

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	MOE	K	<p>Specify Action (Spill Prevention/Contingency and Emergency Response)</p> <p>To protect drinking water sources from potential spills where event based modelling has identified activities that are a significant drinking water threat (IPZ-3) and along highways, shipping lanes and railways, the Ministry of the Environment shall:</p> <ol style="list-style-type: none"> 1) 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; 2) in consultation with the Spills Action Centre and the affected municipalities, review the reporting thresholds for significant threat activities and adjust the reporting threshold as required; 3) 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; 4) 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; 5) in consultation with Emergency Management Ontario and other appropriate bodies, ensure that testing of the Contingency Plan is carried out within 3 years from the date the Source Water 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; 6) in consultation with appropriate bodies, promote spill prevention and share information about source protection with the public. 	IPZ-3 See Map 4.1	2 years (T-15)	N/A	MON-4

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-G-1 Rev	All Lake Ontario Threats	MOE	K	<p>Specify Action (Spill Prevention/Contingency and Emergency Response)</p> <p>To protect drinking water sources from potential spills where event based modelling has identified activities that are a significant drinking water threat (IPZ-3) and along highways, shipping lanes and railways, the Ministry of the Environment shall:</p> <ol style="list-style-type: none"> 1) 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; 2) in consultation with the Spills Action Centre and the affected municipalities, review the reporting notification thresholds for significant threat activities and adjust the reporting threshold as required to ensure that water plant operators are notified appropriately for a given magnitude of spill; 3) 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; 4) 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; 5) in consultation with Emergency Management Ontario and other appropriate bodies, ensure that testing of the Contingency Plan is carried out within 3 years from the date the Source Water 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; 6) in consultation with appropriate bodies, promote spill prevention and share information about source protection with the public. 	IPZ-3 See Map 4.1	2 years (T-15)	N/A	MON-4

COMMENTS POLICY LO-G-1

Comments		Response
MOE	1. Policy LO-G-1(2) directs the MOE to establish a spill reporting threshold for a given volume or concentration for a significant threat, which could be problematic. The MOE does not have thresholds for reporting spills under the Ontario Water Resources Act or the Environmental Protection Act – rather there is a general prohibition from impacting water quality. Ontario Regulation 675/98 “Classification and Exemption of Spills and Reporting of Discharges” under the Environmental Protection Act	LO-G-1 (2) revised to clarify that the intent of this policy is not to establish threshold as to when a spill should be reported to the SAC. Rather the intent is to ensure that

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

COMMENTS POLICY LO-G-1		
	Comments	Response
	does allow for some exemptions i.e., petroleum, planned discharged, household fires, etc.). However, under each “Classification” of material discharged or spilled (there’s a general provision which states that the “spill does not enter and is not likely to enter any waters, as defined in the Ontario Water Resources Act, directly or through drainage structures”. The concept of a reporting threshold, for example allowing for a specific volume of a material be discharged in order to trigger an emergency response, would contravene the Ontario Water Resources Act and the Environmental Protection Act and would make it legal to not report a small volume spill that impacted or could impact the environment. Therefore the proposed reporting thresholds would actually be less protective of the environment than the current regulatory framework. MOE recommends that part 2 of policy LO-G-1 is removed.	there is appropriate, clear and consistent procedures in place on when municipal plant operators will be notified based on spill magnitude.
MOE	2. Policy LO-G-1 addresses spills related to modelled threats and along highways, shipping lanes and railways. Due to the way the CWA and legal effect of policies are structured, the MOE recommends revising LO-G-1 so that the current policy is split into two policies with one addressing the locally approved modelled threats that would be significant and the other addressing the update to emergency management plans for spills along highways, railway lines and shipping lanes. This is necessary because spills policies can only be written for local threats with spills inherent to the local threat description or for updating emergency response plans for spills generally in wellhead protection areas or intake protection zones along highways, railway lines or shipping lanes. A plan cannot include policies to address spills associated with prescribed drinking water threats. Once split, the policy relating to updates for emergency response procedures along highways, etc. would be categorized as a strategic action policy in List J, in accordance with Section 33 or O.Reg. 287/07 under the CWA and the Director’s Letter RE: “Direction for Source Protection Plans – compliance with subsections 34(1) to (4) of Regulation 287/07” and dated August 23, 2011.	The reference to modelled threat activities has been deleted as this policy is already included in the modelled significant threat policies (LO-NDG-1, LO-SEW-1, LO-SEW-2, LO-PIPE-1, and LO-FUEL-1)
MOE	3. LO-G-1(5) requests MOE, in consultation with EMO (now Office of the Fire Marshall and Emergency Management, OMFEM), to ensure that testing of the contingency plan is carried out within three years of plan implementation followed by regular emergency response preparedness exercises to address Significant Drinking Water Threats (SDWT). Emergency management programs and related contingency plans are developed for large spills, which require the involvement of many agencies and ministries. The protection of municipal water supply intakes is one of many important considerations that are included in the development and testing of contingency plans that proactively prepare for risks to human health and safety, infrastructure, and the environment. MOE and OMFEM are concerned that the proposed policy requiring testing be conducted within three years of plan approval will not provide enough opportunity to accommodate all of the agencies, risk considerations and planning already underway. Please consider revising the policy to allow greater flexibility and include the following in place of the three year requirement: “...ensure that testing of the Contingency Plan is carried out in a timely fashion once the Source Water Protection Plan takes effect,...”.	No change is recommended. 3 years is considered an appropriate timeframe for the testing of contingency plans.

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-G-2	All Lake Ontario Threats	MOE	K	<p>Research (Lake Ontario Circulation and Water Quality Monitoring, to support the Lake Ontario Collaborative Model)</p> <p>Where event based modelling has identified activities that are a significant drinking water threat (IPZ-3), the Ministry of the Environment, in collaboration with Environment Canada should:</p> <ul style="list-style-type: none"> a) use the 3-D Hydrodynamic Circulation and Water Quality Simulation Model, or other models as appropriate, to run proactive simulation of potential spills in order to be able to predict the extent and duration of contamination and to help determine the parties to be notified in the event of a spill; b) install permanent instrumentation (e.g. continuous recording current meters, with wireless telephone link to Ministry of the Environment Monitoring and Reporting Branch) to provide real-time monitoring of current speed, direction and water chemistry for use with the 3-D Hydrodynamic Circulation Model for future forecasting of spills impact assessments and assessing spill prevention strategies; c) ensure that the real-time data are available to municipalities and conservation authorities; and d) undertake Lake Ontario nearshore monitoring yearly; and make the data available to municipalities and conservation authorities. 	IPZ-3 See Map 4.1	2 years (T-15)	N/A	MON-4

