Publicly Accessible Information on Impacted Sites

FINAL REPORT

Atlantic Partnership in RBCA Implementation Harmonization Project

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PRESENTED BY:

verterra group
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IN PARTNERSHIP WITH:

ATLANTIC PIRI
PARTNERSHIP IN RBCA IMPLEMENTATION

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EXECUTIVE SUMMARY

The Atlantic Partnership in RBCA (Risk Based Corrective Action) Implementation (Atlantic PIRI) is rooted in protection of human health and the environment. Harmonization is a key aspect of the 2008 Memorandum of Understanding (MOU) signed by all four Deputy Ministers of the Environment in each Atlantic Province. As such, Atlantic PIRI has identified several focus areas for harmonization.

Given the general demand for transparency by governments and the specific requirements for some provincial governments to maintain databases on site conditions for impacted sites, Atlantic PIRI has set forth on a project to develop guiding principles for the Atlantic Provinces in their development, refinement or maintenance of a database to allow the public to access site condition information on impacted sites.

Given the financial, legal, regulatory and socio-economic issues involved, there is a need to consider how to balance transparency and fairness of the approach used in sharing site information on impacted properties. Indeed during land transactions, there is a potential conflict between the principles of full transparency for site information on contaminated land versus caveat emptor for a land owner's desire to maximize selling price. Maintaining such a balance between stakeholders can be achieved in the considerations for the design and the use of a database for site conditions at impacted properties.

Verterra Group was hired in January 2014 to review and analyze the outcomes of the literature review and jurisdictional search completed by Atlantic PIRI. A workshop with many members of Atlantic PIRI was facilitated by Verterra Group to gain valuable insight from the industry leaders, regulators and consultancies represented at the workshop. The resulting final report was completed in collaboration with members of Atlantic PIRI.

Based on the synthesis of the literature review, jurisdictional search and the workshop outcomes, three guiding principles were identified:

- Principle 1: Protection of human health and the environment
- Principle 2: Balance in level of service
- Principle 3: Information Access and Privacy

In addition, recommendations were provided for the path forward for further consideration by Atlantic PIRI. These included:

- Four broad recommendations of support – the why;
- Three overarching recommendations on development approach – the how; and
- Six selected practical recommendations – the what.

Based on the research completed, the specifics of what is implemented will define the success or failure of impacted sites information sharing. There are dual characteristics that both need to align to develop a system for sharing information with the public on impacted sites – that is, a combination of transparency and fairness to stakeholders. More research would be required to identify the best practices to meet the guiding principles identified in this report.

Indeed there are many ways to publicly share information on impacted sites. Each province needs to determine their own approach based on the three identified guiding principles.

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1 INTRODUCTION

Today there seem to be increasing demands from the public for transparency in all areas of social, environmental and economic governance. One such area is impacted sites: specifically, the provision of publicly accessible information on site conditions at impacted properties. Many governments – in Canada, the United States and abroad – have developed information sharing systems to allow the public to access information on impacted sites. These vary widely in terms of how information is accessed and the level of information shared.

Given the financial, legal, regulatory and socio-economic issues involved, there is a need to consider how to balance transparency and fairness of the approach used in sharing site information on impacted properties. Indeed during land transactions, there is a potential conflict between the principles of full transparency for site information on contaminated land versus caveat emptor for a land owner's desire to maximize selling price. Maintaining such a balance between stakeholders can be achieved in the considerations for the design and the use of a database for site conditions at impacted properties.

The Atlantic Partnership in RBCA (Risk Based Corrective Action) Implementation (Atlantic PIRI) is rooted in protection of human health and the environment. Atlantic PIRI promotes practical and flexible approaches for the assessment and remediation of petroleum impacted sites and brownfield properties. Harmonization is a key aspect of the objectives in the 2008 Memorandum of Understanding (MOU) signed by all four Deputy Ministers of the Environment in each Atlantic Province. The seven key objectives in Atlantic PIRI's 2008 MOU re-focus on harmonization. This builds upon Atlantic PIRI's role as a positive and cooperative effort that has substantially improved petroleum impacted site management in the Atlantic region through its ongoing efforts since 1999.

As such, Atlantic PIRI has identified several focus areas for harmonization. Given the general demand for transparency by governments and the specific requirements for provincial governments to maintain databases on site conditions for impacted sites, Atlantic PIRI has set forth on a project to develop guiding principles for the Atlantic Provinces in their development, refinement or maintenance of a database to allow the public to access site condition information on impacted sites. It is understood that this project is the first in a series of topics to be further studied. As per the MOU, all decisions and recommendations of the partnership will be made based upon a consensus agreement approach, and will be brought back to the respective governments for consideration.

The development of a more publicly accessible impacted sites database is important as it allows greater transparency by providing easier access to information. Sharing site condition information may allow stakeholders to evaluate risks associated with land. A contaminated site may pose a risk to human health or the environment; therefore, governmental sharing of this information can fulfill goals of public protection of human health and the environment. Sharing site condition information may allow for the consideration of other risks associated with the purchase, development, remediation or occupation of impacted sites – these risks can be financial or legal. Sharing information appropriately can allow stakeholders to increase their level of due diligence.

Impacted sites include both contaminated land as well as brownfield sites. Sharing site condition information could also negatively impact brownfield redevelopment. This may occur if stakeholders negatively perceive the land based on publicly accessible information. Sharing site condition information may have negative implications if delayed purchase, development, remediation or occupation of impacted land results – these implications can be social, environmental, or financial. On the other hand, sharing information appropriately may be able to reduce potential for a negative perception to be associated with land that has ongoing or historical contamination.

To determine the most appropriate approaches to sharing site condition information with the public to assist parties in making an informed decision, Atlantic PIRI's first harmonization project aims to analyze how different jurisdictions handle the concept of an impacted site registry and current practices for publicly accessible information related to site conditions at impacted properties. This will involve comprehensively exploring the potentially conflicting principles of transparency and the right to know versus protection of privacy and the land owner's desire to maximize selling price.

Accordingly, Atlantic PIRI prepared a Scope of Work (SoW) in November 2013 (refer to Appendix A). The SoW included:

- Completion of a literature search to determine state of practices, opinions and perspectives;
- Completion of a jurisdictional review on how other jurisdictions treat this issue including governments across Canada and key United States and European jurisdictions;
- Reporting on the findings of the literature search and jurisdictional review; and
- Analysis of the current state of thinking, practice and trends.

Ultimately, it is the goal of this project to develop guiding principles and a series of recommendations based on review of current practices for publicly sharing site information on impacted properties. It is understood that this resulting report will be brought back to governments in the four Atlantic Provinces for consideration in their ongoing development, refinement or maintenance of databases allowing public access to site condition information on impacted sites.

