



Essex Region Source Protection Area Workplan for Comprehensive Review and Update of the Essex Region Source Protection Plan per Clean Water Act (2006) - Section 36

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EXECUTIVE SUMMARY

Source water is the water that municipal water treatment plants (WTPs) use to supply us with safe, clean drinking water. Ontario's *Clean Water Act, 2006* helps protect these sources of drinking water through the development of a Source Protection Plan (SPP). The SPP is accompanied by the Explanatory Document that provides the rationale for policy decisions, and the Assessment Report (AR) that contains the technical documents that assess the quantity and quality of the available water supply, and identifies any threats in identified vulnerable areas that may be a risk to drinking water sources.

The Essex Region Source Protection Area (ERSPA) is one of 19 Source Protection Regions and Source Protection Areas in Ontario. There are seven municipal WTPs in the region - Stoney Point and Lakeshore (Belle River) WTPs, have their water intakes located in Lake St. Clair; the A. H. Weeks (Windsor) and Amherstburg WTPs have their intakes in the Detroit River; and the Harrow-Colchester South, Union and Pelee Island West Shore WTPs have their intakes in Lake Erie. Municipal Water Treatment Plants serve over 95 percent of the population in the region. The remaining population depends on groundwater or hauled water.

SPPs and ARs must be comprehensively reviewed and updated per Section 36 (S. 36) of the *Clean Water Act* in order to ensure sustained protection of the municipal drinking water sources and for the SPPs to stay current. A S. 36 workplan containing necessary updates to the Essex Region Source Protection Plan and/or Assessment Report has been completed following the direction of the Minister's order to the Essex Region Source Protection Authority (ERSPA) received on April 15, 2015, and guidance received from the Ministry of Environment, Conservation and Parks (MECP). It must be completed by November 30, 2018 and is to include consultation with municipalities, the Source Protection Committee (SPC), and the MECP. Once the MECP has reviewed this workplan, a new S. 36 order will be issued that outlines the updates that must be completed and the date by which they must be completed.

The development of the workplan considered the following elements:

- Results of environmental monitoring programs
- Growth and infrastructure changes
- Council resolutions
- Policy effectiveness
- Implementation challenges
- Technical rule changes
- Impacts of prohibition policies on the agricultural community
- Specific directions in some source protection plan approval letters
- Other local considerations

A thorough analysis of each of these elements was conducted and several necessary updates to the Assessment Report (AR) and Source Protection Plan (SPP) were identified. The resulting

workplan includes 15 Proposed Updates that are necessary in order to ensure that the sources of drinking water in the ERSPA are adequately protected and that the information in the Assessment Report and Source Protection Plan is up to date and accurate.

Many of the suggested updates to the SPP and AR are minor corrections that will not affect municipalities or landowners. However, some substantial updates are being recommended. These recommended updates will require further consultation with municipalities and other stakeholders. These updates include:

- A new minimum volume of fuel that is considered a significant drinking water threat in certain vulnerable areas. In the IPZ-1's of Windsor, Amherstburg and Lakeshore, the new minimum volume will be 2,500L (previously 15,000L). The land area of the IPZ-1's is small and the impact of this change is expected to be minimal.
- Updates to the delineation of vulnerable areas are required. During implementation of SPP policies, errors in the delineation of some vulnerable areas have been noted. This update may affect new landowners, while others will no longer be impacted.
- Municipalities are required to report any changes to drainage systems (transport pathways) to the SPA and SPC. There will be no impact on landowners, but municipalities may need to adjust their methods for reporting changes to drainage systems.
- The vulnerability score for Lake Erie intakes may be increased based on changes to the Technical Rules. Any changes made to the vulnerability scores will be made in consultation with municipalities and Water Treatment Plant staff. If the vulnerability score is changed, additional significant drinking water threats could be identified that would affect landowners

The overall timeline for submission of the updated Assessment Report and Source Protection Plan to the MECP is expected to be on or before December 31, 2023. Consultation with affected stakeholders will occur during the process of each proposed update and for the whole suite of updates prior to submission. Should any of the proposed updates prove to be more urgent, the ERSPA in consultation with municipalities will determine whether locally initiated amendments under Section 34 of the *Clean Water Act* are required to address issues prior to the proposed submission of the S. 36 update.

The continuation of support by MECP will be necessary to undertake the proposed updates under S. 36, and the required consultation. This includes ERSPA staff capacity and expertise, SPC meetings, municipal working group meetings, and stakeholder engagement workshops prior to submission of the completed S. 36 update. The ERSPA recommends that current staff levels within be at least maintained in order to carry out the proposed updates through 2023.

A summary of the Proposed Updates can be found in the table below.

Proposed Update #	Proposed Update	Documents Affected	Update Procedure	Reference Sections	Expected Timeframe for Completion
3.1 Proposed Updates Related to Environmental Monitoring Programs					
Proposed Update 1	Re- assessment of identified drinking water issues	AR, SPP	- Analyze recent DWSP data - Complete comprehensive review of available studies and/or reports	2.1 3.1.1	4-6 months
Proposed Update 2	Microcystin as a drinking water issue	AR, SPP	- Analyze recent microcystin DWSP data - Complete comprehensive review of available studies and/or reports	2.1 2.8 3.1.2	6-8 months
3.2 Proposed Updates Related to Growth and Infrastructure Changes					
Proposed Update 3	Updates to descriptions of Drinking Water Systems in the Assessment Report	AR	- Edit AR using suggestions/corrections made by municipal staff through surveys and consultation	2.2.1 2.2.2a 3.2.1	1 month
Proposed Update 4	IPZ delineation for Pelee Island intakes	AR	- Assess and correct delineations of the IPZs for Pelee Island West Shore WTP	2.2.2a 3.2.2	6-8 months
3.3 Proposed Updates Related to Implementation Challenges					
Proposed Update 5	NASM Policy Updates	SPP	- Edit NSAM polices to provide clarity for implementation	2.5.1 3.3.1	2 months
Proposed Update 6	Corrections to EBA delineation	AR, SPP	- Correct the delineation of the EBA using an appropriate method for effective and efficient ongoing updates/corrections	2.5.2 2.5.3 2.6.2a 3.3.2	12-18 months
Proposed Update 7	Transport pathway policies	SPP	- Develop an appropriate method for notification of changes to transport pathways (e.g. internal process, policy)	2.5.3 3.3.3	3 - 4 months

Proposed Update #	Proposed Update	Documents Affected	Update Procedure	Reference Sections	Expected Timeframe for Completion
3.4 Mandatory - Proposed Updates Related to Director Technical Rule and Table of Drinking Water Threats					
Proposed Update 8	Delineation of Significant Groundwater Recharge Areas	SPP, AR	- Confirm delineation of SGRAs in keeping with changes to the Technical Rules	2.6.1a 3.4.1	5 - 6 months
Proposed Update 9	Vulnerability of Significant Groundwater Recharge Areas	SPP, AR	- Remove vulnerability scores of all SGRAs in keeping with changes to the Technical Rules	2.6.1b 3.4.2	1 - 2 months
Proposed Update 10	Liquid Hydrocarbon Pipelines	SPP, AR, Explanatory Document	- Complete a risk assessment to determine significant, moderate or low threat conditions in vulnerable areas - Determine whether new policies are required for existing or future threats	2.6.1d 3.4.3	2 - 3 months
Proposed Update 11	Handling and Storage of Fuel policies	SPP, AR	- Complete a risk assessment to determine significant, moderate or low threat conditions in vulnerable areas - Update existing policies - Determine if new policies are needed	2.6.1e 3.4.4	2-3 months

Proposed Update #	Proposed Update	Documents Affected	Update Procedure	Reference Sections	Expected Timeframe for Completion
3.5 Enabling Provisions - Updates Related to Director Technical Rules and Table of Drinking Water Threat					
Proposed Update 12	Application of Technical Rule 95.1 for Great Lakes intakes	SPP, AR, Explanatory Document	<ul style="list-style-type: none"> - Determine whether the Source Vulnerability Factor (SVF) should be increased for Great Lakes intakes in keeping with the Technical Rule 95.1 - Complete a risk assessment to determine significant, moderate or low threats if the SVF is increased - Update existing policies if necessary Develop new policies if necessary 	2.6.2b 3.5.1	18-24 months
Proposed Update 13	Re-evaluate status of Conditions	AR	<ul style="list-style-type: none"> - Determine whether the updated Technical Rules would result in any changes to the Assessment Report 	2.6.2c 3.5.2	2-3 months
Proposed Update 14	Incorporation of climate change into water quality risk assessments	AR, SPP	<ul style="list-style-type: none"> - Implement the new climate change risk assessment, at the discretion of the SPC and pending approval of the method by MECP - Update the Assessment Report to include recently completed and ongoing work on climate change in the Essex Region 	2.6.2f 3.5.3	2-3 months
Proposed Update 15	Minor edits and corrections to the SPP and AR	SPP, AR, Explanatory Document	<ul style="list-style-type: none"> - Complete minor updates to the SPP and AR as required 	2.9 3.5.4	concurrently and at the completion of S. 36 workplan

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1.0 INTRODUCTION

1.1 THE *CLEAN WATER ACT* (2006)

Source water is the water that Water Treatment Plants use to supply us with safe, clean drinking water. It can be drawn from surface water sources like lakes and rivers through intakes or from groundwater aquifers through wells. Ontario's *Clean Water Act, 2006* helps protect these sources of drinking water in order to protect human health and the environment. The Act is based on recommendations from Justice O'Connor's "Report of the Walkerton Inquiry", which was released in 2002 in response to *E. coli* bacteria contamination of the municipal drinking water system in Walkerton, Ontario in May of 2000. This contamination was the cause of seven deaths and thousands of residents becoming ill. Justice O'Connor emphasized that protecting drinking water at the source is the first step in a multi-barrier approach and an important part of ensuring the health of people, ecosystems, and economies. "We should never be complacent about drinking water safety" - Justice Dennis R. O'Connor.

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 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.

1.2 THE ESSEX REGION SOURCE PROTECTION AREA

The Essex Region Source Protection Area (ERSPA) is one of 19 Source Protection Regions and Source Protection Areas in Ontario. It coincides with the watershed boundaries of the Essex Region Conservation Authority (ERCA) (Figure 1). The ERSPA is approximately 1,681 km² in size and is located in the extreme southwestern corner of Ontario, bounded on three sides by the waters of the Great Lakes and includes Pelee Island (Township of Pelee) in Lake Erie. The ERSPA is comprised of approximately 28 smaller sub-watersheds, flowing either generally northward into Lake St. Clair, westward into the Detroit River, or southward into Lake Erie. The Lower Thames Valley Conservation Authority (part of the Thames-Sydenham and Region Source Protection Region) shares the eastern boundary of the Essex Region Watershed.