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-G-2 Rev ¹	All Lake Ontario Threats	MOE	K	<p>Research (Lake Ontario Circulation and Water Quality Monitoring, to support the Lake Ontario Collaborative Model)</p> <p>Where event based modelling has identified activities that are a significant drinking water threat (IPZ-3), the Ministry of the Environment, in collaboration with Environment Canada should:</p> <ul style="list-style-type: none"> a) use the 3-D Hydrodynamic Circulation and Water Quality Simulation Model, or other 3D models as appropriate, to run proactive simulation of potential spills in order to be able to predict the extent and duration of contamination and to help determine the parties to be notified in the event of a spill; b) install permanent instrumentation (e.g. continuous recording current meters, with wireless telephone link to Ministry of the Environment Monitoring and Reporting Branch) to provide real-time monitoring of current speed, direction and water chemistry for use with the 3-D Hydrodynamic Circulation Model for future forecasting of spills impact assessments and assessing spill prevention strategies; c) ensure that the real-time data are available to municipalities and conservation authorities; and d) undertake Lake Ontario nearshore monitoring yearly; and make the data available to municipalities and conservation authorities. 	IPZ-3 See Map 4.1	2 years (T-15)	N/A	MON-4

¹ Working Group members and staff to meet with MOE technical staff to discuss this policy on May 21, 2014 and will report back at CTC SPC Meeting of May 27, 2014 on any additional matters to consider

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

COMMENTS POLICY LO-G-2		
	Comments	Response
MOE	<p>4. The modelling and monitoring initially proposed in Policy LO-G-2 and included in a number of other policies has merit. MOE Source Protection Programs Branch (SPPB) has engaged other groups within the Ministry to review policies related to monitoring and modelling of Lake Ontario included in a number of the source protection plans with the goal of having policies that are implementable, balance multiple ministry programs and mandates, and still maintain the intent of the policies. With respect to CTC’s modelling and monitoring policies, some of the specific components of the policy pose significant implementation issues for the Province. These components include permanent instrumentation, real-time monitoring, and 3-D modelling.</p> <p>The Ministry currently deploys instrumentation on a regular basis for water monitoring in Lake Ontario. While providing enhanced current and flow instrumentation during non-ice times of the year is beneficial, year-round permanent instrumentation and real-time monitoring is not always feasible due to variable winter conditions. Ice conditions in winter often destroy monitoring equipment, limiting the availability of real-time monitoring. To accommodate the weather conditions, instruments would need to be deployed, maintained, and removed throughout the year. Furthermore, real-time monitoring data often requires quality assurance/quality control so the data could not be used on an actual real-time basis. A tailored, local approach that considers various options and meets the policy intent is recommended.</p> <p>The Ministry also supports modelling work for forecasts and assessments. The MOE currently conducts frequent 2-D modelling work to ensure appropriate and timely responses to spills to water. Undertaking forecasting using 3-D Hydrodynamic Circulation Models may be less useful for spills response due to the significantly increased time required to run the model and the difficulty of predicting parameters required for accurate modelling (i.e., there are so many data inputs to estimate, the scenario modelling would almost certainly be inaccurate). The ministry does use 3-D models of this sort for other purposes, but questions whether such models would be more useful or effective than the existing 2-D model in this application.</p> <p>Below are suggested revisions (underlined) to the modelling and monitoring requirements included in a number of policies:</p> <ul style="list-style-type: none"> For policies referring to 3-D Hydrodynamic Circulation and Water Quality Simulation model (e.g., LO-G-2(a), please revise to the following: Maintain and further develop the 3-D Hydrodynamic Circulation Model, <u>or other models as appropriate</u>, with particular focus to the nearshore of Lake Ontario for future forecasting of activities to determine their potential to be significant drinking water threats. For policies referring to permanent instrumentation (e.g., LO-G-2(b)). Please revise this part of the policy to: <u>Install instrumentation to provide monitoring of current speed, direction and water chemistry for use in 3-D Hydrodynamic Circulation Model, or other models as appropriate, for future forecasting of spills impact assessments and assessing spill prevention strategies.</u> For policies referring to real-time data (e.g., LO-G-2(c)). Please revise this part of the policy to: <u>Ensure that the data are available to municipalities and conservation authorities.</u> 	<p>The intent of the LO-G-2 b) is to ensure that permanent real-time monitoring is made available. CTC acknowledges that weather conditions may bring temporary failure, however the intent is only to ensure that the principle and efforts are made to establish year around monitoring knowing that there could be temporary issues due to weather.</p> <p>Due to the complexity and dynamics of Lake Ontario flows and circulation, 3D modelling is critical to better understand and predict the extent and duration of modelled threats. This better understanding will inform notification protocols and contingency planning.</p> <p>The Lake Ontario Collaborative (LOC) used event-based modelling for the identification of significant threats to Lake Ontario drinking water intakes. A 3D hydrodynamic model (Danish Hydraulic Institute DHI Mike-3) was selected for a number of reasons. Two dimensional models historically used are unidirectional and it has been shown that they do not adequately simulate flows, currents, horizontal and vertical dispersion properties that apply to a large inland body of water such as Lake Ontario. A 3-D model is critical in the representation of the vertical stratification, currents, thermodynamics, seasonal variations, upwelling and down welling characteristics and overall dynamic nature of the lake. It is also important to note that the intakes are located near to the bottom of the lake where the third dimension is essential to the simulation of potential impacts. Advanced monitoring technology exists and is already for the most part in place to provide the necessary inputs to these types of models. Given the size, nature and multijurisdictional concerns of Lake Ontario, it is appropriate for a Provincial level agency to maintain the appropriate monitoring stations and 3-D models to manage and protect Great Lakes water resources.</p>

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-G-3 No change	All Lake Ontario Threats	MOE	K	<p>Research (Lake Ontario 3-D Hydrodynamic Circulation and Water Quality Simulation Model)</p> <p>Where event based modelling has identified activities that are a significant drinking water threat (IPZ-3), the Ministry of the Environment should, in consultation with responsible parties:</p> <ul style="list-style-type: none"> a) maintain and further develop the 3-D Hydrodynamic Circulation Model with particular focus to the nearshore of Lake Ontario for future forecasting of activities to determine their potential to be significant drinking water threats; b) maintain specialized modeling expertise to undertake spills scenario modeling; c) lead the development of typical lake circulation spill base cases to provide tools for quick assessments of spills to provide early warning impact assessment; and d) use this model as a consistent approach for assessing potential impact from new/ proposed/ changed discharges, including spill scenario assessment and to assess actual spills. 	IPZ-3 See Map 4.1	2 years (T-15)	N/A	MON-4

COMMENTS POLICY LO-G-3	
Comments	Response
<p>MOE</p> <p>We would also like to discuss the intended outcomes of LO-G-3(c) &(d) as it is currently unclear. Research authorized under Section 26(1) of the CWA must be focussed on the threat activity in a vulnerable area, rather than to determine the potential for future threat activities.</p>	<p>Policy LO-G-3 (c) & (d) are written to apply to significant drinking water threat activities with the intent of developing tools that will inform notification requirements and protocols in order that operators and other stakeholders can take appropriate action. As a result, this policy does meet the objective of ceasing to be/not becoming a SDWT.</p> <p>Will add more information to Explanatory Document.</p>

