

DRINKING WATER SOURCE PROTECTION

ACT FOR CLEAN WATER



Quinte Conservation, 2061 Old Highway 2, R R # 2, Belleville ON K8N 4Z2 613.968.3434

Drinking Water Threats from Fuel

The handling and storage of fuel are considered drinking water threats under Ontario's *Clean Water Act, 2006*. The need for fuel to heat homes and power vehicles and machinery means fuel storage tanks are common throughout the Quinte Region. Handling and storing fuel may result in spills and leaks which pose a serious threat to human health and environmental quality. One litre of gasoline can contaminate up to one million litres of water.

Which fuel handling and storage activities are threats?

Specific activities considered significant drinking water threats include the handling and storage of fuel in quantities from 250 to 2500 litres, and greater than 2500 litres. (Home heating oil tanks hold about 1,000 litres.) The circumstances under which each volume category is a threat is subject to whether the fuel storage is below grade, partially below grade or above grade and the type of vulnerable area where it is found.

Some of the land use activities where fuel storage tanks may be found include: bulk plants or facilities where it is manufactured, retail outlets (gas stations and cardlocks/keylocks), marinas, private storage such as farms and contractor yards, heating oil tanks for homes and businesses.

The determination of whether the activity is a significant threat is made based on site specific circumstances which include the volume and type of storage (i.e. above or below grade) and the proximity to the municipal water source.

Fuels can be highly mobile, and flow with groundwater or surface water for great distances making them difficult and very costly to clean up. Fuels are persistent in the environment. About 60 percent of Canada's contaminated sites involve petroleum hydrocarbon contamination (CCME, 2001). Without adequate cleanup or management, these contaminants can impair municipal water sources.

A double walled or double bottomed home heating oil tank installed with a drip tray and alarm helps to protect both private property and drinking water sources.



Types of threats to our drinking water sources:

Waste Disposal Sites

On-site Sewage Systems (septic systems)

Sewage Works (sewage treatment plants, municipal sewers)

Fuel Oil (residential heating oil)

Liquid Fuel

Nutrients (manure, bio-solids, outdoor livestock areas)

Commercial Fertilizer

Pesticides

Road Salt and Snow Storage

Chemicals (DNAPLs (toxic chemicals) and Organic Solvents)

Aquaculture

Aircraft De-icing Runoff

Where are the fuel threats in the Quinte Region?

Fuel storage activities can be considered significant drinking water threats where they occur in the most sensitive areas near municipal drinking water sources. In the Quinte Region this includes: the first two vulnerable zones surrounding wells, called Wellhead Protection Areas (WHPAs) A and B, and the first vulnerable zone (IPZ1) surrounding some surface water intakes, called Intake Protection Zones. (Maps showing the vulnerable zones surrounding municipal water sources in the Quinte Region are available at www.quintesourcewater.ca.)

There is the potential for significant threats from fuel handling and storage:

- In the WHPAs A and B of the wells at the Villages of Madoc, Tweed and Deloro and the Hamlet of Peats Point and
- In the IPZ 1 of the surface water intakes at the Town of Picton and the Village of Ameliasburgh.
- The Hamlet of Point Anne has both intake protection zones and wellhead protection areas because the water from the intake in the Bay of Quinte flows to a collector well that is influenced by groundwater. So, for Point Anne, significant threats may occur in both the IPZ 1 and WHPAs A and B.

Home heating oil tanks (<1,000 litres) are the most commonly identified threat from fuel handling and storage in the Quinte region. Larger fuel tanks (>2,500 litres) located in highly vulnerable municipal drinking water intake protection zones are considered significant threats, but very few have been identified in the Quinte Region. Large tanks associated with gas stations are also not abundant within vulnerable areas associated with municipal drinking water systems.

How are fuel threats being addressed?

Six policies in the Source Protection Plan address both existing and future fuel related activities that are or would be significant drinking water threats in the specific vulnerable areas. Policies in the Source Protection Plan call for the following:

Education and Outreach: This policy calls for a program to raise awareness about the location of vulnerable areas and actions that can be undertaken to protect municipal drinking water supplies, including the maintenance of heating systems. This program will apply to landowners, heating oil contractors, as well as the handlers of fuel and insurance companies. This program will address the significant threat from existing home heating oil tanks in the WHPA B.

Risk Management Plans: Where existing fuel storage activities are significant drinking water threats property owners will be required to develop a plan to establish an acceptable means of managing any drinking water threats. This may include such measures as regular inspection and maintenance of storage tanks and the installation of information stickers on the tank and fill pipe that advise what to do in the event of a spill. A Risk Management Official will be in touch with anyone requiring a risk management plan for fuel handling and storage.

Prohibition: In future, new fuel storage tanks located in close proximity to municipal drinking water sources, where they would be a significant threat, will be prohibited. (This applies to new, first time installations, not to the replacement or the upgrade of existing tanks.)

Restricted Land Use: This allows the municipality to identify areas where fuel storage activities are either prohibited or require a risk management plan. Municipalities will create an internal administrative process to ensure compliance with the requirements in the source protection plan.

Specify Action: Where small tanks near municipal wells are considered to be a moderate threat and are located outside and above grade, the municipality is directed to require that these tanks be replaced with double walled or bottom tanks. Also, monitoring of spills and fuel related inspections and investigations will help to show the effectiveness of fuel policies.