

Enbridge Pipelines Inc. (Enbridge)
Line 9B Reversal and Line 9 Capacity Expansion Project (Project)
Application under section 58 (Application) of the *National Energy Board Act*
OH-002-2013

City of Toronto ("Toronto")
WRITTEN EVIDENCE
File OF-Fac-Oil-E101-2012-10 02

1. I, Michael D'Andrea, of the City of Mississauga, am the Executive Director of Engineering and Construction Services for the City of Toronto. Until July 14, 2013, I was Director of Water Infrastructure Management for the City of Toronto, a position I held since 2004. I have knowledge of the matters set out in this evidence respecting Source Water Protection issues. Other City staff have provided input on other issues of concern to the City of Toronto as specified in this evidence.

2. The issues of concern to the Council of the City of Toronto in this Application are as described in detail in the Council Reports discussed below, and may be summarized as follows:

- 1) Pipeline Integrity
- 2) Spill response capability
- 3) Protection of water resources
- 4) Cost recovery

General Background

3. The City of Toronto is a significant property owner¹. Line 9B crosses a number of important municipal properties within the geographic boundaries of the City, comprising water treatment and supply, wastewater collection and treatment, and stormwater infrastructure, transit, roads, municipal office buildings, public housing, green space, parks, and many other lands and facilities. In the event of a significant spill from Line 9B, these lands and facilities will be affected.

4. Similarly, the lives and properties of City residents would be affected. Members of the Council of the City of Toronto have received expressions of concern regarding this Application from City residents, staff and others, which has led to City participation in these proceedings, as outlined below.

¹ For example, City of Toronto water, wastewater and stormwater assets are valued at \$28 billion

City of Toronto's involvement in Line 9B Application

5. By Notice of Motion dated November 27, 2012, City Council at its meeting of November 27 and 28, 2012 directed the City Solicitor to prepare a report respecting City of Toronto issues associated with the Line 9B Application. Links to the Notice of Motion and Minute from City Council follow.

<http://www.toronto.ca/legdocs/mmis/2012/mm/bgrd/backgroundfile-52533.pdf>

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2012.MM28.22>

6. At its meeting of February 20 and 21, 2013, City Council adopted the Report of the City Solicitor dated February 11, 2013, identifying the areas of City concern as summarized in paragraph 2 of this Evidence. Links to the Report and Minute from City Council follow.

<http://www.toronto.ca/legdocs/mmis/2013/cc/bgrd/backgroundfile-56193.pdf>

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2013.CC30.5>

7. At the direction of City Council, a further report was prepared by the City Solicitor, dated July 4, 2013, and submitted to City Council at its meeting of July 16, 2013, in order to update City Council on the status of the Line 9B proceedings. Links to the Report and Minute from City Council follow.

<http://www.toronto.ca/legdocs/mmis/2013/cc/bgrd/backgroundfile-60101.pdf>

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2013.CC37.1>

The various City of Toronto Reports and Council Minutes are attached to this Evidence as Attachment 1.

Liaison Group to Consolidate Issues of Municipal Interest

8. At the direction of the City of Toronto Council, City Staff has coordinated a municipal liaison group to facilitate discussion with other municipalities and Conservation Authorities with concerns similar to those of Toronto, for the purpose of advising and providing recommendations and conditions of approval to the National Energy Board.

9. The liaison group has included representatives of the City of Toronto, the Town of Ajax, the City of Burlington, the City of Hamilton, the City of Kingston and the City of Mississauga, as

well as the Central Lake Ontario Conservation Authority and others. All of these groups share concerns related to the issues identified in paragraph 2 of this Evidence.

10. The liaison group has provided an opportunity for input from staff from various municipalities on issues of emergency management (fire, water, emergency preparedness). This input has been used to consolidate and refine Information Requests, Evidence and Submissions on this Application. This Evidence is filed with the concurrence of other liaison group members.

11. In addition, through the liaison group, participants have agreed to share the cost of retaining external engineering expertise to review the issues associated with pipeline integrity on the basis that the review is a benefit to all of the municipalities participating in the liaison group.

12. Since the Application has been filed, and in addition to the reports submitted to and approved by the Council of City of Toronto as referred to above, various other municipalities have reported on the Line 9B Application to their Councils. Attachment 2 to this Evidence includes reports from various municipal Councils and Committees.

13. Although the City of Toronto and the City of Mississauga have participated in the Line 9B Application as Intervenors, all other municipalities in the liaison group applied for and obtained status as participants and have prepared or are currently preparing Letters of Comment in accordance with the Board's procedures.

