

INTRODUCTION

March 2015

Essex Region Source Protection Area

Updated Assessment Report

APPROVED

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1.0 Introduction

This Assessment Report has been prepared under the Clean Water Act, 2006 and its associated Regulations and Technical Rules. It focuses on the surface water sources for the municipal drinking water systems in the Essex Region Source Protection Area (ERSPA), and also addresses some aspects of potentially vulnerable aquifers. It does not include any drinking water systems other than municipal drinking water systems such as private wells, residential wells, etc. (Section 1.10 for more information).

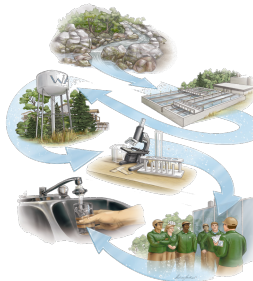
1.1 *Drinking Water Source Protection & the Clean Water Act, 2006*

Based on the recommendations from Justice O'Connor's inquiry into the Walkerton drinking water crisis, the Clean Water Act, 2006 was passed to protect water sources for municipal drinking water systems. The Act provides a framework for the development and implementation of local, watershed-based source protection plans. The intent of the Clean Water Act is to ensure that communities are able to protect their municipal drinking water sources now and in the future from overuse and pollution. It sets out a risk-based process to identify vulnerable areas and associated source water threats and issues. It requires the development of policies and programs to reduce or eliminate the risk posed by significant threats to sources of municipal drinking water through science-based Source Protection Plans.

Source Protection Committees work in partnership with Conservation Authorities, Municipalities, property owners, the Ontario Ministry of the Environment (MOE), and other stakeholders to facilitate the development of local, science-based source protection plans.

The Clean Water Act and Drinking Water Source Protection is one component of a 'multi-barrier approach' to protecting drinking water supplies in Ontario. The five steps in the multi-barrier approach include:

- Protection of source water
- Adequate water treatment
- A secure water distribution system
- Proper monitoring and warning
- Well thought-out responses to adverse conditions



1.2 Source Protection Authorities and Regions

The Province has organized the Source Protection Program using watershed boundaries, rather than municipal or other jurisdictions. The watershed boundary is the most appropriate scale for water management, since both surface water and groundwater flow across political boundaries. For source protection planning purposes, the watershed is referred to as the Source Protection Area under the Clean Water Act. Similarly, Conservation Authorities, which have been grouped into 19 Source Protection Areas and Regions, are referred to as Source Protection Authorities under the Clean Water Act, and are responsible for facilitating and supporting the technical components that make up the Assessment Report and the development of Source Protection Plans. The Essex Region Source Protection Area is equivalent to the boundaries of the Essex Region Conservation Authority and includes several watersheds that drain into Lake St. Clair, the Detroit River or Lake Erie.

1.3 Source Protection Committee

In the Essex Region Source Protection Area (ERSPA), the source protection planning process is being led by a multi-stakeholder steering committee called the Essex Region Source Protection Committee (SPC). The Committee was formed in December 2007 and meets approximately on a monthly basis. The Committee is made up of a balanced membership of municipal, economic and general interest representatives. The SPC is responsible for directing the development of the Assessment Reports and Source Protection Plans for the Essex Region Source Protection Area.

Table 1.1 Members of the Essex Region Source Protection Committee

| CHAIR | | |
|--|--------------------------|----------------|
| Tom Fuerth | | |
| MUNICIPAL SECTOR | | |
| Antonietta Giofu | Tom Hunt | Charles McLean |
| Robert Peterson | Mario Sonego | |
| ECONOMIC SECTOR | | |
| John Barnett | Hans Peter Pfeifer | Bernard Nelson |
| David Church | David Watsa (retired) | Ian Wilson |
| OTHER | | |
| Robert Auger (retired) | Andrew Pula | Tim Mousseau |
| Ashley Stevenson | John Stuart | Bill Dukes |
| SOURCE PROTECTION AUTHORITY LIAISON | | |
| Larry Verbeke | | |
| MINISTRY OF THE ENVIRONMENT LIAISON | | |
| Teresa McLellan | | |
| HEALTH UNIT LIAISON | | |
| Vacant | | |