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-G-4	All Lake Ontario Threats	MOE	K	<p>Research (Undertake Additional Spill Scenario Modelling)</p> <p>Where event based modelling has identified activities that are a significant drinking water threat (IPZ-3), the Ministry of the Environment, in consultation with responsible parties for the significant threat activities and applicable lead Source Protection Authority, should fund additional scenario modeling, to:</p> <p>a) undertake additional spill scenarios to assess other potential threats (locations, spill quantities, activities, contaminants), for example, pumping station overflow; and</p> <p>b) assess the effectiveness of Source Protection Plan policies relying on risk management measures and spill contingency measures to reduce the risk.</p>	IPZ-3 See Map 4.1	2 years (T-15)	N/A	MON-4
LO-G-4 Rev	All Lake Ontario Threats	MOE	K J	<p>Research Education/Outreach (Undertake Additional Spill Scenario Modelling)</p> <p>That the Source Protection Authority reach out to Where event based modelling has identified activities that are a significant drinking water threat (IPZ-3), the Ministry of the Environment, in consultation with responsible parties for the significant threat activities and applicable lead Source Protection Authority, should to raise the importance of additional spill scenario modelling and request that the funding be provided additional scenario modeling, to:</p> <p>a) undertake additional spill scenarios to assess other potential threats (locations, spill quantities, activities, contaminants), for example, pumping station overflow; and</p> <p>b) assess the effectiveness of Source Protection Plan policies relying on risk management measures and spill contingency measures to reduce the risk. (move this policy and combine with LO-G-3)</p>	IPZ-3 See Map 4.1	2 years (T-15)	N/A	MON-4

COMMENTS POLICY LO-G-4	
Comments	Response
<p>MOE</p> <p>5. The Ministry would like to have a discussion with you regarding policy LO-G-4 to undertake additional spill scenarios within IPZ-3 areas where a SDWT has been identified. As per section 26 paragraph 1 of the CWA, research policies that direct future work require the research focus to be the threat activity in the vulnerable area, rather than to determine the potential for future threat activities. It is also unclear if the intended outcome of Part (b) of the policy aligns with the requirements of section 22(2) of the CWA which requires policies to have the objective of ceasing to be/not become a SDWT.</p>	<p>Discussion revealed that (b) may be considered in scope as it relates to assessing plans to ensure that they effective in addressing SDWT. With respect to (a)The working group had discussion about the possibility of revising this policy to an education/outreach policy which would then bring it into compliance with the CWA. However concerns were expressed that an education/outreach policy would weaken the intent. The policy would have more weight if maintained as is as an action that should be undertaken by MOE. The revisions highlighted in yellow would satisfy MOE comments.</p>

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-G-5	All Lake Ontario Threats	MOE	K	<p>Research (Inspect Stream Crossings)</p> <p>Where event based modelling has identified activities that are a significant drinking water threat (IPZ-3), the Ministry of the Environment should, with information provided by facility owners, compile an inventory of all pipe facilities which cross tributaries that drain into Lake Ontario to further understand risks associated with pipe break scenarios and to update respective Assessment Reports. Inventory should be shared with the Source Protection Authority and is intended to include:</p> <ul style="list-style-type: none"> a) the state of the infrastructure (e.g., age, diameter, design life, quantity and type of products transported) to assess the potential threats; b) a map of the location of each crossing to produce a composite map; c) a prioritized list of facilities to be inspected/ maintained based on potential risk to drinking water; and d) all petroleum pipeline system failure (spill) sensing and shut down measures and policies. 	IPZ-3 See Map 4.1	2 years (T-15)	N/A	MON-4
LO-G-5 Rev	All Lake Ontario Threats	MOE	K	<p>Research (Inspect Stream Crossings)</p> <p>Where significant drinking water threats of petroleum pipelines and sanitary trunk sewers that cross open waters, event based modelling has identified activities that are a significant drinking water threat (IPZ-3), the Ministry of the Environment should, with information provided by facility owners, compile an inventory of all pipe facilities which cross tributaries that drain into Lake Ontario to further understand risks associated with pipe break scenarios and to update respective Assessment Reports. Inventory should be shared with the Source Protection Authority and is intended to include:</p> <ul style="list-style-type: none"> a) the state of the infrastructure (e.g., age, diameter, design life, quantity and type of products transported) to assess the potential threats; pipeline facility owners are recommended to conduct inline pipeline integrity testing and visual inspections of crossings at open water bodies at a frequent timing of every three years. b) a map of the location of each crossing to produce a composite map; the Source Protection Authority shall consult with pipeline facility 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 action taken. c) a prioritized list of facilities to be inspected/ maintained based on potential risk to drinking water; and d) all petroleum pipeline system failure (spill) sensing and shut down measures and policies. 	IPZ-3 See Map 4.1	2 years (T-15)	N/A	MON-4

COMMENTS POLICY LO-G-5	
Comments	
Response	
<p>MOE</p>	<p>6. The CWA and associated legislation requires that source protection plan policies that address significant threats meet the CWA section 22(2) objectives that threats cease to be/ do not become a SDWT. As currently written, policy LO-G-5 is not a permissible policy to include in source protection plans as it does not address a SDWT, nor meet the objectives of section 22 of CWA. Rather the policy requests the MOE to gather information to inform the next round of source protection planning. Although this request has merit, as the policy is written, it is not permissible content for the source protection plan. As such, SPPB recommends removal of policy LO-G-5. However, the SPA may want to consider revising the policy to a general education and outreach policy as other Lake Ontario SPCs have done (e.g., Halton-Hamilton SPC, SPP Section 3.3) which would be included on List J. Below we have provided suggested revised policy language:</p> <p>The SPA is encouraged to reach out to the MOE and pipeline facility owners to compile an inventory of all pipe facilities with cross tributaries that drain into Lake Ontario to further understand risks associated with pipe break scenarios and to update respective Assessment Reports. Inventory should be shared with the Source Protection Authority and is intended to include:</p> <ul style="list-style-type: none"> a) the state of infrastructure (e.g., age, diameter, design life, quantity and type of products transported) to assess the potential threats; b) a map of the location of each crossing to produce a composite map; c) a prioritized list of facilities to be inspected/maintained based on potential risk to drinking water; and, d) all petroleum pipeline system failure (spill) sensing and shut down measures and policies.
	<p>The intent of this policy is to address modelled SDWT that cross streams (sanitary trunk sewer/petroleum pipeline spill) by identifying where there could be spill to ensure that informed decisions and actions can be taken to ensure that the SDWT ceases to be or never becomes a SDWT.</p> <p>The working group considers this policy to be in scope and did not recommend any changes. The revisions highlighted in yellow mirror those found in Halton/Hamilton SP Plan and would satisfy MOE comments.</p> <p>SPC discussion required</p>