14. Letters of Comment that have already been prepared by municipalities participating in the liaison group are contained in Attachment 3. Links to the Letters of Comment follow.

Town of Ajax:

<https://www.neb-one.gc.ca/ll-eng/livelink.exe?func=ll&objId=979553>

City of Hamilton:

<https://www.neb-one.gc.ca/ll-eng/livelink.exe?func=ll&objId=980899&objAction=browse>

City of Kingston:

<http://www.neb-one.gc.ca/fetch.asp?language=E&ID=A53200>

City of Burlington:

<https://www.neb-one.gc.ca/ll-eng/livelink.exe?func=ll&objId=980067&objAction=browse>

Other municipalities from the Greater Toronto-Hamilton Area (“GTHA”) have also filed Letters of Comment raising similar concerns. Some of these include the following:

Regional Municipality of Durham:

<https://www.neb-one.gc.ca/ll-eng/livelink.exe?func=ll&objId=980122&objAction=browse>

Halton: not available as of filing due to NEB server malfunction

Fire Services and the Office of Emergency Management Concerns Regarding the Safety, Security and Contingency Planning Associated with the Operation of the Proposed Project (Issue 6)

15. Throughout these proceedings, the Enbridge Application and related documentation has been reviewed by staff of Toronto Fire Services, specifically, Chief Manick Noormahamud. Chief Noormahamud is District Chief - Special Operations at Toronto Fire Services, and until recently held the position of Chief - Emergency Planning Research and Development at Toronto Fire Services.

16. Chief Noormahamud has been involved in Emergency Planning for Toronto Fire Services for the past five years. Chief Noormahamud notes that the revised Enbridge Emergency Manual (Book 7), provided in response to questions from the Province of Ontario in these proceedings, is a "generic" document that does not address emergency response in Toronto specifically.

17. Accordingly, Chief Noormahamud advises that Enbridge will need to meet with Toronto Fire Services and other emergency service providers in order to review, consider and, as necessary, amend the Enbridge protocol in order to determine and articulate the complete scope and range of specific steps and mechanisms that should or should not be taken in Toronto should a leak or spill occur that requires the involvement of Toronto Fire Service or other emergency staff.

18. Chief Noormahamud notes that, in order to ensure that spill response in Toronto is prudently handled, an emergency spill document based on these discussions should be available for Toronto Fire Services incident commanders in the event of an incident in (or near) the City of Toronto.

19. Chief Noormahamud advises that Toronto Fire requires the following information as part of its response and preplanning activities and in order to develop Toronto Centric Response protocols applicable in the event of a rupture/spill of Line 9B:

- 1) Detailed maps of the pipeline including exact locations of the pipeline as it is situated through the City of Toronto, including the pipeline elevation, and the depth at which the pipeline is buried/or above ground surface;

- 2) Information as to the existence of control valves/stations in (or near) the City, where they are located, how they are remotely operated, options Enbridge has in place should there be an electricity failure, and whether redundancy is built into the system;
- 3) The distance between valves and the residual volume of liquid that can be spilled once the valves are closed;
- 4) Specific written procedures for the City of Toronto;
- 5) Availability of Enbridge resources should a spill occur, including specific response times for Enbridge emergency response crews that meet City of Toronto requirements;
- 6) Details of deployable Enbridge resources including location, types, quantity of spill control equipments/resources that are readily available and location of identified catch basins;
- 7) Name(s) of Enbridge's Spill Response Team, location and availability of response experts/specialists;
- 8) Availability of and support for Training and Real Time Exercise to City of Toronto emergency responders;
- 9) Toronto Fire requires a reduction in response time (from within 4 hours to the fastest possible "on-site" presence) to mitigate or prevent the need to evacuate (which could be up to many tens of thousands of Toronto residents, or higher). The faster Enbridge Staff is on site, the earlier they can isolate the leak and apply control measures, reducing the need for evacuation, and potentially evacuation on a massive scale; and
- 10) Provision for cost recovery for any and all City costs incurred as a result of an incident involving Line 9B.

20. Staff of the Office of Emergency Management ("OEM") has also reviewed the Application. Loretta Chandler, the Director of the OEM, advises that, as Canada's largest city with a population of 2.6 million and very high urban density, Toronto has emergency response needs that create unique challenges that may differ quite significantly from those required in other areas of the Province of Ontario. The challenges presented during an emergency event such as a significant oil spill and, in particular, an incident involving a pipeline system, necessitate a very focussed set of procedures, personnel, apparatus and resources in terms of emergency response and recovery. As a result, the OEM requests that Enbridge commit to a number of specific preparedness and response activities.

