shoreland	Brook Classification	Undetermined (unfiltered source suggests Oligotrophic conditions).	Low
	Soils	Potentially erodible soils on steep slopes; historic problem with clayey soils were stabilized.	Low-Moderate
	Activities Posing a Threat	Logging roads if traverses are too close to natural drainage channels.	Low
	Potential for Future Threats	Ownership by Water District is protective of shoreland areas.	Low
	Overall		Low
Intake	Raw Water Quality	Coliform and turbidity testing shows good quality; unfiltered source.	Low
	Ownership/Control	Ownership protection for intake area by Water District.	Low
	Activities Posing a Threat	Unauthorized public access to intake area.	Low
	Potential for Future Threats	Runoff from forest fire burn.	Moderate
	Overall		Low
Overall			Low

Recommendations

The overall ranking for the brook susceptibility to threats of contamination is low. Several additional actions could be considered by the Water District to maintain the quality of the water supply.

- Continue to implement a water quality-monitoring program for baseline and trend conditions.
- Use Best Management Practices when cutting the forest in the watershed in order to limit forest fire danger and minimize any increase in runoff, which could erode silt and clayey soils along the steeply sloping banks of the brook.

- Communicate with large landowner(s), including paper companies, to establish a land management plan around the watershed boundary. The plan could include provisions that provide a buffer to encroachment on the watershed boundary by forest practices on these adjacent properties.
- Work with the landowners in Riley Township to establish watershed protection through land purchase, conservation easements, landowner agreements or other means.

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