

References

A decorative graphic at the top of the page shows a splash of water with a glass being poured into it, creating a central point of impact with ripples and droplets.

- Cataraqui Region Conservation Authority. 2008. *Watershed Characterization Report*. Cataraqui Region Conservation Authority, Glenburnie, ON.
- Cataraqui Source Protection Committee. 2011. *Assessment Report: Cataraqui Source Protection Area*, Kingston, ON.
- MOE. 2008. *Water Well Information System Database*. Ministry of Environment. Toronto, ON.
- MOE. 2009a. *Tables of Drinking Water Threats, Clean Water Act, 2006*. Ministry of Environment, Toronto, ON.
- MOE. 2009b. *Technical Rules: Assessment Report, Clean Water Act, 2006*. Ministry of the Environment. Toronto, ON.
- O'Connor, the Honourable D.R. 2002. *Part Two Report of the Walkerton Inquiry: A Strategy for Safe Drinking Water*. Ministry of the Attorney General, Toronto, ON.
- RiverSides Stewardship Alliance and Sierra Legal Defence Fund. 2006. *A Low-Salt Diet for Ontario's Roads and Rivers*. Toronto, ON.
-

Glossary of Terms



Above grade storage or above-ground storage

A tank located on or above the average level of the soil surface in the area surrounding a facility or structure.

Activity

One or a series of related processes, natural or human, that occur within a geographical area and may be related to a particular land use.

Agricultural source material

Any of the following treated or untreated materials, other than a commercial fertilizer or compost that meets the guidelines entitled Interim Guidelines for the Production and Use of Aerobic Compost in Ontario prepared by the Ministry of the Environment and dated November 2004, if they are capable of being applied to land as nutrients:

- manure produced by farm animals, including associated bedding materials
- runoff from farm-animal yards and manure storages
- wash-waters from agricultural operations that have not been mixed with human waste
- organic materials produced by intermediate operations that process materials described in the three bullets above
- anaerobic digestion output, if:
 - i. the anaerobic digestion materials were treated in a mixed anaerobic digestion facility, and
 - ii. at least 50 per cent, by volume, of the total amount of anaerobic digestion materials were on-farm anaerobic digestion materials.

Ambient water quality and quantity

Natural concentration of water quality constituents prior to mixing of either point or non-point source load of contaminants (ambient water quality) or natural water levels (ambient water quantity).

Aquaculture

Farm-raising cultured fish either on land or in the water. Land-based facilities cultivate fish using tanks, raceways or ponds that have water aeration and circulation systems to oxygenate the water and to remove waste products. Cage operations cultivate fish in cages directly in lakes and rivers.

Aquifer

From the Latin for *water carrier*, a geological formation (typically porous material, such as sand or gravel, or fractured rock) that stores and is capable of transmitting water in sufficient quantities to serve as a sustainable source of water supply.

Assessment report

A technical document that is prepared by a source protection committee under Section 15 of the Ontario *Clean Water Act, 2006* to record its knowledge of a source protection area, and to rank risks to drinking water within that area. Each report is approved by the Ontario Ministry of the Environment.

Bedrock

The solid rock underlying soil or water.

Below grade storage

A tank located below the average level of the soil surface in the area surrounding a facility or structure. Basements and the floor of quarries are considered to be located below grade.

Best management practices

Approaches based on known science that, if followed, should allow a landowner or business owner to meet the required standard(s) or achieve the desired objective(s).

Canadian Shield

The Shield is an area made up of some of the planet's oldest rock, largely granite and gneiss. It is mostly thin soil lying on top of bedrock, with many bare outcrops and thousands of lakes. This was caused during the last ice age, when glaciers covered the area and scraped the rock clean as they moved.

Capture zone

The capture zone is the area surrounding a well that will supply groundwater to that well when pumped at a specified rate for a specified period of time.

Ceases to be significant

A significant drinking water threat ceases to be a significant risk when the activity that is the threat is either prohibited or managed.

Chair

The Chair is the Chair of the Cataraqui Source Protection Committee as appointed by the Ontario Minister of the Environment.

Chemical

A substance used in conjunction with, or associated with, a land use activity or a particular entity, and with the potential to adversely affect water quality.