21. As per section 6.6 of the City of Toronto Emergency Plan, a link to which appears below and a copy of which is Attachment 4 to this Evidence, OEM recommends that Enbridge commit to sending a Technical Specialist to the City's Emergency Operations Centre ("EOC") upon request by the EOC Director/EOC Liaison Officer to assist in the coordination of the City's response to an incident involving Enbridge Line 9B. A link to the City of Toronto Emergency Plan and the text of section 6.6 of the plan follow.

[City of Toronto Emergency Plan \(click for full plan\):](#)

6.6 External Organizations – Private Sector Partners

Depending on the nature of the emergency, external organizations may be asked to send a representative (i.e. Greater Toronto Airport Authority, C.N. or C.P. Rail) to join the Emergency Operations Centre to assist in coordinating the response

22. OEM requests that Enbridge pre-identify the Technical Specialists who would attend the EOC upon request by the EOC Director/EOC Liaison Officer and update this information on a regular basis to ensure it is current at all times.

23. Furthermore, OEM requests that Enbridge commit to meeting with OEM staff and other appropriate City of Toronto emergency service professionals twice yearly, to review formal emergency plans with specific focus on Enbridge infrastructure within the City of Toronto.

24. Enbridge is also requested to provide critical infrastructure information to the OEM (as identified under the *Emergency Management and Civil Protection Act*) for confidential use by OEM/EOC staff in the event of an emergency involving Enbridge infrastructure.

Toronto Transit Commission Concern re Spill Preparedness at the Finch Avenue Subway Crossings

25. The staff at the City of Toronto was provided with photographs prepared by Rick Munroe, also an intervenor in these proceedings. Mr. Munroe's pictures are included as Attachment 5. These pictures are indicated to have been taken in the vicinity of the Toronto Transit Commission ("TTC") subway and bus station facilities at Yonge Street and Finch Avenue, in the City of Toronto. They show Line 9 close to subway entrances. John O'Grady, the head of Safety and Environment at the TTC reviewed the Line 9B proposal and provided the following comments.

26. The Finch subway station was opened the year before construction of the Enbridge pipeline was completed. The pipeline is located between the TTC's Bishop Avenue entrance stairway, and the TTC escalators that lead to the adjacent Metrolinx terminal. The pipeline itself

is understood to be approximately one foot above the subway structure. No as-built information is available for the pipeline. Neither the TTC, Toronto Fire Services, nor Enbridge appear to have any specific contingency plan to manage a leak of petroleum should this occur near the TTC entrances. The top stair of the Bishop Avenue stairwell is at grade and provides no barrier to the flow of the product should there be a release. If any petroleum product was discharged either down the stairs or the escalators, or by other routes into the TTC concourse, platform or track level, there would be an enormous risk to thousands of daily passengers and TTC workers.

27. A 1974 design drawing depicts a secondary encasement pipe; however, it is not clear that any secondary containment system is in place in the area of the subway structure, although this normally would be expected adjacent to subway infrastructure.

28. The TTC requires assurance that, given the risk of significant consequence in the event of an incident, the highest standard of risk avoidance should be employed. Enbridge should conduct a site specific risk assessment/emergency response plan for the Finch station area. Similar planning should be conducted in relation to the construction of the new Spadina subway extension and any other transit line in the vicinity of the pipeline.

Financial Assurances for Damage to the City, its Residents and Businesses

29. I am advised by staff in the office of the City Solicitor that Toronto and its residents may incur very significant costs should a spill from Line 9 occur. In view of the potential for such costs, Toronto seeks assurance that the Applicant has adequate financial resources, including necessary and adequate insurance coverages, that are quickly available to contain the impacts of a large scale spill, and that adequate security is available to compensate the City and its residents for any costs they may incur as a result. To support submissions on these issues, the City will be relying upon the following reference documents:

- 1) Information provided by the federal government on plans to introduce legislation that would require major pipeline operators to have a minimum \$1 billion in financial capacity: <http://www.nrcan.gc.ca/media-room/news-release/2013/7225>. This amount is described by the government as "minimum financial capacity to respond to leaks, spills and ruptures." One of the City's concerns in assessing financial assurance is whether the costs associated with a large scale spill will exceed the amount of insurance available. As such, the City would like to ensure that the amount of combined insurance and other readily available financial resources are adequate in dealing with any large scale spill. One strong measure of what might be considered adequate is information on

proposed legislative reform intended to "ensure that Canada's regime for onshore oil and gas pipelines remains world leading."

