



SPC Meeting



Diane Bloomfield, Project
Manager

February 10, 2015

Auditor General Value For Money Audit

1. source water protection plans are reviewed, approved and implemented in a timely manner
2. develop a strategy that addresses timely updates of the plans
3. ensure that the data and assumptions used in its framework for assessing the significance of threats to drinking water intakes are current and properly enable significant threats to be classified as such
4. complete an inventory of all conditions and near-shore activities around Great Lakes that pose a threat to the intakes, assess the conditions, and incorporate into the protection plans ways of dealing with these threats
5. consider the feasibility of requiring source protection plans to identify and address threats to sources of water that supply private wells and intakes and threats that abandoned wells may pose to sources of groundwater; and notify private well owners of water quality issues in their area

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6. ensure all eligible municipalities are identified before distributing funds
 7. develop an approach to gather information on the total number of farms in the province that need to manage nutrients in accordance with the *Nutrient Management Act* and its regulations
 8. phase in the remaining farms in Ontario that generate or apply nutrients so that they also must adhere to the requirements of the *Nutrient Management Act* and its regulations
 9. enforce *Nutrient Management Act* via prioritized inspection targets, follow-up on non-compliance and punitive measures
 10. recover costs of program via fees for industrial and commercial users of water and use results of water budget program when issuing permits to take water



Comments Received During SPC Consultation



Table 7.2 Significant threats to the source water quality of the Halton Region Source Protection Area municipal wells

Drinking Water Threat	Number of Occurrences						
	Freelton FDF01	Freelton FDF03	Carlisle	Walkers Line	Campbellville	Kelso	Cedarvale
Sewage system operation	15P	11P	36P		36P	2C 6P	4C
Agricultural source material - application			2P			1P	
Agricultural source material - storage						1C 2P	
Commercial fertilizer - storage						1C	
Pesticide - application			4C			4C	
Fuel – handling and storage		6C				4C	
Land associated with livestock		1C 1P	1C 1P			1C 3P	
Road salt - application							5C

Oil Pipeline Policies

L-1-S Where the conveyance of oil in pipelines across open water bodies is an existing significant threat to lake-based drinking water sources,

- a. fuel pipeline owners are recommended to conduct inline pipeline integrity testing and visual inspections of pipeline crossings at open water bodies at a frequent timing of every three years.
- b. the Source Protection Department of the Conservation Authorities shall consult with fuel pipeline owners to determine if pipeline integrity testing and visual inspections have occurred and to request a report on the findings of the testing and inspections, and actions taken.

Proposed by Sun-Canadian

- a. fuel pipeline owners are recommended to consider the potential impacts of pipeline spills on municipal water sources when determining frequency of inline pipeline inspections and visual inspections of pipeline crossings at an open water body.
- b. The Source Protection Department of the Conservation Authorities shall consult with regulators to develop, review and recommend necessary improvements, risk reduction, and contingency plans.

Oil Pipeline Policies

- L-2-S** To reduce the risks to drinking water sources from the construction of pipelines conveying oil across open water bodies,
- a. the National Energy Board and the Ontario Energy Board in their consideration of any oil pipeline application where this activity would be a significant drinking water threat are requested to ensure that the applicant has complied with or included appropriate design standards, monitoring, and maintenance practices that when implemented will prevent a pipeline from becoming a significant drinking water threat.
 - b. the Source Protection Department of the Halton Region and Hamilton Conservation Authorities shall consult with the National Energy Board and the Ontario Energy Board to determine if pipeline design standards and the requirements for monitoring and maintenance practices in vulnerable areas consider drinking water source protection.

Oil Pipeline Policies

T-52-C/S Where discharges from sewage treatment plants, the handling and storage of fuel, and the conveyance of oil in a pipeline that crosses an open body of water are existing significant drinking water threats to Lake Ontario municipal intakes,

- a. the Ministry of the Environment and Climate Change shall provide mapping of intake protection zones three and the locations of known significant threats to the Spills Action Centre, and if necessary modify procedures to ensure that the operators of all water treatment plants that could be affected by a spill are notified.
- c. the owners of facilities where these significant drinking water threats have been identified are requested to update emergency preparedness/contingency plans to include the location of municipal intakes, actions to be taken to protect drinking water sources should an incident occur, and the requirement for inclusion of the protection of drinking water sources in emergency preparedness exercises.