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-G-6	Significant/ moderate/ low threats All Lake Ontario Threats	MOE	J K	<p>Education and Outreach</p> <p>Where event based modelling has identified activities that are significant drinking water threats (IPZ-3) 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 (IPZ-2, IPZ-1), the Ministry of the Environment is requested to establish an outreach program to discuss the findings and policies arising from the source water protection program with Environment Canada, Health Canada, New York State and US government agencies in order to:</p> <ul style="list-style-type: none"> a) encourage collaboration on protecting our shared drinking water sources; b) assess emerging threats to drinking water (e.g. discharge of fracking waste water through sewage treatment plants, climate change, etc.); c) raise profile of the importance of Lake Ontario as a source of drinking water for Ontario; and d) assess the threats to the near shore water quality from the cumulative impacts of point and non-point sources of contaminants. 	IPZ-3 See Map 4.1 IPZ-1, 2 See Chapter 5 of the respective Assessment Reports	2 years (T-15)	N/A	MON-4
LO-G-6 Rev	Significant/ moderate/ low threats All Lake Ontario Threats	MOE	J K	<p>Education and Outreach</p> <p>Where event based modelling has identified activities that are significant drinking water threats (IPZ-3) 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 (IPZ-2, IPZ-1), The Ministry of the Environment is requested to establish an outreach program to discuss the findings and policies arising from the source water protection program with Environment Canada, Health Canada, New York State and US government agencies in order to:</p> <ul style="list-style-type: none"> a) encourage collaboration on protecting our shared drinking water sources; b) assess emerging threats to drinking water (e.g. discharge of fracking waste water through sewage treatment plants, climate change, etc.); c) raise profile of the importance of Lake Ontario as a source of drinking water for Ontario; and d) assess the threats to the near shore water quality from the cumulative impacts of point and non-point sources of contaminants. 	IPZ-3 See Map 4.1 IPZ-1, 2 See Chapter 5 of the respective Assessment Reports	2 years (T-15)	N/A	MON-4

COMMENTS POLICY LO-G-6	
Comments	
Response	
MOE	<p>7. Policy LO-G-6 utilizes Education and Outreach (E&O) to address significant, moderate and low threats which directs MOE to establish an outreach program to discuss findings and policies arising from the source protection program with all of the interested Great Lake agencies. The objectives currently outlined in the policy, such as “encouraging collaboration” and “assessing emerging threats” do not meet the objectives of section 22(2) of the CWA pertain to significant threat policies (cease to be/ never become). There are two options: remove the reference to significant threats or revise the policy to a general E&O policy as other Lake Ontario SPCs have done (e.g., Halton-Hamilton SPC, SPP Section 3.3). In both options the policy would only be on List J.</p>
	<p>Revisions to text made to reflect education and outreach policy.</p>

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-NGS-1 No Change	Spill of Tritium From NGS	MOE	K	<p>Specify Action (Risk Mitigation/Reduction Plans)</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 (IPZ-3), the Ministry of the Environment should, in consultation with the appropriate authorities:</p> <ul style="list-style-type: none"> a) update spill notification protocols jointly with 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 lowering of 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 Plan/Risk Reduction Plan/Risk Contingency Plans 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; e) work with Emergency Management Ontario to ensure that testing of the Risk Mitigation/Risk Reduction/Risk Contingency Plan is carried out within 3 years of the Source Water Protection Plan coming into effect, followed by regular (frequency and priority to be determined in consultation) emergency response preparedness exercises to address the significant threats identified; f) use the 3-D Hydrodynamic Circulation and Water Quality Simulation Model, or other models as appropriate, to run proactive simulation of potential spills in order to be able to predict the extent and duration of contamination and to help determine the parties to be notified in the event of a spill; g) install permanent instrumentation (e.g. continuous recording current meters, with wireless telephone link to Ministry of the Environment Monitoring and Reporting Branch) to provide real-time monitoring of current speed and direction for use with the 3-D Hydrodynamic Circulation Model or other models as appropriate, for future forecasting of spills impact assessments and assessing spill prevention strategies; and h) ensure that the real-time lake current speed and direction data are available to municipalities and conservation authorities. 	IPZ-3 See Map 4.1	2 years (T-15)	N/A	MON-4

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

COMMENTS POLICY LO-NGS-1	
Comments	Response
<p>MOE</p> <p>8. Similarly to LO-G-1(5) (please see comment #3 above), LO-NGS-1(e) requests MOE, in consultation with EMO (now OMFEM), ensure that testing of the contingency plan is carried out within three years of plan implementation followed by regular emergency response preparedness exercises to address SDWTs. MOE is participating in a full scale nuclear emergency response exercise for the Provincial Nuclear Emergency Response Plan (PNERP) scheduled for May 2014 to ensure all levels of government and stakeholders are prepared. Conducting another full scale test within the next five years may not be practicable. MOE and OFMEM are open to working with appropriate authorities to consider testing of these plans. Please revise the policy with "...ensure that testing of the Contingency Plan is carried out in a timely fashion once the Source Water Protection Plan takes effect,...".</p>	<p>Generally, the SDWT of a tritium spill does not trigger the Provincial Nuclear Emergency Response Plan (PNEP) unless the PNEP has been or will be triggered by another co-occurring event</p> <p>The 3 year time frame should not be an issue due to the following: There is a provincial document (Coordination of the response to a Liquid Emission at OPG and Bruce Power, July 2006) that provides a coordinated response for events where the discharge of radioactivity from Ontario's nuclear power plants may result in radioactive concentrations at nearby water intakes that may exceed the MOE standards. This procedure requires:</p> <p>A full-scale exercise is to be held annually, rotating between Bruce Power, Pickering and Darlington. The province has declined to participate of the last few drills OPG has conducted.</p> <p>A Province/OPG/Bruce Power committee will meet annually. This has not happened in several years and OPG has tried to get the province to meet with us to discuss some change we need to make to the procedure.</p> <p>Ontario government ministries will meet annually to review the procedure.</p>

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	MOE	C	<p>Prescribed Instrument (Review and Enhancement of Spill Prevention and Contingency Plans)</p> <p>Where event based modelling has shown that a disinfection interruption at a waste water treatment plant would cause a sewage treatment plant by-pass discharge to surface water or sewage treatment plant effluent to be a significant drinking water threat (IPZ-3), the Ministry of the Environment should:</p> <ul style="list-style-type: none"> a) review and amend Environmental Compliance Approvals to ensure they contain terms and conditions that ensure that the threats cease to be significant. Terms and conditions shall include a spill prevention and contingency plan, consideration 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 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 reporting thresholds for significant threat activities and adjust the reporting threshold as required; 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 Emergency Management Ontario to ensure that testing of the Contingency Plan is carried out within 3 years of the Source Water Protection Plan coming into effect, followed by regular (frequency and priority to be determined in consultation) emergency response preparedness exercises to address the significant threats identified; f) use the 3D Hydrodynamic Circulation and Water Quality Simulation Model, or other models as appropriate, to run proactive simulation of potential spills in order to be able to predict the extent and duration of contamination and to help determine the parties to be notified in the event of a spill; g) install permanent instrumentation (e.g. continuous recording current meters, with wireless telephone link to Ministry of the Environment Monitoring and Reporting Branch) to provide real-time monitoring of current speed, direction and water chemistry for use with the 3-D Hydrodynamic Circulation Model for future forecasting of spills impact assessments and assessing spill prevention strategies; and h) ensure that the real-time data are available to municipalities and conservation authorities. 	IPZ-3 See Map 4.1	Existing: 3 years (T-1) Future: Immediately (T-3)	GEN-5	MON-4

