Section I - The Smithville Phase IV Bedrock Remediation Program

The Smithville Phase IV Bedrock Remediation Program (2002) Report states:

Background: The small municipality of Smithville (now West Lincoln) gained notoriety in 1985 when PCBs and other contaminants were discovered leaking from a waste transfer facility into the environment… The intended use of the site was to receive and transfer PCB wastes. CWML operated the facility from 1978, when the MOE granted a Certificate of Approval, until 1985, when PCBs were discovered leaking into the environment. During its operational life the facility handled several hundred thousand litres of liquid wastes. Approximately half of the wastes received were reported to have been PCB waste. In 1989, the MOE assumed ownership of the former CWML site and continues, to this day, to be responsible for the site (Report 10, p. 1).

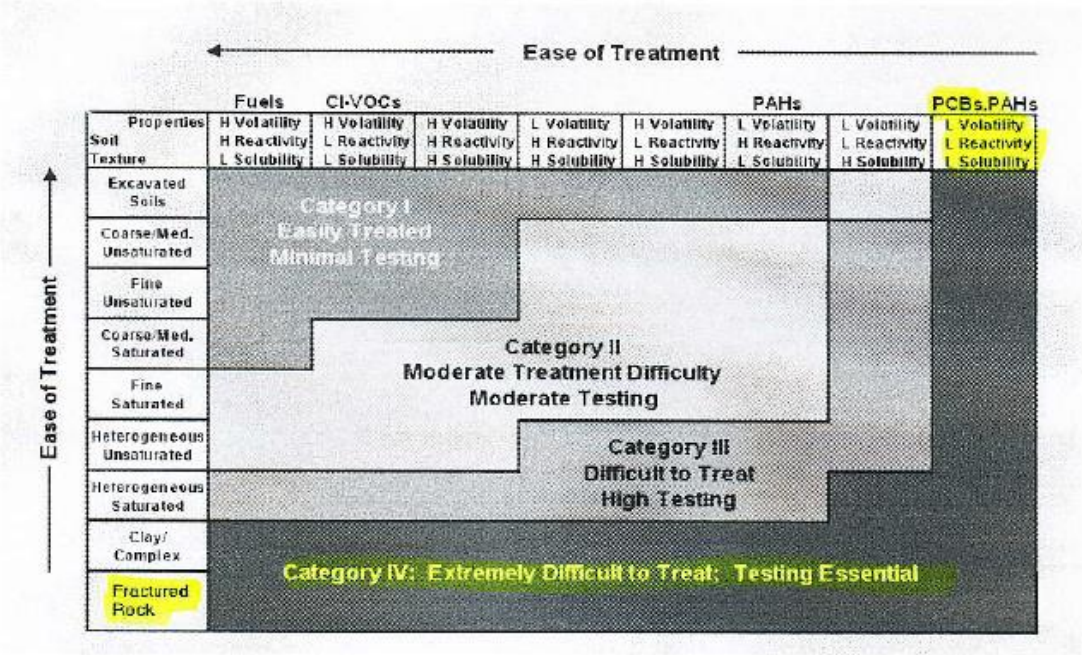
Objectives of the Phase IV Program: The Phase IV Bedrock Remediation Program (the "Program") was established in 1993 with the goal of protecting public health and safety and the environment and allowing the intended beneficial use of the affected lands. The main stakeholders in the remediation of the Smithville site are the MOE (regulator and site owner), the Corporation of the Township of West Lincoln (the municipality in which the site is located) and the public-at-large (Ibid, pp. 1 – 2).

Source: The lateral extent of the source of contamination was identified as an oval-shaped area approximately 200m by 240m roughly centered on the lagoon area of the former CWWL site…In terms of vertical extent, the bulk of the **D**ense **N**on**a**queous **P**hase **L**iquids (DNAPL) is found in a layer of rock about 7m thick, known as the Upper Eramosa. The Upper Eramosa extends from about 6 m to 13 m below ground surface at the site… Some DNAPL may have penetrated into the Lower Eramosa and upper Vinemount between 13m and 25m below ground surface. Monitoring results indicate that no significant amount of DNAPL contamination has penetrated below the lower Vinemount, at a depth of about 25m below ground surface.

The DNAPL consists primarily of Polychlorinated Biphenyls (PCBs) (47%), Trichlorobenzene (TCB) and Trichloroethylene (TCE). It is estimated that between 20,000 and 40,000 litres of liquid waste leaked into the environment between 1978 and 1985 (Report 5_1 pp. viii - ix).

Challenges: …[F]ew technologies are available for treating recalcitrant contaminants in complex geologic formations. This conclusion is summarized graphically in Figure 4… (taken from *Innovations in Ground Water and Soil Cleanup*, National Academy Press, 1997). (*Report 4 – Alternatives Report, pp. 57- 58, See Figure 4 below).* [*Highlights added to tables for ease of viewing*].
Sites such as Smithville, with PCB contaminants in fractured rock settings…, are the most difficult to deal with (Report 10, p.3, *Refer to Figure 3 Treatability of Contaminated Sites – adapted from National Academy Press, 1997: see table 1 of graphic below].*

Figure 4: Treatability of contaminated sites (National Academy Press, 1997)



Treatability of contaminated sites and level of site-specific testing of remediation technologies required as a function of contaminate and geologic properties. Note that "H" indicated high and "L" indicates low volatility, reactivity or solubility.

Contaminated Class (as shown in Figure 4)	Volatility, Reactivity, Solubility	Sample Contaminants
A	HHL	Hydrocarbon fuels (BTEX)
B	HLL	TCA, TCE, PCE
C	HHH	Acetone
D	LHH	Phenols, glycols
E	HLH	MTBE, tertiary butyl alcohol, methylene chloride
F	LHL	Naphthalene, small PAH's, phthalates
G	LLH	Inorganic mixtures, metals
H	LLL	PCB, pesticides, large PAH's

Notes:

Volatility: High (H) > approximately 10 mm Hg; Low (L) < approximately 1 mm Hg

Reactivity: High (H) indicates biodegradable, oxidizable compound; Low (L) indicates recalcitrant compound

Solubility: High (H) > approximately 10,000 mg/litre; Low (L) < approximately 1,000 mg/litre

Receptors: Immediately following discovery that contaminants had moved into the groundwater beneath the site in 1987, the MOE provided an alternate supply of good quality, safe drinking water for the Town of Smithville. After the permanent municipal water supply was installed, residents, businesses and industry were no longer reliant on groundwater sources (Report 5_1, pp. ix – x).

