

Drinking water threats from chemicals

Many household and industrial products contain hazardous chemicals that can harm drinking water and our health. Great care is needed when storing and using these substances to ensure they do not pollute our municipal drinking water sources.

Understanding the threat

Organic solvents:

Organic solvents are used to dissolve substances such as oils, resins, and plastics. These liquids are used in the production of plastics, textiles, dyes, pharmaceuticals and farm products.

Many of these chemicals are considered to be carcinogens (cancer-causing) and neurotoxins.

Examples include:

- Chloroform
- Methylene chloride (Dichloromethane)
- Formaldehyde

DNAPLs:

Dense non-aqueous phase liquids, or DNAPLs, are very hazardous chemicals. They are heavier than water so they tend to sink in aquifers, making them hard to detect and almost impossible to remove. Even at low levels, they can cause serious health issues, such as cancer.

The most commonly used DNAPLs are degreasers, sealants, dry cleaning fluid, and metal cleaners. DNAPLs include:

- Polycyclic Aromatic Hydrocarbons (PAHs)
- Tetrachloroethylene
- Trichloroethylene (TCE)
- Vinyl Chloride (VC)

Plan Policies and Chemicals

A local committee has developed source protection plans for the Maitland Valley and Ausable Bayfield areas. The plans help to protect municipal sources of drinking water.

People using chemicals, where they pose a significant threat to drinking water, are required to comply with plan policies.



The level of threat – low, moderate, or significant – depends on factors such as how close it is to the municipal drinking water source, the volume, and type of chemical used or stored. Because DNAPLs are so toxic, these chemicals pose a significant threat to drinking water sources in wellhead protection areas A, B, and C.

Organic solvents are a significant threat in quantities greater than 25 litres and within 100 metres of the municipal well (Wellhead Protection Area A), or the most vulnerable areas of Wellhead Protection Area B (two-year time-of-travel zone).

How do plan policies affect me?

You may have to create a risk management plan, to ensure the chemicals are stored safely. In some cases, prohibition applies. Contact your risk management official or source protection staff for more details.



How are chemicals addressed locally?

Source protection plans use several tools to manage threats such as organic solvents and dense non-aqueous phase liquids.

Education and Outreach

Outreach increases awareness about the importance of water protection. Working together, we can keep our water clean.

Risk Management Plan (RMP)

- Required for significant threats only.
- Risk management plans are required when quantity is greater than 25 litres.
- Risk Management Official works with the operator or landowner to develop an RMP to make sure that organic solvents and/or DNAPLs are safely managed.

Prohibition

- Any new (i.e., future) storage of DNAPLs will be prohibited only in Zone A of the wellhead protection area.

Visit sourcewaterinfo.on.ca for maps of wellhead protection areas where organic solvents and DNAPLs are significant threats to drinking water sources.

Types of activities that threaten drinking water sources:

- Septic systems; On-site sewage
- Fuel oil (including home heating oil)
- Liquid fuel such as gas stations
- Chemicals (toxic chemicals such as organic solvents and dense non-aqueous phase liquids or DNAPLs)
- Commercial fertilizer
- Pesticides
- Nutrients (manure, bio-solids, grazing)
- Waste disposal sites (including storage of hazardous waste)
- Sewage works (sewage treatment plants, municipal sewers)
- Road salt and snow storage
- Others: For the list of 22 provincially prescribed drinking water threats, visit:

<https://threats.swpip.ca/>

Find out more online:

- Source protection plans – Maitland Valley and Ausable Bayfield areas: sourcewaterinfo.on.ca
- Source Protection Ontario: <https://www.ontario.ca/page/source-protection>
- DNAPLs and organic solvents: archive.org/details/stdprod089475.ome
- Hazardous waste collection sites: <https://rpra.ca/where-to-recycle/>

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*The content provided in this publication is intended for local educational and information purposes only.
Every effort has been made to ensure the correctness of information as at the publication date (March 2025).*

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