- 2) Information on Enbridge's insurance coverage as set out in the Responses to IR 9 of the Northern Gateway Project Joint Review Panel: [https://www.neb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624798/784863/B58-2 - Northern Gateway Response to JRP IR No 9 - A2L4S2.pdf?nodeid=784867&vernum=0](https://www.neb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624798/784863/B58-2-Northern%20Gateway%20Response%20to%20JRP%20IR%20No%209-A2L4S2.pdf?nodeid=784867&vernum=0)
- 3) Media coverage reporting on potential costs of the recent Marshall, MI spill: *Enbridge Cleanup may cost \$1 Billion, company warns*, by Kelly Cryderman, Globe & Mail, March 20, 2013. <http://www.theglobeandmail.com/globe-investor/enbridge-cleanup-may-cost-1-billion-company-warns/article10041757/>
In considering the appropriate amount of financial security that ought to be available, it is necessary to consider evidence of the actual costs associated with recent large-scale spills. The spill in Marshall, MI is one such example involving a pipe of roughly the same age carrying the same material. If more than one large scale spill occurs within a short time frame, the City is concerned that Enbridge's financial resources, above any insurance funds, would be insufficient to respond to the spills and compensate affected parties.

30. Toronto also has concerns about the need to ensure that Enbridge is required to compensate all costs associated with a spill. These costs include expenses that might be incurred before Enbridge personnel and contractors arrive, and after they leave. While municipal staff have been recognized as having a "supporting" role in an emergency, municipal first responders will likely arrive first on the scene of a spill and therefore may need to take steps to respond before Enbridge personnel or contractors arrive. For instance, Toronto Fire Services may decide that circumstances warrant evacuating surrounding residents and businesses. Toronto would reasonably expect that Enbridge would reimburse all costs associated with any such evacuation.

31. In response to Toronto IR 1.24(e), Enbridge has advised that it has no measures currently in place to compensate residents, businesses or other third parties along Line 9 in the event they need to be evacuated. In response to Toronto IR 2.24, Enbridge indicated that it "would be responsible for the damages that are *directly* attributable to its operations, which *could* include claims for evacuation costs." [emphasis added]. Given the large population density in Toronto and the GTHA, further express assurances are required and must form conditions of approval to any relief granted to Enbridge by the NEB.

32. Furthermore, Enbridge seeks to amend its tariff to allow the transport of diluted bitumen (or dilbit). The evidence from the spill in Kalamazoo, Michigan, suggests that a spill of

dilbit could be significantly more difficult to clean and recover and as such may involve greater costs. Given the population densities and enormous impact a spill could have, for example on the water quality of the entire region, Enbridge should provide clear and unequivocal financial assurances dedicated to Line 9 which would include evacuation costs.

33. Finally, it is unclear under what circumstances Enbridge would refuse to compensate Toronto or its residents in the event of a spill. In Toronto IR 1.24(d) Enbridge was asked to clarify its position on compensation in the event of a pipeline spill not caused by Enbridge. The response suggests that it would not be willing to compensate others in all circumstances. Toronto is concerned that there is a reluctance to compensate where a third party is at fault, particularly if the third party fails to or is unable to reimburse others for costs. The NEB should address how Enbridge must manage this risk as a condition of any approval granted to Enbridge arising from this proceeding.

City Mapping showing Land Uses, Density and Water Infrastructure

34. The City's Geospatial Competency Centre ("GCC") obtained Geographic Information System ("GIS") information from Enbridge indicating the location of Pipeline 9 as it passes through the City of Toronto. The GCC has taken this information and transcribed it onto three City maps as described below.

35. Attachment 6 contains the three maps showing Enbridge's Line 9B and the additional features as described below, for the westerly, central and easterly sections of the City of Toronto, respectively. These maps can be printed but are best viewed on a computer screen, where they can be magnified. It is only in the on-screen format that many detailed features such as street names and locations of catch basins can be properly viewed.

36. This mapping is provided for the assistance of the NEB and Enbridge in locating catchbasins and related City of Toronto infrastructure in proximity to Line 9B, as well as to provide some indication of residential and commercial densities in proximity to Line 9B.