Figure 1 - Essex Region Source Protection Area

Municipal drinking water supplies in the ERSOA comes from lakes and rivers – Lake Erie, Lake St. Clair and the Detroit River. There are seven municipal Water Treatment Plants (WTPs) in the region and an additional plant in Wheatley, located within the Thames-Sydenham and Region Source Protection Region, which serves part of the Municipality of Leamington. Of the seven municipal drinking water systems in the region - Stoney Point and Lakeshore (Belle River) WTPs, have their water intakes located in Lake St. Clair; the A. H. Weeks (Windsor) and Amherstburg WTPs have their intakes in the Detroit River; and the Harrow-Colchester South, Union and Pelee Island West Shore WTPs have their intakes in Lake Erie. Municipal Water Treatment Plants serve over 95 percent of the population in the region. The remaining population depends on groundwater or hauled water.

1.3 SOURCE PROTECTION PLAN AND ASSESSMENT REPORT

Through the *Clean Water Act, 2006*, a local Source Protection Committee worked together with the Essex Region Source Protection Authority (ERSPA), municipalities, community groups and residents to develop a local, watershed-based Source Protection Plan (SPP). The SPP contains policies that use a variety of tools to ensure that identified potential threats that might be a risk to drinking water sources are managed. These tools include prohibition policies, risk management plans, and education and outreach policies that encourage voluntary best management practices. The SPP is accompanied by an Explanatory Document that provides the rationale for policy decisions. Following an extensive process that included broad public consultation, the Essex Region SPP was approved on April 15, 2015, and came into effect on October 1, 2015.

The Assessment Report (AR) is a technical document that describes the local watershed, assesses the quantity and quality of the available water supply, maps out the vulnerable areas, and identifies any threats in these areas that may be a risk to drinking water sources. The AR is based on the completion of detailed technical studies that underwent rigorous peer review. The AR was approved in March 2105; however, it is a 'living document' and will be updated and amended as new information becomes available.

1.4 SECTION 36 ORDER

SPPs and ARs must be comprehensively reviewed and updated per Section 36 (S. 36) of the *Clean Water Act* in order to ensure sustained protection of the municipal drinking water sources and for the SPPs to stay current. At the time of the SPP approval, the Minister of the Environment, Conservation and Parks (MECP) issued a S. 36 order that specified that the ERSPA prepare and submit a workplan to the MECP that includes mandatory and optional updates to the Essex Region SPP and AR. It must be completed by November 30, 2018 and is to include consultation with municipalities, the Source Protection Committee (SPC), and the MECP. The order also required that the information gained from implementing the SPP and from the first annual progress report (2017) be taken into consideration in preparation of the workplan. For the ERSPA, this specifically included the requirement to include the results from monitoring programs and phosphorus loading data from local tributaries, as well as the effectiveness of the education and outreach policies in the SPP aimed at reducing blue-green algae (microcystin-LR), and contributions of phosphorus to Lake Erie.

Please see Appendix 1 for the S. 36 order issued to the ERSPA

The workplan follows the guidance provided by the MECP provided in two documents:

- Source Protection Plan Bulletin – Overview of Requirements for Assessment Report and Source Protection Plan amendments under S. 36 of the *Clean Water Act* (December 2016); and
- Overview of requirements for amendments under S. 36 of the *Clean Water Act* (Supplemental Bulletin #3 – Updates to Director Technical Rules and Tables of Drinking Water Threats (July 2018).

Conservation Ontario provided a template, which the ERSPA has followed, making modifications as necessary. Section 2 of the workplan provides a detailed analysis of each of the items that required review, along with a rationale for any required updates. Section 3 provides further information for each of the proposed updates, including proposed procedures and expected timeframes for completion. Once the MECP has reviewed this workplan, a new S. 36 order will be issued that outlines the updates that must be completed and the date by which they must be completed.

1.5 SOURCE PROTECTION PLAN IMPLEMENTATION HIGHLIGHTS

The first annual progress report was prepared by the ERSPA and submitted to MECP on May 1, 2018, based on information gathered from the date the SPP came into effect (October 1, 2015) to December 31, 2017. In general, implementation of the Essex Region Source Protection Plan policies is progressing well and the majority of policies that address significant drinking water threats (39 of 44; 89%) are either fully implemented or are in progress and on target to be fully implemented within the timeframe set out in the SPP. Of the remaining significant drinking water threat policies, four are in need of correction and will be addressed in this S. 36 workplan (*Please see section 2.5.1 and Proposed Update 5 for more information*). One policy has not yet been addressed, which is related to the use of airplane deicer chemicals and is applicable in areas where these chemicals are not used.

All of the municipalities in the Essex Region SPA are aware of the policies that apply to them and have made significant progress toward implementation of policies. By December 31, 2017, at least 45 road signs have been installed by the City of Windsor, County of Essex and some lower tier municipalities. Municipalities are also required to include considerations for Source Water Protection in their next Official Plan and Zoning By-law updates. The majority of municipalities (9 of 11) are in the process of this exercise. The County of Essex and the Town of Essex have completed their required conformity exercises.

Municipalities with responsibilities to implement Part IV policies have delegated their authority to the ERSPA to implement these policies on their behalf. At the time of the

annual progress report, site visits had been conducted at 256 of the 384 existing potential fuel threat locations identified in the Assessment Report. Substantial progress has been made since the annual progress report, and site visits have now been conducted at 380 of the 384 existing properties identified. Among the existing properties visited, 266 do not require a S. 58 Risk Management Plan (RMP), five RMPs have been established, 50 properties have received a written notice and have a RMP in progress, 45 properties require a RMP (written notices are being issued), and 13 properties require further investigation. RMPs for all existing threats must be established by October 1, 2020. Since the SPP took effect, five RMPs have been established for future (new) fuel threats through s.59 procedures. There have been no cases of non-compliance with the established RMPs.

2.0 WORKPLAN DEVELOPMENT

A detailed analysis of the AR and SPP was conducted considering nine factors:

1. Results of environmental monitoring programs
2. Growth and infrastructure changes
3. Council resolutions
4. Policy effectiveness
5. Implementation challenges
6. Technical rule changes
7. Impacts of prohibition policies on the agricultural community
8. Specific directions in some source protection plan approval letters
9. Other local considerations

Two surveys were circulated to municipal staff to aid in the development of this workplan. The first survey was directed to municipal staff involved in development and implementation of the Source Protection Plan and was circulated on June 22, 2018. The second survey was directed to municipal staff at Water Treatment Plants (WTPs) and was circulated on September 7, 2018. Nine of 10 municipalities provided a response to the first survey, along with the Union Water Supply System which provides municipal water to the Municipality of Leamington, Town of Kingsville, Town of Essex (only the northern portion surrounding Essex Centre), and the Town of Leamington (only the southern portion south of Hwy 401). Responses to the second survey were received from all seven WTPs. The responses to these surveys have been incorporated into relevant sections of this workplan.

Please see Appendix 2 for samples of these surveys and summary tables of the responses received.

2.1 RESULTS OF ENVIRONMENTAL MONITORING PROGRAMS

All of the WTPs in the Essex Region are part of the MECP's Drinking Water Surveillance Program (DWSP), which monitors water quality at selected municipal drinking water systems for scientific and research purposes. DWSP is a voluntary partnership that compliments the regulatory monitoring that must be done by the drinking water systems. DWSP monitors for inorganic, organic and radiological parameters (please see <https://www.ontario.ca/data/drinking-water-surveillance-program> for more information).

As part of the municipal surveys conducted for the preparation of this workplan, municipal staff were asked to indicate whether the drinking water issues previously identified in the Assessment Report (e.g. turbidity, organic nitrogen, aluminum) continue to be an issue for their WTP and whether they have observed any new drinking water issues. Four of the seven WTPs indicated that there are drinking water issues identified in the Assessment Report that they are no longer concerned about. None of the WTPs indicated the presence of new drinking water issues. When the Assessment Report was approved in 2014, there was no available information available to indicate whether the source of the identified drinking water issues were wholly or partially anthropogenic. As a result, no issue contributing areas were delineated nor any polices included in the Source Protection Plan. More recent data should be evaluated to determine if the parameters still meet the definition of a drinking water issue, and available resources should be reviewed to determine if there is any new information regarding the sources of identified drinking water issues.

Please see Proposed Update 1 for more information.

Harmful algal blooms (HABs) are an annual occurrence in the nearshore areas of Lake St.Clair and Lake Erie. The organisms that causes HABs are cyanobacteria, also known as blue-green algae (e.g. microcystis and anabaena) that produce toxins (e.g. microcystins) that can be harmful to human health. Municipal staff at WTPs were also asked several questions related to HABs. All seven WTPs indicated that they consider HABs to be an operational concern; this includes WTPs with intakes in Lake St.Clair, the Detroit River and Lake Erie. The existing treatment at all of the WTPs is currently capable of removing cyanobacteria and microcystins, however there is some concern that some systems could be overwhelmed if HABs increase in severity. WTPs employ a number of different techniques to treat raw water during a HAB including decreasing chlorination at the intake, increasing Powdered Activated Carbon, changing coagulation dosages, and increasing filtering and backwashing. Monitoring for the toxin produced during HABs is conducted through DWSP sampling at all WTPs and some WTPs have additional monitoring.

Microcystin-LR (a specific congener of microcystin) is currently identified as a drinking water issue for WTPs with intakes in Lake Erie. Based on responses from municipal staff, available data should be assessed to determine whether microcystin-LR or other congeners should be identified as a drinking water issue for additional WTPs. Canada, Ontario, the United States, and State governments have produced Domestic Action Plans, and a significant amount of research has been conducted on HABs in Lake Erie and Lake St. Clair since the Assessment Report was approved in 2014. The Assessment Report should be updated to reflect this new information.

Please see section 2.8 and Proposed Update 2 for more information.

2.2 GROWTH AND INFRASTRUCTURE CHANGES

Content for this section was taken from responses to the questionnaires circulated to municipalities on June 22, 2018 and September 7, 2018 as described above.

2.2.1 Growth

Municipalities were asked in the first survey whether there has been any significant change in the population served by their drinking water intake(s) since 2014, whether population growth has affected the water supply, and whether there has been an increase in capacity of the intake or a need to change the volume limits in the municipality's Permit to take water. The Township of Pelee did not see substantial population growth, but upgrades made to their WTP in 2015 now allow them to provide water to more clients. The Town of Lakeshore and the Union Water Supply System reported growth in the population served; however, this growth has not affected the water supply so there has been no need to increase capacity of the intake nor to change the volume limits of their Permits to take water. No other municipalities indicated significant changes in the population served by their WTPs.