In January, 2014, a proposal was prepared by Verterra Group to assist Atlantic PIRI in fulfilling the goal of developing guiding principles and a series of recommendations on sharing accessible information on impacted sites with the public (refer to Appendix A). It was determined that Atlantic PIRI would conduct the literature search and jurisdictional review and no additional research would be completed by Verterra Group.

A facilitated 3-hour workshop was also proposed to allow fluid discussion between the diverse Atlantic PIRI members at their February 19, 2014 regional meeting. At this workshop, Verterra identified risks, limitations, and advantages of the diverse approaches and presented them on February 19, 2014. The workshop was designed to use Atlantic PIRI's harmonization roots to generate a multi-stakeholder discussion around the approaches, risks, limitations, and advantages of sharing impacted sites information with the public.

The final deliverable is this report including both the factual outcomes of the literature search, jurisdictional review, and workshop and its subsequent analysis. While this report is prepared by Verterra Group, it is rooted in research completed by Atlantic PIRI and the outcomes of the workshop with Atlantic PIRI members. Further the content of this report – specifically the guiding principles and series of recommendations – have been reviewed and agreed by the members of Atlantic PIRI following draft reviews and discussion at the regional meeting on June 11, 2014. Hence this report is a collaborative effort and reflects the diverse perspectives of representatives within Atlantic PIRI.

Each of the four Atlantic Provinces has a distinct impacted sites management approach, including the existing system in which site condition information is stored and shared. Accordingly, each province should develop its own way of moving forward in its approach to making information on impacted sites publicly accessible. It is hoped that the guiding principles and series of recommendations presented in this report are used to enhance the four provinces' systems for sharing site information, both simultaneously and independently.

2 LEGISLATIVE FRAMEWORK IN ATLANTIC CANADA

It is important to understand the context of the regulatory framework in the four Atlantic Provinces when considering approaches to make information on impacted sites publicly accessible. One must appreciate the provisions and limitations set out by legislation dealing with not only impacted sites management but also the freedom of information and protection of privacy (FOIPOP). In this report, legislation refers to regulations and their enabling statutes.

As each province currently has a unique situation in its database development and its approach to share information with the public, one must also appreciate the existing practices in New Brunswick (NB), Newfoundland and Labrador (NL), Nova Scotia (NS) and Prince Edward Island (PEI).

The following three sub-sections present a snapshot at legislation that governs the information provided within impacted sites information sharing systems, as well as existing public access to such databases. Specifically, Section 2.1 examines impacted sites legislation or policy in the Atlantic Provinces. Section 2.2 evaluates the Atlantic Provinces' FOIPOP legislation, identifying requirements and restrictions that apply to information sharing in the context of impacted sites. Section 2.3 provides an overview of the existing databases in the four Atlantic Provinces in the context of governing legislation where applicable.

2.1 Impacted Sites Management

Legislation governing impacted sites management are key in assigning responsibilities in reporting and sharing site contamination information. In some cases, legislation may provide the public and third parties with the ability to access particular information related to site conditions for impacted properties.

Table 2-1 broadly examines legislation in the four Atlantic Provinces related to impacted sites and sharing of information based on the understanding of Verterra Group. While the format is simplified and the implication must be further considered in context of the legislation and its specific requirements, it is interesting to compare these from a high level. The term "database" is used to represent a form of information system (e.g., internal database, public registry, etc.). While the term "impacted sites" refers to sites that are contaminated, are being managed or have been remediated; this includes brownfield sites.

Table 2-1 Comparison of Impacted Sites Legislative Requirements

	Reporting of contamination to the Province	Registering a site in a database	Public access to database	Notifying third parties
New Brunswick				
Clean Environment Act	No	Yes – S.13	Yes – S. 13(2)	No
Petroleum Storage and Handling Regulations	Yes – S. 43(a)	No	-	No
Water Quality Regulation	Yes – S.11(2)	No	-	No
Fees for the Provision of Environmental Information Regulation	No	Yes – S. 4 (e)	Yes – S. 3	No
Guidance Document	Yes – S. 1.1; S. 2.3	Yes – S. 3.4.2	Yes – S. 3.4.2	Yes – S. 3.3; S. 1.1
Newfoundland and Labrador				
Environmental Protection Act	Yes – S. 8(1)(a)	No	-	Yes – 8(1)(d); 27(1)(a)(ii)
Guidance Document	Yes – S. 1.3.1	Yes – S. 1.3.3	No	Yes – S. 2.2.2; S. 1.3.3
Nova Scotia				
Environment Act	Yes – S. 69(1)(a)	Yes – S. 88(c)	Yes – S. 10(3)	Yes – S. 69(1)(d)
Contaminated Sites Regulations	Yes – S. 10; 14(1)	No	-	Yes – 9(c)
Environmental Emergency Regulation	Yes – S. 6(1)	No	No	Yes – S. 6(2)
Guidance Document	Yes – S. 1.2(e)	Yes – S. 3.2(b)	Yes – S. 3.4(e)	Yes – S. 1.2(e); S. 3.1
Prince Edward Island				
Environmental Protection Act	Yes – S. 21(1)(a)	Yes – S. 21.1(1)	Yes – S.21.1(2)(a)	No
Petroleum Hydrocarbon Remediation Regulations	Yes – S. 3(1)(b)	-	-	Yes – S. 3(2)
Contaminated Sites Registry Regulations	No	Yes – S. 3	No	No

Where appropriate, specific references to the legislation or guidance documents have been made in Table 2-1. These are specifically referenced in Section 6 with other documents cited in this report. The reader can refer to these for context and additional information as simplification is inherent in tabulation of impacted sites management approaches.

The following are overarching observations on the comparisons of the legislated requirements identified above:

- Reporting of contamination to the Province: While each province has a requirement of reporting contamination to the government, the contexts vary; these include definition of contamination, timing, responsibility and form of reporting.

- Registering a site in a database: Where requirements are legislated for a database of impacted sites, this is typically regarding impacted sites where an approval, permit or designation exists for the impacted site; however, non-legislative documents may reference a database for sites where known contamination exists.

- Public access to database: In some cases, statutes and/or guidance documents reference public access to a database – often referring to sites where an approval, permit or designation exists for the impacted site. This is in context of specific Provincial legislation, including those specifically related to FOIPOP.

- Notifying third parties: Third party notification of where contaminants may have migrated is required of the responsible party; in some other cases, the Province has responsibility of third party notification under the overarching responsibility to ensure that the impacted sites management process is followed.