37. This information is provided subject to the limitation printed on the face of the maps. The information respecting Toronto Water infrastructure is not to be used for utility locates.

Water - Drinking Water Source Protection as a Key Component of Emergency Planning and Avoidance of Third Party Damage (Issue 6)

a) Legislative Background

38. In 2006, the Ontario government passed the [Clean Water Act \(2006\)](#) [S.O. 2006, Chapter 22], which addresses recommendations made by Justice O'Connor in his judicial inquiry into the tainted water tragedy that occurred at Walkerton in 2001.

39. The underlying premise of the CWA is a multi-barrier approach to source water protection that is intended to prevent contaminants from entering sources of drinking water by:

- Identifying areas where municipal drinking water sources may be at risk from both quantity and quality perspectives;
- Assessing the level of risk; and,
- Implementing strategies to eliminate or moderate the risk.

40. [O.Reg. 284/07](#) under the CWA established Source Water Protection Areas and Regions throughout Ontario and delegated Conservation Authorities as Source Protection Authorities, requiring them to create Source Protection Committees to address activities and land uses around municipal wells (groundwater sources) and drinking water treatment plant intakes (surface water sources - including Lake Ontario) to protect existing and future sources of drinking water.

41. The legislative mandate² for the Source Protection Committees was to prepare:

- [Terms of Reference](#) for the Committee.
- An [Assessment Report](#) providing information about:
 - Watershed Characterization
 - Water Budgets and a Water Quantity Threats Assessment
 - Groundwater Vulnerability
 - Surface Water Vulnerability
 - Threats and Issues affecting source water, culminating in a Water Quality Threats Assessment
- A [Source Water Protection Plan](#) containing a series of policies to protect drinking water supplies in the Source Protection Region against current and future potential threats.

b) Source Protection Region and Committee

42. Nineteen Source Protection Committees were established under the CWA, including six that border Lake Ontario.

² [O.Reg. 287/07 as amended by O.Reg. 267/11](#).

43. The City of Toronto is part of the Credit Valley, Toronto and Region, and Central Ontario (CTC) Source Protection Region³. The CTC Source Protection Region comprises the Credit Valley Source Protection Area, the Toronto and Region Source Protection Area (TRSPA), and the Central Lake Ontario Source Protection Area and is shown on the map below.



Source: <http://www.ctcswp.ca/>

44. The Source Protection Committee for this region comprises 21 members plus the chair. Membership on the Committee comprises key stakeholders from each of the watersheds making up the CTC Source Protection Region, including representatives from municipalities, agriculture, industry, plus a range of other stakeholders.

45. Howard Shapiro, the Associate Medical Officer of Health, Toronto Public Health, and I, as the Director, Water Infrastructure Management, Toronto Water, were officially named as the City of Toronto representatives on the CTC SPC, in accordance with the 2007 decision (EX11.8) of City Council. The CTC SPC also included municipal representation from Halton Region, Peel Region and Durham Region, municipalities which also operate water treatment facilities, drawing their source water from Lake Ontario; and a representative from York Region, where the City of Toronto and Peel Region, provide York Region with drinking water, sourced from Lake Ontario.

46. The CTC Source Protection Committee also included a representative from the petrochemical economic sector.

³ Clean Water Act, 2006 - O. Reg. 284/07, Table 3.

c) CTC SPC Compliance with Statutory Requirements

i) Terms of Reference

47. In accordance with the regulatory requirements imposed by the CWA, the CTC SPC prepared three sets of Proposed Terms of Reference, one for each of the source protection regions within its mandate.

48. The CTC SPC hosted seven public meetings in September 2008 to provide information and answer questions about the Proposed Terms of Reference, and made the Proposed Terms of Reference available for public comment until November 19, 2008.

49. On December 19, 2008, the Source Protection Authorities in the CTC submitted the Proposed Terms of Reference along with their own comments and comments received from the public to the Ontario Ministry of the Environment. Following this submission, the CTC SPC received comments from the Ministry of the Environment. Revised Terms of Reference documents were submitted on July 4, 2009, and were approved by the Minister of the Environment on August 17, 2009⁴.

ii) Assessment Report – Lake Ontario Collaborative

50. The approved Terms of Reference described, at a high level, development of the CTC Source Water Protection Plan using an assessment methodology that relied on evidence-based scenarios and computer simulation modelling of Lake Ontario circulation and pollutant transport as a means of assessing the impacts of various water quality threats to water treatment plant intakes located along the North Shore of Lake Ontario⁵.