Policy T-49-S

T-49-S To raise awareness of mapped drinking water sources and seek collaboration on the use of best practices for the application of road salt where this activity would be a future significant threat on private properties,

- a. de-icing contractors are requested to develop and/or amend their salt management plans for private properties to identify the location of wellhead protection areas and intake protection zones, and to use best management practices to protect drinking water sources within these areas.

Statement used by TCC on threat area maps

These activities can be significant drinking water threats only if carried out in a vulnerable area that exceeds threshold values of the following parameters: percent managed land and livestock density for commercial fertilizer application, and total impervious surface area for road salt application (refer to Assessment Report maps).

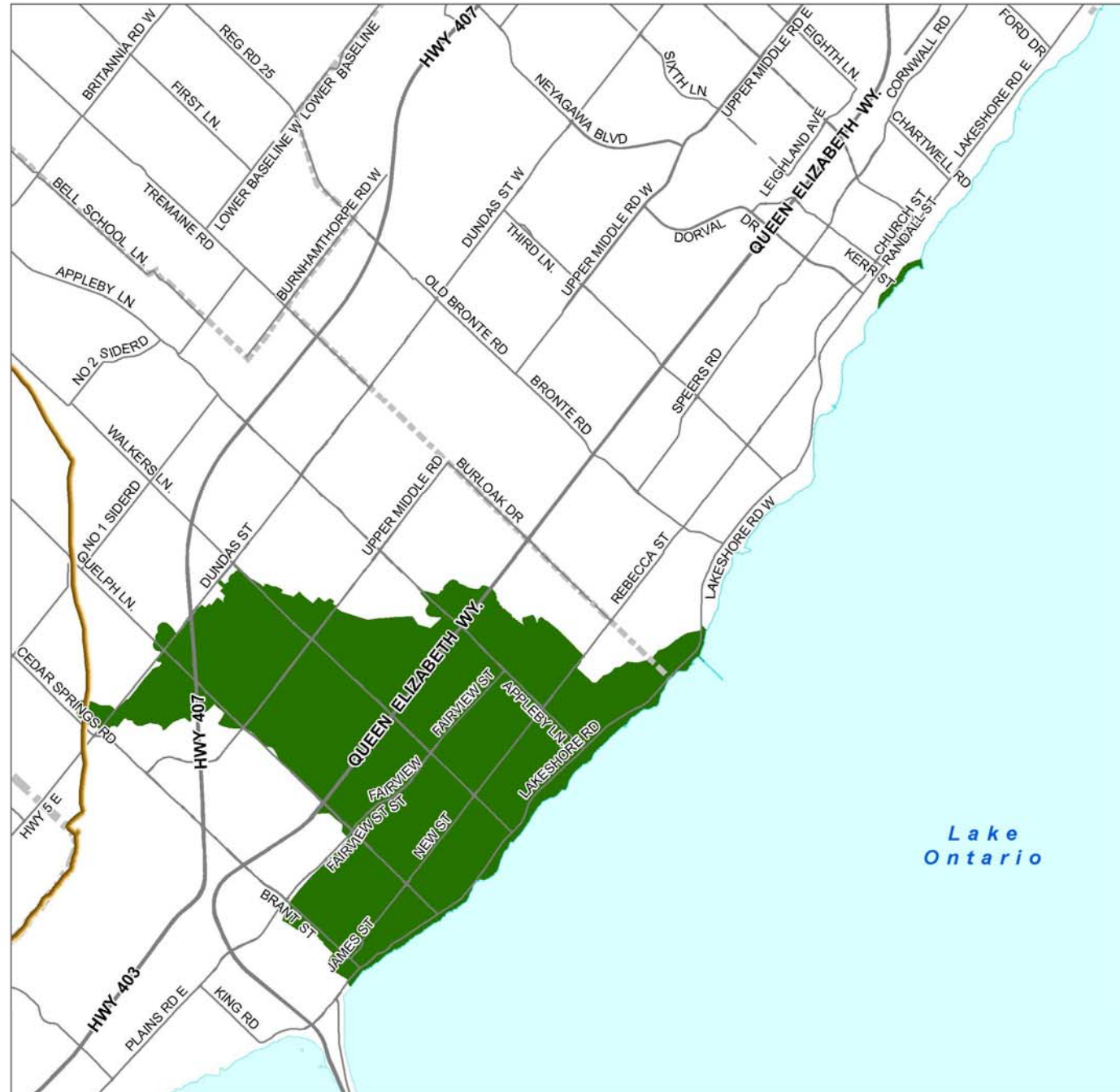


Figure 13
Current Road Salt Application Policy Area
Halton Area Intake Protection Zone