This overview of legislation and pertinent guidance documents does not include other key internal and external drivers, such as recommendations of arms of government like the Auditor General. However, like legislation and guidance documents, these are also influential as each Province determines its unique approach to publicly accessible information on impacted sites.

2.2 Freedom of Information and Protection of Privacy

Legislation related to FOIPOP is fundamental in governing the sharing of impacted sites information; it is complimentary to requirements of impacted sites legislation or policy as described above. FOIPOP legislation is designed to provide the public with access to information that a public body has control or custody of while providing protections against the unacceptable use or sharing of information by a public body that may infringe on one's privacy.

Each of the four Atlantic Provinces has individual legislation that is used to regulate and balance the individual's right to information and protection of privacy. All four provinces FOIPOP legislative documents have distinct titles with differing abbreviations. In this report, the abbreviation FOIPOP is a collective term used to refer to the legislative documents of all four Atlantic Provinces that provide individuals with the right to information and protection of privacy; it also references the broader concept.

FOIPOP is an integral part of the impacted sites legislative framework for impacted sites as it provides individuals with the right to know as well as the right to privacy. The former provides individuals with the right to access site condition information for an impacted site which may pose a risk to human health or the environment. The latter function protects against the sharing of impacted sites information that imposes on the privacy of individuals, such as a property owners.

The four Atlantic Provinces each use their own legislative document to govern public access to information about individuals and public bodies:

- New Brunswick uses the *Right to Information and Protection of Privacy Act*.
- Newfoundland and Labrador uses *Access to Information and Protection of Privacy Act*.
- Nova Scotia uses Freedom of Information and Protection of Privacy Act.
- Prince Edward Island uses *Freedom of Information and Protection of Privacy Act*.

As it is the purpose of these FOIPOP statues that is of interest in the review of publicly accessible information on impacted sites, these are shown below for the four Atlantic Provinces.

Table 2-2 Comparison of Purposes in FOIPOP Legislation

New Brunswick	
S.2	The purposes of this Act are (a) to allow any person a right of access to records in the custody or under the control of public bodies, subject to the limited and specific exceptions set out in this Act, (b) to control the manner in which public bodies may collect personal information from individuals and to protect individuals against unauthorized use or disclosure of personal information by public bodies, (c) to allow individuals a right of access to records containing personal information about themselves in the custody or under the control of public bodies, subject to the limited and specific exceptions set out in this Act, (d) to allow individuals a right to request corrections to records containing personal information about themselves in the custody or under the control of public bodies, and (e) to provide for an independent review of the decisions of public bodies under this Act.
Newfoundland and Labrador	
S.3(1)	The purposes of this Act are to make public bodies more accountable to the public and to protect personal privacy by (a) giving the public a right of access to records; (b) giving individuals a right of access to, and a right to request correction of, personal information about themselves; (c) specifying limited exceptions to the right of access; (d) preventing the unauthorized collection, use or disclosure of personal information by public bodies; and (e) providing for an independent review of decisions made by public bodies under this Act.
Nova Scotia	
S.2	The purpose of this Act is (a) to ensure that public bodies are fully accountable to the public by (i) giving the public a right of access to records, (ii) giving individuals a right of access to, and a right to correction of, personal information about themselves, (iii) specifying limited exceptions to the rights of access, (iv) preventing the unauthorized collection, use or disclosure of personal information by public bodies, and (v) providing for an independent review of decisions made pursuant to this Act; and (b) to provide for the disclosure of all government information with necessary exemptions, that are limited and specific, in order to (i) facilitate informed public participation in policy formulation, (ii) ensure fairness in government decision-making, (iii) permit the airing and reconciliation of divergent views; (c) to protect the privacy of individuals with respect to personal information about themselves held by public bodies and to provide individuals with a right of access to that information.

Prince Edward Island	
S.3(1)	The purposes of this Act are (a) to allow any person a right of access to the records in the custody or under the control of a public body subject to limited and specific exceptions as set out in this Act; (b) to control the manner in which a public body may collect personal information from individuals, to control the use that a public body may make of that information and to control the disclosure by a public body of that information; (c) to allow individuals, subject to limited and specific exceptions as set out in this Act, a right of access to personal information about themselves that is held by a public body; (d) to allow individuals a right to request corrections to personal information about themselves that is held by a public body; and (e) to provide for independent reviews of decisions made by public bodies under this Act and the resolution of complaints under this Act.

While there are key differences in administration of each FOIPOP process in each Atlantic Province, a comparison of the purpose defined in each statute shows much alignment. Beyond the nuances, there are four key similarities that should drive an Atlantic approach to publicly accessible information on impacted sites. These are summarized as:

1. Making government accountable to the public;
2. Allowing any individual the right to access government records, including accessing and correcting their personal information;
3. Preventing unauthorized disclosure of public information; and
4. Allowing public participation and independent review of government decisions and public policy.

These four aspects of FOIPOP are influential as each Province determines its overarching approach to publicly accessible information on impacted sites. It is the balance inherent in FOIPOP that needs to be maintained when developing any publicly accessible database of site conditions.

2.3 Existing Site Condition Databases

Each Atlantic Province has a different system already in place that is used to collect, store and share site condition information for impacted properties. It is important to identify the existing use of internal or external databases of site conditions and the current framework for sharing this information with the public.

Key aspects of existing site condition databases to be considered are:

- Legislation or other requirements for the database;
- Party responsible for maintaining the database;
- Whether or not the public has access to information recorded in the database;
- Method of public access to the database;
- Type of site condition information included in the database; and
- Maintenance of records in the database.

The following provides an overview of the various existing databases in the four Atlantic Provinces based on Verterra Group's understanding and where information can be found based on publicly accessible websites. This overview does not include a critique of the current system for making information available to the public on impacted sites. The overview for each province builds upon the discussion of regulatory and guidance frameworks for impacted sites management and FOIPOP.

2.3.1 New Brunswick

As per the *Clean Environment Act, Fees for the Provision of Environmental Information Regulation* and the Guideline for the Management of Contaminated Sites, New Brunswick maintains databases of impacted site information. The Province uses a database to track investigations of contaminated or potentially impacted sites, i.e., the Remediation Sites Management System. The database includes information such as the name of the property, location, ownership, person responsible for contamination and property status (active, remediated or unknown). Although this is an internal database; there is a method for a member of the public to request a search the database.