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-SEW-1 Rev	The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage	MOE	C	<p>Prescribed Instrument (Review and Enhancement of Spill Prevention and Contingency Plans)</p> <p>Where event based modelling has shown that a disinfection interruption at a waste water treatment plant would cause a sewage treatment plant by-pass discharge to surface water or sewage treatment plant effluent to be a significant drinking water threat (IPZ-3), the Ministry of the Environment should:</p> <ul style="list-style-type: none"> a) review and amend Environmental Compliance Approvals to ensure they contain terms and conditions that ensure that the threats cease to be 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 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 reporting thresholds for significant threat activities and adjust the reporting threshold 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 Emergency Management Ontario to ensure that testing of the Contingency Plan is carried out within 3 years of the Source Water Protection Plan coming into effect, followed by regular (frequency and priority to be determined in consultation) emergency response preparedness exercises to address the significant threats identified; f) use the 3D Hydrodynamic Circulation and Water Quality Simulation Model, or other 3D models as appropriate, to run proactive simulation of potential spills in order to be able to predict the extent and duration of contamination and to help determine the parties to be notified in the event of a spill; g) install permanent instrumentation (e.g. continuous recording current meters, with wireless telephone link to Ministry of the Environment Monitoring and Reporting Branch) to provide real-time monitoring of current speed, direction and water chemistry for use with the 3-D Hydrodynamic Circulation Model for future forecasting of spills impact assessments and assessing spill prevention strategies; and h) ensure that the real-time data are available to municipalities and conservation authorities. 	IPZ-3 See Map 4.1	Existing: 3 years (T-1) Future: Immediately (T-3)	GEN-5	MON-4

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

COMMENTS POLICY LO-SEW-1	
Comments	
Response	
MOE	<p>9. Policy LO-SEW-1-a directs MOE to include specific terms and conditions in Environmental Compliance Approvals. As written, the policy could have unintended consequences as it would not allow the consideration of local conditions and would prevent the MOE from considering more advanced technology or approaches moving forward. Given this, the policy may not achieve the intended environmental outcomes and may not be relevant over time. Please amend LO-SWE-1 to indicate the terms and conditions “should consider” rather than “shall include”. MOE is considering the proposed terms and conditions as it develops business process for issuing or amending prescribed instruments for activities that pose a risk to source of drinking water.</p>
	<p>Revision made to clarify that the policy does not limit the ability of the MOE to apply other local conditions as warranted.</p>

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-SEW-2	Sanitary Trunk Sewer Spill (STS)	MOE	C	<p>Prescribed Instrument (Spill Prevention and Contingency Plan)</p> <p>Where event based modelling has shown that a spill from a sanitary trunk sewer would be a significant drinking water threat (IPZ-3), the Ministry of the Environment should:</p> <p>a) review and amend Environmental Compliance Approvals to ensure that the threat ceases to be significant. Terms and conditions should 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;</p> <p>b) update spill notification protocols jointly with Spills Action Centre to ensure direct notification to all potentially affected water treatment plant operators and appropriate communication to the public and media;</p> <p>c) review the reporting thresholds for significant threat activities and adjust the reporting threshold as required;</p> <p>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;</p> <p>e) work with Emergency Management Ontario to ensure that testing of the Contingency Plan is carried out within 3 years of the Source Water Protection Plan coming into effect, followed by regular (frequency and priority to be determined in consultation) emergency response preparedness exercises to address the significant threats identified;</p> <p>f) use the 3D Hydrodynamic Circulation and Water Quality Simulation Model, or other models as appropriate, to run proactive simulation of potential spills in order to be able to predict the extent and duration of contamination and to help determine the parties to be notified in the event of a spill;</p> <p>g) install permanent instrumentation (e.g. continuous recording current meters, with wireless telephone link to Ministry of the Environment Monitoring and Reporting Branch) to provide real-time monitoring of current speed, direction and water chemistry for use with the 3-D Hydrodynamic Circulation Model for future forecasting of spills impact assessments and assessing spill prevention strategies; and</p> <p>h) ensure that the real-time data are available to municipalities and conservation authorities.</p>	IPZ-3 See Map 4.1	Existing: 3 years (T-1) Future: Immediately (T-3)	GEN-5	MON-4

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-SEW-2 Rev	Sanitary Trunk Sewer Spill (STS)	MOE	C	<p>Prescribed Instrument (Spill Prevention and Contingency Plan)</p> <p>Where event based modelling has shown that a spill from a sanitary trunk sewer would be a significant drinking water threat (IPZ-3), the Ministry of the Environment should:</p> <ul style="list-style-type: none"> a) review and amend Environmental Compliance Approvals to ensure that the threat ceases to be significant. Terms and conditions should 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 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 reporting thresholds for significant threat activities and adjust the reporting threshold 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 Emergency Management Ontario to ensure that testing of the Contingency Plan is carried out within 3 years of the Source Water Protection Plan coming into effect, followed by regular (frequency and priority to be determined in consultation) emergency response preparedness exercises to address the significant threats identified; f) use the 3D Hydrodynamic Circulation and Water Quality Simulation Model, or 3D other models as appropriate, to run proactive simulation of potential spills in order to be able to predict the extent and duration of contamination and to help determine the parties to be notified in the event of a spill; g) install permanent instrumentation (e.g. continuous recording current meters, with wireless telephone link to Ministry of the Environment Monitoring and Reporting Branch) to provide real-time monitoring of current speed, direction and water chemistry for use with the 3-D Hydrodynamic Circulation Model for future forecasting of spills impact assessments and assessing spill prevention strategies; and h) ensure that the real-time data are available to municipalities and conservation authorities. 	IPZ-3 See Map 4.1	Existing: 3 years (T-1) Future: Immediately (T-3)	GEN-5	MON-4

COMMENTS POLICY LO-SEW-2	
Comments	Response
No comments received	Changes proposed to align with other similar policies

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-SEW-3	Moderate/ low threats All threats that are Linked to Storm Sewers	MOE	J	Specify Action (Storm Sewers) Where a spill from a facility could reach an off-site storm sewer such that it would be a moderate or low drinking water threat as identified in the <i>Tables of Drinking Water Threats</i> (Ontario Regulation 287/07 under the <i>Clean Water Act, 2006</i> in IPZ-2, IPZ-1), the Ministry of the Environment should enact the necessary legislation/regulation to require such facility owners to be subject to provincial approvals for spill prevention/mitigation plans.	IPZ-1, 2 See Chapter 5 of the respective Assessment Reports	2 years (T-15)	N/A	MON-4
LO-SEW-3 Rev	Moderate/ low threats All threats that are Linked to Storm Sewers	MOE	J	Specify Action (Storm Sewers) Where a spill from a facility could reach an off-site storm sewer such that it would be a moderate or low drinking water threat as identified in the <i>Tables of Drinking Water Threats</i> (Ontario Regulation 287/07 under the <i>Clean Water Act, 2006</i> in IPZ-2, IPZ-1), the Ministry of the Environment should enact the necessary legislation/regulation or tools to require such facility owners to be subject to provincial approvals for spill prevention/mitigation plans.	IPZ-1, 2 See Chapter 5 of the respective Assessment Reports	2 years (T-15)	N/A	MON-4