1.4 Source Protection Planning Process

The source protection planning process is comprised of various steps including formulating a Terms of Reference, creating the Assessment Report, and developing the Source Protection Plan and Policies. The Terms of Reference was completed in 2008, the proposed Assessment Report was approved in 2011 and the proposed Source Protection Plan was submitted in August 2012. The key objective of the current stage of the process is to update the science-based Assessment Report (see **Section 1.6** for further information), Source Protection Plan (SPP) and associated policies. The Source Protection Plan contains policies regarding actions to protect sources of drinking water against threats identified in the

Assessment Report. Updates to the Assessment Report and Source Protection Plan were submitted in January 2015.

The development of these documents involved the SPC, Municipalities, Conservation Authorities, property and business owners, industry, agriculture, community groups, and others working together to develop a Source Protection Plan that is fair, practical and can be implemented. Public input and consultation also play a significant role throughout the process. Please see **Figure 1.1** for an overview of approximate timelines. Watershed characterization studies were also conducted from 2005 to 2007 and provided a general overview of the Region and its current state. Some of this information was used in the Assessment Report.

Figure 1.1 Source Protection Timeline

| Milestone | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|------|------|------|------|------|------|------|
| Terms of Reference | | | | | | | |
| Technical Studies - Proposed Assessment Report | | | | | | | |
| Technical Studies - Updated/ Amended Proposed Assessment Report | | | | | | | |
| Source Protection Plans | | | | | | | |
| Technical Studies - Updated Assessment Report | | | | | | | |
| Updated Source Protection Plan | | | | | | | |

1.5 Framework of the Assessment Report

The Clean Water Act requires the completion of an Assessment Report containing the science on which the Source Protection Plan will be based. This science-based report generated for the Essex Region Source Protection Area, identifies any potential risks and threats to the lakes and rivers of our municipal drinking water systems.

The Assessment Report

- Identifies the ‘vulnerable areas’ associated with municipal drinking water intakes (Intake Protection Zones) and aquifer areas (Highly Vulnerable Aquifers and Significant Groundwater Recharge Areas)
- Evaluates water quantity conditions in inland streams and groundwater in relation to various water demands or uses
- Identifies the types and number of potential threats to water quality in vulnerable areas and ranks potential threats as low, moderate, or significant
- Evaluates water quality issues based on the quality of source water at each water intake

The Assessment Report for the Essex Region Source Protection Area (ERSPA) was completed in compliance with Ontario Regulation 287/07 under the Clean Water Act, and in accordance with the ‘Director’s Rules’ as established by the Ministry of the Environment, which sets out the minimum requirements for Assessment Reports. The Essex Region Conservation Authority and its agents, including specialized consulting firms, undertook the technical work. The Province of Ontario provided funding to complete the technical studies for the Assessment Report. This is the third Assessment Report for the Essex Region Source Protection Area (The Proposed Assessment Report was completed in March 2010 and the Updated/Amended Proposed Assessment Report was approved in 2011, hereafter referred to as the Approved Assessment Report).

Updates and amendments were made to the ERSPA Approved Assessment Report to form the current Updated Assessment Report as a result of new information that has become available to the SPC. New information includes the identification of the handling and storage of fuel as a significant threat through events based spills modeling for Lake Erie intakes along with the delineation and threats assessment within these IPZ-3s. A desktop GIS exercise identified existing fuel threats for all intakes and threat counts have been updated for each intake. As well, technical work was completed to identify microcystin-LR as a drinking water issue at Lake Erie intakes.

The Assessment Report consists of this introductory section, and:

- **Watershed Characterization (Section 2)** – provides an overview of the Region in its current state including land cover and land use; physiography; topography; surface water and groundwater quality and geology.
- **Water Quantity Risk Assessment (Section 3)** – based on ‘Water Budget’ studies which evaluate how much water enters a watershed, how much is stored and how much leaves. This information helps determine how much water is available for human uses, while considering the needs of natural processes.
- **Water Quality Risk Assessment (Section 4)** – addresses the likelihood of surface water becoming polluted, especially in the areas around municipal drinking water intakes (Intake Protection Zones). It examines existing water quality issues in source waters, identifies, and describes threats (land uses or activities) that have the potential to influence drinking water sources and potentially vulnerable aquifers.
- **Great Lakes Agreements (Section 5)** – includes an overview of how these existing Agreements were considered.
- **Climate Change Considerations in the Great Lakes Region (Section 6)** – includes a general overview of potential effects of Climate Change on water quantity and quality in relation to the work on the Assessment Report.
- **Glossary (Section 7)** – provides explanations of the terms used in the Assessment Report.
- **Appendices** – include background technical studies and provide details on consultation undertaken (list of Appendices in Section 8).