- The Township of Pelee underwent significant upgrades in 2015 to increase capacity of their previously undersized system. No additional service connections were added, but they are now also able to deliver potable water to 25 clients with cisterns, and that number continues to grow.
- The Town of Lakeshore operates the Belle River and Stoney Point WTPs and has seen an increase in residential dwellings by approximately 2000 homes, and a corresponding increase in population. Despite this growth in population, the system is still operating well below its rated capacity and no changes or upgrades are required. As per the Town's water and wastewater master plan, they are anticipating the population to grow to 42,000 by 2035.

- Additionally, the greenhouse sector, which draws water from Union Water Supply System, continues to expand in Leamington and Kingsville. Follow up conversations with staff at Union indicated that this is not an immediate concern, but they continue to monitor greenhouse growth and demand on the water system and will adjust their timeline for future expansion if needed.

Municipal staff were asked in the second survey to review the description of their WTP in the Assessment Report. Minor edits were suggested for five (5) of the seven (7) WTPs in the Essex Region, which included changes to the size of the population served by three of the WTPs since the time the AR was approved in 2014. There is no indication that growth in population has affected the WTPs services, but these numbers will be updated for accuracy. Other edits include updating the owner/operator, size of the distribution network, treatment methods, and location/naming of intakes. These edits will be included in the updated Assessment Report.

Please see Proposed Update 3 for more information.

Table 1 - Increases to the size of population served by WTPs between 2014 and 2018

Water Treatment Plant	Population served as documented in the approved AR (2014)	Population served as updated by municipalities (2018)
Belle River	22,000	28,300
Stony Point	3,500	6,500
Union	57,000	65,000
Pelee	28 service connections	28 service connections; 25 clients with cisterns

2.2.2 Drinking water infrastructure

Municipalities were asked a series of questions related to existing and potential future drinking water systems in both surveys. For existing infrastructure, they were asked to indicate whether any changes were completed since the approval of the Assessment Report (2014), and whether any changes are planned for the future. These changes could include:

- Expanding an existing drinking water system
- Relocating a drinking water intake
- Decommissioning an intake or drinking water system

The municipalities were also asked whether they planned to build a new drinking water system, and if so, whether they were aware of the new *Safe Drinking Water Act* (SDWA) requirements that are effective as of July 1st, 2018.

a) Existing systems

- The Municipality of Leamington is considering expanding their water distribution system in the north, along Highway 77
- The City of Windsor plans to build a new water reservoir by December 2018
- The City of Windsor plans to decommission an old drinking water plant, timeframe unknown at this point
- The City of Windsor expanded their distribution network since the last AR was approved
- The Township of Pelee completed upgrades to their drinking water system in 2015. They installed a new emergency intake that is a lakebed infiltration style, in addition to their existing primary shoreline bank infiltration style intake. They also underwent several upgrades in the Water Treatment Plant that have allowed them to increase their service capacity and improve their ability to treat raw water during an algal bloom. The delineation of the Intake Protection Zones (IPZ) was not reassessed at the time of this upgrade and should be evaluated as part of this comprehensive S.36 update.

Please see Proposed Update 3 and Proposed Update 4 for more information.

b) New systems

The Town of LaSalle is undertaking Phase 1 of a Drinking Water System Initiative Source Water Selection Study. This is an initial study to determine the feasibility of installing a new drinking water intake in the Detroit River. Follow up conversations with the Town indicate that even if a new intake is installed, it will not be within the timeframe of this update (i.e. before December 31, 2023). ERSPA staff have requested to be informed as this project progresses and have had initial conversations about the new SDWA requirements.

c) Safe Drinking Water Act (2002) O. Reg. 205/18

The new O. Reg. 205/18 (under the *Safe Drinking Water Act*, 2002) came into effect on July 1, 2018. Through this new regulation, owners can only apply for a drinking water works permit (and a municipal drinking water license for new systems) once they have received a notice from the SPA that the required technical work has been completed. Further, owners cannot provide water to the public from new or expanding drinking water systems until the local SPP, including the AR has been updated to include these systems and the SPP has been approved.

The O. Reg. 205/18 applies where:

- a new municipal residential drinking water system is being located within a source protection area, or
- changes are being made to an existing municipal residential drinking water system located in a source protection area that results in:
 - the establishment of a new groundwater well
 - deepening an existing well
 - increasing the capacity at an existing well
- the establishment of a new surface water intake
- moving an existing intake.

O. Reg. 205/18 does not apply where the new or expanded system is necessary to address emergency situations.

O. Reg. 205/18 will require drinking water system owners and SPAs to take certain steps that are laid out in the related amendment to the O. Reg. 287/07 (under the *Clean Water Act, 2006*) which also came into effect on July 1, 2018.

No municipalities in the Essex Region have indicated the intent to relocate an existing intake nor to install a new intake within the period of this proposed update (i.e. prior to December 31, 2023). All municipalities are aware of their requirements under the SDWA should they decide to relocate an existing intake or to install a new intake. No action is required at this time.

2.2.3 Drainage infrastructure

Municipalities were asked whether they have made, or intend to make any changes to their storm-sewer or municipal drainage network (i.e. removal, construction or relocation of sewers or drains). Such changes could result in changes to the delineation of Vulnerable Areas because the delineations are created using the best available maps showing the location of drains and other open watercourses that could transport contaminants to a drinking water intake. Five of the nine municipalities that responded to the survey indicated that there have been changes to their drainage infrastructure, or that such changes are planned for the future.

Please see section 2.5.2, section 2.5.3, section 2.6.2a, and Proposed Update 6 for more information

2.3 COUNCIL RESOLUTIONS

There are no intentions to add new drinking water systems in the timeframe of this update (i.e. prior to December 31, 2023) and no plans to include other types of drinking water systems at this time.

2.4 POLICY EFFECTIVENESS

Municipal staff at the Township of Pelee noted a concern related to the handling and storage of fuel at the west ferry dock where fuel is transferred from ship to shore. Their concern is that a fuel spill at this location could reach the drinking water intake. The handling and storage of fuel at this location was not identified as a significant drinking water threat (SDWT) based on the volume threshold of the current policies in the SPP for the handling and storage of fuel. The dock is located within the IPZ-1 of this drinking water intake; however, the vulnerability score is currently only 6.0 so fuel is not considered a SDWT. Even though the hazard rating for the handling and storage of fuel for surface water was increased from 8 to 10 (*please see section 2.6.1e for more information*), smaller volumes of fuel would not be considered to be a SDWT in this locations. The vulnerability score of this intake may increase as a result of the implementation of Technical Rule 95.1 (*please see section 2.6.2a for more information*). ERSPA staff will continue to investigate this potential SDWT in consultation with the Township of Pelee.

2.5 IMPLEMENTATION CHALLENGES

Implementation challenges can be noted either by an Implementing Body (e.g. Provincial Ministry, Risk Management Official) or by ERSPA staff upon review of information submitted annually by Implementing Bodies in response to mandatory policies. The challenges noted below result in certain policies either being difficult or impossible to implement. The associated updates to the SPP and/or AR are considered necessary.

2.5.1 Provincial instrument policies

No provincial ministry has directly indicated a challenge with implementing any of the Provincial Instrument policies in the Essex Region SPP. However, while collecting information for the 2017 Annual Report, an issue was discovered with several policies related to the application and/or storage of Non-Agricultural Source Material (NASM).

Policies 8 –11 in the Essex Region SPP address the application and/or storage of NASMs by managing the activity using an existing provincial instrument (e.g. Environmental Compliance Approval) in certain vulnerable areas. The Ministry of the Environment was named as the Implementing Body of these policies; however, the policies were not implemented due to a misinterpretation of their intent. Given that there are no

agricultural lands in these areas, these policies are intended to address the application and/or storage of NASMs off-farm (i.e. on non-agricultural land), which was not made explicitly clear. The MECP suggests that the policy text be revised to include the phrase “off-farm application and/or storage of NASM as processed organic waste (i.e. biosolids)” to add clarity to the policies. The MECP has developed a standard operating procedure for all source water policies related to Environmental Compliance Approvals, which will be applied to the NASM policies in the Essex Region SPP.

Currently there is no land zoned for agriculture in the areas where these policies apply. The ERSPA and SPC will review this information to determine whether there is any need for new policies to address potential NSAM threats should there be any possibility of agricultural activity in the future. The Explanatory Document and AR will be updated accordingly.

Please see Proposed Update 5 for more information.

2.5.2 Part IV policies

To date, none of the municipalities in the ERSPA have indicated challenges with implementing the policies in the SPP. However, the majority of legally binding policies directed at municipalities were developed under Part IV of the CWA and all municipalities in the ERSPA have delegated their authority to implement these policies to the Essex Region Conservation Authority. Specially trained Risk Management Officials (RMOs) are responsible for the implementation of the policies and they have noted some challenges in implementing the Part IV policies.

During site visits, the RMOs have noted several different types of errors with the delineation of the Event Based Area (e.g. EBA delineated where there is no water course, no EBA delineated where there is a watercourse). The consequence of this is that RMPs may be established in areas where they are not necessary and/or that a SDWT will go unmanaged in areas where they should be. This challenge is explained in detail in Appendix 3 (SPC report 02/18). Because the delineation of vulnerable areas was based on the best available data at the time (as opposed to being text based policies that define the setback from a watercourse), it is anticipated that this will be an ongoing issue because watercourses (e.g. municipal drains) are frequently altered in the Essex Region.

Please see Proposed Update 6 and Appendix 3 for more information.

2.5.3 Transport pathways

O. Reg 287/07 S. 27(3) requires municipalities to notify the SPA and SPC of proposals to engage in an activity that may result in the creation of a new transport pathway or the modification of an existing transport pathway. To date, few notifications of proposals to create or modify transport pathways have been received by the SPA. The notifications

received have been through the Municipal Class Environmental Assessment process. The Essex Region SPP does not contain any policies related to transport pathways and a formal notification process to the SPA and SPC has not been established. Proponents are required to inform ERCA's Watershed Management department of all drainage works, however ERSPA staff are not circulated on these notifications. ERCA's internal processes for notification of drainage projects will be reviewed to determine a method to copy ERSPA staff on appropriate applications received by the Watershed Management department in order to streamline this process. Otherwise a new method of notification to the SPA will be developed. ERSPA staff will also work with the SPC to determine whether it would be appropriate to include a new policy in the SPP requiring municipalities to submit a notice of new or modified transport pathways.