COMMENTS POLICY LO-SEW-3	
Comments	Response
<p>MOE</p> <p>10. Policy LO-SEW-3 utilizes the specify action tool to address moderate and low threats and is directed at MOE to enact legislation to require facility owners to be subject to provincial approvals for spills prevention/mitigation plans for moderate and low sewage threats linked to storm sewers. The activity of “a spill at a facility which subsequently enters a storm sewer” is not in itself a prescribed drinking water threat or modelled threat included in CTC’s assessment report. The storage of various chemicals at facilities which might pose a risk to drinking water sources are already addressed as part of SDWTs under the CWA (i.e., storage and handling of DNALPs, fuel, organic solvents, etc.) and policies that have been developed to address these threats would capture the risk from spills associated with the storage or handling of these chemicals. The legislation sought by the policy would not be practical to implement solely in the CTC SPA without over reaching and limiting the ability of facilities to conduct day to day business. Is there a chemical, a material or a particular type of facility that is not adequately capture under the CWA that the SPC is seeking to address with this policy? Provincial and municipal efforts may be better spent developing E&O materials that link spills to sewers to drinking water quality and public health. Generally, E&O material for spill prevention to sewers is limited to impacts to ecological health. The SPC may want to consider an E&O policy permitted under the CWA, s.22(7) similar to the sample policy below:</p> <p>The SPA is requested to reach out to MOE and municipalities to request they work together to develop education and outreach material that encourages facilities to develop spill prevention/mitigation plans and that link spills to sewers and sewer effluent quality to drinking water quality and public health.</p>	<p>The intent of this policy is to address spills that indirectly enter storm sewers (spills occur on-site but drain off site via ditches and eventually enter storm sewers that outlet into Lake Ontario). In these circumstances municipalities have no legal ability to require on-site containment facility as there is no direct link to the storm sewer.</p>

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-SEW-4 No change	Significant/ moderate/ low threats All Pathogen Threats	MOE Health Canada	J K	<p>Specify Action (Development of Pathogen Risk Assessment)</p> <p>Where event based modelling has identified activities that are significant pathogen drinking water threats (IPZ-3) 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 pathogen drinking water threats (IPZ-2, IPZ-1), the Ministry of the Environment and Health Canada should provide technical and financial support to the Lake Ontario Collaborative member municipalities to undertake the development of a pathogen (not limited to <i>E. coli</i>) risk assessment, including:</p> <p>a) identifying the pathogens and the respective densities at different times;</p> <p>b) assessing the associated risk at intakes due to pathogens in non-disinfected wastewater and other known specific sources of these pathogens; and</p> <p>c) undertaking quantitative microbial risk assessments, using a structured research & 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>	IPZ-3 See Map 4.1 IPZ-1, 2 See Chapter 5 of the respective Assessment Reports	2 years (T-15)	N/A	MON-4

COMMENTS POLICY LO-SEW-4	
Comments	Response
No comments received	

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	MOE	K	<p>Specify Action (Spill Prevention/Contingency 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 (IPZ-3), the Ministry of the Environment should:</p> <p>a) 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"> i) plans are based on the depth of ground cover at surface water crossings; ii) spill response time frames are established; iii) responsibilities of first responders are established to ensure a prompt unified regulatory command structure to manage the spill response; iv) 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; v) reporting thresholds are established for significant threat activities; vi) 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; vii) that there are appropriate spills response plans for each crossing; viii) that appropriate pipeline system failure and shut down measures and policies are included; ix) a review is undertaken on the depth of ground cover over the pipeline at each crossing, including an assessment of erosion and flood risk; x) that an assessment of condition of the pipe system is provided; xi) that the pipeline design and operational Best Management Practices are in place (including potential additional design and operational Best Management Practices); and xii) that any new or expansions or pipeline replacements are constructed to meet current best design criteria; xiii) a provision is included in the contingency plan that the facility owner work with Emergency Management Ontario to ensure that testing of the contingency plan is carried out within 3 years of the Source Water Protection Plan coming into effect, followed by regular (frequency and priority to be determined in consultation) emergency response preparedness exercises to address the significant threats identified; 	IPZ-3 See Map 4.1	2 years (T-15)	N/A	MON-4

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

				<p>b) in collaboration with Environment Canada:</p> <ul style="list-style-type: none"> i) use the 3-D Hydrodynamic Circulation and Water Quality Simulation Model, or other models as appropriate, to run proactive simulation of potential spills in order to be able to predict the extent and duration of contamination and to help determine the parties to be notified in the event of a spill; ii) install permanent instrumentation (e.g. continuous recording current meters, with wireless telephone link to Ministry of the Environment Monitoring and Reporting Branch) to provide real-time monitoring of current speed, direction and water chemistry for use with the 3-D Hydrodynamic Circulation Model for future forecasting of spills impact assessments and assessing spill prevention strategies; iii) ensure that the real-time data are available to municipalities and conservation authorities; and iv) undertake Lake Ontario nearshore monitoring yearly; and make the data available to municipalities and conservation authorities. 				
--	--	--	--	---	--	--	--	--

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-PIPE -1 Rev	Pipelines Transporting Petroleum Product (Containing Benzene) Crossing Tributaries of Lake Ontario	MOE	K	<p>Specify Action (Spill Prevention/Contingency 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 (IPZ-3), the Ministry of the Environment should:</p> <p>a) 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"> i) plans are based on the depth of ground cover at surface water crossings; ii) spill response time frames are established; iii) responsibilities of first responders are established to ensure a prompt unified regulatory command structure to manage the spill response; iv) 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; v) reporting notification thresholds are established for significant threat activities to ensure that water plant operators are notified appropriately for a given magnitude of spill; vi) 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; vii) that there are appropriate spills response plans for each crossing; viii) that appropriate pipeline system failure and shut down measures and policies are included; ix) a review is undertaken on the depth of ground cover over the pipeline at each crossing, including an assessment of erosion and flood risk; x) that an assessment of condition of the pipe system is provided; xi) that the pipeline design and operational Best Management Practices are in place (including potential additional design and operational Best Management Practices); and xii) that any new or expansions or pipeline replacements are constructed to meet current best design criteria; xiii) a provision is included in the contingency plan that the facility owner work with Emergency Management Ontario to ensure that testing of the contingency plan is carried out within 3 years of the Source Water Protection Plan coming into effect, followed by regular (frequency and priority to be determined in consultation) emergency response preparedness exercises to address the significant threats identified; 	IPZ-3 See Map 4.1	2 years (T-15)	N/A	MON-4

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

			<p>b) in collaboration with Environment Canada:</p> <ul style="list-style-type: none"> i) use the 3-D Hydrodynamic Circulation and Water Quality Simulation Model, or other 3D models as appropriate, to run proactive simulation of potential spills in order to be able to predict the extent and duration of contamination and to help determine the parties to be notified in the event of a spill; ii) install permanent instrumentation (e.g. continuous recording current meters, with wireless telephone link to Ministry of the Environment Monitoring and Reporting Branch) to provide real-time monitoring of current speed, direction and water chemistry for use with the 3-D Hydrodynamic Circulation Model for future forecasting of spills impact assessments and assessing spill prevention strategies; iii) ensure that the real-time data are available to municipalities and conservation authorities; and iv) undertake Lake Ontario nearshore monitoring yearly; and make the data available to municipalities and conservation authorities. 				
--	--	--	--	--	--	--	--