Legend

- Upper Tier Municipality
- Lower Tier Municipality
- Niagara Escarpment
- Roads**
- Highway
- Regional
- ☪ Waterbody
- Road Salt Application Policy - Current

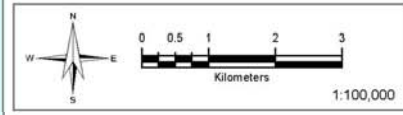
For policies that apply in areas that have low or moderate risk

Current : Based on existing imperviousness densities

Source : Ministry of Natural Resources, SOLRIS (2000), and Municipal Property Assessment Corporation Property Information (2007).

Projection : UTM NAD 83 Zone 17

Date : November 2014



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Policy T-3-C revision

T-3-C Where the future establishment of waste disposal sites within the meaning of Part V of the *Environmental Protection Act* would be a significant drinking water threat with the following specific activities occurring - application of untreated septage to land; storage, treatment and discharge of tailings from mines; landfarming of petroleum refining waste; landfilling of hazardous waste; landfilling of municipal waste; landfilling of solid, non-hazardous, industrial or commercial waste; injection of liquid waste into a well; polychlorinated biphenyls (PCB) waste storage; and storage of hazardous waste,

- a) the Region of Halton, Town of Milton, and the City of Hamilton shall prohibit through amendments to *Planning Act* tools the establishment of waste disposal sites.

Snow storage

T-39-C Where the future storage of snow would be a significant drinking water threat in an issue contributing area,

- a. the municipal planning authority shall require at site plan approval that best management practices for site design to protect drinking water sources be included to manage snow storage and the associated melt water at snow storage facilities **at or above grade of between 0.01 and one hectare in size.**

Table 17: Simulated additional drawdown at the municipal wells for Scenarios D and H.

Well	Aquifer	Safe Additional Drawdown (m)	Additional Drawdown (m)			
			Scenario D	Scenario H(1)	Scenario H(2)	Scenario H(3)
Kelso Well 3	TAC	30.02	5.15	11.82	11.99	6.27
Kelso Well 4	INS/TAC	24.03	5.51	13.43	13.39	6.88
Kelso Well 5	INS/TAC	24.08	5.05	13.06	13.26	5.68
Kelso Well 6	INS	26.37	6.03	11.10	11.34	6.99
Campbellville Well 1	INS	1.92	1.49	1.79	1.78	1.61
Campbellville Well 2A	INS	2.74	1.49	1.70	1.68	1.57

Notes: Additional drawdown values calculated using monthly average head for October 1956 of Scenario D as baseline. Values include corrections for convergent head losses and non-linear head losses. Kelso Wells 4 and 5 are screened across the INS and TAC. Takings from these wells were simulated by distributing pumping between the two layers: 50% and 50% for Well 4 and 70% and 30% for Well 5 INS and TAC, respectively.

