

10.12 LAKE ONTARIO THREATS

The Ministry of the Environment under the Director's *Technical Rules* for the preparation of assessment reports provided for the use of an event based modelling approach as a tool to identify activities that could be significant threats to drinking water sources in the Great Lakes. Any modelled activity which exceeds the threshold established by the local Source Protection Committee is deemed to be a significant threat. There is also a requirement to delineate an area known as an event based area (EBA) where the modelling approach supports the identification of the modelled activity as a significant threat within the entire EBA. Each modelled threat activity deemed significant has its own relevant EBA on land and is associated with one or more drinking water intakes. EBAs can exist in IPZ-1, -2 or -3 or a combination of these. Where the EBA extends beyond IPZ-1 and IPZ-2, an IPZ-3 must be created to capture this extent as EBAs must be within an IPZ. Source Protection Committees must develop policies to address these significant drinking water threats from existing or future threat activities within the delineated EBAs.

Where the activity was located near a tributary upstream from Lake Ontario, a separate assessment was done to estimate the travel of the contaminant to the lake. The three-dimensional model was used to simulate the contaminant pathway within Lake Ontario to assess potential concentrations at the intakes. In carrying out the events based modelling, no consideration was made to determine whether there are existing risk management measures in place to manage the threat or to assess the adequacy of any such measures. The SPC did consider the current regulatory controls in place in developing policies to address the threat. Using the events based modelling approach, the storage and handling of fuel and sewage systems have been identified as significant threat activities to Lake Ontario drinking water sources in specific event based areas within the CTC. The CTC SPC received approval from the MOE Director to add two additional local threats relating to Lake Ontario intakes. These activities were also assessed using the events based modelling approach:

- Pipeline transporting petroleum products (containing benzene) crossing tributaries of Lake Ontario; and
- Spill of tritium from a nuclear generating station.

10.12.1 All Threats

The following are general policies that apply to all significant threat activities identified for Lake Ontario intakes in the CTC.

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-G-1	All Lake Ontario Threats	MOECC	K	<p>Specify Action (Spill Prevention, Contingency Plans and Emergency Response)</p> <p>To protect drinking water sources from potential spills along highways, shipping lanes and railways, the Ministry of the Environment and Climate Change shall:</p> <p>a) in consultation with the Spills Action Centre and other appropriate bodies, update notification protocols for spills to ensure direct notification of all potentially affected water treatment plant operators and appropriate communication to the public and media;</p> <p>b) in consultation with the Spills Action Centre and the affected municipalities, review the notification protocol for significant threat activities and adjust the protocols as required to ensure that water plant operators are notified appropriately for a given magnitude of spill;</p> <p>c) ensure that information is communicated to all responsible parties (e.g., the originators of the spill, emergency response/clean-up personnel, medical officer of health, municipal water system owner and water system operating authority) who are responding to the spill;</p> <p>d) in consultation with the owners and operators of municipal drinking water systems, require that a Contingency Plan is developed, reviewed and/or updated under the Drinking Water Quality Management Standard to ensure that significant drinking water threats identified in the Assessment Report are included and amend the municipal drinking water license, as required;</p> <p>e) in consultation with the Office of the Fire Marshal and Emergency Management and other appropriate bodies, ensure that testing of the Contingency Plan is carried out within 3 years from the date the Source Protection Plan takes effect, followed by regular (frequency and priority to be determined in consultation) emergency response preparedness exercises to address the significant threats identified; and</p> <p>f) in consultation with appropriate bodies, promote spill prevention and share information about source protection with the public.</p>	EBA See Map 4.1	Existing & Future: Consider within 2 years (T-15) unless otherwise specified in the policy	LO-NGS-1 LO-SEW-1 LO-SEW-2 LO-PIPE-1 LO-FUEL-1	MON-4

