

# Source Water Protection: Dense Non-Aqueous Phase Liquids

## Kettle Creek Source Protection Plan

The Kettle Creek Source Protection Plan establishes policies to appropriately and effectively address significant drinking water threats to the Elgin Area Primary Water Supply System, east of Port Stanley, and the Belmont Water Supply System, the only two municipal drinking water sources in the Kettle Creek watershed. The Ministry of the Environment approved the Kettle Creek Source Protection Plan on September 11, 2014, and the plan took effect on January 1, 2015.

There are no significant drinking water threats to the Belmont Water Supply System, however, the future handling and storage of Dense Non-Aqueous Phase Liquids (DNAPLs) is prohibited.

### **WHPA-A** – Proximity Based

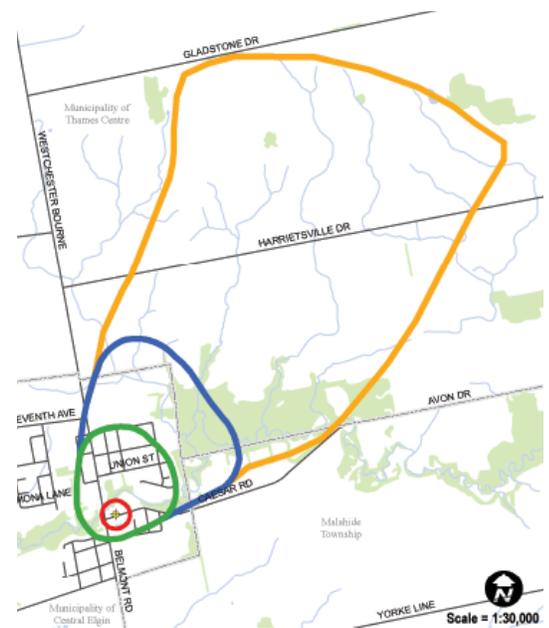
This area represents the 100 metre radius surrounding the wellheads. The handling and storage of DNAPLs are prohibited.

### **WHPA-B** – Time Based

This area represents a 2-year time of travel to the wellheads. The handling and storage of DNAPLs are prohibited.

### **WHPA-C** – Time Based

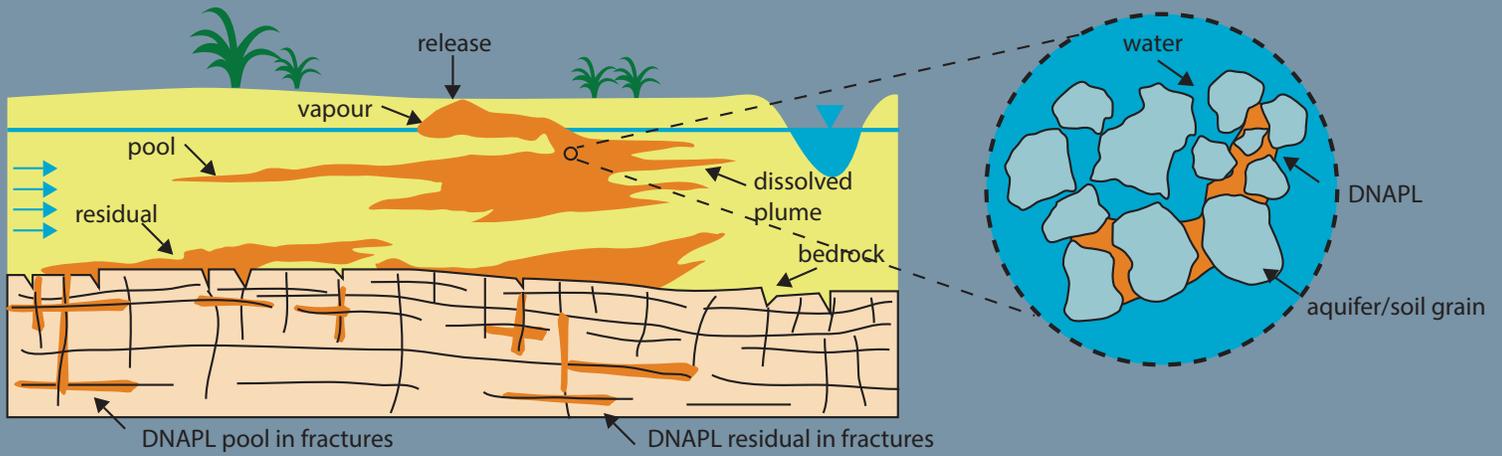
This area represents a 5-year time of travel to the wellheads. The handling and storage of DNAPLs are prohibited.



## What is a DNAPL?

Dense Non-Aqueous Phase Liquids (DNAPLs) are liquid chemicals that are heavier than water and are not readily soluble in water. When spilled, these liquids tend to quickly sink into the ground to the bottom of the water table, contaminating soil and groundwater along the way. Because DNAPLs sink in water rather than float on it or mix with it, they are not easy to detect through normal sampling. They are also highly toxic to humans and a threat to environmental health, even in small quantities. Because of this toxicity and their ease of movement in the water table, DNAPLs have the potential to pose a significant drinking water threat.

The Kettle Creek Source Protection Plan identifies Dense Non-Aqueous Phase Liquids (DNAPL) as a significant drinking water threat if spilled in even the smallest quantity within the Belmont WHPA 'A', 'B' and 'C'. In order to ensure that this activity never becomes a significant drinking water threat, the future handling and storage of DNAPLs is prohibited in the portions of the Municipality of Central Elgin, Malahide Township, and the Municipality of Thames Centre that fall within the WHPA 'A', 'B' and 'C' where this activity would be a significant drinking water threat.



## Examples of DNAPLs

DNAPLs are usually used in industrial and commercial settings, but can be found in some household consumer products. Here are some examples of DNAPL chemicals, and the types of products in which they are found.

Chemical Name	Common Products And Uses
DCM (dichloromethane)	Paint stripper, metal cleaning, pharmaceuticals, and aerosols.
TCM (chloroform)	Pharmaceuticals, fats, oils, rubber, resins.
TCA (trichloroethane)	Metal/plastic cleaning, adhesives, aerosols, inks, fats, waxes.
CTC (carbontetrachloride)	Fats, oils, lacquers, varnishes, waxes, resins, seed oil.
TCE (trichloroethylene)	Metal cleaning, dry cleaning, paint removers, adhesives.
PCE (perchloroethylene)	Dry cleaning, metal cleaning, intermediates in processes.

## What You Can Do

Although most DNAPL chemicals are used in industrial or commercial settings, some can be found in common consumer products. If you have any of these types of liquids in your home, there are a number of things you can do to minimize or eliminate the risk of spillage:

- Avoid or minimize the use of hazardous liquids by using products that are naturally occurring or water based, such as vinegar.
- Choose water-based, heavy-duty detergent cleaners for the removal of dirt and grease on mechanical equipment and parts.
- If alternative products cannot be found, only buy the amount needed. Do not dispose of hazardous liquids in your garbage, sinks, or drains.
- Dispose of hazardous waste and pharmaceuticals properly. Take unused paints, cleaners and pesticides to your local hazardous waste facility and return unused pharmaceuticals to your pharmacy. For hazardous waste disposal dates and locations please check with your municipality. For a listing of local businesses where hazardous waste can be disposed of free of charge, please visit: [www.makethedrop.ca](http://www.makethedrop.ca)