Since 2002, legislation has been in place in support of the property-based environmental information program which is primarily around fees. Although this regulation is primarily focused on the fees aspects, it states that a parcel is to be registered in the remediation site management system database. In July 2013, a decision was made by NB's Department of Environment Local Government that any request for property based environmental information (e.g., copies of the remediation file) under NB's Right to Information and Protection of Privacy Act will be directed to and managed through the Province's Fees for the Provision of Environmental Information Regulation (2002-1).

There are two approaches used to communicate information on impacted sites in New Brunswick; both are searched by Property Identification Number (PID). These are:

1. Land Gazette System:

Environmental notices are attached to specific properties in the Land Gazette System. The public may search the Land Registry for a fee based on each specific property search ($1 for each transaction with minimum of $10 per month) or a subscription-based charge (starting at $125 / month for non-governmental organizations (NGOs), agencies and private users). By tying the environmental notices to the title of the property, the Province of New Brunswick intends to assist the public in obtaining information regarding the environmental status of a property and potential restrictions on property use.

2. Property-based Environmental Information Program:

- Maintained by the Department of Environment and Local Government, the database contains limited information on former and currently impacted sites. This provides any member of the public with a basic summary of property-based environmental information for a fee ($55.00).
- The basic summary information may include the presence of petroleum storage tanks, existing ministerial orders, the remediation of impacted properties, existence of PCB storage sites, and the proximity of properties to former dumpsites. This information comes from multiple internal databases, including the Remediation Site Management System database.
- For an additional fee ($30 per hour), the applicant may be provided with additional information in the form of property-based detailed scientific reports, such as Environmental Site Assessment (ESA) Phase I Reports, Phase II ESA Reports and Closure Reports.

2.3.2 Newfoundland and Labrador

As per the Guidance Document for the Management of Impacted Sites, Newfoundland and Labrador uses a database to track investigations of impacted or potentially impacted sites, i.e., the Environmental Sites Database. The database includes information such as the name of the property, location, ownership, person responsible for contamination and property status (i.e., record of site condition, if present).

This is an internal database; there is no method for a member of the public to search the database outside of an information request. However, one of the guiding principles in the guidance document is that the “public may require final documentation of the Site

Professional's opinion stating the condition and safe uses of the site and the Province's confirmation of satisfactory completion of the Site Management Process" (p.1). Information available via an information request includes but is not limited to contaminants identified, record of site condition, registered tanks, and known releases, if there is approval from property owner.

The Province will send a site notice to the database identifying that the site has been subject to assessment and/or remediation. This record will occur following completion of a remedial action, an ESA showing Tier I, II, or III criteria are not exceeded, a conditional closure, and a final closure, as appropriate. Once investigated, a site will have an entry in the database regardless of whether contamination was discovered or whether any confirmed contaminants have been remediated; that is, a site is not removed from the internal government database.

2.3.3 Nova Scotia

Nova Scotia maintains an Environmental Registry as mandated by Section 10 of the Environment Act. The registry is administered by the Provincial Environment Department and includes approvals, certificates, orders, notices (e.g., designation and charges), policies and convictions. Section 10(3) mandates public access to information on the Environmental Registry. The public may access information held in the registry upon payment of an application fee of $25.75 per civic address or PID.

If the Minister designates a site as a contaminated site under Section 87 of the *Environment Act*, the designation is filed in the Environmental Registry. The Province does not currently maintain a database of impacted sites in the Nova Scotia.

2.3.4 Prince Edward Island

Prince Edward Island maintains a Contaminated Sites Registry as mandated by Section 21.1 of the *Environmental Protection Act*. PEI's Department of Environment, Labour and Justice is responsible for recording information in the registry.

This information is searchable online to any user by PID; properties are not searchable online by civic address, municipality or other identifier. Public access to the information in the registry is mandated under Section 21.1(2)(a) of the *Environmental Protection Act*. There is currently no fee to use the online registry; however, the Act allows a fee to be charged.

If a record is found in the Contaminated Sites Registry, summary information on the status is provided. A site will be entered in the Contaminated Sites Registry where analysis of soil and

groundwater on the property indicate it is impacted in excess of acceptable clean-up criteria or where environmental or human health risk management measures have been implemented for the property. Also closed, decommissioned or inactive solid waste landfills and inactive construction and demolition debris disposal sites are included.

For additional information, interested persons may apply under the Environmental Records Review Regulations. There is a fee for this search; the applicant must pay either $54.29 for each residential property or $108.58 for each commercial property. The Environmental Records Review contains information on: incidents of property contamination (e.g., oil spills); presence of underground petroleum storage tanks; and status of any environmental protection orders or environmental approvals/permits issued on a property. Records may exist regardless of a site's presence on the Contaminated Sites Registry.

Properties where contaminant impacts are in the midst of assessment and/or cleanup, are not included on the registry at this time; however, a site-specific Environmental Records Review may be submitted. Properties included in the Contaminated Sites Registry are removed once the property has been remediated.

3 SUMMARY OF RESEARCH

Research was required to understand the current practices and issues for consideration in context of publicly accessible information on impacted sites. This included:

- Literature search to determine state of practices, opinions and perspectives;
- Jurisdictional review on how other jurisdictions treat this issue including governments across Canada and key United States and European jurisdictions; and
- Workshop to gather various viewpoints and learn from the group's broad expertise multi-disciplinary members of Atlantic PIRI.

At the outset of this project, Atlantic PIRI committed to providing Verterra Group with both the literature and jurisdictional reviews. Both were completed by Atlantic PIRI and presented to Verterra Group for review and analysis (see Appendices B & C). In addition to Atlantic PIRI's literature review, Verterra Group supplemented with select additional journal articles. In addition to Atlantic PIRI's jurisdictional review, a questionnaire was devised by Atlantic PIRI and completed by governmental staff in most other Canadian Provinces and Territories in September of 2013 based on their experience with impacted sites registries (see Appendix D).

Based on initial review of these inputs, Verterra Group designed a workshop with the purpose of engaging industry leaders, regulators, and consultancies in a dialogue about publicly accessible site condition information (see Appendix E). As part of preparation for the workshop, Verterra Group identified a dozen key issues for consideration. These were used as tools in the workshop; these also form a foundation for presentation of the results and the subsequent analysis.

The literature review highlighted several key issues for consideration; these are presented in Section 3.1. The findings of the jurisdictional review and questionnaire are presented in Section 3.2. Presented in Section 3.3 are the methods, datasets, and outcomes of the workshop which was held on February 19, 2014. This summary of research presents a factual overview from these three unique sources of information. This sets the stage for the analysis in Section 4.