Appendix D.3

Local Area – Significant Risk	
Scenarios	Circumstances
<p>Scenario C Existing demand, existing land use, average climate</p> <p>Scenario D Existing demand, existing land use, 10-year drought</p>	<p>At any time, in either the steady-state or transient scenarios (C and D), the existing groundwater supply system within the local area wells is not able to meet existing demand. This circumstance would be identified by simulated water levels at a well falling below the safe water level.</p> <p>The tolerance of the groundwater supply system is considered to be low, based on its inability to meet the existing peak demands. The assignment of low tolerance is generally associated with an existing municipal system that has historically experienced water quantity shortages.</p>
<p>Scenario G(1), G(2), G(3) Allocated plus Planned demand, projected land use, average climate</p> <p>Scenario H(1), H(2), H(3) Allocated plus Planned demand, projected land use, 10-year drought</p>	<p>At any time, in either the steady-state or transient scenarios (G and H), the groundwater supply system within the local area is unable to meet the simulated demand (existing plus committed plus planned). This circumstance would be identified by simulated water levels at a well falling below the safe water level.</p>
<p>Scenario G(2) Allocated plus Planned demand, projected land use, average climate</p>	<p>The difference between the Allocated and the Planned quantity of water would result in a reduction to flows or levels of water creating an unacceptable impact.</p> <p>The difference between the allocated and the planned quantity of water would result in a reduction in groundwater discharge to aquatic habitat that is classified as a cold water stream by an amount this is greater than:</p> <ul style="list-style-type: none"> (i) 20% of the estimated stream flow that is exceeded 80% of the time (Q_{P80}), or (ii) 20 % of the estimated average monthly baseflow of the stream.
Local Area – Moderate Risk	
<p>Scenario G(2) Allocated plus Planned demand, projected land use, average climate</p>	<p>The difference between the Allocated and the Planned quantity of water would result in a reduction to flows or levels of water creating a measurable and potentially unacceptable impact.</p> <p>The difference between the Allocated and the Planned quantity of water would result in a reduction in groundwater discharge to aquatic habitat that is classified as a cold water stream by an amount this is:</p> <ul style="list-style-type: none"> (i) at least 10% but not greater than 20% of the estimated stream flow that is exceeded 80% of the time (Q_{P80}), or (ii) at least 10% but not greater than 20% of the estimated average monthly stream baseflow. <p>The difference between the Existing and Allocated demand would result in a reduction to flows or levels of water creating a measurable and potentially unacceptable impact.</p> <p>The difference between the Existing and the Allocated demand would result in a reduction in groundwater discharge to aquatic habitat that is classified as a cold water stream by an amount this is:</p> <ul style="list-style-type: none"> (i) at least 10% of the estimated stream flow that is exceeded 80% of the time (Q_{P80}), or (ii) at least 10% of the estimated average monthly stream baseflow

Table comparison

Table 7.4 Lake Ontario cross-boundary significant threats (based on peak concentrations)

Threat Activity	Source of Significant Threat	Receptor of Significant Threat
Sewage system operation	Lakeview WWTP	Oakville, Burloak Intakes
	Ashbridges Bay WWTP	Oakville Intake
	Clarkson WWTP	Oakville, Burloak, Burlington Intakes
	Woodward Avenue WWTP	Burlington Intakes
	Mid-Halton WWTP	Lorne Park, Woodward Intakes
	Oakville SE WWTP	Lorne Park Intake

Table 7.3 Significant threats to the source water quality of the Halton Region Source Protection Area municipal intakes from local activities

Drinking Water Threat	Number of Occurrences		
	Burlington (2 intakes)	Burloak	Oakville
Sewage system operation	4P	3P	3P
Fuel – handling and storage	2C	2C	2C
Conveyance of oil in a pipeline that crosses an open body of water	2C*	2C*	2C*

Table 7.2 Significant threats to the source water quality of the Halton Region Source Protection Area municipal wells

Drinking Water Threat	Number of Occurrences						
	Freelton FDF01	Freelton FDF03	Carlisle	Walkers Line	Campbellville	Kelso	Cedarvale
Sewage system operation	15P	11P	36P		36P	2C 6P	4C
Agricultural source material - application			2P			1P	
Agricultural source material - storage						1C 2P	
Commercial fertilizer - storage						1C	
Pesticide - application			4C			4C	
Fuel – handling and storage		6C				4C	
Land associated with livestock		1C 1P	1C 1P			1C 3P	
Road salt - application							5C

Figure 6.3
Event-based Modelling
Intake Protection Zones, Significant Threats
Woodward Intakes

Legend

- Source Protection Region
- Source Protection Area
- Municipal Intake
- Niagara Escarpment
- Oil Pipeline
- Upper Tier Municipality
- Lower Tier Municipality