Summary: By 1993, the surface of the site had been cleaned-up and the on-site inventory of waste and contaminated material had been safely destroyed (Report 8_1, p. vii. *Emphasis added*). By 1993, the primary goal of protecting human and environmental health and safety had been accomplished, but more work remained as there was still contamination in the bedrock and groundwater beneath the site. This remaining contamination does not currently pose a risk to human health or the environment because a groundwater pumping and treatment system operated by the Ministry prevents contaminants dissolved in the groundwater from moving away from the site... However, groundwater pumping and treatment systems are not able to effectively remove the source of contamination from the ground, namely, the PCBs and other chemicals known as Dense Non-Aqueous Phase Liquids (DNAPLs). Since the contaminant source remains, groundwater slowly dissolves some of the contaminants away from the site. As a result, in order to cut off the movement of contaminants away from the site it will be necessary to continue to operate the groundwater pumping and treatment systems FOR CENTURIES, ESSENTIALLY IN PERPETUITY, unless an alternative remediation system that is technically sound and cost effective can be devised and installed. Fractured rock sites that are contaminated with DNAPLs are very complex, difficult and costly to investigate and remediate. To date there has not been a single site, anywhere in the world, where there has been complete removal of PCBs from contaminated bedrock. Unfortunately, there are no 'off-the-shelf' remedies for contaminated fractured rock sites such as Smithville… (Report 10 pp. v-vi. *Emphasis added*)

Pathway: The shallow bedrock of the Eramosa Member [*bedrock*] exhibits weathered bedding partings at approximately 0.25 to 1.0 m spacings that are open and permeable… The watertable in the shallow bedrock beneath the site typically lies at the bedrock surface or within 1 to 2 m below the bedrock surface (Report 5.3 p. 3- 4). Cracks or fractures exist in the bedrock beneath the site, oriented both horizontally and vertically. Some of these cracks have likely been enlarged as a result of groundwater flowing through the fractures, which over long periods of time has dissolved some of the rock away. The groundwater flows southward from the site along preferential horizontal pathways in the upper zone of rock. These is scientific debate among researchers as to whether the preferential pathways are mainly composed of horizontal bedding plane fractures of significant lateral extent, or continuous high-permeability channels that have been caused by preferential solutioning of the bedrock (karst) and which may occur over distances of hundreds of metres. In either case, reduction of groundwater flow around the contaminant source in the rock of this upper zone must be achieved for any passive or barrier-type of containment strategy to be effective (Report 10, pp. 11-12 *Emphasis added*).

The Board concluded that free-phase DNAPL contaminants are still present in the rock beneath the site. The source zone has been identified as a stable area, roughly oval in shape, and extending approximately 200 by 240 m laterally and about 25 m deep… There is a layer of rock with relatively few cracks in it about 25-31 m below the ground that is effective in restricting

contaminants from moving vertically downwards. Groundwater beneath the site flows primarily in the lateral direction, southward along cracks in the bedrock, some of which may be enlarged by solution processes. The flow velocity in some cracks in the rock is very high (as much as 5 – 30 m per day) (Report 10, p.vii).

Recommendations: The Board recommends that the Minister of the Environment reaffirm the Ministry's commitment to protection of human health, safety and the environment in Smithville as stated in the 1993 agreement between the Province and the Municipality. The current absence of proven and economically viable mass removal or reduction technologies suitable for application in the fractured rock at Smithville means that containment technologies are the only suitable measures currently available. Containment technologies require long-term maintenance, PERHAPS FOR CENTURIES, AS IS THE CASE FOR THE SMITHVILLE SITE…. The Board strongly feels that THE MINISTRY'S REAFFIRMATION OF THIS COMMITMENT TO MAINTAIN THESE SYSTEMS WILL HELP TO ENSURE PUBLIC CONFIDENCE IN THE MANAGEMENT APPROACH ULTIMATELY SELECTED FOR THE SMITHVILLE SITE. (Report 10, p. 32 *Emphasis added*)

Section 2 – Land Use Regulations

A. The Site Specific Risk Assessment which was undertaken as part of the Phase IV remediation project states:

Future Land Use: The revised *Township of West Lincoln Official Plan* was adopted by council on July 21, 1997 and approved by the Region of Niagara on June 16, 1998. This plan stipulates an area, known as Area 4 subject to a special policy restricting, "drilling, vibration, blasting, bedrock excavation and taking of groundwater"…

The plan further states (Section 4.5(b)(ii)) that:
Development in Urban Residential areas should be permitted only with the provision of full municipal services including full municipal water supply, municipal sanitary sewers, and storm water drainage. Where appropriate, alternate design systems will be considered.
(Report 8_2 p. 54, unnumbered: p 353 of 366).

B. Policy 4.9 Special Provisions in Area 4

22. That the following be added as Policy 4.9 (d) on page 23:

"(d) Special Provisions

(i) Area 4

* Special Policy Area 4 includes all designated industrial lands within 500 metres of the intersection of Spring Creek Road and Thompson Road, as shown on Schedule "A", Map 2. Drilling, vibration, blasting, bedrock excavation and taking of groundwater shall be restricted and may only be undertaken subject to a professional assessment of such activities and the approval of the Ministry of Environment."

And, that Policy 4.12 be modified by adding:

"(d) Area 4

Special Policy Area 4 is located in Section 4.9 (d)."

(Report 8_2, unnumbered: p.354 of 366. *Asterick in original*).

