

Deloro's Drinking Water Source - System Summary

Drinking Water From a Municipal Well

Groundwater is the source of drinking water for the Village of Deloro in the Municipality of Marmora and Lake. This small community, located north of Highway 7 on the fringe of the Precambrian Shield, grew around the adjacent Deloro mine site (presently under remediation) where gold and other minerals were mined and processed.

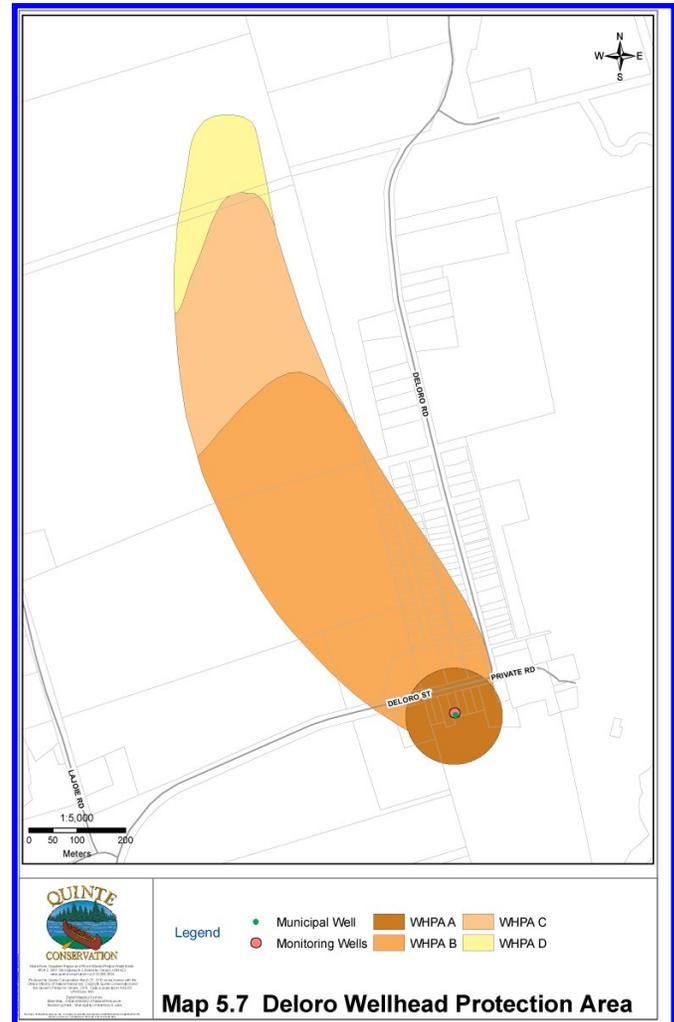
The Village has been serviced by water and sewer for some time and the current water supply is a well, owned and operated by the municipality. The well is located at the south-western end of the village with residential and marginal agricultural lands surrounding. There is minimal commercial activity in the village and the former Deloro mine site is to the east.

The current well was drilled in 1976 to a depth of 29.9 metres finding water at depths of 14 and 21 metres in fractured Precambrian bedrock. The well has a recommended pumping rate of 75 gallons per minute. This water supply is classified as a GUDI (Groundwater Under the Direct Influence of Surface Water) because of the shallow unconfined nature of the aquifer. No nearby surface water features influence the well. Wastewater in the Village is discharged to a municipally owned subsurface septic system located immediately east of the well. The water use at this well is relatively low.

Vulnerable Areas

Through the science of the Assessment Report (available at www.quintesourcewater.ca), zones have been mapped that show which areas near the well are most vulnerable to pollution and contamination. These are called Wellhead Protection Areas (WHPAs) and include the land above and below ground where land use activities could affect the quality of water flowing toward the well. The location and size of a WHPA is determined in part by the direction the groundwater moves, the speed/rate it moves, and the volume of water that is pumped from the wells. There are four zones of vulnerability:

- **WHPA A** is a 100 metre radius around the well.
- **WHPA B** is the zone in which it would take a contaminant 2 years or less to reach the well; the two year time of travel zone.
- **WHPA C** is the zone in which it would take a contaminant 5 years or less to reach the well; the 5 year time of travel zone.
- **WHPA D** is the zone in which it would take a contaminant 25 years or less to reach the well; the 25 year time of travel zone.



Vulnerability Scores

Vulnerability scores help to quantify how vulnerable the drinking water source is to contamination. Scores are calculated based on the ground conditions around the well, taking into account how contaminants might move. An area with a higher vulnerability score is more likely to allow contaminants from that area to reach the well. The vulnerability score of the highest concern is 10. The vulnerability scores for the Deloro Well are: **WHPA A & B = 10, WHPA C = 8, WHPA D = 6.**

Drinking Water Issues

Drinking water issues are chemicals or bacteria in the untreated water that exceed allowable values. The raw water quality data that represent conditions at the Deloro well was screened to identify issues in the source water. Using a 4-step screening process it was confirmed that no issues in the raw water exist.

Drinking Water Threats

Threats to the drinking water source within the WHPAs were evaluated. These threats are based on the categories prescribed by the Ministry of the Environment and Climate Change. Threats were inventoried by field observations, air photos and satellite images, existing databases and landowner contact. The threats were then ranked as significant, moderate or low. No significant threats were identified in WHPA C or D. One or more significant threat types were identified on 11 parcels of land in the WHPAs A and B. Identified threat types to the Deloro well are:

- handling and storage of fuels (home heating oil and fuel for agriculture)
- use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard
- application of agricultural source material
- municipal septic system and sanitary sewer

No threats have been identified based on the presence of any past land uses or pre-existing conditions. Moderate and low threats are shown in tables in the Assessment Report.



Made possible through the support of the Government of Ontario



Source Protection Plan

The Approved Quinte Region Source Protection Plan includes policies, developed by the Source Protection Committee in consultation with the local community. The 63 policies in the plan address the drinking water threats identified in the science-based Assessment Report. The Assessment Report, identified the vulnerable areas surrounding the 11 municipal drinking water sources in the Quinte Region and ranked the threats as significant, moderate or low.

The source protection planning process is governed by the *Clean Water Act, 2006* and directed and funded by the Ontario Ministry of the Environment and Climate Change. The Quinte Region Source Protection Plan comes into effect January 1, 2015.

For more information, including the complete Assessment Report and the Source Protection Plan, visit:

www.quintesourcewater.ca

Quinte Conservation, 2061 Old Highway 2, R. R. #2, Belleville ON K8N 4Z2

Phone: 613-968-3434 or 613-354-3312