Please see Proposed Update 7 for more information.

In addition, and related to the above noted issues with the delineation of the EBA, ERSPA staff have noted the need to document the final changes, additions or removals made to any drainage scheme in the Essex Region as these will have an impact on the delineation of the EBA. O. Reg. 287/07 s.27 (3) requires a notice of a proposed activity, however there is no requirement to provide notice or mapping of the actual final construction, which can differ from the initial proposal. While there may not be a policy option to address this issue, we note it as a challenge to implementation and suggest the need for ERSPA staff to consult internally with other staff, as well as with our local drainage superintendents to determine an appropriate mechanism to ensure that our vulnerable areas can be updated with the best available information.

Please see Section 2.2.4 and Proposed Update 3 for more information.

2.6 TECHNICAL RULE CHANGES

The Director Technical Rules and Tables of Drinking Water Threats provide the methodology for implementing the *Clean Water Act* and its Regulations. These documents were updated in 2017 and include both mandatory and enabling (optional) provisions. Updates to the SPP and AR are to be done in compliance with the approved legislation that is in place at the time the updates are being carried out. The information below describes the changes to these documents and their effect on the Essex Region SPP and AR. If an update to our documents is required, the associated *Proposed Update* is indicated. Please see the MECP Supplemental Information Bulletin #3 – Updates to Director Technical Rules and Tables of Drinking Water Threats (July 2018) for details on the updates to these documents.

2.6.1 Mandatory Updates

The following sections describe changes made to the Director Technical Rules that require mandatory updates to the Source Protection Plan and/or Assessment Report.

a) Delineation of Significant Groundwater Recharge Areas

Technical Rules 44 and 45 provide an explanation for how and where Significant Groundwater Recharge Areas (SGRAs) should be delineated. Rule 45 previously stated that SGRAs should only be delineated if the recharge area as described by Rule 44 is recharging an aquifer that is hydrologically connected to a body of water (either groundwater or surface water) that is a source of drinking water.

A technical working group developed a common methodology for interpreting these rules, which was utilized to delineate the SGRAs in the ERSPA and other Source Protection Regions and Areas. That methodology included a final step to establish linkages between recharge areas and sources of drinking water by performing a GIS overlay analysis. For the ERSPA, the GIS overlay exercise was performed to determine linkage to groundwater wells only; linkages to surface water intakes in the Great Lakes or Connecting Channels were not included. There are no other surface water sources of drinking water in the ERSPA. In order to provide clarity and consistency with the common methodology that was used, the text of Rule 45 has been updated to include the exclusion of the following bodies of surface water: a Great Lake, Connecting Channel, Lake Simcoe, Lake Nipissing, Lake St. Clair or the Ottawa River.

The methodology used to delineate the SGRAs in the Essex Region is provided in Chapter 4 (section 4.1.3) and Appendix IV of the Assessment Report. Review of this methodology indicates that SGRAs were delineated in a manner that is in keeping with the updated Rule 45 (i.e. based on hydrological linkage to water wells only). However, the SGRA delineations should be evaluated to ensure compliance with this updated Rule. The text of the AR should also be updated to provide further clarity and detail about the interpretation and execution of Rules 44 and 45.

Please see Proposed Update 8 for further information.

b) Scoring of Significant Groundwater Recharge Areas

The latest version of the Technical Rules includes the removal of Rules 80 and 81, which were used to determine the vulnerability score of SGRAs. While these areas will still be delineated, they will no longer have an associated vulnerability score and therefore no identified significant, moderate or low drinking water threats. This will result in the need to update mapping in the AR and SPP to remove scoring as well as online mapping that is available to municipalities and the public. Policies will also need to be updated to

remove any reference to SGRAs, and the AR will need to be updated to reflect these changes.

Please see Proposed Update 9 for more information

c) Sewage/Septic systems

The Table of Drinking Water Threats was updated to remove references to sodium and chloride from the circumstances related to on-site sewage systems and holding tanks. There were no sodium or chloride issues identified in the ERSPA, so this change has no impact on the Essex Region AR or SPP.

d) Liquid hydrocarbon pipelines

The addition of liquid hydrocarbon pipelines as a SDWT was discussed with the SPC at their meeting on February 12, 2018 (*Appendix 3; SPC report 06/18*). It was noted that the proposed circumstances would make these pipelines a SDWT in specific vulnerable areas (Stoney Point IPZ-1, Lakeshore IPZ-1, Windsor IPZ-1 and Amherstburg IPZ-1). In addition, there are multiple circumstances under which pipelines could be a low or moderate threat in IPZ-1s, IPZ-2s and/or IPZ-3s. If the vulnerability scores change for Lake Erie intakes as a result of Technical Rule 95.1 (*please see section 2.6.2b*), liquid hydrocarbon pipelines could be considered a SDWT for additional vulnerable areas. The AR will need to be updated to reflect a full risk assessment using the threat scoring for each intake in the Essex Region. The MECP provided some guidance for the inclusion of liquid hydrocarbon pipelines in the Source Protection Bulletin: 'New administrative amendments and prescribed threats under the *Clean Water Act*' that was circulated in August 2018.

The Canadian Energy Pipeline Association's interactive map (aboutpipelines.com) was reviewed and it was determined that there are no liquid hydrocarbon pipelines in any of the identified IPZs in the Essex Region where they would be considered a SDWT, including those for Lake Erie intakes (*Appendix 3; SPC report 06/18*). This information will be reviewed in more detail during the risk assessment process to determine whether there are existing pipelines where they would be considered moderate or low threats. The amended regulation provides an exemption from including policies if a prescribed threat activity does not exist and there is no likelihood that it could be located in a vulnerable area in the future (e.g. the area is already developed to the extent that there is no reasonable prospect that a future pipeline would be built). The SPC and SPA will examine all available information to determine whether policies for existing and/or future pipelines are required. Should the option to exclude policies be exercised, the Explanatory Document will be updated to reflect the reasons why such policies are not necessary.

Please see Appendix 3 and Proposed Update 10 for more information

ERSPA staff met with Kinder-Morgan in August 2018 regarding their upcoming project to replace the portion of the Utopia pipeline under the Detroit River and partially on land near the Windsor Salt Mine. The project is located within the IPZ-3 for the Amherstburg Water Treatment Plant, where pipelines are not considered a SDWT. Additionally the pipeline will be carrying ethane, which is not a liquid hydrocarbon. Kinder-Morgan staff on this project are aware of the Source Protection policies that apply to this location and will continue to consult with ERSPA staff throughout this project.

e) Handling and storage of fuel

As part of the updates to the Table of Drinking Water Threats in 2017, the hazard rating for the handling and storage of fuel for surface water was increased from 8 to 10. This results in the handling and storage of fuel under certain conditions being a significant drinking water threat (SDWT) for IPZs with vulnerability scores of 9 or 10, and a low or moderate threat for IPZs with vulnerability scores from 4.5 to 10. The AR will need to be updated to reflect a full risk assessment using the threat scoring for each intake in the Essex Region.

In the Essex Region, the handling and storage of fuel under certain circumstance will now be considered a SDWT for three drinking water intakes. Lakeshore IPZ-1, Windsor IPZ-1 and Amherstburg IPZ-1 all have vulnerability scores of 9. If the vulnerability scores change for Lake Erie intakes as a result of Technical Rule 95.1, additional intake may be affected (*please see section 2.6.2b*). There are no IPZs with a score of 10 in the Essex Region.

In Lakeshore IPZ-1, Windsor IPZ-1 and Amherstburg IPZ-1, the following are now considered SDWTs:

- The *above grade* handling and storage of fuel at a bulk plant or facility as defined in O. Reg. 217 (i.e. permanent or mobile retail outlet, marina, cardlock/keylock, private outlet or farm where gasoline or an associated product is handled other than in portable containers) in volumes greater than 2500L
- The storage of liquid fuel in a tank *partially below grade* at a bulk plant or facility as defined in O. Reg. 217, or at a facility defined under O. Reg. 213 (i.e. an installation where fuel oil or used oil, when such oil is used as a fuel, is handled, but does not include a facility referred to in Ontario Regulation 217) in volumes greater than 2500L

Existing policies in the Essex Region SPP for the above grade handling and storage of fuel can be updated to include the new circumstance for SDWTs. New policies may be required for the storage of liquid fuel in partially below grade tanks. The land areas

affected by these new rule changes are small; therefore, consultation on the updated or new policies will be targeted.

See Proposed Update 11 for further information

f) Agriculture Threats – application and storage of NASM

Certain circumstances in the Table of Drinking Water Threats have been updated to remove the term 'dairy producer'. There is no impact of this change to the ERSPA AR or SPP as this term is not used in any of our documents.

2.6.2 Enabling Provisions

Enabling provisions allow for the consideration of local circumstances and new evidence in order to determine if updates to the AR or and SPP are warranted. A comprehensive review of each of these enabling provisions as they pertain to the ERSPA is provided below.

a) Intake Protection Zones

The updated Technical Rules include several enabling provisions that could affect the delineation of Intake Protection Zones (IPZs). This includes:

- Rule 1(1): the addition of a definition for transport pathways for surface water intakes: "in respect of an intake protection zone means works or any other thing that reduces the time it takes for a contaminant to reach a surface water intake and may include storm sewers, discharge pipes, utility trenches, ditches, swales, drainage works or any other types of drains;"
- Rule 72: the addition of "and Natural Surface Water Features" to the Part VI.6 title, which allows natural features to be considered when assessing transport pathways
- Rule 1(4): the addition of a definition for high water marks used in the delineation of IPZs
- Rule 62(2), Rule 65(1b), Rule 68(2b) and Rule 70 (2b): the amended rules allow the setback from a water body to be reduced based on local conditions, which allows the SPA to determine if areas currently included in IPZs should be removed

The SPA has already identified issues with the delineation of IPZs, particularly IPZ-3s, through the implementation of Part IV polices. The changes to these rules will also be considered as part of the exercise to correct the delineation of IPZs-3s throughout the ERSPA. Their impact on IPZ-1s and IPZ-2s will also be assessed.

