

PHYSICAL HYDROGEOLOGY GROUP SERVICES

The Matrix physical hydrogeology group includes technologists, geologists, hydrogeologists and engineers that provide pragmatic, cost effective solutions to groundwater resource challenges for our clients. Our team has extensive experience dealing with applied and theoretical components of water supply, wastewater disposal, dewatering and regional scale subsurface flow. The Matrix groundwater monitoring and residential well testing teams operate within the physical hydrogeology group and provide environmental groundwater monitoring and residential well testing services.

Our experience ranges from drilling and testing of a single water supply well to preparing regional scale numerical models in support of projects that have large well fields with water supply and wastewater disposal in multiple aquifers.

Typical projects include:

- Groundwater flow and transport modeling to predict environmental impacts to groundwater resources related to the operation of industrial facilities including in-situ oil sands recovery projects, oil sands mining projects, bitumen upgraders, oil refineries and coal mines;
- Planning and execution of hydrogeological field investigation programs to characterize aquifer parameters;
- Regional geological and hydrogeological investigations designed to identify potential reservoirs for water supply, wastewater disposal and carbon dioxide (CO₂) sequestration;
- Design and installation of groundwater supply, wastewater disposal and mine dewatering well networks;
- Regulatory approvals (groundwater diversion licenses) for municipal, industrial, commercial and agricultural water use.
- Predicting and monitoring thermal plume migration and associated effects to groundwater quality related to the operation of steam assisted gravity drainage (SAGD) for bitumen production.