51. In support of the development of Source Protection Plans for all the Source Protection Regions bordering Lake Ontario, the Lake Ontario Collaborative (LOC) was formed in 2006.

52. The LOC comprised representatives from all municipalities from Niagara to Prince Edward County having Lake Ontario based water treatment plants, as well as from each of the corresponding Conservation Authorities, the Ontario Ministry of the Environment, and Environment Canada.

53. Assessment of drinking water threats via the LOC facilitated the adoption of a common methodology, which avoided duplication of effort and ensured consistency of approach and analysis for all Lake Ontario-based Source Protection Regions.

⁴ See Environmental Bill of Rights [Registry Number 010-7405](#)

⁵ Toronto Region Source Protection Area Final Terms of Reference, 2009, pp. B-10.

iii) Assessment Report – Threats to Lake Ontario Water Treatment Plant Intakes

54. Section 1.1 of O.Reg. 287/07 (amended to O.Reg. 267/11) made under the CWA lists prescribed drinking water threats.

55. The LOC examined the 19 water quality threats prescribed by the Ontario government.

56. The LOC also identified two additional threats applicable to the water treatment plant intakes located in Lake Ontario Source Protection Regions: (1) the release of tritium from a nuclear generating station; and, (2) a spill of liquid hydrocarbons from large pipelines co-located with transmission corridor lands across the northern part of the GTA where the pipeline crosses under watercourses which discharge to major tributaries flowing south to the north shore of Lake Ontario.

57. The CTC SPC applied to the Ministry of the Environment to include the two additional threats to Lake Ontario Drinking Water Sources in the Toronto Region Source Protection Area, and the Ministry accepted inclusion of these threats as part of the work of the CTC SPC on July 5, 2011⁶.

58. Specific details about the spill scenario simulations that the LOC examined for Lake Ontario-based water treatment plants were developed in consultation with municipal partners, the member Source Protection Committees, and the Ministry of the Environment. The approach used by the LOC involved:

- Identifying the location and possible materials released under normal operation and spill scenarios;
- Using calibrated and validated lake circulation computer simulation models to predict under what conditions contaminants could reach drinking water intakes;
- Predicting the concentration of key parameters and assessing risks using threshold concentrations for each contaminant established by the CTC SPC per Ministry of the Environment *Technical Rules (2009)*; and,
- Evaluating historical raw water analyses at drinking water plants to assess whether there are observed elevations of parameters that may be linked to storm events or past spill or weather conditions and to establish threshold levels for some contaminants.

59. Computer simulation modeling was used for evaluating the threats. Model inputs were based on actual or anticipated spill occurrences.

⁶ [CTC Source Protection Region Approved Assessment Report: Toronto and Region Source Protection Region Volume 1 of 2](#), p. 5-5.

60. To model the petroleum spill from a pipeline failure, the real-life rupture of the Enbridge pipeline near Kalamazoo, MI, in 2010, was used. For the purpose of modeling the scenario, spill locations coincided with pipelines crossing watercourses which flow to Lake Ontario in the Greater Toronto Area.

61. The computer simulation modelling results indicated that a petroleum spill from a pipeline break would be a significant threat, defined as any scenario where a contaminant could exceed a water quality threshold in the raw water at treatment plants located along the North Shore of Lake Ontario⁷.

62. During preparation of the Assessment Report, the Source Protection Committee consulted with the public through two consultation periods. The first was a consultation period on a draft proposed Assessment Report, which included a public meeting. Revisions were made to the Assessment Report, and Public comments on the Updated Assessment Report: TRSPA (Toronto and Region Source Protection Act) were sought during the second consultation period, which lasted for a 30 day period between June 17 and July 18, 2011. The public was invited to review the Updated Assessment Report: TRSPA online at www.ctcswp.ca and at Conservation Authority and municipal administrative offices where hard copies were available. Notice of this 30-day comment period was posted online and sent to individuals on the CTC Source Protection Committee's electronic mailing list. At the conclusion of this process, the Updated Assessment Report: TRSPA was submitted to the Ministry of the Environment for approval on July 29, 2011, and approval was given on January 18, 2012.⁸

⁷ [CTC Source Protection Region Approved Assessment Report: Toronto and Region Source Protection Region Volume 1 of 2](#), p. 5-63

⁸ [Environmental Bill of Rights Registry No. 011-3938](#).

iv) *Source Water Protection Plan*

63. The LOC evaluations, documented in the Assessment Report, provided the foundation for the Lake Ontario-based drinking water source protection policies contained in the CTC Source Protection Plan.