Climate

The average weather conditions of a place or region throughout the seasons.

Condition

Contamination of rock, soil or water that may have resulted from past activities.

Contaminant

A substance which, once in the water, may pose a threat to the ecosystem and/or human health, as well as uses such as water supply, recreation, and aesthetic conditions.

Contaminant of concern

A chemical or pathogen that is or may be discharged from a drinking water threat.

Contamination

The mixing of harmful elements, compounds or microorganisms with surface or groundwater. Contamination can occur naturally (example: an aquifer flowing through mineral deposits that contain heavy metals) or through human activity (example: sewer water flowing into a river). Nutrients, such as nitrogen and phosphorus, can also cause water contamination when they are present in excessive amounts.

Contributing area

(a) in respect of a surface water intake or group of intakes, the drainage area that contributes surface water to the intakes and the area that would contribute groundwater discharge to that drainage area; and (b) in respect of a well or group of wells, the area that contributes groundwater to the wells when the wells are pumped at a rate equivalent to the allocated quantity of water for the well or group of wells under stated conditions.

Data gaps

A situation in which there is no existing data about a topic or where data may exist but are not currently accessible to the Cataraqui Source Protection Committee and Cataraqui Region Conservation Authority.

DNAPLs

Dense Non-Aqueous Phase Liquids that are chemicals or a mixture of chemicals that are denser than water and do not mix with water. Once spilled, they can sink and contaminate groundwater aquifers and surface water bodies. DNAPLs are very difficult to impossible to remove once they have entered a water source. Many of these liquids are suspected or proven to be carcinogenic

(cancer-causing). Examples of DNAPLs include, but not limited to, furniture stripper, nail polish, dry cleaning fluid, aerosols, coolants, polychlorinated biphenyls (PCBs), creosote and degreasers. Depending on its chemical structure, a DNAPL can also be classified as an organic solvent.

Drinking water

(a) water intended for human consumption or (b) water that is required by an Act, regulation, order, municipal by-law or other document issued under the authority of an Act, (i) to be potable, or (ii) to meet or exceed the requirements of the prescribed drinking water quality standards.

Drinking water issue

An issue is a problem with the quality of the source water for a water treatment plant that could affect the normal operation and effectiveness of that system and/or harm the health of people who consume the treated water.

Drinking water system

A system of works that is established for the purpose of providing users of the system with drinking water. It includes, (a) anything used for the collection, production, treatment, storage, supply or distribution of water, (b) anything related to the management of residue from the treatment process or the management of the discharge of a substance into the natural environment from the treatment system, and (c) a well or intake that serves as the source or entry point of raw water supply for the system.

Drinking water threat

An activity or condition that adversely affects or has the potential to adversely affect the quality or quantity of any water that is or may be used as a source of drinking water, and includes an activity or condition that is prescribed by the regulations as a drinking water threat.

- A **significant** drinking water threat is a drinking water threat that, according to the risk assessment, poses or has potential to pose a significant risk.
- A **moderate** drinking water threat that, according to a risk assessment, poses or has the potential to pose a moderate risk.
- A **low** drinking water threat that, according to a risk assessment, poses or has the potential to pose a low risk.

Effective date

The date the Source Protection Plan is posted on the provincial Environmental Registry website.

Environmental Farm Plan

The Environmental Farm Plan (EFP) is a program that is delivered locally through the Ontario Soil and Crop Improvement Association with expertise provided by the Ontario Ministry of Agriculture, Food and Rural Affairs. It is a voluntary educational program for farmers delivered through local workshops. Participants are provided instruction on how to progress through the

risk assessment and action plan development contained in the EFP workbook. Limited funds (either a 50/50 or 30/70 cost share depending on project) are available to help address areas identified in the plan as needing improvement.

Eutrophic

Characterized by the abundant accumulation of nutrients that support a dense growth of algae and other organisms, the decay of which depletes oxygen in shallow water in summer. Determined within the Interim Provincial Water Quality Objectives as total phosphorus concentrations being greater than or equal to 0.02 milligrams per litre. In accordance with the Canadian Water Quality Guidelines, eutrophic water bodies contain 0.035 to less than 0.1 milligrams per litre total phosphorus.

