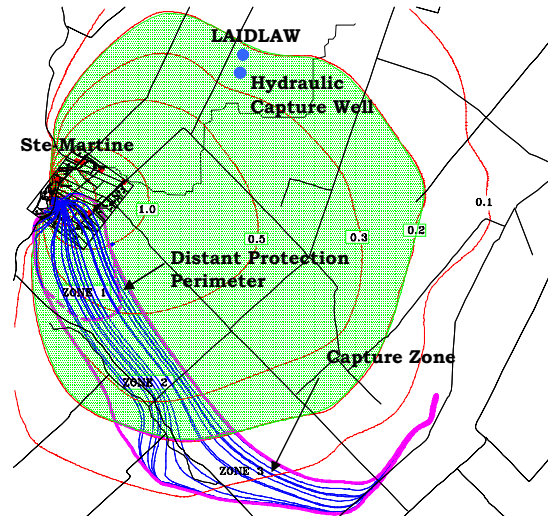


PROJECT DESCRIPTION

<input type="checkbox"/> Characterization	<input type="checkbox"/> Remediation	<input checked="" type="checkbox"/> Hydrogeology	<input checked="" type="checkbox"/> Modeling	<input type="checkbox"/> Risk Assessment
<input checked="" type="checkbox"/> Drinking Water Treatment	<input type="checkbox"/> Research and Development			

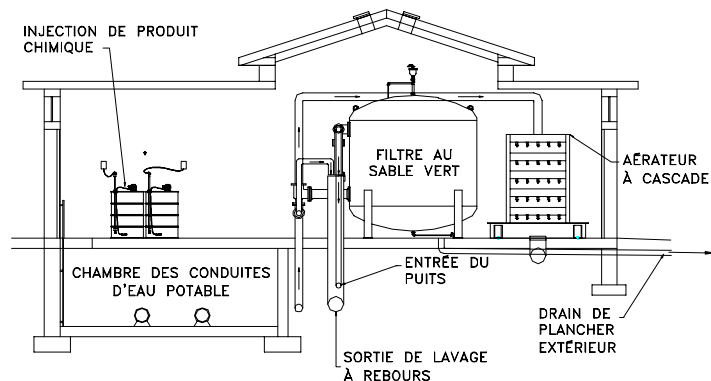
HYDROGEOLOGICAL INVESTIGATION, MATHEMATICAL MODELING AND DESIGN OF A TREATMENT UNIT FOR THE REOPENING OF A MUNICIPAL WELL AT SAINTE-MARTINE, QUEBEC

Parameters of Concern:	Iron and Manganese
Project Duration:	Since 1997
Performance :	The municipality now uses groundwater again as its source of drinking water
Cost	\$240 000
Client :	Municipality of Sainte-Martine and Ministry of the Environment



Issue

Between 1968 and 1982, the regional groundwater aquifer near the Town of Mercier was contaminated by large quantities of organic liquids, which leaked from nearby waste disposal lagoons. As a result, the municipal well of Sainte-Martine was shut down as a precautionary measure in the early 1980's. However, water quality data collected since 1989 indicated that the Sainte-Martine Area was unimpacted. As a result, the municipality decided to evaluate the possibility of reopening the municipal well.



Work Performed

A hydrogeological investigation was conducted to evaluate the possibility of reopening the municipal pumping well of Sainte-Martine. A mathematical model was developed for the catchment area of the Chateauguay River in order to determine the capture zone of the pumping well, and to assess the risks of interfering with the hydraulic catchment of containment wells located at the site of the old lagoons. A customized groundwater supervision program was set up to monitor the water quality of the water supply well and of piezometers in the area. Chemical analyses have shown iron and manganese concentrations slightly above Quebec drinking water standards. As a result, a proposal for a drinking water treatment system utilizing catalytic filtration, as well as for the improvement of the treatment building and the water distribution and sewer systems was produced.

Results

The results of the hydrogeological investigation and modelling study demonstrated that, at the pumping rate necessary to supply the municipality with drinking water, the risk of interference with the hydraulic catchment of the old lagoons containment wells are nonexistent. The investigation also determined the long-term potential of the rock aquifer and permitted the development of management tools for well head protection. The construction of a treatment plant will provide the municipality with drinking water from the groundwater aquifer that meets the drinking water guidelines of the Ministry of the Environment.