64. The CTC Source Protection Plan is available through the following link:

http://www.ctcswp.ca/files/CTCProposedSourceProtectionPlan_LowRezFINAL.pdf

The CTC Source Protection Plan presents policies that are intended to specifically address current and future potential threats to the intake protection zone of Lake Ontario. In regards to reducing the risk and/or impact of pipelines transporting petroleum product crossing tributaries of Lake Ontario, the CTC Source Protection Plan identifies as the policy, the need to:

review and recommend necessary improvements to existing spill prevention, spill management, risk reduction, and contingency plans to ensure the following:

- 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.*⁹

65. From March 19, 2012 to May 1, 2012, the Source Protection Committee engaged public stakeholders to review and comment on the draft policies in a Draft Proposed Source Protection Plan. At the close of the consultation period, the SPC considered all comments, revised the plan, and made the revised CTC Proposed Source Protection Plan available for a second (final) public consultation and comment period, which extended from September 7 to October 8, 2012.

66. On October 22, 2012, the CTC Source Protection Committee submitted its Source Water Protection Plan to the Ontario Minister of the Environment for final approval.

67. At its meeting of November 27, 2012, Toronto City Council formally endorsed the Lake Ontario policies contained in the CTC Source Protection Plan¹⁰.

68. Source protection plans for all 19 source protection regions in Ontario were required to be submitted to the Minister of the Environment in 2012. As of August 1, 2013 one source protection plan has been approved¹¹.

d) Importance of Source Protection to Toronto:

69. Through Toronto Water, the City owns and operates four water treatment plants, which rely on Lake Ontario for their source water.

Plant Name	Rated Treatment Capacity (ML/day)	Intake Distance from Shore (metres)	Intake Depth (metres)
R.L. Clark Water Treatment Plant	615	1,615	18
R.C. Harris Water Treatment Plant	950	2,300	14
F.J. Horgan Water Treatment Plant	800	3,200	8
Island Water Treatment Plant	410	5,400	83

⁹ <http://www.ctcswp.ca/files/plan/Proposed%20Chap10.pdf>, p. 137 of 219. The entire plan may be viewed in low resolution format at http://www.ctcswp.ca/files/CTCProposedSourceProtectionPlan_LowRezFINAL.pdf or high resolution format at <http://www.ctcswp.ca/ctc-source-protection-plan/> (the latter format is preferable for viewing maps)

¹⁰ <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2012.PW19.6>

¹¹ Environment Bill of Rights Registry No. 011-7977.

70. The four Toronto water treatment plants service a population of over 2.6 million people in Toronto, serving all industrial, commercial, institutional and household water users, and an estimated 600,000 residents in the Regional Municipality of York (primarily in Richmond Hill and Vaughan)¹². Halton, Peel and Durham regions also all have water treatment facilities which draw on Lake Ontario for their source water.

71. With the exception of the Island Water Treatment Plant, the intakes for Toronto's water treatment plants are located in the "near shore" zone of Lake Ontario, which is defined as the relatively narrow band of water along the perimeter of Lake Ontario where the depth of water to the lake bed is 30 metres or less.

72. The "near shore" zone is important because it receives flows and pollutant loadings from various pollution sources along the shoreline, including the tributaries that flow to Lake Ontario, municipal wastewater treatment plant effluents, industrial discharges, and discharges from sewer outfalls.

73. The results obtained by the Lake Ontario Collaborative and presented in the Assessment Report confirm that source water at City of Toronto drinking water treatment plant intakes is generally high quality. However, water quality in the near shore zone surrounding Toronto's water treatment plant intakes can be adversely affected by increased pollution resulting either from plumes originating from point sources and/or discharges from tributaries to Lake Ontario.

74. With a petroleum spill from a pipeline failure, the contaminant of primary concern for drinking water treatment is benzene.

75. Benzene is not removed in the conventional treatment process in municipal drinking water plants. In order to meet the Ontario Drinking Water Standard of 0.005 mg/L (5µg/L) in the finished water, municipal operators may need to shut off pumps at the intake during a spill event to avoid bringing raw water containing elevated benzene levels into the treatment plant.