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

COMMENTS POLICY LO-PIPE-1	
Comments	Response
<p>MOE</p> <p>11. Policy LO-PIPE-1(a) specifies actions for the MOE to enact related to spills and contingency/emergency response for pipelines transporting petroleum products containing benzene. The Ministry would like to further discuss with the SPC the intended outcomes of this policy. As the policy is currently written, it seems to refer to updates to the pipeline facility’s spills prevention, management, risk reduction, and contingency plans. Such plan review and updates are the facility owner’s responsibility, not that of the Province. There are already existing regulations and guidelines that require facility owners to develop and update these plans so that they are protective of the environment. These include National Energy Board Onshore Pipeline Regulations and the Ontario Energy Board Environmental Guidelines. With these existing mechanisms already place, it is unclear what additional outcomes this policy directed at MOE are envisioned to achieve. With respect to LO-PIPE-1(b), our comment no. 4 above applies. Under the NEB Onshore Pipeline Regulations s.32, each pipeline company must “develop, implement, and maintain an emergency management program that anticipates, prevents, manages and mitigates conditions during an emergency that could adversely impact property, the environment, or the safety or the workers or the public”. The facility owners are also required to develop an emergency procedure manual that is reviewed and updated on a regular basis. Spill management and spill contingency plans are required as part of these emergency procedure manuals. The emergency procedure manuals are submitted to the NEB as part of the pipeline approvals process and are required before a company begins operations.</p> <p>The following information has been provided by MOE following the LO working group to support their suggested revision highlighted in yellow above: <i>The proponent is also responsible for reviewing and updating their spills plans in order to comply with several sections of the NEB Onshore Pipeline Regulation. Under s.6.5(o), the pipeline owner must have a process for preparing, reviewing, revising and controlling these emergency management documents. Through this provision, the frequency of reviews is determined by the pipeline owner. Further, under s.32, a company must have up-to-date emergency procedures manual filed with the NEB. When the facility owners submit new or updated Emergency Procedure manuals to the NEB, the NEB conducts compliance reviews to verify critical information is included. A risk-information approach is used to monitor compliance.</i></p> <p><i>The Ontario Energy Board (OEB) maintains the “Environmental Guidelines for Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario” (OEB Environmental Guidelines), last updated in 2011. The OEB Environmental Guidelines provide direction to applicants in the preparation of a project’s Environmental Report. The OEB Guidelines are neither statutory regulations nor are they a rule or a code issued under the Board’s authority; however, they represent current knowledge and practice concerning matters that the proponents should consider and incorporate when making an application for Board approval of hydrocarbon facilities development in Ontario. Under these OEB Guidelines Section 5.9.2 Spills, a facility owner must develop a hydrocarbon spills contingency plan for every liquid hydrocarbon pipeline in accordance to Ontario Regulation 224/07 “Spill Prevention and Contingency Plans”. The contingency plan must include spill control and notification procedures. The proponents must also include emergency plans for leaks and separate response plans for emergency/crisis situations. The Board does not have the authority to ensure compliance with the guideline.</i></p> <p><i>Although the Ontario Regulation 224/07 does not apply directly to pipeline companies, OEB Guidelines are requesting that companies follow these regulations. These regulations require facility owners to regularly review and update their plans and operations in regards to spill prevention and mitigation. Section 9 includes requirements for specific reviews after a spill. However, independent of spills, s.10 of the regulation requires that facility owners must review and update their plans on an annual basis to ensure they comply with the requirements of the Regulation. The review includes evaluation of changes to risks and further actions to reduce risks and prevent spills. The Regulation also requires that the effectiveness of the contingency plans be tested on an annual basis. Finally, under the Regulation, the officer or director of the company is required to sign a statement regarding the accuracy and effectiveness of these plans each year, indicating that the plans are effective in preventing or reducing the risk of spills at the plant, and were effective at preventing or minimizing any adverse effects that may result from a spill at the facility.</i></p>	<p>It is noted that there are a number of implementing bodies that have some role in regulations and guidelines related to pipeline spills (NEB, OEB, facility owners, MOE). There did not appear to be consensus on the appropriate implementing body/mechanism that can be used to ensure that the specified actions are addressed. The three main options are the MOE, the facility owner or the NEB/OEB. Examples of Ganaraska SPP and Halton/Hamilton SPP are provided for review at the back of this table.</p> <p>Discussion is required by SPC as a whole.</p>

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

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 (Spill from Petroleum Tank Farm)	MOE	K	<p>Specify Action (Spill Prevention/Contingency Plan)</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 (IPZ-3), the Ministry of the Environment shall require a risk reduction plan for the tank farm. Ministry of the Environment, in consultation with the applicable regulating authorities (e.g. Technical Standards and Safety Authority) should:</p> <ul style="list-style-type: none"> a) investigate and evaluate existing Spills Prevention Plans/ Spill 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; and 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 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 reporting thresholds for significant threat activities; h) ensure that information is communicated to all (e.g., the originators of the spill, emergency response/clean-up personnel, medical officer of health, municipal water owner and water operating authority) responsible parties who are responding to the spill; 	IPZ-3 See Map 4.1	2 years (T-15)	N/A	MON-4

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
				<ul style="list-style-type: none"> i) include a provision that the facility owner work with Emergency Management Ontario to ensure that testing of the Contingency Plan is carried out within 3 years of the Source Water Protection Plan coming into effect, followed by regular (frequency and priority to be determined in consultation) emergency response preparedness exercises to address the significant threats identified; j) use the 3D Hydrodynamic Circulation and Water Quality Simulation Model, or other models as appropriate, to run proactive simulation of potential spills in order to be able to predict the extent and duration of contamination and to help determine the parties to be notified in the event of a spill; k) install permanent instrumentation (e.g. continuous recording current meters, with wireless telephone link to Ministry of the Environment Monitoring and Reporting Branch) to provide real-time monitoring of current speed, direction and water chemistry for use with the 3-D Hydrodynamic Circulation Model for future forecasting of spills impact assessments and assessing spill prevention strategies; and l) ensure that the real-time data is available to municipalities and conservation authorities. 				

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-FUEL-1 Rev	Handling and Storage of Fuel (Spill from Petroleum Tank Farm)	MOE	K	<p>Specify Action (Spill Prevention/Contingency Plan)</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 (IPZ-3), the Ministry of the Environment shall require a risk reduction plan for the tank farm. Ministry of the Environment, in consultation with the applicable regulating authorities (e.g. Technical Standards and Safety Authority) should:</p> <ul style="list-style-type: none"> a) investigate and evaluate existing Spills Prevention Plans/ Spill 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"> v. best management practices; vi. site characterization as necessary; vii. proof of ability to pay for clean-up of potential contamination; and viii. 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 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 reporting notification thresholds for significant threat activities to ensure that water plant operators are notified appropriately for a given magnitude of spill; h) ensure that information is communicated to all (e.g., the originators of the spill, emergency response/clean-up personnel, medical officer of health, municipal water owner and water operating authority) responsible parties who are responding to the spill; i) include a provision that the facility owner work with Emergency Management Ontario to ensure that testing of the Contingency Plan is carried out within 3 years of the Source Water Protection Plan coming into effect, 	IPZ-3 See Map 4.1	2 years (T-15)	N/A	MON-4