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-G-2	<p>Significant/Moderate/Low Threats</p> <p>All Lake Ontario Threats</p>	MOECC	J K	<p>Specify Action (Lake Ontario Collaborative Group)</p> <p>The Ministry of the Environment and Climate Change will work in partnership with Environment Canada and municipalities responsible for providing water from systems with intakes in the western basin of Lake Ontario to establish and chair a Lake Ontario Collaborative Group (LOCG) focused on the western basin to undertake actions to support the implementation of policies to protect this source of drinking water.</p> <p>Within 1 year from the date the Source Protection Plan takes effect the LOCG should develop and approve Terms of Reference. The Terms of Reference should include but not be limited to defining roles, tasks, and responsibilities of the LOCG partners with respect to:</p> <p>1) Sharing information about Lake Ontario circulation and water quality monitoring, and where technically feasible:</p> <p>a) install permanent instrumentation (e.g., continuous recording current meters with wireless telephone link to MOECC Environmental Monitoring and Reporting Branch and the LOCG members) to provide real-time monitoring of current speed, direction and temperature throughout the water column for use with a 3-D Hydrodynamic Circulation Model for future forecasting of spills impact assessments and assessing spill prevention strategies;</p> <p>b) ensure that the real-time data are available to municipalities and conservation authorities; and</p> <p>c) undertake annual Lake Ontario nearshore water quality monitoring, and make the data available to municipalities and conservation authorities.</p> <p>2) Maintaining and further developing a 3-D Hydrodynamic Circulation Model or more advanced models as appropriate, with particular focus to the nearshore of Lake Ontario, to assess activities to determine their potential to be significant drinking water threats, including:</p> <p>a) maintaining specialized modelling expertise to undertake spills scenario modelling; and</p> <p>b) leading the development of typical lake circulation spill base cases to provide tools for quick assessments of spills, in real time, to provide early warning for emergency response and remedial action, including determining the parties to be notified in the event of a spill.</p> <p>(LO-G-2 continued on next page)</p>	<p>EBA See Map 4.1</p> <p>IPZ-1, 2 See Map 4.2</p>	See Policy	<p>LO-G-3</p> <p>LO-SEW-1</p> <p>LO-SEW-2</p> <p>LO-NGS-1</p> <p>LO-PIPE-1</p> <p>LO-FUEL-1</p>	MON-4

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-G-2 Cont'd	<p>Significant/ Moderate/ Low Threats</p> <p>All Lake Ontario Threats</p>	MOECC	J K	<p>(LO-G-2 continued from previous page)</p> <p>3) Using the model as a consistent approach to assess potential drinking water threats from:</p> <ul style="list-style-type: none"> a) other existing activities which might be a drinking water threat to one or more municipal drinking water system; b) assessing newly proposed activities which may pose a threat to one or more municipal drinking water systems at the proposal stage; and c) assessing impacts of climate change. <p>4) In the event of a spill use the model to assess and respond to potential water quality impacts at municipal water treatment plant intakes.</p> <p>5) Sharing environmental monitoring data and using modelling to inform research on topics such as, but not limited to:</p> <ul style="list-style-type: none"> a) the effectiveness of risk management measures and spill contingency measures; b) cumulative impacts of point and non-point sources of contaminants on nearshore water quality; and c) the effectiveness of Source Protection Plan policies in reducing the risk related to pathogens (not limited to <i>E. coli</i>), including identifying the pathogens and the respective densities at different times; assessing the associated risk at intakes due to pathogens in non-disinfected wastewater and other known specific sources of these pathogens; and undertaking quantitative microbial risk assessments, using a structured research and development design (such as based on the protocols established by the US EPA), to assess the threat and adequacy of existing treatment on a plant-by-plant basis. 	<p>EBA See Map 4.1</p> <p>IPZ-1, 2 See Map 4.2</p>	See Policy	<p>LO-G-3</p> <p>LO-NGS-1</p> <p>LO-SEW-1</p> <p>LO-SEW-2</p> <p>LO-PIPE-1</p> <p>LO-FUEL-1</p>	MON-4

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-G-3	<p>Significant/Moderate/Low Threats</p> <p>All Lake Ontario Threats</p>	Municipality (Peel, Toronto, Durham)	E	<p>Specify Action (Lake Ontario Collaborative Group)</p> <p>The municipalities of Peel, Toronto and Durham shall participate as members of the Lake Ontario Collaborative Group (LOCG) and shall undertake tasks (including funding portions) as agreed to in the Terms of Reference established by the LOCG.</p>	<p>EBA See Map 4.1</p> <p>IPZ-1, 2 See Map 4.2</p>	See Policy	LO-G-2	MON-1
LO-G-4	<p>Significant/Moderate/Low Threats</p> <p>All Lake Ontario Threats</p>	MOECC	J K	<p>Education and Outreach</p> <p>The Ministry of the Environment and Climate Change is requested to establish an outreach program to discuss the findings and policies arising from the source water protection program with the National Energy Board, Ontario Energy Board, Environment Canada, Health Canada, New York State and US government agencies in order to:</p> <p>a) encourage collaboration on protecting our shared drinking water sources; and b) raise profile of the importance of Lake Ontario as a source of drinking water for Ontario.</p>	See Maps 4.1 and 4.2	Existing & Future: Consider within 2 years (T-15)	N/A	MON-4