Existing activity

An activity that:

- is present on the date the Source Protection Plan takes effect
- is usually occurring on the property but has been interrupted for a maximum of 12 months due to temporary circumstances such as fire or renovation or
- is not yet underway but is associated with an approved development on a date before the Source Protection Plan takes effect.

Expansion (development)

An increase in a particular type of development that is already existing (e.g., more sanitary sewer pipes are added to an existing network, a larger salt storage is added to an existing municipal works yard).

Fractured bedrock

A general term for any type of brittle failure within rock that can produce small or large cracks. These cracks or fractures can occur vertically or horizontally within the rock and, therefore act as pathways for surface water and potentially contaminants to reach groundwater sources. The presence of fractures within rock can also alter the porosity (the volume of pores within rock) and permeability (the ability of rock to permit the passage of water) of the bedrock.

Free chlorine residual

The amount of chlorine available that acts as an oxidizer (kills micro-organisms). The free chlorine is comprised of hypochlorous acid (HOCl) and hypochlorite ion (OCl⁻) that is not combined with ammonia (NH₃) or other compounds in water.

Future activity

An activity that is proposed to commence after the date that the Source Protection Plan takes effect, and does not meet the definition of an existing activity.

Groundwater discharge

The function of the ground below the surface to accept subsurface water and hold it for release over long periods of time through an aquifer.

Groundwater recharge

The addition of water to a groundwater system by natural or artificial processes. In most cases, recharge is derived from the component of precipitation that infiltrates to the water table i.e., that component of precipitation that neither evapotranspires nor runs off as overland flow, or by surface water exfiltration.

Groundwater recharge area

The area where an aquifer is replenished from (a) natural processes, such as the infiltration of rainfall and snowmelt and the seepage of surface water from lakes, streams and wetlands. (b) from human interventions, such as the use of storm water management systems, and (c) whose recharge rate exceeds a threshold specified in the regulations. The Ministry of Environment Technical Rules (2009b) specify the acceptable methodologies to determine groundwater recharge rates i.e., what qualifies as significant.

Groundwater under direct influence of surface water (GUDI)

A location in which water quality can be altered by the travel of pathogens and organic debris from nearby surface water to the groundwater. Groundwater characteristics such as turbidity, conductivity, pH and temperature can also change when surface water mixes with a groundwater source (well, spring, sinkhole).

Groundwater well

A hole made in the ground to locate or to obtain ground water or to test or to obtain information in respect of ground water or an aquifer, and includes a spring around or in which works are made or equipment is installed for collection or transmission of water and that is or is likely to be used as a source of water for human consumption.

Hardness

A term used to describe water that contains more minerals than ordinary water; most commonly calcium and magnesium (although iron, manganese and aluminum can also contribute to water hardness). Hardness is not a drinking water health risk but may cause incrustations and increase soap consumption.

Highly vulnerable aquifer (HVA)

An aquifer that is or is likely to be significantly and adversely affected from external sources, and includes the land above the aquifer.

Hydrogeology

Hydrogeology is the study of the movement and interactions of groundwater in geological materials.

Implementing body

The municipality, local board, source protection authority, provincial ministry, or other organization identified as responsible for the implementation of any given policy in the source protection plan.

Infiltration

The movement of water into soil pores or rock fissures from the ground surface by means of rainfall, snowmelt or irrigation.

Instrument

Any document of legal effect, including a permit, licence, approval, authorization, direction or order, that is issued or otherwise created under an Act, but does not include a regulation within the meaning of Part III of the *Legislation Act, 2006*.

Intake protection zone (IPZ)

The area of land and water that contributes source water to a drinking water system intake within a specified distance, period of flow time (for example, two hours), and/or watershed area.

Impact

Often considered the consequence or effect, the impact should be measurable and based on an agreed set of indicators. In the case of drinking water source protection, the parameters may be an acceptable list of standards which identify a maximum raw water level of contaminants and pathogens of concern. In the case of water quantity, the levels may relate to a minimum annual flow, piezometric head or lake level.

Karst

Terrain made up of porous, irregular limestone or dolomite in which erosion (through rock solubility) can produce fissures, sinkholes, underground streams, and caverns.

Legal effect

The power of the *Clean Water Act* to obligate a municipality, local board, source protection authority or provincial ministry to implement policies in the source protection plan.

