

## PROJECT DESCRIPTION

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

# DEVELOPMENT AND APPLICATION OF SCIENTIFIC TOOLS FOR THE MANAGEMENT AND PROTECTION OF GROUNDWATER RESOURCES IN THE MUNICIPALITY OF LAC-BEAUPORT, QUEBEC

<b>Parameters of Concern:</b>	Pathogenic organisms and nitrates
<b>Project Duration:</b>	2 1/2 years
<b>Status:</b>	In progress
<b>Cost:</b>	\$404,000
<b>Client:</b>	Municipality of Lac-Beauport

### Issue

Groundwater contamination by pathogenic organisms was discovered in 1995, when residents of the Municipality of Lac-Beauport had their groundwater analyzed. Outdated and/or badly maintained septic installations may be the source of the contamination. Following this discovery, the municipality decided that it needed to become actively implicated in the management of its groundwater resources. The municipality quickly established a work plan to meet their needs which consists of: 1) the elaboration of a detailed picture of groundwater resources on its territory, 2) the development of a groundwater management and protection plan utilizing existing maps and high tech computer tools, and 3) if necessary, the development of tools to manage and protect groundwater resources.

### Work Scope

The scope of work includes the realisation of detailed hydrogeological mapping and mathematical modeling using assead data. In addition, a groundwater quality assessment and an aquifer sensitivity evaluation will also be performed.

### Results

The results will be presented in thematic maps, tables and summary reports. For example, the maps will show the type of aquifer found in the area, groundwater flow directions, groundwater quality, its potential for future use, its sensitivity to contamination, etc. In addition, tables will incorporate groundwater management rules related to problems encountered. With these documents (maps, tables and reports), technical and regulatory recommendations will be provided to the municipal board. These recommendations, if they are followed, will ensure a sufficient supply of potable drinking water to the municipality. An important aspect of this project will be the implementation of a geographical information system (GIS) to manage the information that is gathered.

Paper and electronic versions of all hydrogeological maps will be prepared. The electronic maps can then be superimposed on city plans in order to help in the management of the water resources by the municipality. Finally, the GIS software will be provided to the municipal employees, who will be trained to use it. The training of municipal employees is considered a priority in order to ensure the transfer of the knowledge acquired, to guarantee its integration into the city's urban development plan, and ensure that the groundwater management plan is implemented.