10.12.2 Nuclear Generating Station (Local Threat)

Model scenarios were undertaken to determine if a spill of tritium in water from the Pickering or Darlington nuclear power plants would cause deterioration of the quality of raw water for the intakes located in Lake Ontario. The modelled parameter of concern was tritium and the threshold selected by the SPC to identify a significant drinking water threat was the Ontario Drinking Water Standard (ODWS) for tritium (7000 Bq/L). The scenario was based on the volume and duration of a 1992 spill event which was a release of 2900 kg of wastewater with a tritium level of 7.9×10^{11} Bq/L and using a series of wind and lake current conditions normally found in the vicinity of these two facilities. These were not extreme weather conditions. The model was used to simulate the contaminant pathway within Lake Ontario and the concentrations at the nearby municipal drinking water intakes to determine if the tritium levels could exceed the current ODWS. More details on this work can be found in each of Assessment Reports for the CTC Source Protection Areas.

Why is a Tritium Spill a Threat to Drinking Water Sources?

Tritium is not removed in the treatment process in municipal drinking water plants. In order to meet the ODWS in the finished water municipal operators may need to shut off pumps at the intake during a spill event to avoid bringing raw water containing elevated tritium levels into the treatment plant.

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-NGS-1	Spill of Tritium From NGS	MOECC	K	<p>Specify Action (Risk Mitigation Plan/Risk Reduction Plan)</p> <p>Where event based modelling has shown that a spill from a nuclear generating station would cause the storage and/or use of tritium contaminated heavy water to be a significant drinking water threat, the Ministry of the Environment and Climate Change should, in consultation with the appropriate authorities:</p> <ul style="list-style-type: none"> a) update spill notification protocols jointly with the Spills Action Centre to ensure direct notification to all potentially affected water treatment plant operators and appropriate communication to the public and media; b) review the reporting thresholds jointly with affected municipalities, including consideration to lower the spill notification threshold to municipalities for significant threat activities and adjust the reporting threshold as required; c) ensure that information is communicated to all responsible parties (e.g., the originators of the spill, emergency response/clean-up personnel, medical officer of health, municipal water owner and water operating authority) who are responding to the spill; d) investigate and evaluate existing Risk Mitigation Plans and/or Risk Reduction Plans and make modifications where necessary, with priority on reducing the likelihood of spills (such as potential additional design and operational best management practices and operational procedures), which would impair drinking water sources; and e) work with the Office of the Fire Marshal and Emergency Management to ensure that testing of the Risk Mitigation Plan and/or Risk Reduction Plan is carried out within 3 years from the date the Source Protection Plan takes effect, followed by regular (frequency and priority to be determined in consultation) emergency response preparedness exercises to address the significant threats identified. 	EBA See Map 4.1	Existing & Future: Consider within 2 years (T-15) unless otherwise specified in the policy	LO-G-1 LO-G-2	MON-4

10.12.3 Sewage

Waste Water Treatment Plant (WWTP) Disinfection Failure

Modelling scenarios were undertaken to determine if disinfection failures at waste water treatment plants would cause deterioration of the quality of raw water above the normal range observed at the nearby municipal drinking water intakes. The modelled parameter of concern for these scenarios was *E. coli* and the recreational standard for *E. coli* (100 colony forming units per 100 millilitres (CFU/100 ml)) was selected by the SPC as the threshold to identify a significant drinking water threat. The scenarios were modelled for each waste water treatment plant using a series of wind and lake current conditions normally found in the vicinity of the facilities. These were not extreme weather conditions. The model was used to simulate the contaminant pathway within Lake Ontario and to determine the concentrations of the contaminant at the intakes. More details on this work can be found in each of Assessment Reports for the CTC Source Protection Areas.

Sanitary Trunk Sewer Breaks

A series of scenarios were modelled to determine if a large trunk sewer break along the shoreline of Lake Ontario could result in *E. coli* levels above the normal range observed at the nearby municipal drinking water intakes. Four trunk sewer break locations were modelled within the Toronto and Region Source Protection Area. The modelled parameter of concern for these scenarios was *E. coli* and the recreational standard for *E. coli* (100 colony forming units per 100 millilitres (CFU/100ml)) was selected by the SPC as the threshold to identify a significant drinking water threat. The scenarios were modelled for each waste water treatment plant using a series of wind and lake current conditions normally found in the vicinity of the facilities. These were not extreme weather conditions. The model was used to simulate the contaminant pathway within Lake Ontario and to determine the concentrations of the contaminant at the intakes. More details on this work can be found in each of Assessment Reports for the CTC Source Protection Areas.

