

Lambton Facility

Surface and Groundwater Monitoring



Surface Water Monitoring

The surface water management system directs all storm water via a series of ditches and reservoirs to a water treatment plant located within the main processing area of the Lambton Facility. Once treated, the surface water (referred to as treated effluent) is discharged to an equalization pond.

Following analysis, it is discharged to a ditch along Telfer Road. During discharge of the treated surface water, samples are collected and analyzed on a daily basis for the list of parameters including pH, total phenols, solvent extractables, total suspended solids and toxicity (Microtox). The samples collected during 2007 produced no indication of toxicity in any test.



Groundwater Monitoring

The goal of the monitoring program is to provide for the early detection of changes in groundwater quality at the site.

- Monitoring wells have been installed in two hydraulically active water bearing zones: near the surface (called “Active Aquitard”); and where the clay overburden contacts the bedrock (called “Interface Aquifer”).
- Monitoring involves the measurement of water levels (to calculate the hydraulic gradient) and the collection of water samples for analysis.
- Groundwater samples are analyzed for a full suite of compounds by an independent laboratory at detection limits well below the Ministry of Environment’s Ontario Drinking Water Standards.
- A chemical database and control charts (called “Concentration vs. time plots”) are maintained for four indicators (chloride, potassium, sulphate, sodium) to track short-term events and long-term trends.
- Shallow groundwater in the Active Aquitard flows from high ground surface points (e.g., perimeter berms) to low surface points (e.g., excavations).
- The shallow groundwater sampled from wells onsite is more mineralized than that represented by the three shallow wells located off-site. The shallow groundwater onsite is characterized by slightly elevated sodium (salt) concentrations compared to the chemistry of the off-site wells. It has been concluded that the shallow groundwater quality onsite exhibits the accumulated effects of site development (i.e., waste placement and temporary storage, use of deicing salts on roadways, calcium chloride for dust suppression and effects of earth moving activities, berm construction, etc.).