3.1 Literature Review

The literature review evaluated six academic papers that concerned the merits and challenges in providing site-specific contamination information to the public. The literature review completed by Atlantic PIRI and provided to Verterra Group lists twelve papers and provides

commentary on the papers by members of the Atlantic PIRI working group (see Appendix B). Three were identified to have relevant perspectives for consideration.

Many other articles were examined which dealt with the topic in a manner peripheral to the issue of impacted sites management in general, or more specifically brownfield redevelopment. Indeed it was discovered that there is limited research that focuses solely on best practices for publicly accessible information for impacted sites. There was, however, sufficient research found to identify some areas of focus. These informed the workshop design, including development of the dozen issues for consideration.

Three broad themes arose from the literature review; these are described below in context of the literature in the six articles reviewed in detail.

Effect on land value due to stigma or perceived risks

There is much literature on the topic of land valuation associated with impacted properties. Much of this literature is contradictory and many studies seem to be greatly influenced by other external factors of the real estate market. It can be generally concluded that there is no consistent response of adjacent properties associated with information sharing and/or remediation activities.

In a doctoral thesis on brownfield development policy in Canada, a main finding of De Sousa's study is that "the private-sector perception that brownfield redevelopment is less cost-effective and entails greater risks than greenfield development is, on balance, true for industrial redevelopment projects, but not for residential ones." (De Sousa, 2000, pp.ii-iii). Accordingly, it can be argued that sharing information publicly may reduce the perceived risks (and presumably, increase land value) where a property is less impacted than common perception.

As in De Sousa's research, other academics have also indicated that removing negative perception with factual information on contamination levels and resulting risk can increase land value. For example, Sigman and Stafford (2011) cite studies on properties near US Superfund sites where housing market valuation was shown to respond well to the release of information about the risk posed by these sites. Interestingly this study also suggests that cleanup itself may not consistently increase nearby property values as the sites may continue to bear the stigma of being a brownfield.

In a specific study in a city in the United States (US), it was found that "commercial and industrial property values in Baltimore city are virtually unaffected by the proximity to sites listed on—or de-listed from—registries of contaminated sites." (Longo and Alberini, 2005, p.4). Their study is based on mathematical analysis of empirical data; they cite conflicts in the literature to their finding and specifically cite another study which does find evidence that listing negatively impacts property values in Atlanta. Their explanation is "that the effects of listing on—and de-listing from—a registry of (potentially) contaminated sites depends on the characteristics of the real estate market" (Longo and Alberini, 2005, p.25)

From a survey of developers, Alberini et al (2005) determined that contamination stigma is probably not an important factor to developers as they are not deterred by past contamination after cleanup. This is greatly influenced by the knowledge and capacity of developers, and their perception on any resulting stigma of the end purchasers.

Perception and capacity of stakeholders

Alberini et al (2005) identified that the presence of contamination can influence the price received by the developer on a completed project. It was found that "a developer who sells his project to other parties has a predicted probability of 38.7% of choosing a contaminated site." (p.32). This implies that a low level of understanding on risk by purchasers may influence how developers will value and invest in impacted properties.

There is variance on land value of impacted land development projects depending on the end land use; Alberini et al (2005) states "developers who deal primarily with industrial and commercial sites may react to contamination to a different extent than developers who engage mostly in residential projects." (p.21).

Based on Alberini et al (2004) one can also conclude that most developers are inexperienced when it comes to impacted sites redevelopment. In particular, about two thirds of the sample of real estate developers in a survey completed by Alberini et al (2004) had no or limited exposure to projects involving impacted sites and only 7% of respondents deal with impacted sites.

De Sousa (2000) identified both the lack of public and stakeholder knowledge and negative attitude on impacted sites as moderate obstacles to development of brownfields. However, the researchers acknowledged that some developers may prefer to gather information independently and keep out of public domain due to concerns with perception.

Sigman and Stafford argue that stigma may persist post-cleanup if individuals are "poorly informed or have difficulty understanding small risks" (2011, p.263). Their article suggests that addressing fears through information dissemination may be the most efficient way to remove stigma.

Effects of sharing information on brownfield redevelopment

By sharing information publicly, the interest in development of urban properties may increase where they may have a stigma due to past land use. By clarifying the extent of impact of the brownfield, if any, there is less risk to the purchaser in the cost of assessing the condition of land. Where no information is shared publicly on level of contamination, there may be slower brownfield development due to perceived risk and uncertainty. To stimulate brownfield redevelopment, De Sousa (2000) identified that "governments in the US, Europe and in many Canadian provinces have started to bear some of these costs and risks by collecting and maintaining information on known and suspected contaminated sites. In the US and Europe some governments have gone one step further by investigating sites in detail to determine their physical and economic potential." (p.52).

Further, it has been argued in the literature that public disclosure of information on impacted sites is an efficient policy tool for promoting their remediation. In a particular study of Oregon and voluntary cleanup programs (VCPs), Blackman et al (2008) determined that Oregon's practice of formally compiling a public list of sites with confirmed contamination—drives VCP participation. Their findings imply that "Oregon has been able to spur voluntary remediation by publicly disclosing information on contamination, a relatively inexpensive and hence efficient approach." (p.3).

When reviewing the cost-benefit of impacted site cleanup where risks of contamination are small, Sigman and Stafford (2011) determined that "cost-benefit calculations may use existing states of information (and possibly unfounded fears), but this approach risks spending resources on fears that might be much more cheaply addressed through information" (p.263).

Although more common in the United States than in Canada, there is NGO and public pressure on land owners to remediate impacted sites (De Sousa, 2000). This can increase brownfield redevelopment which has environmental, social and economic benefits. Blackman et al (2008) also suggests for this reason of public pressure that "public disclosure

of environmental performance is an efficient policy tool for promoting abatement and remediation" (p.3).

There are three key aspects to government implementation of a registry for impacted sites: 1) compilation of information 2) determination of which sites qualify as impacted and 3) dissemination of information with the public. There is much variance in existing registries on these three aspects (De Sousa, 2000).

The research appears to show that it is the specific approach of information sharing that determines its impact on stakeholders. Therefore, the manner that information is shared may affect land valuation, perception and capacity of stakeholders, and rate of brownfield redevelopment – each of the themes discussed above.

Again this literature review was not a comprehensive nor academic review of current literature, but rather a scan of identified academic articles that pertain to the subject of publicly available information on impacted sites. The literature review presented primarily draws on a scan of the literature in the form of six articles rather than very specific research that critique best practices for sharing of site condition information with the public. Further, this research did not include substantive review of grey literature which tends to include more editorial commentary or critiques on existing practices.