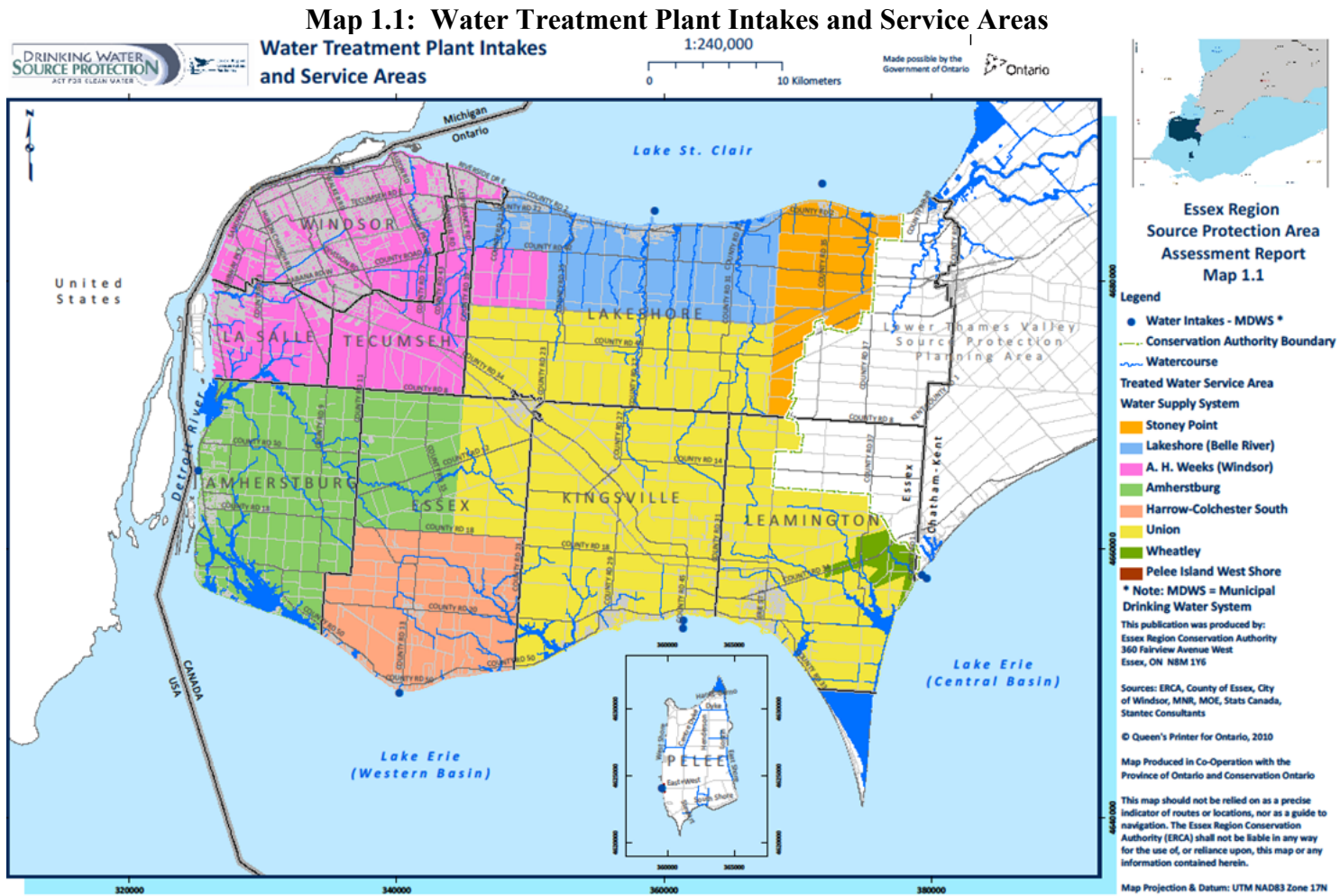
Within the Essex Region Source Protection Area, all municipal drinking water intakes use surface water from Lake Erie, Lake St. Clair, or the Detroit River to supply drinking water to the residents and other water users of our region. The Clean Water Act focuses on the protection of municipal drinking water supplies.