Please see Proposed Update 6 for more information.

b) Vulnerability scores for Great Lakes intakes

Each drinking water intake has an assigned Source Vulnerability Factor (SVF) that was determined using the Technical Rules. Previously Rule 95 of the Director Technical Rules restricted the SVF of Great Lakes intakes (Type A) to 0.5 – 0.7, and of connecting channel intakes (Type B) to 0.7 – 0.9. The SVF is a factor in determining the overall vulnerability score of the Intake Protection Zones, which ultimately determines the identification of low, moderate and/or significant drinking water threats. For Type A intakes in particular, even if an intake was assigned the highest SVF value of 0.7, the resulting overall Vulnerability Score was too low to result in the identification of SDWTs. This issue was noted and discussed by the SPC during the development of the AR and SPP.

In 2017, Rule 95.1 was added to allow the SVF for Type A and B intakes to be as high as 1.0, if it is determined that the intake is in shallow water, is in close proximity to the shoreline or there has been a history of water quality concerns at the surface water intake.

In the Essex Region, three intakes are located in Lake Erie (Type A) and two are in the Detroit River (Type B). Appendix 3 (SPC Report 01/18) provides more detail into a preliminary analysis of the effect of this new rule. Based on this preliminary analysis, it was determined that the need to further explore updates to the SVF be added to this S. 36 workplan along with the identification of the need to determine any associated updated or new policies that might result from an increase in the SVF.

Please see Proposed Update 12 and Appendix 3 for more information

c) Conditions resulting from past activities

The updated Director Technical Rules includes clarification around the identification of existing Conditions that may be a contamination risk for sources of drinking water.

- Rule 126(5) was edited to clarify that certain contaminants present in the sediment in an IPZ shall be considered a drinking water threat if the contaminant is present at concentrations that exceed the standards for that contaminant and the presence of the contaminant in the sediment could result in deterioration of the surface water for use as a source of drinking water
- Rule 126(6) was added to allow for the identification of contaminants in groundwater discharging to an IPZ to be considered a drinking water threat if the contaminant is present at concentrations that exceed the standards for that contaminant and the presence of the contaminant in the groundwater could result in deterioration of the surface water for use as a source of drinking water
- Rule 139(1) clarifies the method for calculating the hazard score for a Condition

- Rule 141(4) clarifies the circumstances under which a Condition can be identified as a SDWT

These changes are in accordance with previous guidance issued by the MECP and clarify the intent of these rules related to the identification of Conditions as SDWTs. At present, there are no existing Conditions identified in the Essex Region AR or SPP; however, a re-evaluation using these modified rules would show our due diligence to ensure that all potential sources of contamination of our drinking water are being addressed.

Please see Proposed Update 13 for more information.

d) Monitoring location vs monitoring wells

The updated Director Technical Rule 114 replaces the term “monitoring well” with “monitoring location”. This change has no impact on the Essex Region AR or SPP.

e) Table of Drinking Water Threats

The ‘short names’ in the Table of Contents of the Table of Drinking Water Threats aligns the non-legal wording (“short names”) with the legal description. Terminology in the Essex Region AR and SPP may be updated to reflect this new terminology in a Section 51 amendment at a future date. No action is required at this time.

f) Climate change

The Technical Rules allow the consideration of climate change impacts on the quality of our drinking water sources; however, there are currently no rules on how to evaluate the risks associated with climate change. A Technical Working Group has been developing an approach for a climate change risk assessment that is designed to be completed by SPA staff. It will include analyses to identify climate change exposure, evaluate sensitivity, analyze adaptive capacity and vulnerability, and incorporate climate change into water quantity and quality risks for each drinking water intake. If approved by the MECP and adopted in the Technical Rules, this risk assessment will be optional, at the discretion of the Source Protection Committee.

The Technical Working Group has several collaborators that make up a Project Team (Ontario Climate Change Consortium, Source Protection Authorities, MECP), Academic Advisory Group (University researchers), and a Steering Committee (MECP, Conservation Ontario, the Joint Advisory Committee, and Engineers Canada). The Project Team compiled guidance and worksheets to evaluate climate change impacts on drinking water systems. These documents have been reviewed by The Academic Advisory Group, and consultation with Source Protection Authorities and municipalities has been completed. Following consultation, the Project Team addressed comments received and revised the documents, which were then reviewed by the Steering Committee and

Academic Advisory Group. The final documents are to be submitted to MECP for their consideration. ERSPA staff attended a workshop in September 2018 to learn more about this exercise and its impact on the SPP and AR, and to provide feedback to the developers.

During consultation for this S. 36 workplan, The Town of Essex provided comment on the climate change section. They noted their own investment in upgrades to storm water management systems to handle predictably larger rainfall occurrences, as well as the need for buy-in from other municipalities in order to be better prepared for major events and permanent disturbances to our economy and our social well-being. They suggested that the workplan take into account the challenge of resistance by the general public and multiple levels of government to adaptations required to face an “uncomfortable” future as a result of climate change. They acknowledged the identification of hazards such as harmful algal blooms as a way to facilitate discussions about climate change and highlighted the need for comprehensive watershed management plans to help address several factors including Source Water Protection.

In response to this comment from the Town of Essex, additional information about climate change actions in the Essex Region is being included below:

The City of Windsor has a Climate Change Adaptation Plan that was released in 2012 and included 22 action items designed to address potential climate change impacts that pose a risk to municipal operations (e.g. climate extremes, flooding, severe storms, extreme heat). They are currently updating this plan and ERCA has participated in consultation on the proposed revisions. The City of Windsor has a Community Energy Plan and Corporate Climate Action Plan, both approved in 2017, to address climate change mitigation efforts.

In addition, a new project will be beginning in the coming months to facilitate a regional climate change adaptation plan that will be developed by ERCA in consultation with municipalities. A new position was created at ERCA to spearhead this project. The new Climate Change Specialist will begin work on the regional climate change adaptation plan in December 2018. The kickoff for this work will be multi-stakeholder workshop to establish the priorities for climate change adaptation in the Essex Region.

Chapter 10 of the Essex Region Assessment Report, ‘State of Climate Change Research in the Great Lakes Region’, was approved in March 2015 and should be updated to include the new work that is completed and ongoing in the Essex Region. If the approach proposed by the Technical Working Group’s Project Team is approved by the MECP, additional updates may be necessary.

Please see Proposed Update 14 for more information

2.7 IMPACTS OF PROHIBITION POLICIES ON THE AGRICULTURAL COMMUNITY

There are no impacts of prohibition policies on the agricultural community in the Essex Region. There are policies that prohibit the application of Agricultural Source Material (ASM) and Non-Agricultural Source Material (NASM) in specific vulnerable areas, but none of these areas are zoned for agricultural use. Windsor IPZ-2 is the only vulnerable area to which 'Supplemental Information #2 – Prohibition of Agricultural Activities Outside WHPA-A OR IPZ-1)' applies, and it is mainly residential.

Table 2 - Zoning for vulnerable areas in the Essex Region SPA where agricultural prohibition policies apply

Vulnerable Area	Prohibition Policies	Zoning
Lakeshore (Belle River) IPZ-1	ASM, NASM, Pesticides	Commercial
Windsor IPZ-1	ASM, NASM, Pesticides	Residential, commercial, industrial and manufacturing
Windsor IPZ-2	ASM, Pesticides	Residential, commercial, industrial and manufacturing
Amherstburg IPZ-1	ASM, NSAM, Pesticides	Residential, Commercial Neighbourhood, Light Industrial, Industrial, and Environmental Protection

2.8 SPECIFIC DIRECTIONS FROM SOURCE PROTECTION PLAN APPROVAL LETTER

The S. 36 Order issued to the Essex Region SPA required that the following be considered in the workplan:

- Results of monitoring programs and phosphorus loading data from local tributaries
- Effectiveness of education and outreach policies aimed at reducing blue-green algae (microcystin-LR), and the contributions in Lake Erie.

Annual blooms of blue-green algae (cyanobacteria) in Lake Erie have increased in size and severity in recent years and have resulted in the closure of beaches throughout the western basin, and of WTPs on Pelee Island and in Ohio. In response to the growing concerns related to these harmful algal blooms (HABs), microcystin-LR was identified as a drinking water Issue for Lake Erie intakes in the ERSPA (Harrow-Colchester, Union, Pelee Island and Wheatley WTPs).

Microcystin-LR is a neurotoxin produced by certain cyanobacteria and is released when they die. Water Treatment Plant operators must alter their standard operating procedures during a bloom to ensure that the toxin is not released. This includes stopping pre-chlorination, which controls zebra mussel growth, but would also kill the cyanobacteria. Filters must be backwashed more frequently, which can result in decreased water availability. As well, the use of settling agents and activated carbon to remove algae and reduce taste and odour concerns is increased. Through these

treatment processes, all WTPs in the ERSPA are successfully able to remove microcystin-LR. However, the additional measures required during HABs does come at an increased cost for upgrades and maintenance. Of note, Pelee Island's WTP underwent significant upgrades in 2015, and Union System Water Supply has upgrades planned for completion by 2021-2022 to further improve their ability to treat microcystins.

All of the ERSPA's Lake Erie WTPs conduct weekly monitoring of raw and treated water through the Drinking Water Surveillance Program (DWSP). From spring to fall, this includes monitoring for microcystins. During a HAB, sampling frequency increases to daily. Between 2012 and 2016, total microcystins in the source water (or raw water) were usually below the maximum allowable concentration for drinking water of 1.5 µg/L, however, there were still regular occurrences of concentrations well above this value that required WTPs to implement additional treatment measures. As well, the MECP continues to issue notifications to Drinking Water Systems in Lake Erie when HABs are present or anticipated.

HABs in the western basin of Lake Erie are a persistent, international issue. The Great Lakes Water Quality Agreement recognizes this issue, and in 2016, a target was set of 40% reduction of phosphorus (the nutrient that feeds algal growth) to Lake Erie from its tributaries. Eight watersheds in the Lake Erie basin have been identified as priority watersheds for phosphorus reduction. In Canada, this includes the Leamington tributaries, located in the Essex Region, and the Thames River. The remaining priority watersheds are in Michigan and Ohio. In February 2018, the Canadian and Ontario governments released a joint Lake Erie Action Plan (LEAP) that contains 120 actions that need to be taken to achieve this target reduction. The United States federal and state governments also released similar documents in 2018.

While the monitoring, and education and outreach policies in the Essex Region SPP related to microcystin-LR are non-legally binding, ERCA is committed to working with senior levels of government and other partners to implement relevant actions to reduce phosphorous in our region. ERCA's water quality monitoring program has been enhanced at strategic locations, including additional locations and event based sampling. Among other benefits, this will enable targeted implementation of best management practices, the calculation of nutrient loads and the ability to track changes in phosphorus concentrations and loads over time. ERSPA and ERCA staff participated in the development of the LEAP, attend and participate in regional and international workshops and conferences, and are members on advisory boards for multiple research projects related to HABs.

