Lambton Facility FAQs

Does the Landfill Pollute Local Groundwater Resources?

There is currently no evidence of contamination of the interface aquifer in analytical samples collected as part of the semi-annual sampling event at the Lambton site, which are a result of site operations.

Groundwater Monitoring Program

Clean Harbors' groundwater monitoring program provides early detection of changes in groundwater quality at the site. Monitoring wells have been installed along the perimeter of the facility property in the two hydraulically active, water-bearing zones, which are the primary pathways along which contaminants could travel. These are referred to as the *Active Aquitard* and the *Interface Aquifer*.

The Active Aquitard is the near surface weathered portion of the clay-silt overburden that is present at the site. Weathering including winter frost action has fractured the clay materials to a depth on the order of 3 m to 4 m. Groundwater movement through the fractures is potentially rapid in comparison with movement through unfractured overburden materials.

The Interface Aquifer, located where the overburden and bedrock meet, is characterized by a thin, discontinuous layer of granular material overlying fractured bedrock. This aquifer has been capable of satisfying residential water requirements albeit the yield and quality has been poor. Prior to the extension of municipal water service into St. Clair Township, this thin zone formed the regional aquifer and was extensively used as a source of water supply by area residents. The aquifer is still used as a source of water supply by some residents who are either located on a side road that is not serviced or have chosen not to connect with the municipal service. A few residents also use shallow wells completed in the Active Aquitard as a source of non-potable supply.

Compliance Monitoring Events

Two compliance-monitoring events are completed at the Lambton facility each year in late spring (May or June) and fall (October or November). The program, reviewed by the Ministry of the Environment (MOE), requires that Clean Harbors collect groundwater samples from monitoring wells and analyze them for contaminants that are present in the landfill waste at elevated concentrations and, are relatively mobile. Parameters, which have a low mobility through the clay including heavy metals and organic compounds, are also analyzed but at a reduced frequency. The groundwater samples are analyzed by an independent laboratory to detection limits below the applicable Ontario Ministry of the Environment Standards.

Active Aquifer (Shallow Groundwater)

Samples of the shallow groundwater collected from wells located on site are slightly more mineralized (i.e., higher alkalinity, chloride, sodium, potassium and sulphate), than wells located off-site. This is attributed to various factors including leaching from the native soil materials used to construct the berms located on-site, the use of salt for deicing purposes and the movement of leachate from older landfill cells. The leachate movement is controlled through a combination of a deep ditch at the toe of the landfill and a 3 m high clay berm constructed along the southern property boundary. The presence of the berm induces the formation of a groundwater mound. This in turn acts as a barrier to shallow groundwater movement. The ditch located between the landfill and the berm intercepts the leachate plume and the shallow northerly flow from the berm, and directs this water to a surface water retention pond. The water in the pond is directed through a treatment plant prior to release from the site.

Interface Aquifer

The chemistry in the Interface Aquifer has remained stable over the 20-year plus period of record for the facility. Although some parameters are elevated in comparison with Provincial Standards, these parameters are naturally occurring constituents and their presence in the groundwater are expected.

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