Why are Elevated *E. coli* Levels a Threat to Drinking Water Sources?

Water treatment plant operators are required to regularly measure the *E. coli* level in raw water in order to make adjustments to their disinfection process to ensure that all pathogens are killed. The *E. coli*

levels normally found in the vicinity of the Lake Ontario intakes in the CTC are below 10 CFU/100 ml. The Ontario Drinking Water Standard for *E. coli* in drinking water is zero CFU/100 ml. Since *E. coli* are living organisms and the test requires growing a culture for a period of time, monitoring results require approximately 24 hours. It is not an immediate result. When *E. coli* levels increase quickly due to a spill, it can make the proper disinfection treatment process more difficult.

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-SEW-1	The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage	MOECC	C	<p>Prescribed Instrument (Spill Prevention and Contingency Plans)</p> <p>Where event based modelling has shown that a disinfection interruption at a Waste Water Treatment Plant (WWTP Diffuser) would cause a sewage treatment plant by-pass discharge to surface water or sewage treatment plant effluent to be a significant drinking water threat, the Ministry of the Environment and Climate Change should:</p> <ul style="list-style-type: none"> a) review, amend or establish Environmental Compliance Approvals to ensure appropriate terms and conditions are included so that the activity ceases to be, or does not become, significant. Terms and conditions shall include a Spill Prevention and Contingency Plan. Consideration should also be given to the need for a year-round disinfection system and sufficient redundancy in the disinfection system to minimize the length of time that the disinfection system would not be working; b) update spill notification protocols jointly with the Spills Action Centre to ensure direct notification to all potentially affected water treatment plant operators and appropriate communication to the public and media; c) review the notification protocols for significant threat activities and adjust the reporting protocols as required to ensure the water plant operators are notified appropriately for a given magnitude of spill; d) ensure that information is communicated to all responsible parties (e.g., the originators of the spill, emergency response/clean-up personnel, medical officer of health, municipal water owner and water operating authority) who are responding to the spill; and e) work with the Office of the Fire Marshal and Emergency Management to ensure that testing of the Contingency Plan is carried out within 3 years from the date the Source Protection Plan takes effect, followed by regular (frequency and priority to be determined in consultation) emergency response preparedness exercises to address the significant threats identified. 	EBA See Map 4.1	Existing: 3 years (T-1) Future: Immediately (T-3) unless otherwise specified in the policy	GEN-3 LO-G-1 LO-G-2	MON-4

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-SEW-2	Spill from a Sanitary Trunk Sewer Break	MOECC	C	<p>Prescribed Instrument (Spill Prevention and Contingency Plans) Where event based modelling has shown that a spill from a sanitary trunk sewer break would be a significant drinking water threat, the Ministry of the Environment and Climate Change shall:</p> <ul style="list-style-type: none"> a) review, amend or establish Environmental Compliance Approvals to ensure appropriate terms and conditions are included so that the activity ceases to be, or does not become, significant. Terms and conditions shall include a Spill Prevention and Contingency Plan incorporating a requirement for assessment of erosion and flooding risks in tributaries which could jeopardize the integrity of the sanitary sewer systems identified as a significant threat. Re-inspections shall also be required with the frequency commensurate with the level of risk identified during the initial inspection; b) update spill notification protocols jointly with the Spills Action Centre to ensure direct notification to all potentially affected water treatment plant operators and appropriate communication to the public and media; c) review the notification protocols for significant threat activities and adjust the reporting protocols as required to ensure that water plant operators are notified appropriately for a given magnitude of spill; d) ensure that information is communicated to all responsible parties (e.g., the originators of the spill, emergency response/clean-up personnel, medical officer of health, municipal water owner and water operating authority) who are responding to the spill; e) work with the Office of the Fire Marshal and Emergency Management to ensure that testing of the Contingency Plan is carried out within 3 years from the date the Source Protection Plan takes effect, followed by regular (frequency and priority to be determined in consultation) emergency response preparedness exercises to address the significant threats identified; and f) direct the responsible municipality to undertake a review and report on the depth of ground cover over the pipeline at each crossing including an assessment of erosion, flood risk and the integrity of their infrastructure. MOECC shall consider this information in determining the risk mitigation measures required to ensure that the drinking water threat ceases to be, or does not become, significant. The inspection report should be shared with the Source Protection Authority. 	EBA See Map 4.1	Existing: 3 years (T-1) Future: Immediately (T-3) unless otherwise specified in the policy	GEN-3 LO-G-1 LO-G-2	MON-4