ERCA has also integrated information related to phosphorus and HABs into our education and outreach programs, including social media, and have had several opportunities to participate in workshops, conferences and symposia. For example:

- Municipal CAO meeting
- Western Lake Erie Student Conference
- SHSM ICE program offered by ERCA
- ERCA Youth Engagement Strategy! Team
- Elder College course on water quality issues in the Essex Region
- Uni-comm speaker series
- International Association for Great Lakes Research, and Latornell Conferences
- Ducks Unlimited Podcast

While it is difficult to track the success of these programs, we hope that local residents are becoming more aware of HABs, including their causes and solutions. HABs are a persistent problem in Lake Erie and Lake St.Clair and it will take several years of international effort to see a marked improvement in this situation. The work that ERCA is doing is one part of a much broader effort to reduce the impact of HABs in Lake Erie.

The SPC notes that HABs also occur annually in Lake St.Clair and that microcystins have been detected in the raw water at both the Lake St.Clair and Detroit River intakes. It is our intention to examine available data to determine if microcystin-LR should also be considered a drinking water issue for these intakes. As noted above, the greenhouse sector continues to grow in the municipalities of Kingsville and Leamington. These expansions are moving into the headwaters of watersheds that drain to Lake St.Clair. As a result, phosphorus concentrations may increase in these watersheds, further contributing to the HABs in Lake St.Clair. As noted by municipal staff, HABs are also an operational concern for WTPs in Lake St. Clair and the Detroit River.

Since the Assessment Report was completed in 2014, a substantial amount of new research about HABs in Lake Erie and Lake St.Clair has been completed and is ongoing. Because the majority of phosphorus that feeds HABs comes from non-point sources from several watersheds in Ontario and the United States, microcystin-LR is a very difficult drinking water issue to address through the *Clean Water Act*. It is not possible to follow the typical methodology described in the Technical Rules used to identify an Issue Contributing Area, which would have to include the entire watershed of the western basin of Lake Erie and Lake St.Clair (e.g. the Essex Region watersheds, Thames River, Sydenham River, Detroit River, and several watersheds in the United States). Therefore, no significant drinking water threats can be identified, nor any legally binding polices written to address them. However, it is essential that that microcystin-LR (or other congeners that may be found to be toxic) be identified as a drinking water issue

and included in the Assessment Report and Source Protection Plan because it poses a true risk to our drinking water. The *Clean Water Act* and the Essex Region SPP are not the tools that are going to solve HABs in Lake Erie and Lake St. Clair, but they are an important part of the ongoing international conversation and help to highlight the severity of the impacts caused by HABs.

Please see Section 2.1 and Proposed Update 2 for more information. Please also see Appendix 4 for documents related to ERCA's water quality program, which includes a summary report presented to the SPC, ERCA's 2018 Watershed Report Card and a recently published journal article.

2.9 OTHER LOCAL CONSIDERATIONS

Neither the municipalities nor the SPC identified any issues with the SPP or AR that are not described elsewhere in this report. ERSPA staff have noted sections of the SPP and AR that require minor updates to ensure the text is up to date and include all of the most current information – e.g. consultation and approval dates, threats enumeration tables.

Please see Proposed Update 15 for more information

3.0 PROPOSED REVIEW AND UPDATES

Based on detailed analysis, and consultations with municipalities and the Source Protection Committee (SPC), the Essex Region Source Protection Authority (ERSPA) recommends the following proposed updates to be carried out under Section 36 of the *Clean Water Act, 2006* (S. 36) as described below. Each proposed update includes the following headings:

1. Description

Provides an outline of the issue and why the update is necessary

2. Update Procedure

Briefly describes how the issue will be resolved and/or the proposed actions that require further investigation

3. Expected Timeframe for Completion

An estimate for the time required to complete the proposed updated from the time it is started. It is anticipated that some updates will begin before others and no dates are given as it is difficult to predict when the work will be approved and therefore when it will be completed. This section includes consultation for each proposed update

4. Documents Affected

Indicates the Source Water documentation that will be modified as a result of the proposed update – e.g. Assessment Report, Source Protection Plan (text and/or polices), Explanatory Document, online maps

Unless otherwise indicated, the proposed updates can be completed by ERSPA staff in consultation with various stakeholders (e.g. Provincial Ministries, municipalities, and staff from other Source Protection Regions/Authorities with similar updates). The costs associated with the proposed updates will be to support the capacity of staff required to complete the proposed updates.

Provided that the proposed updates and capacity are approved and funded, the ERSPA anticipates that the resulting updated Assessment Report (AR), Source Protection Plan (SPP), and Explanatory Document will be submitted for approval to the Ministry of the Environment Conservation and Parks (MECP) on or before December 31, 2023. Consultation with affected stakeholders will occur during the process of each proposed update and for the whole suite of updates prior to submission. Should any of the proposed updates prove to be more urgent, the ERSPA in consultation with

municipalities will determine whether locally initiated amendments under Section 34 of the *Clean Water Act* are required to address issues prior to the proposed submission of the S. 36 update.

The ERSPA submitted this workplan to the MECP for review on November 30, 2018. Once the review is complete, a new S. 36 Order will be issued to the ERSPA outlining required actions and timelines for submission.

3.1 UPDATES RELATED TO ENVIRONMENTAL MONITORING

3.1.1 Proposed Update 1: Re-assessment of identified drinking water issues

Description:

The Assessment Report (AR) includes an assessment of existing drinking water issues that were identified for each of the drinking water intakes in the Essex Region. Drinking water issues are defined as the presence of specific contaminants at a concentration that may result in the deterioration of the quality of water for use as a source of drinking water. The data evaluated for this exercise were from the Drinking Water Surveillance Program (DWSP) from 1987 to 2006. The most recent reassessment was done in 2010. The most common issues identified were turbidity, aluminum and organic nitrogen. Based on responses to municipal surveys, four of the seven Water Treatment Plants (WTPs) in the Essex Region have indicated that they no longer consider one or more of the identified parameters to be an issue. None of the WTPs indicated that they have observed any new drinking water issues. When the AR was approved, the sources of the identified issues were unknown. Because there were no studies available at the time to show that the sources of the issues were wholly or partially anthropogenic, no issue contributing areas were delineated and no policies were included in the Source Protection Plan.

Please see section 2.1 for more information.

Update Procedure:

The drinking water issues identified in the AR for each WTP in the Essex Region will be reevaluated with more current data to determine whether they continue to be drinking water issues. The data will be evaluated using the Proposed Issues Evaluation Methodology Report that was adopted by the Essex Region SPC in July 2009. A comprehensive review of any available additional studies and/or reports will be completed to determine whether new information is available that indicates the sources of any of the identified drinking water issues.

Expected Timeframe for Completion:

It is expected that this task will take 4-6 months to complete and will include consultation with municipalities, DWSP staff and possibly university researchers.

Documents Affected:

The Assessment Report and the Source Protection Plan (policies) will be updated if sources are determined to be wholly or partially anthropogenic and the SPC determines that new policies are necessary.

3.1.2 Proposed Update 2: Microcystin as a drinking water issue

Description:

Harmful algal blooms (HABs) are an annual occurrence in the nearshore areas of Lake St. Clair and Lake Erie. The organisms that causes HABs are cyanobacteria, also known as blue-green algae (e.g. microcystis and anabaena) that produce toxins (e.g. microcystins), which can be harmful to human health. Based on responses to a survey circulated to municipal staff at WTPs, HABs are considered to be an operational concern for all seven of the WTPs in the Essex Region, including those in Lake St. Clair and the Detroit River. Microcystin-LR (a specific congener of microcystin) has already been identified as a drinking water issue for WTPs in Lake Erie and an assessment should be completed to determine whether microcystin-LR (or other congeners) should be identified as a drinking water issue for additional WTPs. The Assessment Report should also be updated to include information about the Domestic Action Plans produced by Federal, Provincial and State governments to reduce phosphorus, as well as research conducted on HABs since the time the AR was approved in 2014.

Please see section 2.1, section 2.8 and Appendix 4 for more information.

Update Procedure:

Microcystin data for each WTP in the Essex Region will be assessed to determine where it should be identified as a drinking water issue. The data will be evaluated using the Proposed Issues Evaluation Methodology Report that was adopted by the Essex Region SPC in July 2009. A comprehensive review of any available additional studies and/or government reports will be completed to ensure the AR is up to date.

Expected Timeframe for Completion:

It is expected that this task will take 6-8 months to complete and will include consultation with municipalities, DWSP staff and possibly university researchers.

Documents Affected:

Assessment Report, Source Protection Plan (text and policies)

3.2 UPDATES RELATED TO GROWTH AND INFRASTRUCTURE CHANGES

3.2.1 Proposed Update 3: Updates to descriptions of Drinking Water Systems in the Assessment Report

Description:

In the questionnaires circulated to municipal staff in June and September 2018, some planned or past changes to drinking water systems were identified, including changes in the population served, the expansion of distribution networks, the addition of a reservoir, and the decommissioning of an old water treatment plant. The AR will be updated to reflect these changes to ensure this information is up to date and accurate. No changes to the SPP or its policies are anticipated. There will be no new intakes installed prior to the completion of this S. 36 update (i.e. December 31, 2023)

Update Procedure:

Minor edits to the AR will be made as suggested by municipal staff through surveys. During the final consultation, municipalities will be asked to provide further updates if this information changes prior to the submission of the S. 36 update (December 31, 2023).

Expected Timeframe for Completion:

This update can be completed within 1 month.

Documents Affected:

Assessment Report

3.2.2 Proposed Update 4: IPZ delineation for Pelee Island intakes

Description:

In 2015, the Pelee Island West Shore WTP underwent upgrades that included the installation of a new emergency intake. The delineation of the IPZ-1 and IPZ-2 was not updated at that time.

Update Procedure:

Delineations of the IPZ-1 and IPZ-2 for the Pelee Island West Shore WTP will be evaluated using existing methodology following the latest version of the Director Technical Rules to ensure that the delineations are accurate given the changes made to the location of the intakes. Any changes to the delineations are expected to be minor.

There are currently no policies in the Essex Region SPP to address SDWTs for these intakes. The IPZ-3 is not expected to change as a result of this update.

Expected Timeframe for Completion:

This update can be completed in 6-8 months.