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
				<p>followed by regular (frequency and priority to be determined in consultation) emergency response preparedness exercises to address the significant threats identified;</p> <p>j) use the 3D Hydrodynamic Circulation and Water Quality Simulation Model, or other 3D models as appropriate, to run proactive simulation of potential spills in order to be able to predict the extent and duration of contamination and to help determine the parties to be notified in the event of a spill;</p> <p>k) install permanent instrumentation (e.g. continuous recording current meters, with wireless telephone link to Ministry of the Environment Monitoring and Reporting Branch) to provide real-time monitoring of current speed, direction and water chemistry for use with the 3-D Hydrodynamic Circulation Model for future forecasting of spills impact assessments and assessing spill prevention strategies; and</p> <p>l) ensure that the real-time data is available to municipalities and conservation authorities.</p>				

COMMENTS POLICY LO-FUEL-1

COMMENTS POLICY LO-FUEL-1	
Comments	Response
<p>MOE 12. Policy LO-FUEL-1 specifies action for the MOE to undertake related to spills prevention and contingency plans to address spills from petroleum tank farms. Petroleum tank farms are primarily regulated by Technical Standards & Safety Authority (TSSA) under the authority of the Ministry of Consumer Services (MCS). MOE’s authority for these sites is limited to the review and inspection of Environmental Compliance Approvals issued to these facilities for industrial sewage and air emissions and responding to off-site impacts from spills. On-site spill prevention falls under TSSA’s authority. The focus of a facility’s spill preventions measures tends to be worker health and safety, fire prevention and liability insurance; however, many of the measures commonly employed such as spill kits and catch basin shut - outs also prevent spills from entering storm sewers and Lake Ontario tributaries. Considering the processes already in place at these facilities, MOE is better placed to work with these facilities and TSSA/MCS to build source protection considerations into existing spill prevention plans as described in policy LO-FUEL-3. Since such outreach is already included in LO-FUEL-3, we recommend removing this policy and if desired, building in some of the details for LO-FUEL-1 into policy LO-FUEL-3.</p>	<p>The intent of the policy is to have MOE “work with TSSA/MCS” as the wording species that MOE should in consultation with...</p> <p>Although it is acknowledged that TSSA/MCS do have regulatory powers, it appears that their regulatory powers are somewhat weak on spill prevention and contingency plans. As a result, it is recommended that MOE remain as the identified implementing body.</p>

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-FUEL-2 No Change Proposed pending further discussion with MOE	Handling and Storage of Fuel (Spill from Petroleum Tank Farm)	MOE	K	Specify Action (Storm Sewers) Where event based modelling of a spill from a facility has shown that it could reach an off-site storm sewer such that it would be a significant drinking water threat (IPZ-3), the Ministry of the Environment should enact the necessary legislation/regulation to require such facility owners to be subject to provincial approvals for spill prevention/mitigation plans.	IPZ-3 See Map 4.1	2 years (T-15)	N/A	MON-4

COMMENTS POLICY LO-FUEL-2	
Comments	Response
MOE 13. Policy LO-FUEL-2 directs the MOE to enact the necessary legislation/regulation to require owners of facilities where a fuel spill could reach storm sewers to be subject to provincial approvals for spill prevention/ mitigation plans. As written, the policy directs the MOE to further regulate activities currently regulated by TSSA, such as developing emergency contingency plans. Provincial efforts would likely be most effective developing education and outreach materials as described in our comment for LO-FUEL-1. Please consider removing this policy.	<p>The intent of this policy is to address spills that indirectly enter storm sewers (spills occur on-site but drain off site via ditches and eventually enter storm sewers that outlet into Lake Ontario). In these circumstances municipalities have no legal ability to require on-site containment facility as there is no direct link to the storm sewer.</p> <p>At the WG meeting agreed that further discussion with MOE is warranted with City of Toronto and MOE staff to understand rationale and explore options. Meeting to be held May 21 and staff will report at May 27 SPC meeting</p>

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
LO-FUEL-3 No change	Significant/ moderate/ low threats Handling and Storage of Fuel (Spill from Petroleum Storage Tanks)	MOE	J K	<p>Education and Outreach (Fuel Tank Farms)</p> <p>Where event based modelling has identified activities that are significant drinking water threats (IPZ-3) 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 (IPZ-2, IPZ-1), the Ministry of the Environment shall, in consultation with appropriate authorities, work with the facility owner to:</p> <p>a) support the investigation and evaluation of existing Spills Prevention Plans/ Spill 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>	<p>IPZ-3 See Map 4.1</p> <p>IPZ-1, 2 See Chapter 5 of the respective Assessment Reports</p>	2 years (T-15)	N/A	MON-4

COMMENTS POLICY LO-FUEL-3	
Comments	Response
No comments received	

Ganaraska SPP Pipeline Policies		
L-2(1) SA S	Owner of the Pipeline	Review their relevant emergency response plans or procedures within one year to ensure that they are adequate to respond to a pipeline rupture in an area where the pipeline crosses a body of open water. The emergency response plan must include, at a minimum: a) Specific procedures for responding to a pipeline rupture in an area where the pipeline crosses a body of open water; b) A communications protocol; c) The location of available spill response materials; and d) Provisions to immediately notify the affected water treatment plant and municipality in the event of a pipeline rupture.
L-2(2) MON	Source Protection Authority	Request and report on information from the Owner of the pipeline by February 1 of each year regarding updates to existing emergency response plans made to address a pipeline rupture, and provide this summary to applicable municipalities.
L-2(3) MON	Source Protection Authority	Request and report on information from the Owner of the pipeline by February 1 of each year regarding any activation of the emergency response plan for activities undertaken as a result of a pipeline rupture, and provide this summary to applicable municipalities.
L-2(4) MON	Source Protection Authority	Request and report on information from the Owner of the Pipeline by February 1 regarding any updates to existing emergency response plans made to address a pipeline rupture. This report is also to be provided to relevant municipalities.
L-2(5) MON MC	Source Protection Authority	Request and report on information from the Owner of the Pipeline by February 1 regarding any activation of the emergency response plan for activities undertaken as a result of a pipeline rupture. This report is also to be provided to relevant municipalities.
L-2(6) SA S	Owner of the Pipeline	Notify the potentially affected municipality and water treatment plant prior to any pipeline maintenance activities. Request and report on information from the Owner of the Pipeline by February 1
L-2(7) MON	Source Protection Authority	Request and report on information from the Owner of the pipeline by February 1 of each year regarding all emergency response practice exercises and maintenance activities completed in the preceding calendar year, and provide this summary to applicable municipalities.

Halton Hamilton SPP Pipeline Policies		
L-1-S	Pipeline Owners/SPA	Where the conveyance of oil in pipelines across open water bodies is an existing significant threat to lake-based water sources, a) Fuel pipeline owners are recommended to conduct inline pipeline integrity and visual inspections of pipeline crossings at open water bodies at a frequent timing of every three years. b) The SPA shall consult with fuel pipeline owners to determine if pipeline testing and visual inspections have occurred and to request a report on the findings of the testing and inspections and actions taken.

Red text – Revisions discussed with the Lake Ontario Working Group

Highlighted text – Revisions not discussed with the Lake Ontario Working Group but would satisfy MOE comments

L-2-S	NEB/OEB/SPA	To reduce the risk to drinking water sources from the construction of pipelines conveying oil across open water bodies, <ul style="list-style-type: none">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 SPA shall consult with the NEB and the OEB to determine if pipeline design and the requirements for monitoring and maintenance practices in vulnerable area consider drinking water source protection.
-------	-------------	--