Liaison member

Are those individuals who fulfill the intent of Section 19 of Ontario Reg. 288/07 to act as a liaison between the Committee and other bodies.

MCPA

Chemical name 2-methyl-4-chlorophenoxyacetic acid, is an herbicide registered for use in Ontario to control weeds in grass-type crops, such as cereal and turf grass.

Member

Is the Chair and an Individual appointed by Cataraqui Source Protection Authority under Section 7(3) of the Ontario *Clean Water Act, 2006*.

Monitoring

Periodic evaluation of a site to determine success in achieving goals.

Municipal residential drinking water system

A drinking water system or part of a drinking water system, (a) that is owned by a municipality or by a municipal service board established under the *Municipal Act, 2001*, (b) that is owned by a corporation established under sections 9, 10 and 11 of the *Municipal Act, 2001* in accordance with section 203 of that Act, (c) from which a municipality obtains or will obtain water under the terms of a contract between the municipality and the owner of the system, or (d) that is in a prescribed class.

Multi-barrier approach

A series of five types of barriers commonly used in the provision of drinking water: source water protection, treatment, secure distribution systems, monitoring programs, and emergency preparedness.

Must conform with

With respect to land use planning decisions under the *Planning Act, 1990* or the *Condominium Act, 1998*, or decisions under any other provincial legislation to issue/create or amend a prescribed instrument, the decision maker must act in accordance with the requirements set out in the approved source protection policy that is intended to address a significant drinking water threat. The decision maker must comply with the policy intent and requirements and the decision must conform with the policy.

Non-agricultural source material

Any of the following materials, other than compost that meets the Compost Guidelines, or a commercial fertilizer, if the materials are intended to be applied to land as nutrients:

- pulp and paper biosolids
- sewage biosolids
- anaerobic digestion output, if less than 50 per cent, by volume, of the total amount of anaerobic digestion materials that were treated in the mixed anaerobic digestion facility were on-farm anaerobic digestion materials

-
- any other material that is not from an agricultural source and that is capable of being applied to land as a nutrient.

Nutrient

Something that nourishes and promotes growth. It is possible to have too many nutrients in an ecosystem, which can result in an unhealthy imbalance or overgrowth of certain species.

Nutrient management plan

A plan that details how nutrients are to be applied to a given land base. A nutrient management plan is based on both the components of the nutrients used and the characteristics of the field. The plan optimizes the utilization of the nutrients by crops in the field and minimizes environmental impacts. A person who owns or controls an agricultural operation, which is phased in under Ontario Regulation 267/03, and generates, greater than or equal to 300 nutrient units or is located within 100 metres of a municipal well must ensure that nutrients are managed in accordance with a plan if they apply nutrients on their farm unit.

Nutrient management strategy

A strategy that sets out an environmentally acceptable method for managing all prescribed materials generated at an agricultural operation. The nutrient management strategy details the storage and destination of all the manure generated on the property. It does not deal with application of manure to the land. Strategies are required under Ontario Regulation 267/03 for farms that generate more than 300 nutrient units annually, if there is a building permit application to construct or expand barns or ASM storage facilities so that more than 5 nutrient units would be generated, or if there is a regulated mixed anaerobic digester on the farm.

On-site sewage system

Systems that store and/or treat wastewater (e.g., human waste) within the boundaries of the property on which is located the building(s) they serve (e.g., where the waste is generated). These systems come in a variety of forms including earth pit privies, privy vaults, greywater systems, cesspools, leaching bed systems and associated treatment units, and holding tanks. Sewage systems with a design capacity of 10,000 litres per day or less are subject to approval under the Ontario Building Code, while those with a design capacity of more than 10,000 litres per day are subject to approval under the *Ontario Water Resources Act*.

Organic solvents

Compounds that contain carbon atoms able to dissolve solids, gases and liquids. Examples include methyl alcohol, benzene, acetone and ether. Some organic solvents are flammable and pose a risk to human health. Depending on their physical properties, organic solvents can also be classified as dense non-aqueous phase liquids (DNAPLs).

Pathogen

A disease-causing organism.