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-SEW-3	<p>Significant/ Moderate/ Low Threats</p> <p>All Threats that are Linked to Storm Sewers</p>	MOECC	J K	<p>Specify Action (Storm Sewers)</p> <p>Where a spill from a facility could reach an off-site storm sewer such that it would be a significant drinking water threat, or moderate or low drinking water threat as identified in the <i>Tables of Drinking Water Threats</i>, the Ministry of the Environment and Climate Change should enact the necessary regulation and/or instrument to require such facility owners to be subject to provincial approvals for Spill Prevention and Risk Mitigation Plans.</p>	<p>EBA See Map 4.1</p> <p>IPZ-1, 2 See Map 4.2</p>	<p>Future: Consider within 2 years (T-15)</p>	N/A	MON-4

10.12.4 Petroleum Product Spills

Oil/Gas Pipelines (Local Threat)

Modelling scenarios were undertaken to determine if petroleum products spilled from a pipeline rupture as it crosses various rivers (tributaries) would reach any of the drinking water intakes and cause deterioration of the quality of raw water. The contaminant of concern in the petroleum product for these scenarios was benzene and the threshold selected by the SPC to identify a significant threat from benzene was the Ontario Drinking Water Standard (ODWS) of 0.005 milligrams per litre (mg/L). The spill parameters used in the scenario was based on the pipeline spill that occurred near Kalamazoo, Michigan in the summer of 2010, adjusted for the size and product volumes carried in the specific portions of the Ontario pipelines. More details on this work can be found in each of Assessment Reports for the CTC Source Protection Areas.

Petroleum Tank Farm (Fuel)

Two modelling scenarios were undertaken to determine if the release of gasoline containing benzene from bulk petroleum storage and handling facilities in Oakville or North York would reach water treatment plant intakes and cause deterioration of the quality of raw water. One scenario involved was based on a complete loss of product from a tank and the second estimated losses of smaller volumes during loading/unloading from shore to ship at the Oakville location. The modelled contaminant of concern for these scenarios was benzene and the threshold selected by the SPC to identify a significant threat from benzene was the ODWS (0.005 mg/L). More details on this work can be found in each of Assessment Reports for the CTC Source Protection Areas.

Why is a Spill Containing Benzene a Threat to Drinking Water Sources?

Benzene is a hazard to human health and is not removed in the conventional treatment process in municipal drinking water plants. In order to meet the ODWS in the finished water, municipal operators may need to shut off pumps at the intake during a spill event to avoid bringing raw water containing elevated benzene levels into the treatment plant.

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-PIPE-1	Pipelines Transporting Petroleum Product (Containing Benzene) Crossing Tributaries of Lake Ontario	MOECC	K	<p>Specify Action (Spill Prevention, Contingency Plans and Emergency Response)</p> <p>Where event based modelling has shown that a spill from a petroleum pipeline system reaching a tributary would be a significant drinking water threat, the Ministry of the Environment and Climate Change should work with facility owners and provincial and federal regulators to develop, review and recommend necessary improvements to existing spill prevention, spill management, risk reduction, and Contingency Plans to ensure the following:</p> <ul style="list-style-type: none"> a) plans are based on the depth of ground cover at surface water crossings; b) spill response time frames are established; c) responsibilities of first responders are established to ensure a prompt unified regulatory command structure to manage the spill response; d) notification protocols are established jointly with the Spills Action Centre to ensure direct notification to all potentially affected water treatment plant operators and appropriate communication to the public and media; e) notification protocols are established for significant threat activities to ensure the water plant operators are notified appropriately for a given magnitude of spill; f) that information is communicated to all responsible parties (e.g., the originators of the spill, emergency response/clean-up personnel, medical officer of health, municipal water owner and water operating authority) who are responding to the spill; g) that there are appropriate spills response plans for each crossing; h) that appropriate pipeline system failure and shut down measures and policies are included; i) a review is undertaken on the depth of ground cover over the pipeline at each crossing, including an assessment of erosion and flood risk; j) that the facility owner provides assurance concerning the integrity of their infrastructure to prevent spills where these could be a significant drinking water threat; k) that a report on the inspection of the pipeline crossings at each tributary is provided to the Source Protection Authority; l) that the pipeline design and operational best management practices are in place (including potential additional design and operational best management practices); m) that any new or expansions or pipeline replacements are constructed to meet current best design criteria; and n) a provision is included in the Contingency Plan that the facility owner work with the Office of the Fire Marshal and Emergency Management to ensure that testing of the Contingency Plan is carried out within 3 years from the date the Source Protection Plan takes effect, followed by regular (frequency and priority to be determined in consultation) emergency response preparedness exercises to address the significant threats identified. 	EBA See Map 4.1	Existing & Future: Consider within 2 years (T-15) unless otherwise specified in the policy	LO-G-1 LO-G-2	MON-4