C. The current by-law in Smithville (2014) states:

From: Jay Muraca
Sent: Monday, September 15, 2014 3:19 PM
To: Brian Treble
Subject: PCB resend

BT,

Consolidated OP

Section 6.10.4 Employment Area Policies

> *(e) The storage and use of hazardous liquid or leachable chemicals including petrochemicals not classified as waste and PCB's shall be regulated in accordance with the regulations and guidelines of the Ministry of Environment. Site specific hydrogeological and stormwater studies may be required for new industries to ensure no impact on the groundwater and surface water from the proposed use. Such studies shall be completed to the satisfaction of the Township in consultation with the Niagara Peninsula Conservation Authority (NPCA). The implementing Zoning shall set out specific requirements for the storage of such liquids and chemicals.*
>
> *(g) All designated employment lands within 500 metres of the intersection of Spring Creek Road and Thompson Road, as shown on the land use plan shall be subject to the following provision: drilling, vibration, blasting, bedrock excavation and taking of groundwater shall be restricted and may only be undertaken subject to a professional assessment of such activities and the approval of the Ministry of Environment.*

Current OP

Section 4.9(d) – Industrial Special Provisions

> *Area 4*
>
> *"Special Policy Area 4 includes all designated industrial lands within 500 metres of the intersection of Spring Creek Road and Thompson Road, as shown on Schedule 'A', Map 2. Drilling, vibration, blasting, bedrock excavation and taking of groundwater shall be restricted and may only be undertaken subject to a professional assessment of such activities and the approval of the Ministry of Environment."*

Jay

Jay Muraca, B.A., C.P.T.
Planning Technician / Planner 1
905-957-3346 Ext. 5131
Email: jmuraca@westlincoln.ca

Section 3 – Current reports and results from MOECC

Smithville Phase IV
Bedrock Remediation Program
Site Operations Summary Report
April 1, 2014 to June 30, 2014

Ministry of the Environment and Climate Change
West Central Region
119 King Street West
12th Floor
Hamilton, Ontario L8P 4Y7
Tel.: 905-521-7640
Fax: 905-521-7820

September 2014

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BACKGROUND

Chemical Waste Management Limited (CWML) operated a liquid industrial and PCB waste transfer/storage facility in the Smithville Industrial Park from 1978 to 1985. In 1985, it was discovered that the company's poor waste management practices had led to Polychlorinated Biphenyls (PCBs) and other Dense Non-Aqueous Phase Liquids (DNAPLs) leaking from storage tanks into an on-site storm lagoon. The Ministry of the Environment and Climate Change (the "Ministry" or MOECC) then took control of the site implementing a four-phase remediation program.

When it was discovered that contamination of the ground water was threatening the municipal water supply, the Ministry spent $3 million constructing a water pipeline to provide Smithville with a secure and reliable supply of drinking water. The Ministry constructed a pump and treat containment system in 1989 to stop the spread of contaminated ground water.

The first three phases, of the remediation program, were completed by 1993. Destruction of the stored wastes, contaminated materials and surface soils was achieved through the use of a temporary on-site rotary kiln incinerator.

In 1994, the Ministry and the Township of West Lincoln agreed to work co-operatively in the search for a solution for the remediation of the sub surface. The Minister appointed a six member Managing Board of Directors (the "Board") with an equal number of representatives from the public, the elected municipal council and the Ministry. The Board undertook the task of examining a long list of remediation technologies and conducting extensive investigations of the site geology, hydrogeology and issues associated with contaminant transport. The Board took almost eight years and spent close to $6 million to arrive at today's understanding of the site and the assessment of remedial options.

The Board reported that the absence of proven and economically viable mass removal or reduction technologies suitable for application in the fractured rock at Smithville means that containment technologies are the only suitable measures currently available to manage the subsurface contamination. The Board is confident that groundwater pumping and treatment is technically sound, environmentally safe and fiscally responsible. The current pump and treat system is effectively managing the contamination and protecting the public health, safety and the environment. The Board recommended that the Ministry continue to utilize pump and treat technology to manage the contamination.

Between 1985 and 2013, the Ministry has spent approximately $65 million managing the CWML site and implementing the four-phase remediation program. The Ministry continues to manage the site, the sub-surface contamination, and ground water to ensure the continued protection of public health, safety, and the environment. The Ministry is committed to keeping the residents of West Lincoln informed of site activities by providing summary reports on a quarterly basis to the municipal council.

1. INTRODUCTION

The Ministry of the Environment and Climate Change continues to manage the former CWML site and the associated pump and treat containment system to ensure the continued protection of public health, safety and the environment. The Ontario Clean Water Agency under contract to the Ministry is responsible for day-to-day operations of the Pump and Treat System, the management of on-site facilities, the maintenance of the monitoring well network and the collection and analysis of all samples.

This report summarizes the Phase IV program activities and site operations for the period April 1, 2014 to June 30, 2014.

2. SITE OPERATIONS

2.1 Pump and Treatment System Operations

Contaminated ground waters are collected through a series of eight (8) recovery wells. The contaminated waters are conveyed to the on-site treatment system. Following the treatment process the waters are tested prior to discharge to the sanitary sewer system.

During the period April 1, 2014 to June 30, 2014 a total of **3,001,900** litres of water was discharged from the treatment plant. The average concentration of PCBs in the plant effluent was **0.012** µg/L (**0.012** ppb). The concentration of PCBs in the treated effluent did not exceed the criteria, of **1.0** µg/L of total PCBs, for discharge to the sanitary sewer system.

2.2 Ground Water Monitoring Program

In total, seventy-five (75) ground water monitoring wells are located on and around the former CWML site. These wells have, at one time, been utilized to gather information on the geology, hydrogeology, contaminant distribution and /or performance of the pump and treat system. Currently up to thirty-eight (38), of these monitoring wells arranged in a series of rings, are routinely sampled to confirm the performance of the pump and treat containment system.

The Ministry also continues to sample several domestic wells in West Lincoln to confirm that the contamination associated with the former CWML site is not impacting their water quality.

2.3 Monitoring Well Inspections

All seventy-five (75) ground water monitoring wells are regularly inspected to confirm they are secure from tampering and/or damage that would threaten the well integrity. Inspections of the wells confirm that the integrity of the monitoring well network remains secure.

