File No. OF-Fac-Oil-E101-2012-10 02 Hearing Order OH-002-2013

Enbridge Line 9B Reversal and Line 9 Capacity Project

Written Evidence of Louisette Lanteigne

I am , Louisette Lanteigne, resident of 700 Star Flower Ave. in Waterloo Ontario. I am a concerned citizen of Waterloo Region and Metis.

1. I am a former delegate of the Phase 1 hearings for Enbridge Line 9A Reversal Hearings.

2. After the Phase 1 hearings I investigated various threats that can augment the structural integrity of oil pipelines.

3. I reviewed data regarding seismic risks along the route of Line 9, particularly in regards to issues around the Montreal area where earthquakes can happen as often as 5 times a day. The data referenced was from the Natural Resource Canada site at http:// www.earthquakescanada.nrcan.gc.ca/zones/eastcan-eng.php See **Attachment A**

4. A US Geological Survey report titled The ShakeOut Scenario Supplemental Study prepared by Donald Ballantyne states, that pipeline damages from earthquakes can result in compression or wrinkling, joint weld cracking or separation, bending or shear from localized wrinkling and tension. See **Attachment B page 3.**

5. The ShakeOut Scenario Supplemental Study prepared by Donald Ballantyne states that historically, steel pipelines with high quality electric arc welded joints perform very well in shaking environments but pipelines with joints using oxy-acetylene welds can have failure at rates nearly 100 times greater than those with electric arc welded joints. See **Attachment B, page 4.**

6. In light of the concerns raised by the weld types in the ShakeOut Scenario Supplemental Study by Donald Ballentyne, I would like to request that the NEB mandate the disclosure of pipelines that are currently using oxy-acetylene welds in order to reasonably mitigate potential risks in regards to seismic activity.

7. I found information produced by Daniel Burd showing how naturally occurring bacteria known as Spingomonas and Pseudomonas eats plastic.

8. Daniel Bird stored Spingomonas and Pseudomonas at 36 degree Celsius with PE plastic bags and in six weeks, 43% of the plastic was consumed. To review his findings See **Attachment C.**

9. Spingomonas and Pseudomonas thrive in environments rich in nitrate which concerned me seeing that Enbridge pipelines crosses over many nitrate rich farmlands.

10. Soil samples used in Daniel Burd's study were taken from Waterloo Region's land fill. See **Attachment C page 1**.

11. PE tape is used to protect oil pipelines from corrosion issues.

12. According to the National Transportation Safety Board findings, the reason for the rupture of the Kalamazoo pipe was due in part to the dis-bonded polyethylene tape coating.

13. I created a power point presentation, regarding concerns of welds and seismic activity and the issue of the Spingomonas and Pseudomonas to share information directly with Enbridge, in good faith, to help prevent pipeline ruptures. See **Attachment D**.

14. I asked if there is any data to either prove or disprove the roll that Spingomonas and Pseudomonas may play in regards to "tenting" issues of PE tape in the Power Point I sent. See **Attachement D page 12**.

15. In the power point I asked if Spingomonas and Pseudomonas are an issue, what measures can we take to avert the risk in existing pipes? See **Attachment D page 12**.

16. To date Enbridge has not provided me with any response regarding concerns for Spingomonas or Pseudomonas or their potential impacts on PE tape.

17. I read a published article in the Burlington Post titled "Enbridge officials grilled about pipeline plan" where Enbridge representatives were speaking with members of the public about Line 9B Reversal. The article was published on February 13, 2013. See Attachment E
18. In the article article titled "Enbridge officials grilled about pipeline plan" published on February 13 2013 by the Burlington Post, Ken Hall, senior advisor of public affairs for Enbridge stated: Shutoff valves are not on non-navigable waters. He explained the pipeline wall's width of a quarter of an inch increases to half an inch when it goes under various bodies of water. See **Attachment E page 2.**

19. In the article titled "Enbridge officials grilled about pipeline plan" published on February 13 2013, I observed the following quote that states, "The way we look at our pipeline is that it basically doesn't have a lifetime — it is indefinite," said Ken Hall, senior advisor of public affairs for Enbridge. "It is only that way because you have to take care of it. If we maintain our pipline out there, it can last for hundreds of years. We're always in the process of renewing it – that's the purpose of the integrity management program. For us, a pipeline that is 40 years old is not old by any means." See **Attachment E page 1**.