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-FUEL-1	Handling and Storage of Fuel (Petroleum Tank Farm Spill)	MOECC	K	<p>Specify Action (Spill Prevention and Contingency Plans)</p> <p>Where event based modelling of a spill from a petroleum tank farm has shown that it would be a significant drinking water threat, the Ministry of the Environment and Climate Change will work with applicable regulating authorities (e.g., Ministry of Government and Consumer Services and Technical Standards and Safety Authority) to ensure consideration is given to the following actions related to spill prevention contingency measures:</p> <ul style="list-style-type: none"> a) investigate and evaluate existing Spills Prevention and Contingency Plans; b) recommend additional measures to reduce the likelihood that a spill from a storage facility would impair drinking water source quality; c) incorporate all applicable provisions of Ontario Regulations 213/01 and 217/01 and their codes as well as other measures to ensure the protection of drinking water sources into a Risk Management Plan for the facility, which may include but not be limited to: <ul style="list-style-type: none"> i. best management practices ii. site characterization as necessary iii. proof of ability to pay for clean-up of potential contamination iv. the appropriate frequency of inspections d) review existing Environmental Compliance Approvals for discharges to surface water at the identified sites to determine if there are adequate safeguards to protect drinking water sources; e) determine if additional works or procedures are required to reduce the likelihood of contaminants discharging to Lake Ontario in the event of a spill or equipment failure/malfunction; f) ensure provisions for spill notification protocols are established jointly with the Spills Action Centre to ensure direct notification to all potentially affected water treatment plant operators and appropriate communication to the public and media; g) establish notification protocols for significant threat activities to ensure that water plant operators are notified appropriately for a given magnitude of spill; <p>(LO-FUEL-1 continued on next page)</p>	EBA See Map 4.1	Existing & Future: Consider within 2 years (T-15) unless otherwise specified in the policy	LO-G-1 LO-G-2	MON-4

APPROVED SOURCE PROTECTION PLAN: CTC Source Protection Region

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-FUEL-1 Cont'd	Handling and Storage of Fuel (Petroleum Tank Farm Spill)	MOECC	K	<p>(LO-FUEL-1 continued from previous page)</p> <p>h) ensure that information is communicated to all responsible parties (e.g., the originators of the spill, emergency response/clean-up personnel, medical officer of health, municipal water owner and water operating authority) who are responding to the spill; and</p> <p>i) include a provision that the facility owner work with the Office of the Fire Marshal and Emergency Management to ensure that testing of the Contingency Plan is carried out within 3 years from the date the Source Protection Plan takes effect, followed by regular (frequency and priority to be determined in consultation) emergency response preparedness exercises to address the significant threats identified.</p>	EBA See Map 4.1	Existing & Future: Consider within 2 years (T-15) unless otherwise specified in the policy	LO-G-1 LO-G-2	MON-4
LO-FUEL-2	<p>Significant/Moderate/Low Threats</p> <p>Handling and Storage of Fuel (Spill from Petroleum Storage Tanks)</p>	MOECC	J K	<p>Education and Outreach (Fuel Tank Farms)</p> <p>Where event based modelling has identified activities that are significant drinking water threats or where the <i>Tables of Drinking Water Threats</i> (Ontario Regulation 287/07 under the <i>Clean Water Act, 2006</i>) identifies moderate or low drinking water threats, the Ministry of the Environment and Climate Change shall, in consultation with appropriate authorities, work with the facility owner to:</p> <p>a) support the investigation and evaluation of existing Spill Prevention and Contingency Plans; and</p> <p>b) identify the need for potential additional design and operational best management practices which would reduce the likelihood that a spill from a storage facility would impair drinking water source quality for tanks located on federal lands.</p>	EBA See Map 4.1 IPZ-1, 2 See Map 4.2	Existing & Future: Consider within 2 years (T-15)	N/A	MON-4