2.4 PCB Storage Site Inspections and Inventory

The storage of materials contaminated or suspected to be contaminated with PCBs is limited to materials that are generated as a result of the on-going operation of the Phase IV remediation program. The site is operated in accordance with the Environmental Assessment Act Exemption Order MOE 31/5. The current inventory of the PCB storage facility is listed in Table 2.

The facility is locked and access is restricted to authorized personnel. The storage facility complies with the requirements for a PCB storage facility in Ontario. Weekly inspections are conducted to confirm the site is secure and that the integrity of the material storage containers has not been compromised.

The inspections during the period April 1, 2014 to June 30, 2014 confirmed that there were no breaches in containment of stored materials or site security issues.

3. INITIATIVES TO IMPLEMENT THE BOARD'S RECOMMENDATIONS

In March of 2002 the Minister of the Environment wrote to the Chair of the Managing Board of Directors, accepting the Board's recommendations. The Ministry continues forward with its commitments to implement the Board's recommendations.

3.1 Environmental Science and Standards Division (MOECC)

The Environmental Science and Standards Division of the MOECC sponsors research projects on contamination and remediation in fractured bedrock. These projects are intended to: 1) develop guidance for characterizing contamination in fractured bedrock environments (Queens University); 2) critically review the state of the science regarding in-situ enhanced and augmented bioremediation in both porous and fractured media (University of Waterloo); and 3) assess the potential for natural and enhanced bioremediation of NAPL source zones in fractured rock (University of Toronto).

3.2 University of Waterloo

The University of Waterloo has completed a study of the Smithville site to update our understanding of the contaminant source zone and depletion of contaminants over time at the site. The study included field sampling as well as modelling.

3.3 Technical Support Unit (MOECC)

The Technical Support Unit of the MOECC has initiated a review of the groundwater monitoring program to assess opportunities for improvement and to provide recommendations. The study will include field sampling as well as modelling.

3.4 Treatment Plant Optimization

The Ministry, through the Ontario Clean Water Agency, has completed several phases of a treatment plant optimization. The 1st phase consisted of installing new raw water treatment tanks in the warehouse, constructing secondary containment and piping structures for these tanks and making some necessary

repairs to the warehouse. The 2nd phase of construction was the installation of a new warehouse roof. The 3rd phase was the preparation of the building for new final treatment tanks and the upgrading of electrical services. The 4th phase was the installation of the new final treatment tanks. The 5th phase of construction was the movement of the treatment plant to the warehouse and subsequent connection to the new final treatment tanks. The 5th phase was completed by December 2009.

The demolition and removal of the old final water tanks, the old pump house and the cleanup of the old treatment building was completed in 2010. The movement of the office building was completed in July/August 2011.

In the fall of 2012, seven unused wells on leased land to the south of the site, were decommissioned and removed. In June 2013, work was initiated on removing the old treatment tanks from the site. The removal of the old treatment tanks was completed by September 2013.

Table 1: Summary of Effluent Discharges (January 1, 2014 to June 30, 2014)

Month	Average PCB Concentration (ppb)	Total Discharge Volume (L)
January /14	0.010	1,066,800
February /14	0.010	854,400
March /14	0.010	1,071,900
April /14	0.014	1,069,200
May /14	0.010	1,077,100
June /14	0.012	855,600
July /14		
August /14		
September /14		
October /14		
November /14		
December /14		

Table 2: PCB Storage under Regulation 362 (as of June 30, 2014)

Storage Containers	Contents	Approximate Masses
1 drum(s)	Plastic gloves, plastic pipe, wire, wood, hose, pumps, fittings	111.0 kg

From: **Ross, Dave (ENE)** <Dave.j.Ross@ontario.ca>
Date: Thu, Oct 23, 2014 at 10:48 AM
Subject: RE: PCB results

Attached is the latest report sent to the Township of West Lincoln.

In addition, as per your request, here are the latest raw water PCB sample results for each recovery well.

Well Name		Aug 12/14
RWS1	Total PCBS (ug/L)	1.2
RWS2	Total PCBS (ug/L)	44
RWS3	Total PCBS (ug/L)	4.4
RWS4	Total PCBS (ug/L)	25
RWS5	Total PCBS (ug/L)	7.8
RWS6	Total PCBS (ug/L)	2.8
RWS7	Total PCBS (ug/L)	21
RWS8	Total PCBS (ug/L)	0.56