Documents Affected:

Assessment Report (maps)

3.3 UPDATES RELATED TO IMPLEMENTATION CHALLENGES

3.3.1 Proposed Update 5: NASM policies

Description:

Policies 8 -11 (W2applNASM-1, W2storageNASM-1, W1L1A1-applicationNASM-1, and W1L1A1-storageNASM-1) are related to the Application and/or Storage of Non-Agricultural Source Material (NASM). The intent of these policies was misinterpreted by the implementing body (MECP) and as a result, were not implemented. The MECP has provided suggested edits to the policy text to ensure that these policies are included in future reviews of Environment Compliance Approvals for off-farm storage and the application of NASMs in vulnerable areas.

The MECP was made aware of these policies, however if implementation continues to be problematic, other options will be explored to expedite this update (i.e. updates using section 51 of O. Reg. 287/07).

Update Procedure:

ERSPA staff will correct the policies and circulate them via email to MECP for review.

Expected Timeframe for Completion:

This update can be completed within 2 months.

Documents Affected:

Source Protection Plan (policies only)

3.3.2 Proposed Update 6: Corrections to EBA delineation

Description:

Through implementation of the Part IV policies in the Essex Region SPP, it has become apparent that there are errors in the delineation of the Event Based Area (EBA). For each intake in the Essex Region, the EBA was defined as the combination of IPZ-1, IPZ-2 and

IPZ-3 for modelled activities (i.e. fuel spill with 2% benzene, and a volume of 34,000 L). The extent of the IPZ-3 was determined by consultants who modelled spills at various locations throughout the Essex Region. The modelling showed that even fuel spills in the headwaters of a watershed had the potential to reach a drinking water intake. As a result, it was determined that spills of liquid fuel above certain threshold volumes (e.g. 15,000 L, 34,000L, etc.) are a SDWT at any location close to a transport pathway (i.e. watercourse) throughout the Essex Region from the headwaters to the mouths of each watershed.

The IPZ-3 was delineated using a pre-existing watercourse layer coupled with the Essex Region Conservation Authority's Limit of Regulated Area (LORA). The IPZ-3 was delineated as a 120m setback from all watercourses in the ERSPA or to the extent of the LORA if it exceeded the 120m setback, according to the Director Technical Rules. This was completed as a GIS exercise using the best available information at the time; ground-truthing was not conducted to confirm its accuracy. The IPZ-3 was then merged with the IPZ-1 and IPZ-2 delineations to create the EBA (see Figure 2).

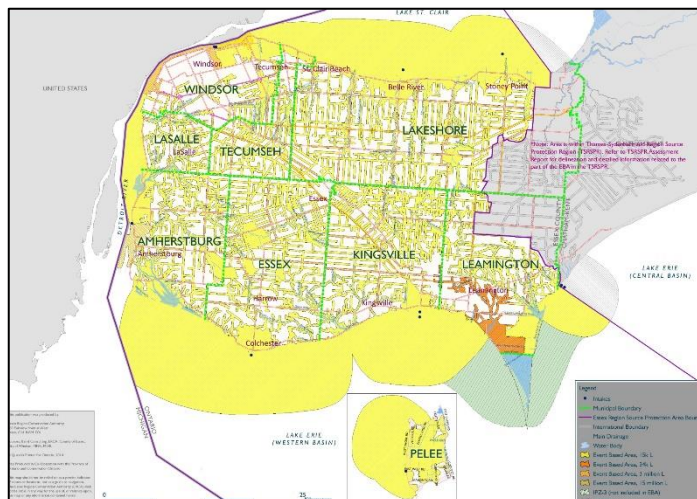


Figure 2 - The extent of the Event Based Area in the Essex Region

When the RMOs completed their threat verification site visits, they noted errors in the delineation of the IPZ-3:

- Type I: The IPZ-3 has been delineated where there is no watercourse,
- Type II: No IPZ-3 was delineated where there is a watercourse, OR
- Type III: The IPZ-3 was incorrectly delineated

Type I errors are to be expected if the GIS stream layer used included drains that have since been buried and are now tile drains. Type II errors are to be expected as the GIS layers available cannot capture all existing watercourses (including natural and artificial drainage), particularly in the Essex Region where artificial drainage is common. Type III errors occur where the location of a watercourse may have been modified through artificial drainage.

Additionally, through consultation with municipalities as well as Class EA applications that have been reviewed since the Essex Region SPP came into effect, it has come to light that some changes either to sewer drainage networks or open municipal drains (agricultural drains) have already occurred or are planned for the future. Changes in the location of any open watercourse could result in a need to update the delineation of the EBA. These changes may be able to be tracked through O. Reg. 287/07 S. 27(3), which requires the notification of a proposal for new or modified transport pathways.

Finally, the Updated Director Technical Rules include modifications to a set of Rules governing the delineation of IPZs. As yet, the effect of these Rules on IPZ delineation in the Essex Region is unknown

Please see section 2.5.2, section 2.6.2a, and Appendix 3 (SPC report 02/18 for more information

Update Procedure:

ERSPA staff have begun discussions internally and with MECP to determine the most appropriate method to correct the delineation of the EBA that will be efficient, accurate, and will allow for future corrections as needed. Several options will be considered, and the resulting method may be a combination of the following:

- Ground truthing the delineation of the IPZ-3
- Creating a method to collect information about the changes made to transport pathways that would affect the delineation of IPZ's (e.g. removal, addition or modifications to the location of open watercourses; changes/expansions to sewer sheds)
- Delineating the IPZ-3 using a more up to date watercourse layer that includes natural and artificial drainage. This layer would need to be created based on the best available current information and frequently updated.
- Creating a text-based policy that defines the EBA as a setback from watercourses. Currently the EBA is a static line that must be updated whenever changes are made to transport pathways. Creating a text-based policy would allow for more flexibility and accuracy when implementing the policies in the Essex Region SPP. The ERSPA is in a unique position to create such a policy

because the EBA is already so extensive and includes the entire extent of each watershed in the ERSPA. This option would require considerable consultation and support from the MECP and municipalities to determine the best approach.

- Considering the new and/or modified Director Technical Rules related to the delineation of IPZ's, including updated definitions and conditions for setbacks (see section 2.6.2a of this report for more details).

Throughout this process, local drainage superintendents will be engaged in order to determine an effective method to ensure that ERSPA staff are informed of changes to drainage infrastructure and to ensure that we have the most up to date GIS layers reflecting the correct position of drains and natural watercourses. In addition to the existing source protection staff, this exercise will also require input from other members of ERCA's staff, including GIS Technicians, the Watershed Engineer, and the Watershed Planner. No further modelling work will be necessary.

Expected Timeframe for Completion:

It is expected that this task will take 12-18 months to complete, with the majority of time spent on developing an appropriate method to update the delineation of the IPZ's. Once this exercise is complete, future updates may be done in less time. Consultation with MECP and municipalities will occur throughout this process. Consultation with newly affected landowners will be conducted once the delineation of the area is complete.

Documents Affected:

The Assessment Report, Source Protection Plan (text and policies), Explanatory Document, and online maps.

3.3.3 Proposed Update 7: Transport pathway policies

Description:

Notifications for the creation or modification of transport pathways is required under O. Reg. 287/07 s. 27(3). To date, very few such notifications have been received. The Essex Region SPP does not contain any policies related to transport pathways and a formal notification process has not been established.

Update Procedure:

A review of internal processes will be conducted to determine an appropriate method for notification. A new policy requiring municipalities to submit a notice of new or modified transport pathways may be considered if the SPC determines it to be necessary.

Expected Timeframe for Completion:

This update can be completed within 3-4 months, and will include consultation with internal staff and local drainage superintendents to determine an appropriate method for notification of the creation or modification of transport pathways. Additional time for consultation with municipalities may be required if the SPC deems it necessary to create a new policy.

Documents Affected:

The Source Protection Plan (text and policies) if it is determined that a new policy is required

3.4 UPDATES RELATED TO DIRECTOR TECHNICAL RULE AND TABLE OF DRINKING WATER THREATS - MANDATORY

3.4.1 Proposed Update 8: Delineation of Significant Groundwater Recharge Areas

Description:

Technical Rule 45 has been updated to better reflect the methodology that was used to delineate Significant Groundwater Recharge Areas. The original methodology used in the Essex Region can be found in Chapter 4 (section 4.1.3) and Appendix IV of the Assessment Report and appears to be in line with the intent of the update to Technical Rule 45. The delineations will be checked to ensure compliance with this Rule and the text of the AR will be updated to provide further clarity and detail about the interpretation and execution of Rules 44 and 45.

Please see section 2.6.1a for more information

Update Procedure:

ERSPA staff will review the original methodology used to delineate the SGRAs. Hydrological connection to water wells can be tested by repeating the GIS overlay exercise described in the AR if the dataset used for the well locations at that time is still available. Any discrepancies can then be examined (e.g. SGRAs that do not intersect with a water well). Once satisfied that the delineation of the SGRAs in compliance with the current Director Technical Rules, the AR will be updated to include a description of this exercise.

Expected Timeframe for Completion:

This update can be completed within 5-6 months. *Proposed Update 8* and *Proposed Update 9* are closely linked and may be completed simultaneously or consecutively depending on the nature and complexity of work required.

Documents Affected:

The Source Protection Plan (maps), Assessment Report (text and maps), and online maps.

3.4.2 Proposed Update 9: Vulnerability of Significant Groundwater Recharge Areas (SGRAs)

Description:

Technical Rules 80 and 81, which describe the method for calculating the vulnerability score for SGRAs was removed. As a result, the vulnerability score will be removed from all current and updated delineated SGRAs in the Essex Region.

Please see section 2.6.1b for more information

Proposed Updates:

Mapping currently includes separate polygons for each score (2, 4 or 6) for SGRAs, these will be combined into a single polygon for each SGRA. A GIS exercise will be completed to merge existing polygons for each SGRA into a single polygon with no associated vulnerability score. The maps included in the AR, SPP and online will then be updated with this new information. Policies in the SPP will be updated to remove any reference to SGRAs and the AR will be updated to reflect these changes.

Expected Timeframe for Completion:

This update can be completed within 1-2 months. *Proposed Update 8* and *Proposed Update 9* are closely linked and may be completed simultaneously or consecutively depending on the nature and complexity of work required.

Documents Affected:

The Source Protection Plan (text, policies and maps), Assessment Report (text and maps), and online maps.

*Due to the use of the maps depicting Significant Groundwater Recharge Areas in many municipal Official Plans, ERSPA staff will share the updated Significant Groundwater Recharge Areas mapping to municipalities for inclusion in their Official Plans (OPs) at the next cyclical OP update (approximately every 5 years).

