
Technical Bulletin: Addressing Transportation Threats

Date: April 2009

Background

- The Clean Water Act requires that source protection committees list activities that are or would be drinking water threats. Through regulations and technical rules, the province has set out which activities must be considered drinking water threats under specific circumstances. Specifically, Section 1.1 of Ontario Regulation 287/07 (General) lists activities that are prescribed as drinking water threats and the Table of Drinking Water Threats in the Technical Rules specify under what circumstances these activities are considered threats.
- The regulations and technical rules provide a mechanism through which source protection committees can add drinking water threats or add additional circumstances to activities the province has already listed as a threat.
- The list of activities that are prescribed as drinking water threats was established using input from multiple stakeholder groups and committees. The method of determining when an activity is a threat, and more specifically a significant, moderate, or low drinking water threat, is based on a semi-quantitative risk assessment that considers both the nature of the activity itself (the hazard rating) and the vulnerability of the area in which the activity is located. This is used to determine a risk score. The methodology was widely consulted on in advance of the posting of the regulations and technical rules around the assessment report.
- During the consultation on the regulations and technical rules for the assessment report, questions were raised around the inclusion of transportation corridors as drinking water threats. Corridors were not included in the list of prescribed activities in the current regulations and technical rules as the inclusion of corridors did not fit within the semi-quantitative risk assessment process, and therefore, had not been consulted on. In addition, the current rules around the addition of threats and circumstances do not provide a method for the inclusion of transportation corridors.

Technical Bulletin: Addressing Transportation Threats

- Although transportation corridors have not been included as a prescribed threat and cannot be added, there are a number of ways that specific activities taking place within a transportation corridor could be identified as a threat at the discretion of the Director under the Clean Water Act.

Including Transportation Threats in the Assessment Report

- Not being listed as a prescribed threat does not preclude the source protection committees (SPCs) from determining that, on a local level, transportation of *specific* substances along certain routes does pose a threat to local source waters and SPCs have the flexibility to include them in the assessment report.
- Transportation threats can be considered by adding a new drinking water threat as per Rule 119 of the Technical Rules. An SPC can include a threat that is not prescribed in O. Reg. 287/07 if:

(1) *the activity has been identified by the SPC as an activity that may be a drinking water threat;*

(2) *in the opinion of the Director,*

(a) *the chemical hazard rating of the activity is greater than 4, or*

(b) *the pathogen hazard rating of the activity is greater than 4; and*

(3) *the risk score for an area within the vulnerable area in respect of the activity calculated in accordance with rule 122 is greater than 40.*

- Rules 120 and 121 set out how the hazard rating is determined:

120. *The chemical hazard rating of an activity that is not prescribed to be a drinking water threat under O. Reg. 287/07 (General) shall be a rating that in the opinion of the Director reflects the hazard presented by the chemical parameter associated with the activity, if any, considering the following factors:*

(1) *Toxicity of the parameter.*

(2) *Environmental fate of the parameter.*

(3) *Quantity of the parameter.*

(4) *Method of release of the parameter to the natural environment.*

(5) *Type of vulnerable area in which the activity is or would be located.*

121. *The pathogen hazard rating of an activity that is not prescribed to be a drinking water threat under O. Reg. 287/07 (General) shall be a rating that in the opinion of the Director reflects the hazard presented by pathogens associated with the activity, if any, considering the following factors:*

Technical Bulletin: Addressing Transportation Threats

- (1) *The frequency of the presence of pathogens that may be associated with the activity.*
- (2) *Method of release of the pathogen to the natural environment.*
- (3) *Type of vulnerable area in which the activity is or would be located.*

- Before adding a transportation threat to the assessment report, Director approval of the hazard rating and the risk score must be obtained.
- Once a new threat is added, then the SPC must follow the same process around identifying where the threat is significant, moderate or low and how many significant drinking water threats are in each vulnerable area.

Source Protection Plans and Transportation Threats

NOTE: *Because no source protection plan regulation is in place, the following policy options cannot yet be confirmed and are subject to change. They are provided merely for the purpose of considering the implications of adding transportation threats to the assessment report.*

- When making the decision regarding whether to add transportation-related threats to the assessment reports, there are a number of things SPCs should consider relating to the source protection plan.
- If a transportation threat is identified as a significant threat in the assessment report, the *Clean Water Act, 2006* requires the source protection plan to contain a policy that satisfies the objectives of ensuring this threat ceases to be and never becomes significant (policies that result in “managed threats” may satisfy these objectives). There are several options for addressing significant transportation threats in source protection plans.

1. Reducing the likelihood that a spill will occur.

- There are various policy approaches which an SPC could use when formulating a policy to reduce the likelihood that a spill will occur in a vulnerable area:
 - Policies relating to education and outreach could be developed, including those that require the installation of signs making transporters aware that they are travelling through a vulnerable drinking water source protection area, and thus motivating them to voluntarily undertake appropriate precautions.
 - Policies could be developed that reduce the speed of the vehicles or restrict the route used to transport certain substances on some roads (where municipalities have the jurisdiction to make such policies). However, it should be noted

Technical Bulletin: Addressing Transportation Threats

that SPCs do not have the authority to make policies to change transportation routes on provincial or federal transportation corridors, nor do they have the power to change where existing corridors are located.