David J Ross

Divisional Program Specialist

West Central Region

Ministry of the Environment and Climate Change

119 King Street W., 12th Floor

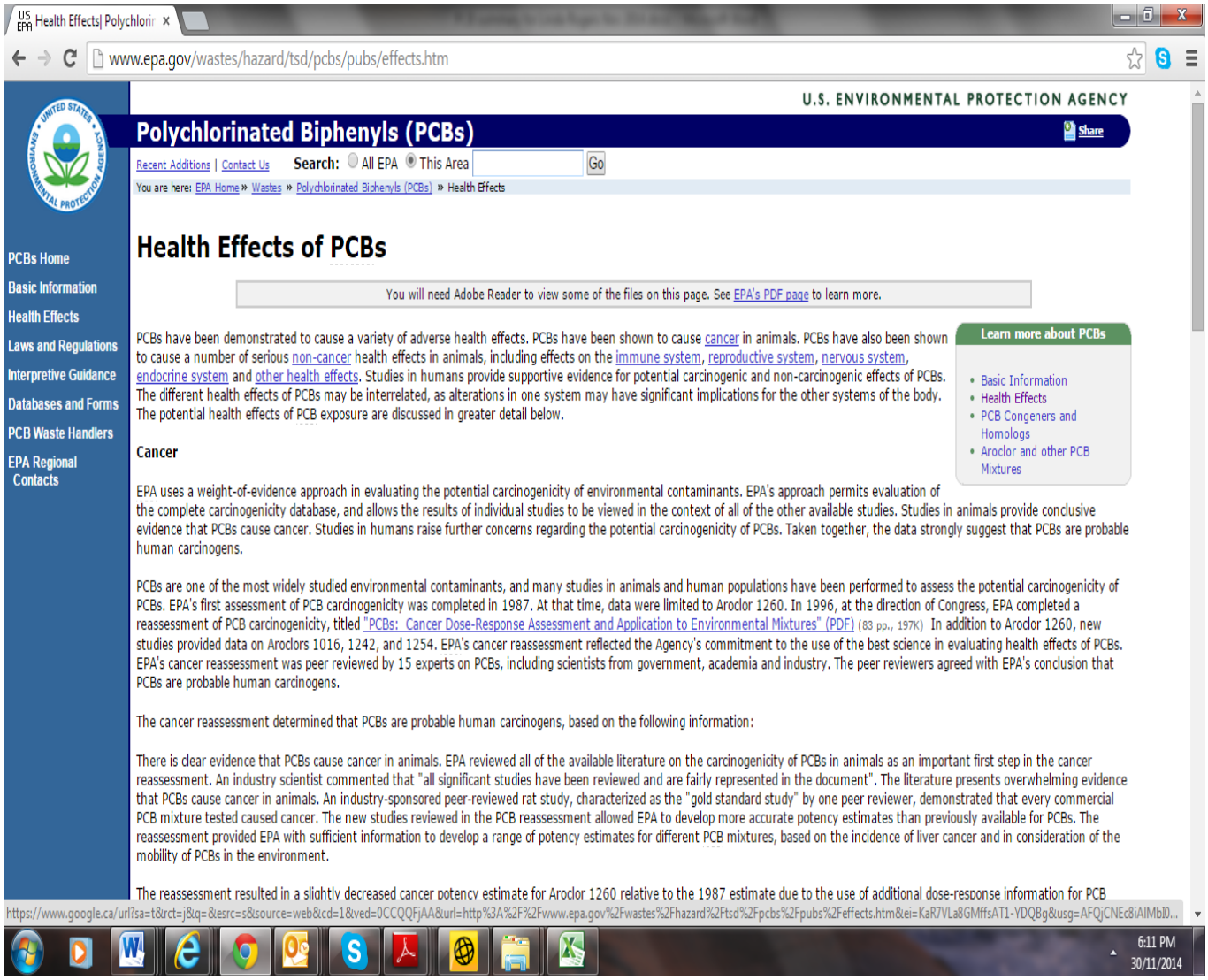
Hamilton ON L8P 4Y7

Phone: (905) 521-7826

Fax: (905) 521-7820

Email: dave.j.ross@ontario.ca

Section 4 – Adverse Health Effects



http://www.epa.gov/epawaste/hazard/tsd/pcbs/pubs/effects.htm

Section 5 - Commentary on NRWC in light of PCBs

The Approval Notice on the EBR states:
The REA requires the applicant to construct, install, operate, use and retire the facility in accordance with specific terms and conditions. The terms and conditions, as summarised below, require the applicant to…develop and implement a pre- and post-construction ground water monitoring program,
http://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTIxMTM5&statusId=MTg2MDY0

Furthermore, in Response to Comments as posted on EBR the proponent states:

Concerns related to PCB contamination

The project infrastructure being proposed by the applicant is not in proximity to the known location of the PCB contamination in Smithville, which is located approximately 1.5 km from the nearest section of the transmission line and approximately 4.5 km from the nearest turbine. No impacts on the containment of this contaminant source are anticipated a result of this project.

The applicant has committed to undertaking a pre- and post-construction monitoring program for any residential wells within 500 m of a wind turbine, or within 120 m of any underground transmission line. As condition of approval, the applicant will be required to undertake this program.

http://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTIxMTM5&statusId=MTg2MDY0&language=en

These responses are concerning.

1. The public has seen no results of any hydrogeological investigations related to the PCB situation to assure us of the statement that no impacts on the containment of this contaminant source are anticipated as a result of this project.
2. The proponent is required to undertake a pre-and post-construction monitoring program. One such condition is found in H of their REA approval:

H - GROUNDWATER MONITORING

H1. Prior to the construction and installation of the Facility, the Company shall develop, and implement for a minimum period of two (2) years after it is developed, a pre- and post-construction ground water monitoring program, which shall include, as a minimum, the following information:

(1) Identification of existing residential wells within 120 m of a buried transmission line and any residential well of a home within 500 m of a wind turbine.

(2) Identification of ground water monitoring parameters, monitoring frequency, and trigger concentrations based on appropriate information as deemed necessary for the monitoring wells as described in Condition H1(1).

H2. The Company shall report the summary of the results of the pre- and post-construction ground water monitoring program on an annual basis to the District Manager.

3. Conditions are also found in the approval speaking to water taking activities (I) and water bodies (J). Sewage and Spills contaminate and are found in (K) of the granted. The conditions of K5 outlines the methods and protocols for any sampling, analysis and recordings. The guidance documents are to be Ministry of the Environment and Climate Change Publications:

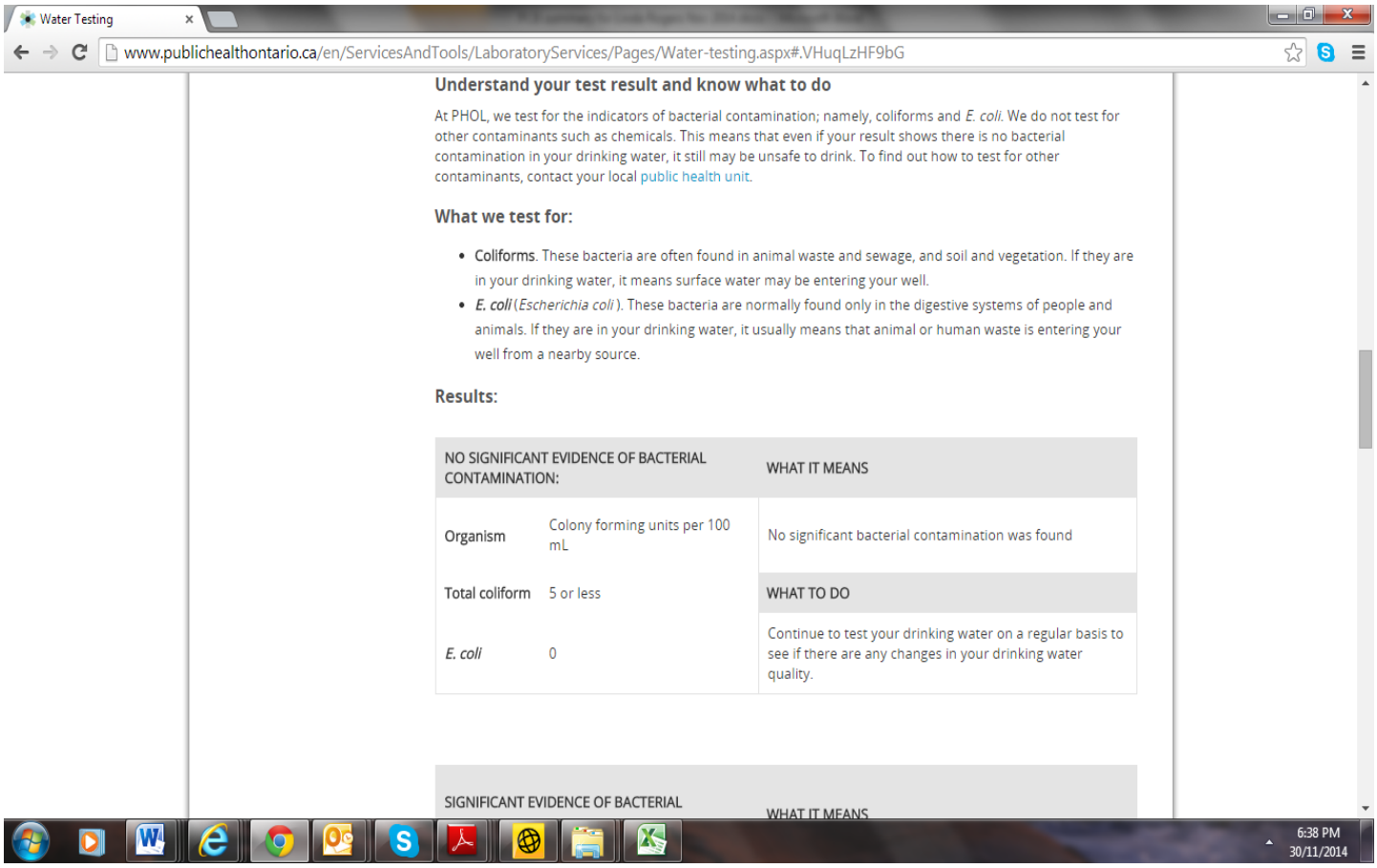
    I. Protocol for the Sampling and Analysis of Industrial/Municipal Waste Water, January 2009
    II. Standard Methods for the Examination of Water and Waste Water, 21st edition 2005

> K5. The Company shall comply with the following methods and protocols for any sampling, analysis and recording undertaken in accordance with Condition K4:
>
> (1) Ministry of the Environment and Climate Change publication "Protocol for the Sampling and Analysis of Industrial/ Municipal Wastewater", January 1999, as amended from time to time by more recently published editions, and
>
> (2) the publication "Standard Methods for the Examination of Water and Wastewater", 21st edition, 2005, as amended from time to time by more recently published editions.

Dependent upon the condition reference the monitoring frequency is to be 1-2 per year.

Public Health Ontario already provides free water testing for private residential water wells across the province of Ontario. These tests include only bacterial testing for coliforms and E. coli [*see graphic below*]. Thus, any commitment to undertake monitoring programs for residential wells is redundant if such includes only the same target bacteria as Public Health.

Note that Public Health does NOT test for contaminants such as chemicals (for example, PCB's or petroleum distillates). Is the commitment that the proponent stated above in 'response to comments' actually in response to the PCB questions raised? Does the proponent have plans to test for this and other chemicals?



Water Testing

www.publichealthontario.ca/en/ServicesAndTools/LaboratoryServices/Pages/Water-testing.aspx#.VHuqLzHF9bG

Understand your test result and know what to do

At PHOL, we test for the indicators of bacterial contamination; namely, coliforms and *E. coli*. We do not test for other contaminants such as chemicals. This means that even if your result shows there is no bacterial contamination in your drinking water, it still may be unsafe to drink. To find out how to test for other contaminants, contact your local public health unit.

What we test for:

- **Coliforms**. These bacteria are often found in animal waste and sewage, and soil and vegetation. If they are in your drinking water, it means surface water may be entering your well.
- ***E. coli*** (*Escherichia coli*). These bacteria are normally found only in the digestive systems of people and animals. If they are in your drinking water, it usually means that animal or human waste is entering your well from a nearby source.

Results:

NO SIGNIFICANT EVIDENCE OF BACTERIAL CONTAMINATION:		WHAT IT MEANS
Organism	Colony forming units per 100 mL	No significant bacterial contamination was found
Total coliform	5 or less	WHAT TO DO
E. coli	0	Continue to test your drinking water on a regular basis to see if there are any changes in your drinking water quality.

SIGNIFICANT EVIDENCE OF BACTERIAL	WHAT IT MEANS

6:38 PM
30/11/2014

http://www.publichealthontario.ca/en/ServicesAndTools/LaboratoryServices/Pages/Water-testing.aspx#.VHuohnx0yP9

4. The applicant has committed to undertaking a pre- and post-construction monitoring program for any residential wells within 500 m of a wind turbine, or within 120 m of any underground transmission line. As condition of approval, the applicant will be required to undertake this program.

   Furthermore, regarding the pre-and post-monitoring program, the proponent's commitment to testing seems to apply only to leaseholders, as it is unlikely that there are residential wells belonging to non-leaseholders within the specified 500m of turbines. As well, as we understand it, the transmission lines are to be located above ground, and therefore, the 120m testing parameter is not particularly pertinent. There is no mention of a commitment to undertake this program along the length of the distribution/collector lines.