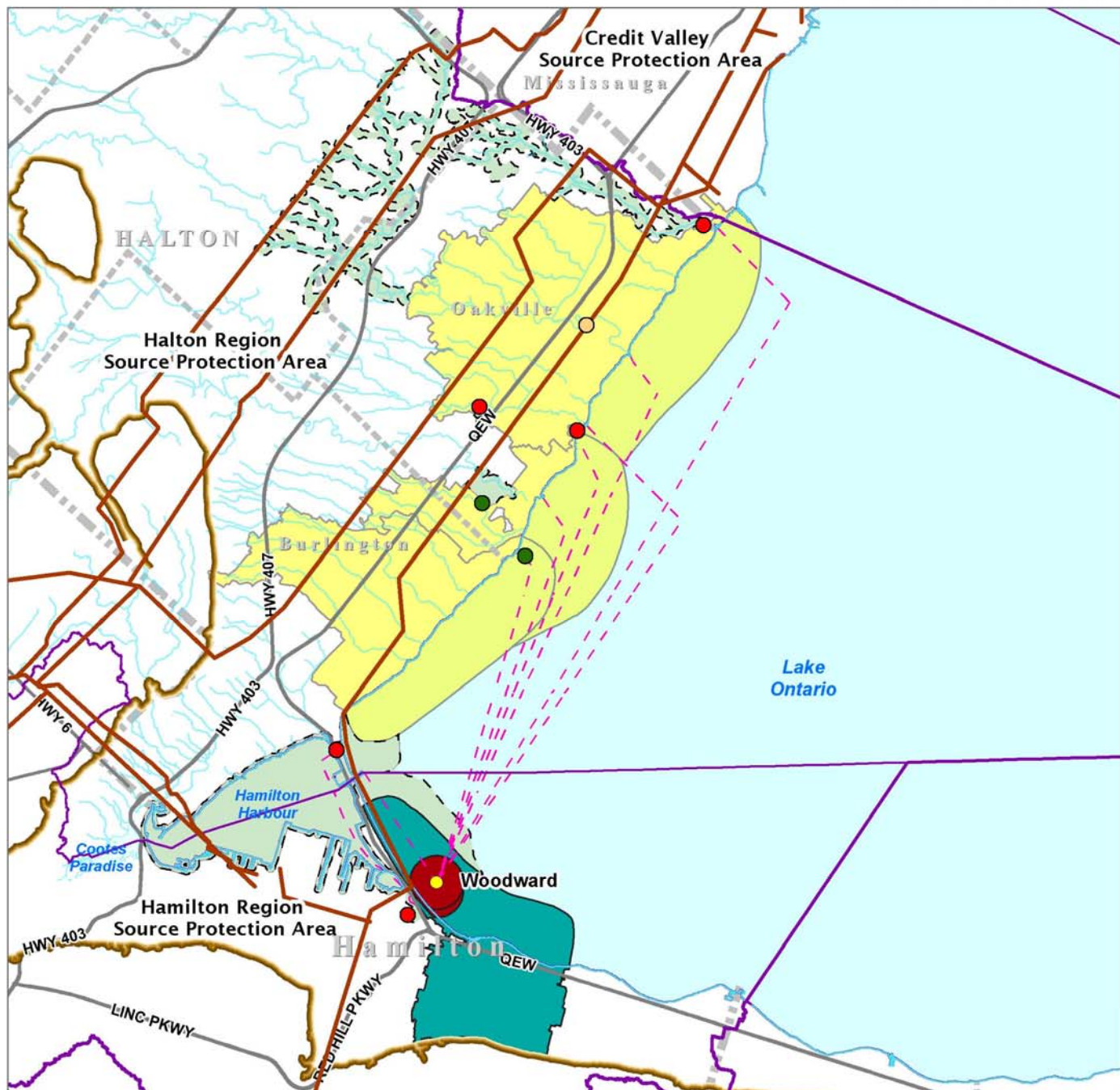
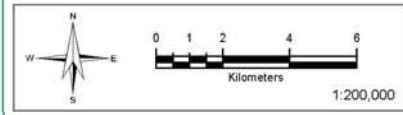
Roads

- Highway
- IPZ-1
- IPZ-2
- IPZ-3
- Other IPZ

Event-Based Modelling Significant Threats

- Conveyance of Oil in a Pipeline
- Fuel Handling and Storage
- Sewage System Operation
- Waterbody
- Activity impacting the source water of the intake

Projection : UTM NAD 83 Zone 17
Date : November 2014



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Next Steps and Next SPC Meeting

- Source Protection Authority meetings – presentation by Bob
 - Conservation Halton – March 26
 - Hamilton CA – April 2
- Submission of documents to MOE mid-April
 - Documents at that time or after approval?
- Begin Work on Amendment to Assessment Reports and Plan
 - Bring in results of Greensville Tier 3 study
 - Bring in results of City of Guelph Tier 3 study
 - Review water quantity policies and revise or add, as necessary
 - Update appendices
- Next meeting will be scheduled when Greensville and Guelph studies are complete and Lake Erie SPC has finalized water quantity policies