PCBs

Polychlorinated Biphenyls, also known as PCBs, are organic compounds that were commonly ingredients in many industrial materials such as coolants and lubricants. They do not break down easily on their own and are difficult to destroy. There are federal regulations for the handling, storage and disposal of PCBs.

Pesticide

Any organism, substance or thing that is manufactured, represented, sold or used as a means of directly or indirectly controlling, preventing, destroying, mitigating, attracting or repelling any pest or of altering the growth, development or characteristics of any plant life that is not a pest and includes any organism, substance or thing registered under the *Pest Control Products Act* (Canada).

Phosphorus

A non-toxic pollutant that is an essential nutrient for plant and algae growth. In excessive amounts it leads to eutrophication of a water system. Phosphorus can accumulate along the entire length of a river or lake from a variety of point and non-point sources.

Piezometric head

A specific measurement of water pressure above a set reference point (e.g., above sea level).

Prescribed instrument

A type of provincial approval (e.g., environmental compliance approval) for which a decision to issue, otherwise create or amend must conform with significant threat policies and designated Great Lakes policies set out in the source protection plan; and have regard to other policies set out in the source protection plan.

Principal authority

A body responsible for enforcing the administrative and technical requirements of the *Building Code Act, 1992* and Ontario Building Code (including Part 8 which regulates on-site sewage systems). Principal authorities can include municipalities, health units and conservation authorities.

Private fuel outlet

Any premises, other than a retail outlet, where gasoline or an associated product is put into the fuel tanks of motor vehicles or floating motorized watercraft or into portable containers.

Prohibition

The act of forbidding or preventing the establishment or continuation of an activity that is a significant drinking water threat.

Project Manager

An individual hired by the Cataraqui Region Conservation Authority to lead efforts by Conservation Authority staff in support of the work of the Source Protection Authority and the Source Protection Committee.

Public body

A municipality, local board or conservation authority, a ministry, board, commission, agency or official of the Government of Ontario, or a body prescribed by the regulations made under the *Clean Water Act*.

Raw water

Water that is in a drinking-water system or in plumbing that has not been treated in accordance with, (a) the prescribed standards and requirements that apply to the system, or (b) such additional treatment requirements that are imposed by the license or approval for the system.

Recharge

Recharge is the process by which water moves from the ground surface, through the unsaturated zone, to arrive at the water table.

Recharge area

An area where water enters a saturated zone at the water table surface.

Restricted land use

A type of land use (e.g. industrial) within a wellhead protection area or intake protection zone that has been designated under Part IV of the *Clean Water Act* and that is normally associated with one or more activities that are significant drinking water threats (e.g. the handling and storage of an organic solvent).

When reviewing planning and building applications in a restricted land use area, municipalities are required to consider whether or not a given development would lead to the establishment of activities that are:

1. prohibited by this source protection plan, or
2. subject to a site-specific risk management plan.

If relevant activities are proposed as part of the development, then related planning and building approvals by the municipality must exclude prohibited activities and conform with any risk management plan(s) for the site, as applicable.

Risk

The likelihood of a drinking water threat causing a drinking water source to become impaired, unusable or unsustainable, or compromising the effectiveness of a drinking water treatment process, resulting in the potential adverse human health effects.

Risk assessment

An assessment of risks prepared in accordance with the regulations and the rules.

Risk management

Risk management refers to the development and implementation of one or more risk management measures which control or mitigate the level of risk to human health and the environment associated with an activity.

Risk management official

A person appointed by the council of a municipality that is responsible for the enforcement of Part IV of the *Clean Water Act*, and who has the qualifications prescribed in Ontario Regulation 287/07 (General).

Risk management plan

A site-specific plan negotiated under section 58 of the *Clean Water Act* to address significant drinking water threat activities, where the threat cannot be addressed through a different means, such as a prescribed instrument. Note that this tool cannot be used for most waste disposal and all sewage-related activities that require a certificate of approval under the *Environmental Protection Act* or the *Ontario Water Resources Act*, or a permit under the Ontario Building Code.

Runoff

Water that moves over land rather than being absorbed into the ground. Runoff is greatest after heavy rains or snowmelts, and can pick up and transport contaminants from landfills, farms, sewers, industry and other sources.