Table 1.2 Essex Region Drinking Water Sources for Municipal Systems

| Water Treatment Plant (WTP) | Water Source |
|------------------------------------|---------------------|
| Stoney Point WTP | Lake St. Clair |
| Lakeshore (Belle River) WTP | Lake St. Clair |
| A. H. Weeks (Windsor) WTP | Detroit River |
| Amherstburg WTP | Detroit River |
| Harrow-Colchester South WTP | Lake Erie |
| Union WTP | Lake Erie |
| Pelee Island West Shore WTP | Lake Erie |
| Wheatley WTP* | Lake Erie |

***Wheatley WTP is outside the Essex Region, however its Intake Protection Zones extend into this Region**

Map 1.1 shows the locations of the water treatment plant intakes and their service areas.



1.6 Continuous Improvement

The findings of this Assessment Report are based on the best available information. As mentioned in Section 1.6, updates and amendments were made based on new and revised information. This Updated Assessment Report is being submitted to the Director, Source Protection Programs Branch, MOE for approval. It is recognized that new information that informs the findings of this Assessment Report will become available in the future. The Assessment Report can be updated or amended further at any time the Source Protection Committee becomes aware of the need to update the report, or if the Director requires that amendments be made.

Data gaps identified in the Data Gaps and Next Steps section of the Assessment Report may be filled in the future, resulting in a further update to the Report. Beyond the completion of this Assessment Report, municipalities and the Essex Region Conservation Authority will continue to refine and improve the findings, and attempt to address the data gaps documented in the Report. As new or improved information becomes available, the relevant components of the Assessment Report will be updated, as required and a subsequent Assessment Report may be produced. Opportunities for input and review of subsequent Assessment Reports will be made available.

1.7 Consultation on the Assessment Report

The Essex Region Source Protection Committee recognizes the importance of early public consultation beyond the required formal consultation, under the Clean Water Act general regulation 287/07. In the Fall of 2009, Public Meetings were scheduled for each intake protection zone area across the region. Landowners, businesses, and residents in the ‘Intake Protection Zones’ around municipal drinking water intakes were encouraged to review the following information:

- Preliminary mapping and fact sheets
- What land use activities could pose a threat to drinking water sources
- How to submit comments and be involved
- Next steps towards source protection policies

This consultation provided municipalities, affected landowners, stakeholders, and the public with information on technical studies as part of this Assessment Report.

Regulations require further formal consultation on the Assessment Reports, in the form of public meetings and posting of the Assessment Report for comment. Also, a notice must be published in newspapers informing the public of the posting of the Assessment Report. Separate posting periods are required for consultation on the Draft Proposed Assessment Report, Proposed Assessment Report, and Updated components of the Proposed Assessment Report. The consultation undertaken by the ERSPA is summarized below.

In 2010, the Draft Proposed Assessment Report was published on the internet for a 35-day comment period, along with a copy made available for review at the Essex Region Conservation Authority office. The notice of the public meeting and posting of the Draft Proposed Assessment Report was published in newspapers and distributed to:

- Neighbouring Thames-Sydenham Region;
- Persons potentially engaging in activities that are or would be a significant drinking water threat listed in the Draft Proposed Assessment Report;
- Municipal clerks;
- Persons or bodies related to the Great Lakes Water Quality Agreements, Remedial Action Plans, and Lake-wide Management Plans.

The public meetings were held on Wednesday March 3 and Thursday March 4, 2010. Comments were accepted on the Draft Proposed Assessment Report until March 15, 2010.