5. In the possible occurrence of such non-leaseholder residential water wells within the 500m distance from turbines or 120m from buried transmission lines, this does present an interesting legal consideration. If the testing proposed by the proponent is for coliform bacteria and E.coli, then there is no need for the proponent's involvement nor access to these results. Would this thus place them in the position of being in violation of the terms

of their MOECC approval conditions? Alternatively, if the testing commitment is for target substances beyond that which the Public Health department offers, then non-leaseholders will be placed in an untenable position between forging a relationship with the proponent to undertake this testing or to do so at their own expense in order to be protected from any untoward changes in their water supply. Who takes the water samples? Necessarily the proponent would need access to the results in order to comply with the conditions set out in the approval. Should non-leaseholders be forced into this arrangement to have a private, for-profit company become a repository for water testing results of their private wells? If individuals refuse to enter into such an arrangement, what then is their recourse?

6. And lastly, it is of some concern that the proponent provided distance from turbines and transmission lines which do not seem to be accurate measurements. As noted in its response,

"**Concerns related to PCB contamination**

The project infrastructure being proposed by the applicant is not in proximity to the known location of the PCB contamination in Smithville, which is located approximately 1.5 km from the nearest section of the transmission line and approximately 4.5 km from the nearest turbine. No impacts on the containment of this contaminant source are anticipated a result of this project."

According to the images below, these distances should more likely be represented at 4.188km from the nearest turbine and 1.23km from the transmission line.

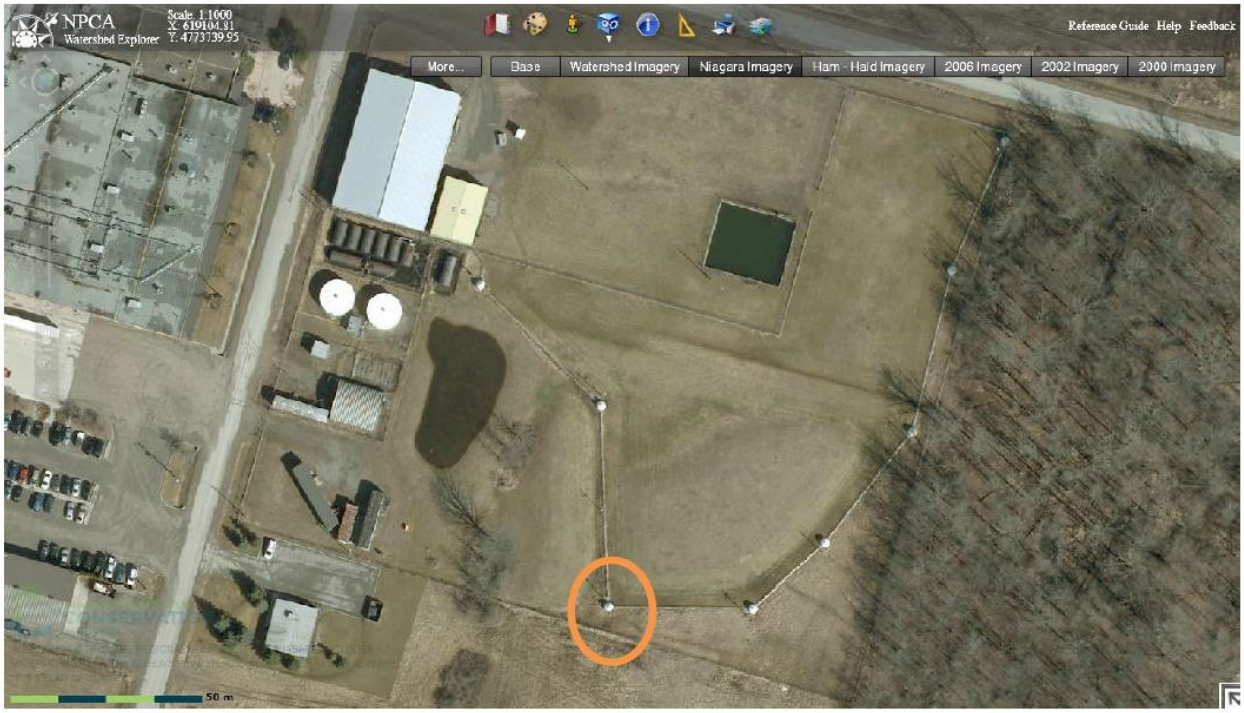
That the MOECC repeated these same measurements as supplied by the proponent only served to undermine public confidence in the purported rigour and thoroughness of the Ministry's technical review of this application, should the proponent's distances be too generously represented. Please note again the reference made to the transmission lines being placed above-ground, and thus not subsumed under the commitment made for water testing along the lines.

The Ministry has considered the proximity of the Industrial Park to the proposed location of the nearest wind turbine (4.5 kilometres), as well as the proximity of the Industrial Park to the nearest transmission line, which is above-ground and located at a distance of 1.5 km.