Nonetheless, the combination of data sources (i.e., jurisdictional review and workshop) rounds out this literature review to inform the analysis and recommendations. Also the findings of this literature review informed several issues identified for consideration – this listing is used in the following presentations of both the jurisdictional review and the workshop.

3.2 Jurisdictional Search

The jurisdictional review presents a brief introduction to the existing databases in six Canadian cities, 13 Canadian provinces, five American states, and two governmental bodies. This was completed by Atlantic PIRI and provided to Verterra Group (see Appendix C). The information was organized by jurisdiction and included links and screen captures from existing governmental databases. Additionally, tabulated responses from Atlantic PIRI's questionnaire presented a brief introduction to the existing databases in 12 provinces and territories, excluding Saskatchewan (see Appendix D).

Verterra Group compared and contrasted the various jurisdictions' existing databases, identified areas of crossover, and analyzed the general trends. This included the identification

of twelve issues for consideration in the public sharing of impacted sites information. In this sub-section, these issues are presented with examples provided for each that demonstrate application in various jurisdictions. More specific information can be found in Appendices C and D on specific jurisdictional applications, including screen captures of many online databases.

1. Effect on land valuation

As a key issue identified in the literature, as well as a common concern cited by stakeholders, it is important to consider how different approaches to sharing information could indirectly influence land valuation.

Indeed the effect on value of the impacted site depends upon how information is shared but also the knowledge and capacity of stakeholders. It is often a function of perceived risk, or "contamination stigma", rather than actual level of contamination or risk. It can be argued that in the absence of information, many sites that are near brownfields may be perceived to have a higher than actual risk. It can also be argued that sites that are identified as – now or previously – impacted may be perceived to have a higher than actual risk. Higher perceived risk often equates to lower land valuation.

This leads to a few key important questions: What impact does the listing of a site on a publicly accessible impacted sites database have on its property value or the value of properties in close proximity? How may this effect be influenced by other factors such as knowledge of users of level of information disclosed?

Below is an example for consideration to show a very basic way to provide a listing of impacted sites to the public.

- Manitoba's database provides only a file number, company name, city and address on a Contaminated / Impacted Sites List. No details of a site's contamination levels, information regarding degree of contamination or indication of status of site management is provided.

2. Knowledge and capacity of stakeholders

While very detailed information allows greater transparency, greater transparency may have unintended effects when viewed by those without a technical background or subject matter knowledge. This may trigger unwarranted fears leading to emotional responses to the

information provided, especially in dealing with concepts of risk-based or site-specific assessments as opposed to cleanup to generic guidelines.

Therefore, it is important to consider knowledge and capacity of stakeholders when determining what information should be made public and how it should be accessed. The range of stakeholders' knowledge and experience must be considered; this influences how data are interpreted on contamination information, pathways and receptors.

Stakeholders may include:

- Financiers – who locally may have limited experience in dealing with impacted sites when evaluating mortgage loans;
- Lawyers – providing advice to clients concerning potential liability with owning a formerly impacted site;
- Developers – both large and small with varied experience in impacted sites;
- residential home owner – who neighbours a property with some contamination history;
- Prospective purchaser and their realtor – of property ranging in land use from residential to commercial to industrial; and
- Government staff – who are responsible to address concerns of the public.

While some may be familiar with various compounds of concern, such as polychlorinated biphenyl (PCBs), many are not familiar with the terminology, the acceptable limits, nor the adverse effects that PCBs may or may not have on human health and environment for various pathways. When a viewer is provided with information beyond their technical understanding, the perceived risk of contamination may increase.

Below is an example for consideration to show how information may be interpreted by the public, and to contrast with Manitoba's approach highlighted above.

- Quebec's database provides information including presence of contaminants of concern in soil and groundwater, state of condition, soil quality, and the site's stage of assessment or remediation. An application is required for additional information, which will be released as allowed under FOIPOP. Quebec does not provide detailed concentration data or information on environmental site assessments (ESAs) reports as do some other jurisdictions.

3. Level of information provided

The level of information provided to the public in governmental impacted sites databases varies greatly. This aspect may be one of the most divergent in terms of range of information shared with the public. This is a fundamental aspect of a publicly accessible database on impacted sites.

As discussed above, a low level of information can add to uncertainty if it vaguely identifies that a property may have (currently or historically) a history of contamination. Alternatively, much detailed information can add to negative perception if there is limited technical knowledge of the members of the public viewing the information.

Below are select examples to contrast the type of information that is provided to the public.

- Ontario's database includes record of site condition (RSC) that includes detailed lab data, as well as information on the ESAs completed, if any (e.g., date, author, etc.).
- PEI's database includes summaries of the status of each site in the Contaminated Sites Registry. For additional information, persons may apply under the Environmental Records Review Regulations.

4. Ease of access to information by user

The ease or difficulty with which a user may access information about an impacted site is a key consideration. Increasing the difficulty with which one may access contamination information may counter balance the knowledge and capacity gap discussed previously.

Similar to limiting usage by requiring a fee for information access, usage can also be limited (or controlled) with the database portal. There are cases where information is not as open to access without knowledge of specific property information. This is in contrast to a map-based searching function of the database.

Below are select examples to contrast how information can be searched by the public.

- Alberta's database portal requires users to know very specific property information, (e.g., meridian, range, township, section, quarter section, legal subdivision); however, there is also a map search or a downloadable list of completed ESAs (by geographical coordinates).

- PEI's database portal requires that users know the PID in order to access contamination information about a specific property.
- California uses an EnviroStor database which has a geographic information system (GIS) basis for sites with known contamination or for sites where there is ongoing investigation; users can see these sites on a clickable map with a legend for types of impacted sites.

5. Fee required to access database

A jurisdiction may require users to pay a fee before accessing contamination information. This may exclude users that lack disposable funds. Restricting access with fees could limit those who have the right to know; this may be in contrast to FOIPOP objectives as it serves as a barrier to information access.

However, requiring a fee allows an ability to manage the dissemination of information, and it also helps in providing the resources to better manage or improve the registry and the quality of information it provides.

It is important to consider the benefits that may arise from requiring a fee, as well as any negative implications to members of the public. Typically fees are under $100 in many jurisdictions reviewed; however, since many are based on individual properties, this cost may be prohibitive to some.

Below are two examples to contrast the use of fees to provide information to the public.

- British Columbia is an example of a province that requires people to login and pay a fee to access any information in their Site Registry.
- Alberta is an example of a province that does not require any fees nor login to access their Environmental Site Assessment Repository.

6. Resources for government to create and maintain database

Resources are key to the creation, maintenance, updating, and populating of impacted site databases. Lacking resources could act as a barrier to the development of an impacted site database. There are various approaches used nationally and internationally which help to manage database's demand for resources. This may include strategies such as exacting a fee for applications to contamination information or tailoring methods used to populate the database.