The Proposed Assessment Report was published on the internet for a 30-day comment period from March 27, 2010 until April 26, 2010. A copy for review was available at the Essex Region Conservation Authority office. The Proposed Assessment Report notice was published in the newspaper on March 27, 2010 and copies distributed to municipal clerks and municipal working group members. Comments received were reviewed by the Source Protection Committee and the Source protection Authority Board (ERCA Board of Directors).

Updated and amended components of the Proposed Assessment Report were published on the internet for a 30-day comment period from April 30, 2011 until May 30, 2011. A copy for review was available at the Essex Region Conservation Authority office. The notice was published in the newspaper on April 30, 2011 to notify the public and other stakeholders of updates and amendments. Copies were distributed to municipal clerks, and municipal working group members. The SPC also undertook earlier consultation on the updated components, through a series of Public Meetings in March 2011. Updated and amended components included additional threats analysis. This work confirmed some of the previously unconfirmed significant threats, and identified more significant threats through events based modeling. Therefore persons engaging in activities that are or would be significant drinking water threats were sent letters notifying them of the updated and amended components.

The Updated Assessment Report is now available for a 30-day comment period beginning November 24, 2014. A copy for review is available at the Essex Region Conservation Authority office. The notice was published in the newspaper on November 29, 2014 to notify the public and other stakeholders of updates and amendments. Notification was distributed to municipal clerks and to persons engaging in activities that are or would be significant drinking water threats. A public meeting is also to be held on December 10, 2014. Comments received will be reviewed by the Source Protection Committee and the Source Protection Authority Board (ERCA Board of Directors).

See **Appendix XII** for a chronological summary of the consultation on the different stages of the Assessment Report and includes copies of the Notices, advertisements, and letters to municipalities and other stakeholders.

1.8 Overview of Source Protection Risk Assessment Process

Source Protection Area Assessment Reports are summaries of technical studies that identify:

- The *vulnerable areas* around municipal drinking water sources and aquifer areas
- How ‘vulnerable’ the areas potentially are to contamination (*vulnerability scores*)
- Evaluation of water quality *issues* based on the quality of source water at each water intake
- Potential *threats* to water quality that could exist either now or in the future in each vulnerable area (i.e. land use activities)
- The activities that may pose the greatest threat to municipal drinking water sources (known as *significant threats*)

1.8.1 Vulnerable Areas

What are vulnerable areas?

The Clean Water Act identifies four types of vulnerable areas related to drinking water sources:

- Intake Protection Zones (IPZ)
- Highly Vulnerable Aquifer (HVA) areas
- Significant Groundwater Recharge Areas (SGRA)
- Wellhead Protection Areas (WHPA) – not applicable in the Essex Region

Intake Protection Zones and Event Based Areas are associated with surface water (rivers and lakes), while the other three vulnerable areas are associated with groundwater. The Intake Protection Zones are determined by assessing the flow of surface water in the river or lake. Event Based Areas are a combination of IPZ-1, IPZ-2 and IPZ-3 where modelling has shown that a particular substance is a significant drinking water threat. The Highly Vulnerable Aquifer areas, Significant Groundwater Recharge Areas, and Wellhead Protection Areas are determined through detailed modeling of the geology and groundwater flow in an area, as well as the permeability of surface material above the groundwater (aquifers).

IPZs and WHPAs are developed specifically around municipal water supplies (around surface water intakes or groundwater wells). **Wellhead Protection Areas are not applicable in the Essex Region** as there is no groundwater municipal drinking water supplies in the Essex Region. Highly Vulnerable Aquifers and Significant Groundwater Recharge Areas are assessed at the watershed scale, and are not necessarily associated with an existing municipal drinking water system.

What is vulnerability?

The term ‘vulnerability’ is used to describe how easily a source of water (e.g. river, lake, or aquifer) can become polluted. The vulnerability of an area is assigned a Vulnerability Score ranging from 1 to 10, with 10 being the most vulnerable. A variety of factors comes into play when measuring vulnerability of an area such as intensity of land use; the depth of the water at the intake; and water quality issues that may exist. This is further described in **Section 4.1 and Section 4.2** of the Assessment Report.