76. Modelling results showed that different spill locations would pose a significant threat to Toronto WTP intakes, as follows:

¹² Toronto Region Source Protection Area Final Terms of Reference, 2009, pp. A-2 – A-3, [http://www.ctcswp.ca/files/TRSPA_approved_TOR_aug_09.pdf]

River Crossing Spill Location	Water Treatment Plant Intakes Threatened
Credit River	R.L. Clark WTP
Don River	R.L. Clark, R.C. Harris and Island WTPs
Duffin Creek	R.C. Harris and F.J. Horgan WTPs
Highland Creek	R.C. Harris and F.J. Horgan WTPs
Humber River	R.L. Clark, R.C. Harris and Island WTPs
Rouge River	R.C. Harris and F.J. Horgan WTPs

77. The spill scenarios examined were worst cases because it was assumed that no contingency plans were activated to reduce and/or mitigate the impact of the spills.

78. Given that the near shore of Lake Ontario serves as the source water for all of Toronto's Water Treatment Plants, except the Island Water Treatment Plant, the need for and importance of an effective Source Protection Plan to ensure that water quality within this zone is protected is evident.

79. Pipeline spills occurred during the development of the CTC Source Protection Plan, and since its submission to the Minister, emphasizing the need for implementation of the recommended policy, LO-PIPE-1, which specifically addresses this threat. Examples of recent pipeline spills (details are provided in Attachment 7; compiled from on-line research of sources including the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration, the Energy Resources Conservation Board, The Associated Press, The New York Times, Reuters, and the Globe and Mail):

- Exxon pipeline spill in Arkansas on March 30, 2013
- Chevron pipeline spill near Salt Lake City, Utah, on March 18, 2013
- Enbridge pipeline spill in Wisconsin on July 27, 2012
- Enbridge pipeline spill near Edmonton on June 29, 2012
- Plains Midstream pipeline spill near Sundre, Alberta, on June 8, 2012
- Exxon pipeline spill near Billings, Montana, on July 1, 2011
- Plains Midstream pipeline spill near Little Buffalo, Alberta, on April 29, 2011

80. More recently, on June 22, 2013, a spill from Enbridge's Line 37 near the company's Cheecham terminal in Alberta, resulted in the release of about 1,300 barrels of oil: <http://www.enbridge.com/MediaCentre/News/Line-37.aspx> .

Additional Documents upon which the City will Rely

81. In addition to the documents referred to above, the City of Toronto will refer to the following documents in its submissions. These documents have not been prepared by the City of Toronto but may be contained elsewhere in the record of these proceedings:

Pipeline Accident Report - Enbridge Incorporated - Hazardous Liquid Pipeline Rupture and Release - Marshall, Michigan - July 25, 2010:

<http://www.nts.gov/doclib/reports/2012/PAR1201.pdf>

Transportation Research Board Special Report 311 - Effects of Diluted Bitumen on Crude Oil Transmission Pipelines:

<http://pstrust.org/wp-content/uploads/2013/03/SR-311-Diluted-Bitumen-prepub-final.pdf>

Natural Resources Canada - Strengthening Canada's Pipeline Safety Regime:

<http://www.nrcan.gc.ca/media-room/news-release/2013/7225>

Evidence of Insurance – Northern Gateway Project:

https://www.neb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624798/784863/B58-2_-_Northern_Gateway_Response_to_JRP_IR_No_9_-_A2L4S2.pdf?nodeid=784867&vernum=0

Globe and Mail, March 20, 2013 – Enbridge cleanup may cost \$1-billion, company warns:

<http://www.theglobeandmail.com/globe-investor/enbridge-cleanup-may-cost-1-billion-company-warns/article10041757/>

City Staff Consulted

82. In addition to myself, the following City Staff have been consulted in preparing these materials: Manick Noormahamud, District Chief, Special Operations, Toronto Fire Services,; Loretta Chandler, Director, Office of Emergency Management; John O'Grady, Head, Safety and Environment, Toronto Transit Commission. Copies of the CV's for City Staff are attached as Attachment 8.

Conclusion

83. The City of Toronto, along with other municipalities located along Line 9B, wish to ensure that the issues of concern identified in the various Council Reports are fully addressed. To that end, the City will be recommending conditions of approval to the NEB in final argument to ensure that pipeline integrity progress and spill response mechanisms, meet the highest standards particularly where materials may be spilled into waterways. Finally, the costs of any spills, should they take place, must be fully covered by Enbridge.

ALL OF WHICH IS RESPECTFULLY SUBMITTED, this 6th day of August, 2013.

A handwritten signature in black ink, appearing to read "M. D'Andrea".

MICHAEL D'ANDREA, Executive Director,
Engineering and Construction Services, City of Toronto