20. In the US Geological Survey report titled The ShakeOut Scenario Supplemental Study prepared by Donald Ballantyne states in **Attachment B at the top of page 1**, "There is a long record of oil and gas transmission pipeline failures in California earthquakes due to ground shaking and liquefaction. The large majority of these have been joint failures where the joints were constructed using oxy-acetylene welds installed prior to approximately 1930."

21. Based on The ShakeOut Scenario Supplemental Study, it is clear that pipelines do not have an indefinite lifetime. Even with care, human design flaws and construction practices have resulted in a "long record of oil and gas transmission pipeline failures".

22. To date is no reasonable evidence to show that a pipeline can last for hundreds of years as Mr. Ken Hall, senior advisor of public affairs suggests in the Feb. 13. 2012 article titled "Enbridge officials grilled about pipeline plan". The world's first oil pipeline was built in 1862, in Sarnia, Ontario according to the Canadian Energy Pipeline Association's website. See **Attachment F.**

23. In the Federal Omnibus bill as passed in November 2012, reaches of the Grand were excluded from the protection of the Navigable Water's Act in the areas where Line 9 crosses the Grand River. The Grand River is now protected by navigable waters from the dam at Brantford to Lake Erie according to Navigable Waters Protection Act R.S.C., 1985, c. N-22. See **Attachment G**.

24. There is no protection for the Nith River in Navigable Waters Protection Act R.S.C., 1985, c. N-22 even though it recharges the Grand River. It is not listed in the Act for protection.

25. As a long time citizen advocate for source water protection in Waterloo Region, I was concerned about the impact of negating the need for shut off valves along the Grand and Nith Rivers since these tributaries supply municipal water for downstream communities including Brant, Brantford and Six Nations.

26. I recalled that Mr. Frank Dumford represented Enbridge at the NEB hearings for Enbridge Line 9 phase 1 so I sent him an email on February 15, 2013 in order to ask if there is a shut off valve currently where Line 9 crosses the Nith and Grand Rivers. See **Attachment H, page 5**.

27. In the February 15th 2013 email I asked Mr. Dumford, "Where is Enbridge's closest emergency response team should there be a spill in Waterloo Region?" See **Attachment H, page 5**.

28. In the February 15th 2013 email I gave Mr. Dumford a link to my power point presentation featuring the risks to pipeline structural integrity by earthquakes and naturally occurring bacterium. (**Attachment D**) I posed it on a site called slide share to make it easier for other to view. The link is at http://www.slideshare.net/Waterloomoriane/ pipelinespillsprevention **Attachment H, page 5**.

29. March 5th 2013 I received a response from Margery Fowke thanking me for the questions regarding Line 9. See **Attachment H, page 4**.

30. In the March 5th 2013 correspondence Ms. Fowke stated Mr. Dumford is no longer working on the case so she was responding. See **Attachment H, page 4.**

31. In the March 5th 2013 correspondence Ms. Fowke stated that Enbridge has an isolation valve on the east side of the Grand River and an isolation valve 4.8 km (3 miles) west of the Nith River. See **Attachment H, page 4**.

32. Based on Ms. Fowke's response I am concerned that an isolation valve on the east side of the Grand River will not stop a spill in the Grand River if the flow of oil is going west to east as proposed by the Line 9A Phase 1 reversal project.

33. Based on Ms. Fowke's response it is reasonable to state if the spill happens in the Grand River, the distance to the nearest shut off valve to stop that spill is well beyond a three mile distance since one would have to add in the distance from the Grand to the Nith and add on the additional 3 miles from that point. See **Attachment I**

34. In the March 5th 2013 correspondence Ms. Fowke stated that Flamborough is the closest response team should there be a spill in the Grand River. See **Attachment H, page 4**.

35. I read in the article article titled "Enbridge officials grilled about pipeline plan" published on February 13 2013 by the Burlington Post, Barry Callele, director at Enbridge for pipeline control systems and leak detection, said a leak of two per cent of the pipeline would release approximately 14,000 litres in five minutes. The capacity of Line 9 is 300,000 barrels per day. See **Attachment E.**

36. On March 6 2012, I sent an email to Ms.Fowke that informed her about the significant flood risks for the Nith River based on data by the Grand River Conservation Authority. See **Attachment J, page 3.**

37. The GRCA information showing the flood risks of the Nith are in **Attachment J**

38. In the March 6 2012 email I provided Ms. Fowke with a link to a Climate Change report titled: TORONTO'S FUTURE WEATHER & CLIMATE DRIVER STUDY: OUTCOMES REPORT Summary of the SENES Consultants Ltd Study by Toronto Environment Office October 30, 2012 at www.toronto.ca/legdocs/mmis/2012/pe/bgrd/backgroundfile-51653.pdf See **Attachment H, page 3.**

39. I provide a summery of TORONTO'S FUTURE WEATHER & CLIMATE DRIVER STUDY in **Attachment K.** It states that Toronto's Future Weather and Climate Driver Study states June water volumes are anticipated to rise 80% by 2020 and 50% more rain for the month of August.