Intake Protection Zones

Intake Protection Zones are the areas of land and water that may influence the quality of sources of water upstream of the municipal drinking water intakes, where special care must be taken in the use and handling of chemicals and other potential contaminants. The identification and mapping of vulnerable areas is described in **Section 4.2.1** of this Assessment Report and related Appendices.

The area very close to the intake is called Intake Protection Zone One (IPZ-1). This area is typically a one-kilometre radius around an intake plus a setback along the shore.

Outside this area is the Intake Protection Zone Two (IPZ-2). This area accounts for the influence of runoff from heavy rains that may pick up pollutants and affect water quality in local watersheds and the near-shore waters of a municipal intake. This area is considered high risk as any pollutant that is spilled in this zone has a high probability of reaching the intake and adversely affecting the water quality. Intake Protection Zone Two includes the area where the flow of water would reach the intake within two hours, allowing for the flow paths and speed of the flow water, plus a setback along the shore.

A third type of an Intake Protection Zone (IPZ-3) extends outward from IPZ-2, and covers larger watershed areas. The IPZ-3 includes all rivers and tributaries where modeling demonstrates that contaminant spills may reach the intake during an extreme rainfall or wind storm event. In the ERSPA, IPZ-3s are delineated based on model simulations of tanker truck fuel spills in the headwaters of selected tributaries, and fuel storage facilities in various locations. Where IPZ-1, IPZ-2 and IPZ-3 delineations abut land, they include the greater of a 120 metre setback from waterways or the Regulation Limit (floodplain regulation areas).

Event Based Areas (EBA)

The Event Based Area (EBA) is an area where modeling has demonstrated that a spill from a specific activity can or could cause deterioration to the raw water quality at the drinking water system. If the modeling test is met, the activity is deemed a significant drinking water threat and becomes subject to Source Protection Plan policies. For each intake in the Essex Region, the EBA is the combination of IPZ-1, IPZ-2 and IPZ-3 for modeled activities (i.e. fuel spill with 2% benzene, and a volume of 34,000 L) to which associated significant drinking water threat policies apply. Some areas of very high uncertainty may be included in the IPZ-3, which are acceptable under Rule 68 (Part VI.5) (*Technical Rules: Assessment Report CWA, 2006*), but are excluded from the EBA (Rule 130 (Part VI.5) (*Technical Rules: Assessment Report CWA, 2006*)). Future studies may improve the certainty of these areas, which could be added to the EBA in an updated Assessment Report.

Highly Vulnerable Aquifers (HVAs)

Aquifers are areas of soil or rock under the ground where cracks and spaces allow water to pool. They may be considered highly vulnerable based on a number of factors including how deep underground they are; what sort of soil or rock is covering them; and the characteristics of the soil or rock surrounding them. The faster water is able to flow through the ground to an aquifer, the more vulnerable it is to contamination. Highly Vulnerable Aquifers are addressed in **Section 4.1.2**.

Significant Groundwater Recharge Areas (SGRAs)

Based on the amounts of recharge occurring in the subwatersheds, some parts of the Essex Region are identified as Significant Groundwater Recharge Areas (SGRAs). These are vulnerable areas within which it is desirable to regulate or monitor drinking water threats that may affect the recharge of an aquifer. Significant Groundwater Recharge Areas are described in **Section 4.1.3**.

1.8.2 Drinking Water Threats

What are threats to drinking water?

Identifying threats to our water and understanding the extent and scope of these threats is a key step to source water protection. A **threat** is an existing or potential land use activity that has the potential to affect the quantity and quality of water that is used as a source of drinking water. This is covered in detail in **Section 3.5** and **Section 4.2.1.4**.

There are three categories of threats: chemicals; pathogens; and water quantity threats.

Chemical threats include solvents, fuels, fertilizers, pesticides, and similar products. They can be found in many different places such as factories, storage depots, gasoline stations, or agricultural lands.

A **pathogen** is a disease causing microorganism (e.g. bacteria or virus) found in human or animal waste. Human waste pathogens can be found in sewage systems or septic tanks; and farm manure can also contain animal waste pathogens.

Water quantity threats are activities that reduce the ability of water to “recharge” or move from the surface to an aquifer, and activities that contribute to the overuse of water in an area.