2. Reducing the impact of a spill, should it occur.
 - There are also several policy approaches which an SPC could use when developing a policy to address the impact of spills:
 - Policies relating to structural and operational risk management measures, including the construction of berms or setbacks, which could reduce the speed at which spilled contaminants would reach the drinking water source.
 - Plan policies could direct that municipal emergency response plans be reviewed to ensure that the response plans consider drinking water systems and their associated vulnerable areas and have effective measures to address a spill of the substances identified as a transportation threat in the assessment report when it is being transported through vulnerable areas.
 - It should be noted that any policy in a plan to address a significant drinking water threat may have to provide supporting rationale or otherwise demonstrate the extent to which it effectively manages or reduces the risk of the threat so that it ceases to be or become significant.

Addressing Transportation Threats Outside of the *Clean Water Act, 2006*

- The Rules around the inclusion of additional drinking water threats are enabling and do not require that SPCs add any threats. SPCs, at their own discretion, may request that the Director approve the hazard rating and inclusion of local threats that are not already prescribed in regulation under the Clean Water Act.
- An SPC may decide not to include transportation threats in the Assessment Report and instead choose to advise municipalities of their concerns with respect to transportation threats and may also choose to work with municipalities to ensure effective management of these threats.
- In the event that SPCs do not add transportation threats to a source protection plan, municipalities have the power to implement most actions listed in the previous section through official plans and by-laws, education and outreach, and emergency planning.

Technical Bulletin: Addressing Transportation Threats

- It should be noted that an SPC cannot include policies for addressing transportation threats in a source protection plan if the assessment report does not list any related transportation activities as threats.

Important Considerations

- SPCs should consider the nature of transportation threats in their Source Protection Areas. It may only be necessary to include one transportation threat in the assessment report (e.g., one about which much information is known) if plan policies to address this threat (which are often broad reaching) could also address all incidences of transportation threats in the area. For example, reduction in speeds or rerouting truck traffic could apply to all transportation.
- The assessment report may identify that transportation threats are a moderate or low threat and then the SPC could exercise their discretionary authority under the Act to establish policies in the plan. However, policy options for addressing these moderate or low transportation threats may be limited and public bodies need only “have regard to” (i.e., consider, as opposed to “conform with”) moderate and low threat policies.
- The Emergency Management and Civil Protection Act requires municipalities to complete a HIRAI (hazard identification and risk assessment) and to identify critical infrastructure. It also requires municipalities to have emergency response plans but does not specify that drinking water systems and associated vulnerable areas be included.
- If additional systems are elevated into the source protection planning process, these systems and their associated vulnerable areas may not have been identified in municipal emergency response plans. SPCs should consider this when thinking about recommendations for emergency response plans.

Summary

- Transportation corridors are not included in the list of prescribed threats.
- SPCs could seek approval of the Director to have site-specific transportation threats related to the transport of specific substances included as a local drinking water threat in the assessment report through the process set out in the rules to include additional threats.
- Including transportation threats as significant threats in the assessment report has important ramifications for the source protection plan – all significant threats must cease to be or never become significant.

Technical Bulletin: Addressing Transportation Threats

- Policy options for addressing significant transportation threats could address the likelihood of a spill or the impact of a spill once it occurs.
- SPCs may decide to make municipalities aware of transportation threats outside of the *Clean Water Act, 2006* and help them address these threats through existing tools. This may simplify the analysis and achieve similar outcomes, potentially in a timelier manner.

Future Steps

- The province is proposing to consult on the inclusion of transportation corridors as threats as the first round of assessment reports is being developed with an eye to proposing options for the inclusion of corridors for future rounds of planning.

Example:

Adding the threat of “transportation of fuel” to address transportation of fuel through an IPZ.

Step A. Determine threat and circumstances to be added.

Threat: Transportation of fuel.

Circumstances:

1. The fuel is transported in a quantity that is more than 10,000 litres (Large trucks transporting fuels typically have capacities ranging from 28,400 litres to 37,500 litres).
2. A spill of the fuel may result in the presence of BTEX in groundwater or surface water.

Step B. Determine the hazard rating according to rule 120

The hazard rating would be calculated by considering the factors listed below:

(NOTE: the values given are hypothetical and should not be used as a basis for further calculations without confirmation)

- | | |
|--|-----------------------------|
| 1. Toxicity of the parameter | BTEX: 8 |
| 2. Environmental fate of the parameter | BTEX: 6 (direct) |
| 3. Quantity of the parameter | BTEX: 15,000 L (scoring 10) |
| 4. Method of Release (RIM score): | BTEX: 6 (low) |
| 5. Type of Vulnerable Area | IPZ |

For this hypothetical example, the **Hazard Rating would be 7.8.**

Technical Bulletin: Addressing Transportation Threats

Step C. Determine where the activity would be a significant, moderate or low drinking water threat, according to rules 129, 134 and 137.

With a hypothetical hazard rating of 7.8, handling of fuel according to the circumstance described above would be a moderate drinking water threat in areas within the IPZ with vulnerability scores from 8 to 10. It would be a low drinking water threat in areas within the IPZ with vulnerability scores of 6 and 7.