Below is a unique example to minimize the resources required to enter information that is provided to the public.

- Ontario is one of the only provinces in Canada to use non-governmental and approved individuals (i.e., qualified persons as defined in legislation) to populate the database with RSCs. When an approved person completes an RSC, it is submitted and uploaded to the database and is available to the public. This strategy would reduce the database's demand for resources by minimizing the need for staff to populate the database.

7. Liability for jurisdictions to maintain database

As impacted sites may have an impact on human health and the environment, liability could be an issue faced by governments who provide (or do not provide) contamination information to the public. For this reason, many jurisdictions require users to agree to a liability waiver before proceeding to the database. The liability waiver often states that the provider of the database (i.e., the jurisdiction) does not take responsibility for the accuracy of information provided, nor does the provider guarantee that the database is a comprehensive list of impacted sites in that jurisdiction. It is important that jurisdictions minimize liability to the extent possible. The contents of the waiver or disclaimer clause vary but generally contain similar information and verbiage.

Below is an example where additional information is provided beyond a traditional waiver to assist the public in the interpretation of the database contents.

- Alberta has online resources such as Frequently Asked Questions, a Tips and Tricks document and a User Guide available on their site for the Environmental Site Assessment Repository, as well as a dedicated email. Users must also agree to a disclaimer clause prior to proceeding to the Repository.

8. Interpretation / classification of contamination in terms of risk

Some databases include interpretation or classification of the risks from an impacted site to human health and the environment. This makes the information less open to interpretation and provides guidance to the users of the database. It can control the use of the database to accommodate the range of knowledge and capacity of the users. In essence, interpretation and/or classification can demystify the raw data for users.

In many cases, this may reduce the contamination stigma that may occur from only identifying the site as potentially impacted or by providing much raw data of concentrations of compounds. However, the approach to interpreting and/or classifying the impacted site in terms of risk must be carefully designed for clarity and to limit liability of the jurisdiction.

Below are three examples where information that is provided to the public is interpreted or classified in some manner.

- Canada's federal system uses an enhanced version of CCME's National Classification System (NCS). The NCS is well defined and is also understood to be used by some provinces (e.g., Saskatchewan and Nunavut).
- PEI summarizes the data in their Contaminated Sites Registry as already noted. Specific information is provided as per an application under applicable legislation.
- Oregon's Environmental Cleanup Site Information (ECSI) database lists sites that are suspected or known to have releases of hazardous contaminants. The ECSI database then identifies in a Confirmed Released List, sites for which a release of hazardous substances has been documented. Finally, an Inventory of Hazardous Substance Sites list identifies properties where a risk to human health is confirmed.

9. Trigger for inclusion in database

There are various aspects of an impacted site that may trigger its inclusion in an impacted sites database. Many registries do not include sites that are in the midst of assessment or cleanup, while some include where impact is suspected (e.g., reported spill).

It is about the timing of a site to be listed during its path of ESA, remediation and/or risk assessment and site closure; however, it is also about the criteria for a site to be listed. This may be when a site has confirmed impact above generic guidelines or when a site requires specific management from a risk-based perspective.

Below is one example of when a site is triggered for inclusion in a registry.

- Ontario's database includes RSCs that must be filed when a property's use is changing from "less sensitive" to "more sensitive" (e.g., industrial to residential). Here the owner must have an ESA conducted and file an RSC which is then included in Ontario's public registry under their legislation. Hence there are RSCs for sites that do not have any identified contamination.

10. Tracking cleanup and archiving sites following remediation

Just as there are implications associated with listing a site in an impacted sites database, there are implications associated with not deleting a listing from a database following the remediation of the site.

- PEI is the only province in Canada known at this time that has implemented a system in which a site is removed from the contaminated sites registry upon the remediation of the site.

Tracking site conditions is another method used by some jurisdictions to provide more up-to-date information in the impacted sites database.

- Newfoundland and Labrador's database tracks which stages of assessment, remediation, or closure a site achieved rather than removing information on previously impacted sites.

Below is another example of a non-Canadian jurisdiction tracking information on a database.

- Washington State both archives information in their online register and also keeps track of site status with specific date (i.e., activity name, status, start and end dates).

There are also jurisdictions that only share records of site condition following clean up or management. In this case, the sole purpose of the database is to record such information.

11. Attributes of site condition to area, specific properties and/or property title

Much registry information is property specific and does not include "area wide" impacts, such as contamination that may extend off of a source property to adjacent lands. Many registries identify contamination on a specific property but not off-property contamination, but do not allow for area wide searches.

Below is an example of a jurisdictional approach to associating information by property in a database.

- British Columbia's database allows area-based searches, i.e., users can search an area around a subject site to determine if impacts have been identified on nearby properties. In this area-based search, sites are associated.

In terms of tying the contamination notice to property title, this allows a systematic way to identify if a notice of contamination has been assigned to the property. By tying environmental notices to the title of the property, jurisdictions are able to assist the public in obtaining information regarding the environmental status of a property and restrictions on property use. This allows assurance to impacted site owners that potential buyers are aware of the remediation. Further, some argue that tying impacted site information to property title is a more reliable source of information than registries and more likely to be checked.

Below are two examples of jurisdictions that tie contamination information to property title in different manners.

- New Brunswick's database attaches environmental notices to specific properties in the Land Gazette System. The environmental notices include information on petroleum storage tanks, former or currently impacted sites, compliance and enforcement information, PCB storage, etc.
- Quebec's database links with property such that land title will have a notice of contamination and/or notice of land use restriction, as well as decontamination notice as applicable. This is required under legislation.

12. Integration with FOIPOP process

All impacted site databases must abide by the provisions and protections offered by FOIPOP. Some provinces allow users to request more information beyond what is included in public database under FOIPOP legislation and processes.

Many Canadian databases such as Prince Edward Island's allow the public to access information regarding impacted sites while many databases such as New Brunswick's are internal and require that the public submit a request in order to access contamination information about a site. Whether internal or external, each database may not exceed the provisions set out by FOIPOP legislation.

Further information beyond what is published in public database requires approved access under FOIPOP. Approved access is granted in various ways depending on the province in which the information is being requested.

Below is one example of a jurisdiction that does not have a database at present but provides information utilizing FOIPOP processes.

- Nova Scotia does not currently have a database of impacted sites (internal or external); however, government staff will search by PID for records once an application is made by a member of the public as per legislation (e.g., approvals, orders, designations, etc.). Information is released to the public as allowed under FOIPOP.