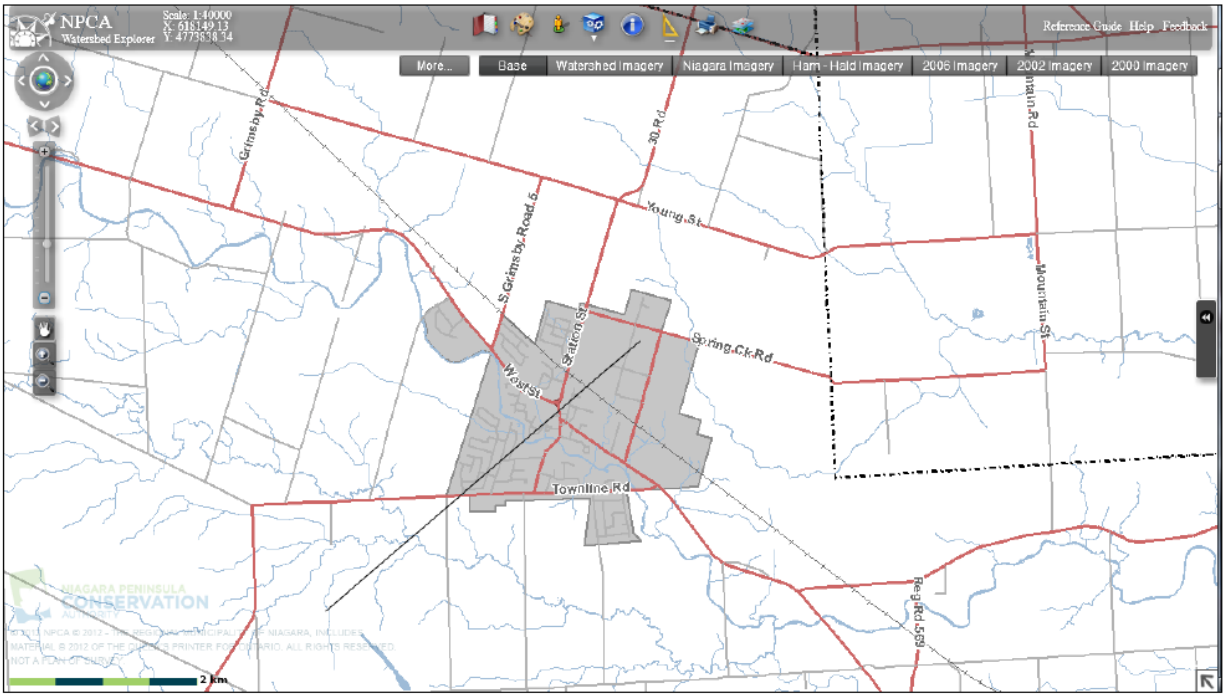
Thank you for bringing your concerns to the attention of the Ministry.

Yours sincerely,

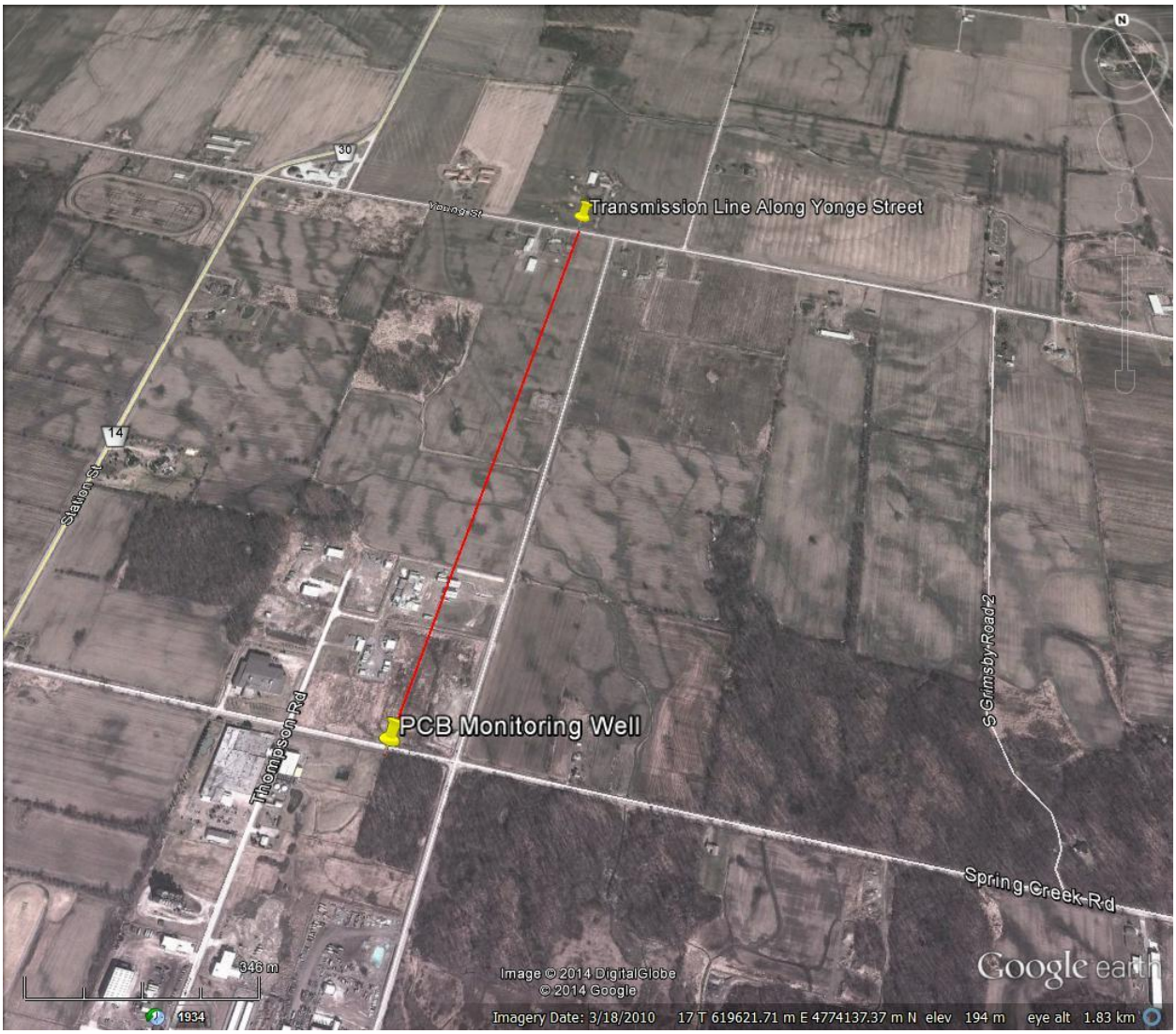
for Agatha Garcia-Wright
Director
Environmental Approvals Branch



GPS co ordinate = 619158, 4773584



This map shows the PCB site in West Lincoln. The diagonal line represents the distance to turbines 88 and 83 (4188 and 4402 meters from PCB site).



The distance is ~ 1231 meters.