

Warkworth Institution, Campbellford, Ontario

Client

Public Works and
Government Services
Canada

Location

Campbellford, Ontario

Date Completed

2011–2013

Project Description:**Detailed Quantitative Human Health and Preliminary Quantitative Ecological Risk Assessment**

NovaTox conducted a Detailed Quantitative HHRA and a Preliminary Quantitative ERA to evaluate potential risks to human and ecological receptors from contaminants in soil and groundwater at the maintenance garage at Warkworth Institution, near Campbellford, Ontario. Soil and groundwater in the vicinity of an underground storage tank containing used oil were contaminated with petroleum hydrocarbons, BTEX, metals, VOCs, and PAHs.



The human health DQRA adhered to relevant guidance from Health Canada. The primary human receptor group assessed in the RA included CSC staff and inmates who might occupy the WW19 maintenance building for a portion of the day. The potential for chemical vapours to migrate from soil and groundwater to indoor air was assessed using the Johnson & Ettinger subsurface vapour intrusion model. The analysis indicated that potential indoor exposures to all contaminants were below the hazard acceptability benchmark of 0.2 or, in the case of PHCs, 0.5 for the sum of each individual sub-fraction. It was concluded that human receptors who might frequent the building were not at risk as a result of potential exposure to chemicals in soil or groundwater.

The ERA was conducted in accordance with guidance from Environment Canada and the CCME. As no surface water bodies were present in the vicinity of the Site, and deep groundwater was inaccessible, the ERA focused on potential risks to terrestrial ecological receptors, including plants/vegetation and soil invertebrates potentially exposed to chemicals in shallow soil, and small mammals and birds potentially exposed to chemicals in soil and food items via ingestion pathways. For all receptors, calculated exposure levels were below toxicity reference values, and it was concluded that contaminants in soil and groundwater pose no risk to ecological receptors.

The risk assessment was conducted on budget and within a very short time frame. The final report incorporating minor comments from Health Canada was completed to the satisfaction of Correction Services Canada.

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