

toring, analysis, forecasting, and well regeneration will be presented as they apply to a case study of the Fredericton Aquifer, a large glaciofluvial sand and gravel aquifer that produces 25 ML per day from 11 wells.

**Sustaining consistent well production
despite a changing near-well environment**

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Maintaining a wellfield at full capacity requires knowledge of the well's mechanical conditions and knowledge of near-well conditions of the aquifer. A sustained well production will fulfill scheduled user demand over the lifespan of a well. Wellfield operators routinely face challenges in sustaining well production because of aging infrastructure and also face declining production due to the aquifer plugging and related transmissivity changes of the host geological deposits. A pro-active approach to well maintenance by the City of Fredericton has resulted in sustainable production of potable water from the existing wells, which would not have been possible otherwise.

The sustained production of a wellfield can be achieved by monitoring well and aquifer hydraulics on a regular basis. The information will allow an evaluation of well performance and provide information to forecast the production of a well and schedule maintenance when required. In addition, key indicators such as well water chemistry and microbiology can assist in determining maintenance requirements. Methods of moni-