40. In the March 6 2012 email I asked Ms. Fowke if we will see the placement of new shut off valves along the Grand River to address the reversal of flow in compliance with the Navigable Water's Act that was in effect at the time of the NEB approval for Enbridge Line 9A pipeline reversal. See **Attachment H,page 3.**

41. On April 3rd 2012 Ms. Fowke responded to my email stating that Enbridge was not required to install any additional shut-off valves along Line 9 as part of the NEB's approval of the Line 9 Reversal Phase 1 Project. See **Attachment H, page 1.**

42. Ms. Fowke stated in the April 3rd 2012 email that the remote-controlled valves discussed in the Line 9A proceeding were not included in the scope of work for the Line 9A project. See **Attachment H, page 1.**

43. Ms. Fowke wrote in the April 3rd 2012 email that Enbridge stated in the 9A proceeding, Enbridge's Operational Risk Management liquid mainline risk assessment model had identified the need for remote-controlled valves and had determined that remote-controlled valves were needed regardless of whether the pipeline was reversed or not. See **Attachment H, page 1.**

44. Ms. Fowke stated in the April 3rd 2012 email that while Enbridge has applied it's Intelligent Valve Placement methodology to examine the potential placement of the automated valves along Line 9A, Enbridge is still in the process of evaluating the location of these valves in accordance to CSA Z662-11. See **Attachment H, page 1.**

45. Ms. Fowke stated in the April 3rd 2012 email that Enbridge does not propose to change it's Intelligent Valve Placement methodology with recent changes to the Navigable Waters Protection Act. See **Attachment H, page 1.**

46. Ms. Fowke stated in the April 3rd 2012 email that the Enbridge Intelligent Valve Placement methodology is used on the Enbridge system to confirm the appropriateness of current remote-controlled valves locations and to determine where new ones are needed. See **Attachment H page 1**.

47. Ms. Fowke stated in the April 3rd 2012 email as part of the Intelligent Valve Placement methodology, Enbridge is currently looking at installing a valve on the west side of the Grand River in 2013 and this work would be independent of the Line 9B reversal and Line 9 Capacity Expansion Project. See **Attachment H, page 1.**

48. I observed there was no clarification about the possibility of new shut off valves adjacent to the Nith River in any of Ms. Fowke's correspondences.

49. In light of TORONTO'S FUTURE WEATHER & CLIMATE DRIVER STUDY Attachment K and and the data provided by the Grand River Conservation Authority regarding the Nith River in **Attachment J**, I believe it is reasonable to prioritize the installation shut off valves on the appropriate side of all rivers at risk of major floods regardless of whether or not they are protected currently by the Navigable Water's Act.

50. During the Line 9A NEB hearing, I secured a response from Enbridge stating they monitor leaks by doing aerial surveys once every two weeks and they conduct river bottom surveys once every 5 years. See **Attachment L page 3.**

51. I read an article was published on June 26. 2013 by reporter James Munson of iPolitics titled "Alberta flooding made a bad month worse for oil and gas pipelines" which mentions multiple oil and gas leaks all around the time of the Alberta flood issue. See **Attachment M.**

52. On Tuesday July 2, 2013 an article in the Globe and Mail titled "Enbridge restarts Wood Buffalo pipeline closed following Alberta Flooding" written by Nathan VanderKlippe was published. It features the following passage about Enbridge that states: The company says the leak of Line 37 was caused by heavy rainfall, which triggered ground movement on the right-of-way. See **Attachment N.**

53. I request from the NEB, the implementation of mandatory closures of oil pipelines during periods of heavy flooding until the appropriate agencies can reasonably inspect pipe integrity and erosion issues prior to re-opening the lines. This precautionary approach will help to protect Ontario's waterways, fisheries and economic systems.