3.4.3 Proposed Update 10: Liquid Hydrocarbon Pipelines

Description:

Liquid hydrocarbon pipelines were added as a Prescribed Drinking Water Threat through an amendment made to the General Regulation (O. Reg. 287/07) under the Clean Water Act on July 1, 2018. As a result, pipelines will now be considered significant, moderate or

low threats to drinking water in certain vulnerable areas in the Essex Region, as determined by the Table of Drinking Water Threats.

Please see section 2.6.1d for more information

Expected Actions:

A risk assessment will be completed using the threat scoring method to determine the conditions under which pipelines will be considered a significant, moderate or low threat and the vulnerable areas to which these conditions apply in the Essex Region. In addition, the SPC will review the available information to determine whether new policies are required for existing or future threats. The Assessment Report, Source Protection Plan and Explanatory Document will be updated accordingly.

Expected Timeframe for Completion:

This update can be completed within 2-3 months, with the majority of time being spent on consultation. New policies may require additional time and consultation.

Documents Affected:

The Source Protection Plan (text and policies), Assessment Report, and Explanatory Document.

3.4.4 Proposed Update 11: Handling and Storage of Fuel policies

Description:

The hazard score for the handling and storage of fuel was increased from 8 to 10, resulting in the identification of SDWTs under specific circumstances for certain vulnerable areas. There are also changes to the circumstances under which the handling and storage of fuel is considered to be a moderate or low threat.

Update Procedure:

A risk assessment will be completed using the threat scoring method to determine the conditions under which the handling and storage of fuel will be considered a significant, moderate or low threat and the vulnerable areas to which these conditions apply in the Essex Region. The Assessment Report, Source Protection Plan and Explanatory Document will be updated accordingly.

Existing policies for the above grade handling and storage of fuel will be updated to include the newly identified circumstances for SDWTs. New policies will need to be developed for the storage of fuel in partially below grade tanks. Consultation will be necessary for both changes. Once the policies are established, the AR will be updated

with the new information related to these threats, including the identification of existing threats.

Expected Timeframe for Completion:

This update can be completed within 2-3 months, with the majority of time being spent on consultation. New policies for below grade fuel storage may require additional time and consultation.

Documents Affected:

Source Protection Plan (text and policies), Assessment Report

3.5 UPDATES RELATED TO DIRECTOR TECHNICAL RULE AND TABLE OF DRINKING WATER THREATS – ENABLING PROVISIONS

3.5.1 Proposed Update 12: Application of Technical Rule 95.1 for Great Lakes intakes

Description:

The 2017 version of the Director Technical Rules includes a new rule 95.1 that allows for the Source Vulnerability Factor (SVF) to be reevaluated and potentially increased based on the depth of an intake, its distance from shore and whether there are preexisting water quality issues.

Please see section 2.6.2b and Appendix 3 for more information

Update Procedure:

While this exercise appears to be a simple mathematical exercise, there are many factors that complicate rescoring the SVF of drinking water intakes (e.g. determining values for depth and distance from shore that result in higher vulnerability; whether those values differ for each water body; how water quality issues are factored into the determination of the SVF). Once a methodology has been determined, ERSPA staff will apply it to our Great Lakes intakes in consultation with our local Water Treatment Plants, other appropriate municipal staff, and neighbouring SPAs. If the SVF for any intake is changed as a result of this exercise, the threat look up tool will be used to identify significant, moderate and low drinking water threats, and the SPC will determine appropriate policy approaches to address these threats.

Preliminary analysis of this rule change suggests that the SVF may be increased for the Wheatley WTP (this intake is located in the Thames-Sydenham and Region SPR, but its vulnerable areas extend into the Essex Region SPA), Pelee West Shore WTP, and the Union Water Supply System WTP (see Appendix 3 (SPC Report 01/18)).

ERSPA staff as well as those at other SPAs affected by this new rule have proposed the need for a Technical Working Group, which would include Project Managers, CA technical staff, MECP technical staff, and representation from Water Treatment Plants to discuss appropriate methodologies for rescoring intakes.

Expected Timeframe for Completion:

It is expected that this task will take 18-24 months to complete, including time for consultation and the development of new or updated policies. If the initial analysis reveals that there is no need to change the SVF for our intakes, this task will be completed in a shorter timeframe. Additional costs for travel to working group meetings may be required.

Documents Affected:

If the SVF is increased for any drinking water intakes, the Source Protection Plan (text, policies and maps), Assessment Report, Explanatory Document and online mapping will be affected.

3.5.2 Proposed Update 13: Re-evaluate the status of Conditions

Description:

The 2017 version of the Director Technical Rules includes clarification of several rules related to the identification of preexisting sediment and groundwater Conditions as SDWTs. The Essex Region Assessment Report and Source Protection Plan will be reviewed to ensure there is no impact of these updated rules.

Please see section 2.6.2c for more information

Update Procedure:

ERSPA staff will review previous documentation related to the identification of Conditions to determine whether the updated Technical Rules would result in any changes to the text of the Assessment Report or identification of Conditions as SDWTs. As part of the consultation for the development of this workplan, a survey was circulated to municipal staff at Water Treatment Plants (WTPs) in the Essex Region. In this survey, the definition of 'Condition' was provided and municipal staff were asked to indicate whether they were aware of any pre-existing Conditions resulting from past activities that are a source of contamination for their WTP. Responses were received from all WTPs and none indicated the presence of pre-existing Conditions. This information will be used in our assessment of the updated Director Technical Rules.

Expected Timeframe for Completion:

It is expected that this task will take 2-3 months to complete and will be done concurrently with other updates.

Documents Affected:

Assessment Report

3.5.3 Proposed Update 14: Incorporation of climate change into water quality risk assessments

Description:

A Technical Working Group has developed a climate change risk assessment in order to evaluate risks to drinking water intakes as a result of climate change. The proposed approach is under review; therefore, this Proposed Update is added as a placeholder to allow for the completion of this work at a later date. Completion of this exercise will be optional.

Regardless of the outcome of the exercise described above, there has been new work completed on climate change in the Essex Region that should be incorporated into the Assessment Report (Chapter 10 'State of Climate Change Research in the Great Lakes Region'). Municipalities have begun to complete climate change adaptation and mitigation strategies and ERCA has hired a new Climate Change Specialist to lead the development of a regional climate change plan.

Please see section 2.6.2f for more information

Expected Actions:

Once provided, the worksheets will be evaluated and completed to determine the risk factors associated with climate change for the drinking water intakes in the Essex Region SPA. Any resulting updates to the Assessment Report and Source Protection Plan will be made at that time.

ERSPA will work with the Climate Change Specialist to update the Assessment Report to include recently completed and ongoing work on climate change in the Essex Region.

Expected Timeframe for Completion:

Unknown at this time.

Documents Affected:

The Assessment Report will be updated. Depending on the outcome of the proposed climate change risk assessment, the Source Protection Plan may also be updated.

3.5.4 Proposed Update 15: Minor edits and corrections to the SPP and AR

Description:

During the review process, ERSPA staff noted several sections of the text in the SPP and AR that will require minor updates as a result of this S. 36 update. This includes updates such as the dates for consultation and approvals, threats enumeration tables, etc.

Please see section 2.9 for more information

Update Procedure:

ERSPA staff will review the Source Protection Plan, Assessment Report and Explanatory Document during and upon completion of all updates to ensure that all sections are up to date and accurate.

Expected Timeframe for Completion:

This update will be done concurrently and at the completion of this S. 36 update.

Documents Affected:

Source Protection Plan, Assessment Report, Explanatory Document

3.6 PROJECT MANAGEMENT AND MECP SUPPORT FOR UPDATES

The MECP provides support through its capacity funding under the DWSP program, technical bulletins, guidance, and feedback, and this support for local program delivery is acknowledged.

The continuation of support by MECP will be necessary to undertake the proposed updates under S. 36, and the required consultation. This includes ERSPA staff capacity and expertise, SPC meetings, municipal working group meetings, and stakeholder engagement workshops prior to submission of the completed S. 36 update. The ERSPA recommends that current staff levels within be at least maintained in order to carry out the proposed updates through 2023.

4.0 WORKPLAN CONSULTATION

During the development of this S. 36 workplan, there were several opportunities for consultation and comment from the SPC, municipalities and/or the MECP, including:

- SPC meetings held in 2018 on January 10, April 11, August 8 and October 10. The SPC received technical reports and presentations by ERSPA staff to facilitate discussion of the content in this workplan. The SPC were also given the opportunity to review the draft workplan prior to and during the official consultation period.
- Municipalities received surveys on June 22, 2018 and September 7, 2018 that provided material used in the development of this workplan
- Three municipalities also requested in person meetings in summer 2018 where both the S. 36 workplan and Risk Management Services were discussed
- The draft S. 36 workplan was circulated for consultation to municipalities, the SPC and the MECP on September 5, 2018 with comments requested by September 28, 2018.
- The Source Protection Authority receive the draft final S. 36 workplan on November 8, 2018 for endorsement

5.0 CONCLUSION

The ERSPA has developed this workplan in accordance with S. 36 order issued by the MECP. It contains a detailed analysis of several factors including results of environmental monitoring, changes to infrastructure, policy implementation challenges, Technical Rule changes and other local considerations. The resulting workplan includes 15 Proposed Updates that are necessary in order to ensure that the sources of drinking water in the ERSPA are adequately protected and that the information in the Assessment Report and Source Protection Plan is up to date and accurate. The overall timeline for submission of the updated Assessment Report and Source Protection Plan to the MECP is expected to be on or before December 31, 2023.

6.0 REFERENCES

- Source Protection Plan Bulletin – Overview of Requirements for Assessment Report and Source Protection Plan amendments under S. 36 of the *Clean Water Act* (December 2016); and
- Overview of requirements for amendments under S. 36 of the *Clean Water Act* (Supplemental Bulletin #3 – Updates to Director Technical Rules and Tables of Drinking Water Threats (July 2018).
- Source Protection Bulletin: ‘New administrative amendments and prescribed threats under the *Clean Water Act*’ that was circulation in August 2018.
- Supplemental Information #2 – Prohibition of Agricultural Activities Outside WHPA-A OR IPZ-1)

7.0 APPENDICES

Appendix 1: Section 36 order issued to the Essex Region Source Protection Authority by the MECP on April 15, 2015

Appendix 2: Municipal surveys used in the development of the Essex Region Section 36 workplan

Appendix 2: Source Protection Committee reports referenced in the Essex Region Section 36 workplan

Appendix 4: ERCA Water quality reports referenced in the Essex Region Section 36 workplan

Appendix 5: Acronyms used in the Essex Region S. 36 workplan