Threat Levels: Low, Moderate, or Significant

The Assessment Report identifies existing or future land use activities which could be potential threats pertaining to each Intake Protection Zone. Threats to source water quality may be identified through vulnerability scoring and events based modeling approaches.

and through identifying issues and conditions. These approaches are briefly described below.

Vulnerability scores, as discussed previously, provide an indication of the inherent risk of contamination associated with a drinking water source. The Ontario Ministry of the Environment (MOE) has produced a table identifying hundreds of potential chemical and pathogen threats. The threats have been given a rating on a scale of 1 to 10, with 10 being the most dangerous. This is known as the ‘hazard rating’. The table indicates where activities will be threats, based on the level of vulnerability.

One of the most important goals of the Clean Water Act is to reduce the risk posed by *significant threats* to drinking water and to prevent new significant threats from developing. It is necessary to sort out which potential threats may be significant and which pose low or moderate risks. This is done by calculating the ‘risk score’.

The *risk score* is a combination of two factors: the vulnerability score of the water source (on a scale of 1 to 10) and the hazard rating of the threat (on a scale of 1 to 10). The risk score is calculated by multiplying the two factors together to provide a score out of 100. The risk score is then put into one of three categories: low, moderate, or significant, as shown in Table 1.3 (for additional details see **Section 4.2.1.4** and the **components of Section 4 on each Water Treatment Plant**).

Table 1.3 Threat Levels Based on Risk Score

| Threat | Risk Score |
|--|------------|
| Significant | 80-100 |
| Moderate | 60-79 |
| Low | 40-59 |
| Risks with scores lower than 40 do not have to be dealt with under the Clean Water Act. | |

Local threats specific to a Source Protection Area and not included in the MOE’s drinking water threats tables may also be considered with special permission from the Director. In June 2011, the Essex Region SPC requested that the transportation of fuel (such as by

tanker trucks) be considered a local threat because there are many high intensity transportation corridors (e.g. highways, roads, railways, navigation channels) in the vulnerable areas of the Essex Region Source Protection Area. The Director approved the transportation of fuel and other chemicals of concern (i.e. organic solvents DNAPLs, pesticides/herbicides and fertilizers) as local drinking water threats in August 2011 (**Appendix XIII**). The threats based approach is used to assess the threat level of these substances in each IPZ in the Essex Region. These threats are deemed significant in all EBAs as a result of modelling activities.

Through the events based approach, an activity is a significant drinking water threat in an IPZ-1, IPZ-2 or IPZ-3 if modeling demonstrates that a release of a contaminant from the activity would result in a deterioration of the source of drinking water quality. The Essex Region SPC has accepted the Ontario drinking water quality standard (ODWQS) as the benchmark to indicate the deterioration of raw water quality at the intake. Modeling of fuel spills at various locations demonstrated exceedances of the ODWQS at one or more of the intakes in Lake St. Clair and Detroit River. These results were used to identify *existing significant threats* and establish *potential significant threats criteria* (for the handling and storage of fuel). For more details, refer to **Section 4.2.1.4.4** and the **components of Section 4 on each Water Treatment Plant**.

1.8.3 Issues and Conditions

Drinking water *issues* are identified based on the quality of source water at each water intake for systems identified in the Terms of Reference. Issues can be chronic, meaning they have existed over a long period, or reoccur seasonally, and are likely to continue if nothing is done to address the activities that cause them. If a water quality issue is identified and known to be partially or wholly due to anthropogenic sources, an Issue Contributing Area (ICA) is delineated and all activities which contribute to the issue are deemed significant drinking water threats within the ICA. Through the source protection planning process, such water quality issues can be linked to specific land use activities and/or areas, so that actions can be taken to manage them. Issues are further described in **Section 4.2.1.5** and in the **components of Section 4 on each Water Treatment Plant**.

Conditions are areas or sites where there is an existing contamination as a result of past activities. Various environmental reports, studies, other literature and information from the public or other stakeholders are reviewed to identify if any such conditions exist. Conditions are examined in vulnerable areas and assigned a hazard score, in order to calculate the risk score. This determines the threat level (significant, moderate or low) due to the condition. This is described in **Section 4.2.1.4** and in the **components of Section 4 on each Water Treatment Plant**.