Septage

Also known as hauled sewage, consists of the raw, untreated liquids and solids that are pumped out of septic tanks and holding tanks. Untreated septage has not been treated to reduce pathogens, and is considered a waste.

Shall have regard to

With respect to land use planning decisions under the *Planning Act, 1990* or the *Condominium Act, 1998*, or decisions under any other provincial legislation to issue/create or amend a prescribed instrument, decision makers must seriously and conscientiously take the source protection threat policy into full consideration, together with all the other factors presented by the particular situation, when making a decision. Decision makers are expected to try to satisfy

the policy intent, although they are not legally bound to follow all of the requirements set out in the policy as long as the policy was given full consideration and the rationale for making the decision is clear, logical, fair, in the interest of the public and well documented for future reference.

Significant groundwater recharge area (SGRA)

An area in which there is a volume of water moving from the surface into the ground and the groundwater serves either as source water or the water that supplies a coldwater ecosystem such as a brook trout stream.

Source protection

A program of education, stewardship, planning, infrastructure, and regulation activities that together serve to help prevent the contamination or overuse of source water.

Source protection area

Those lands and waters that have been defined under Ontario Regulation 284/07 as the “study area” for an assessment report and a source protection plan under the Ontario *Clean Water Act, 2006*.

Source protection authority

A conservation authority or other person or body that is required to exercise powers and duties under the Ontario *Clean Water Act, 2006*.

Source protection committee

A group of individuals who have been appointed under the Ontario *Clean Water Act, 2006* by a source protection authority to coordinate source protection activities for a source protection area.

Source protection plan

A document that is prepared by a source protection committee under Section 22 of the Ontario *Clean Water Act, 2006* to direct source protection activities in a source protection area. Each plan is approved by the Ontario Ministry of the Environment.

Source protection region

Two or more source protection areas that have been grouped together under Ontario Regulation 284/07.

Source water

Untreated water that is found in groundwater aquifers and surface water lakes and rivers that is used to supply a drinking water system.

Spill

A discharge of a pollutant into the natural environment from or out of a structure, vehicle or container, and that is abnormal in quality or quantity in light of all circumstances of the discharge.

Surface water

Water that is present on the earth's surface and may occur as rivers, lakes, wetlands, ponds, etc.

Surface water intake

A pipe that draws water from a lake or river.

Tables of Drinking Water Threats

A document issued by the Ministry of the Environment (2009a) that identifies the circumstances under which each prescribed drinking water threat is considered a significant, moderate or low drinking water threat.

Terms of reference

The work plan and budget for development of the source protection plan that is subject to public comment and approval by the Ontario Minister of the Environment.

Threat

See drinking water threat.

Time of travel

An estimate of the time required for a particle in the water to move from a specific point into a well or intake.

Transport pathways

These can be natural or human-made passages where water can flow on its way to a drinking water intake or well. Examples for wellhead protection areas include: sewers, drainage ditches or swales, utility trenches, and improperly constructed or maintained wells. Transport pathways for intake protection zones include ditches and storm-sewers.

For the context of the Plan, and in accordance with the MOE Technical Rules (2009b), transport pathways in the intake protection zones can be natural or human-made passages, and can be human-made passages in the wellhead protection areas, highly vulnerable aquifers and significant groundwater recharge areas.

Underground storage

A buried tank or partially buried tank that is in direct contact with earth or backfill.

Vulnerable area

(a) a significant groundwater recharge area, (b) a highly vulnerable aquifer, (c) a surface water intake protection zone, or (d) a wellhead protection area.

Watershed

An area of land from which surface runoff, including water, sediments, nutrients and contaminants, drains into a common water body, such as a lake, river, stream, creek or estuary.

Water softener backwash

The brine solution used to regularly clean a device that is used to reduce the hardness of water.

Well Aware

A program of Green Communities Canada that encourages Ontario's residential well owners to protect their wells and common groundwater supplies.

Well capture zone

The area in the aquifer that will contribute water to a well in a certain time period. It is often measured in days and years. Area at the ground surface is also included if the time period chosen is longer than the travel time for water in the aquifer and the groundwater recharge area is incorporated.

Wellhead protection area (WHPA)

An area of land surrounding a well, where human activities may need to be regulated to protect the quality and quantity of groundwater that supplies that well.