1.9 Protecting Non-Municipal Source Water

The priority of the Act is to protect water sources supplying municipal residential drinking water systems. These systems must be studied in the Assessment Report and addressed in Source Protection Plans. The Act does allow certain other types of drinking water systems to be included in the source protection planning process.

Other Systems Included by Municipal Councils

The Clean Water Act allows municipal councils to pass resolutions requiring ‘other’ types of drinking water systems to be included in source protection planning. These other systems include clusters of six or more private wells and intakes; and those systems that supply public and private facilities such as schools, community centres and trailer parks. In the Essex Region Source Protection Area there are very few of these systems that are not already included within municipal drinking water systems.

In some other rural parts of the Essex Region, there are locations where private residences are not serviced by municipal systems. These residences rely on private systems such as private groundwater wells. The Clean Water Act does **not** allow such systems, serving a single private dwelling, to be included in the source protection planning process. However, the Source Protection Plan may include some general policies that may assist in reducing risks associated with such systems particularly with respect to vulnerable aquifers at a regional scale.

1.10 Source Protection Plan Framework

The Source Protection Plan sets out:

- How the risks posed by drinking water threats will be reduced or eliminated;
- Policies, threat and issue monitoring programs;
- Who is responsible for taking action;
- Timelines for implementing the policies and programs; and
- How progress will be measured.

The Source Protection Plan was developed using the science in the Assessment Report and involves a range of voluntary and regulatory programs and tools including outreach and education; incentive programs; land use planning (zoning by-laws, and Official Plans); or new or amended provincial instruments. In the case of some significant threats, special measures may be specified such as ‘risk management plans’ or ‘land use restrictions’. Actions to substantially reduce the risk posed by activities found to be ‘significant threats’ will be mandatory, since the Clean Water Act requires that all significant threats cease to be significant.

In the Essex Region Source Protection Area (ERSPA), special modelling studies have shown that the handling and storage of large amounts of fuel in above ground fuel storage tanks are significant threats in the event based areas (EBAs) of all intakes in the ERSPA. As well, the transportation of fuel and other chemicals has been identified as a local threat in the ERSPA. Other types of significant threats are also possible in some of the IPZs of the Amherstburg, Lakeshore and Windsor intakes, and some existing significant threats have been identified in some of these areas. The Source Protection Committee (SPC) considered various types of policies for these significant threats and recognised the importance of working with municipalities and other stakeholders to form local solutions to mitigate the risk caused by them. As required by the Clean Water Act, the Source Protection Plan includes policies to address all identified significant drinking water threats in the ERSPA. Policies for moderate and low threats are optional, and are also

included in the Source Protection Plan. The Essex Region SPC completed the Source Protection Plan in August 2012 as per the MOE’s stipulated timeline. Official comments on the SPP were received in July 2014. The SPP has been updated according to these comments and new technical work and will be re-submitted in January 2015 for approval.

1.11 Financial Assistance

Section 97 of the Clean Water Act, 2006 established the Ontario Drinking Water Stewardship Program (ODWSP). The purpose of the program was to provide financial assistance to those whose activities and properties may be affected by the implementation of the Source Protection Plan. The program also provided for outreach and education programs to raise awareness of the importance and opportunities for individuals to take action to protect sources of drinking water. Ontario Regulation 287/07 (General) further clarifies the details of the Ontario Drinking Water Stewardship Program.

Under this program, Early Action Programs funded by the Ministry of the Environment directed grants to landowners within close proximity to municipal water treatment plant intakes (e.g. within a 1km radius of an intake) to undertake projects to reduce existing potential pollution sources, along with communications and outreach efforts to persons and businesses in these areas. The program was funded through 2012 to provide grants to undertake early actions in advance of approved source protection plans.

The following projects were completed with this funding:

- 14 septic system improvements
- Three runoff and erosion control such as stream buffers, shoreline protection, etc.
- Two pollution prevention reviews of a consultant’s recommendation of potential water quality protection projects

Other ‘Special Projects’ were also considered on a case by case basis. In the Essex Region, Special Projects funded through the ODSWP included spills awareness signage, a car wash water recycling project, a downspout disconnection program, and the removal of an abandoned fuel tank.