In summary, there are numerous approaches to developing a database containing publicly accessible information. This jurisdictional review is presented to illustrate the issues for consideration and provide a spectrum of examples from actual applications. This is based primarily on information provided to Verterra Group by Atlantic PIRI (as shown in Appendix C and D), as well as some supplementary research completed by Verterra Group. Again the reader is referred to the information in the Appendices, including the screen captures, jurisdictional web links, and outcomes of the questionnaire completed by Atlantic PIRI.

3.3 Workshop

Verterra Group facilitated a workshop on February 19, 2014 for the members of Atlantic PIRI. The workshop was designed to engage industry leaders, regulators, and consultancies in a dialogue about publicly accessible site condition information.

The workshop introduced and explored the issues identified in the literature and jurisdictional review and also drew attention to new issues. Additionally, the workshop presented Verterra Group with an opportunity to gain valuable insight into the viewpoints of various stakeholders and provinces represented at the workshop.

The group of workshop participants included industry leaders, consultancy representatives and representatives and regulators from the four Atlantic Provinces. This diversity allowed discussion from various stakeholder perspectives.

There were four distinct portions of the workshop: a primer presentation, discussion scenario in four small groups, prioritization of the issues for consideration in pairs, and large group discussion. These are each discussed below. Additional information, including the agenda and supporting material given to Atlantic PIRI, and the presentation are provided in Appendix E.

3.3.1 Presentation

After introductions and a brief review of the project goals by Atlantic PIRI, Verterra Group opened the workshop with a brief presentation. The twenty-minute overview included a

concise introduction to general approaches in impacted sites reporting and key stakeholders. Following was a brief illustration of each of the twelve issues for consideration.

These twelve issues are introduced and explored in the preceding section of this report, Section 3.2 Jurisdictional Review. As in Section 3.2, each issue was illustrated with one or more examples of jurisdictional application. The introduction to the twelve issues aimed to provide each participant with a basic introduction to the issues, create an understanding about the range of issues, and to generate thinking around the issues.

Highlights of this information were provided to members of Atlantic PIRI in the agenda. As in the presentation, this was intended as primer information to provoke thought on some of the considerations.

3.3.2 Small group discussion on assigned scenarios

Following the introduction of the twelve issues, participants were broken into four groups and each group was assigned a scenario. Each group was pre-selected for diversity; where possible, each group had an industry leader, provincial representative, and a consultant. Each participant was given a distinct role in the scenario which aligned with their role, where possible. Each scenario had one or more roles assigned to speak from stakeholder perspectives; these included:

- Government (provincial, municipal);
- Private individual / organization (land owner, developer, prospective purchaser); and
- Members of the public (neighbours, prospective future buyers).

The four scenarios offered an opportunity for participants to consider the key issues from different perspectives. The scenarios were set in each of the four Atlantic Provinces and used differences in land use, risk considerations and stage in impacted site management.

Guiding questions were provided to stimulate discussion while participants were encouraged to think outside the box and elevate new issues for consideration as appropriate. Each group was instructed to nominate a scribe who would transfer the group's thinking onto paper and identify the top issues discussed during break out time. Facilitators circulated to answer questions and objectively take notes.

The main themes arising from each scenario are summarized as follows:

- Scenario #1 Family Home Fuel Tank Leak: The issues of property value, timing of sale relative to timing of inclusion on a public database, and updating / tracking

information were the top issues for consideration for this scenario. Implications of a public database in terms of liability, remedial action, and the fairness of property owner and purchaser were also discussed. The group suggested that the property not be listed on a database if mitigative action occurs in a timely manner to protect the land owner and encourage addressing the leak quickly upon discovery.

- Scenario #2 Remediation of Residential and Agricultural Land Downgradient of Dry Cleaning Facility: The top issues for consideration in this scenario were identified as area-wide versus property specific databases and the ability to provide information to the public in an accurate and in usable form due to variance in knowledge and capacity. Also discussed as significant considerations were: health, including those on off-site properties; liability for stakeholders, including municipal councillor; and resources for cleanup. The group suggested that providing as much information as possible is important to all parties and therefore ease of access is of utmost concern.

- Scenario #3 ESA Recommending Remediation and Monitoring of Highway Depot: The issues of effect on land valuation and interpretation of site condition information were the top issues for consideration. The group discussed that more information was better for the buyer and neighbours as both hold their and their families' health as primary concerns. On the other hand, the Province was concerned with the knowledge capacity of stakeholders where buyers and neighbours may not be well equipped to interpret and appreciate risks associated with a site; that is, a negative perception may result in purchasers avoiding the site and its neighboring properties. The Province, as both the owner and the governing body, was primarily concerned about the risk that may be perceived which may result in purchasers may avoid the site and its neighbouring properties.

- Scenario #4 Risk Based Management Approach for Decommissioned Gas Station: The top issue for consideration was identified as the level of information provided to members of the public. The group identified other issues as key but declining importance: trigger for inclusion; developers demand for transparency prior to investing; government and site owners' perspective that the onus is on the user; and permitting issues/purposes. Specifically, the group discussed the "buyer beware principle" and tying information to property title. Employing a buyer beware principle would suggest that buyers must realize impacts for themselves rather than being provided with a summary of impacts.

3.3.3 Issues for consideration

After discussing the four scenarios, the facilitators re-grouped the participants into random pairs to prioritize the twelve issues. Pairs were given flashcards and instructed to rank the twelve issues. Pairs were encouraged to elevate new issues for consideration.

This segment of the workshop allowed pairs to discuss the twelve issues introduced during the workshop from their traditional roles, as well as an objective point of view. This exercise challenged pairs to prioritize the issues, elevating the issues they believed to be most important overall. In some cases, working as a pair was a challenge where their traditional roles varied greatly, e.g., industry and regulator perspectives. This shows the challenge of balancing stakeholders' points of view in designing a publicly accessible database.

The tabulation of the outcome is shown in Appendix E based on six datasets; data was normalized to compare numerically across the set as not all pairs ranked each issue.

Below is a presentation of the general opinion of the group based on this exercise.

Primary Issues

- Trigger for inclusion in database was clearly identified as the highest priority – this is both the timing of including a site in a database but also the criteria for a site to be included in a database; hence this issue defines what sites the database presents to the public.

- Level of information provided was identified as a top but a following priority – this is the data and/or summary of the contamination identified on the site; hence this issue defines what information on each site in the database is presented to the public.

Secondary Issues

- Six issues were quite comparable on average in terms of prioritization. While still deemed important, these six deal with aspects that are secondary to determining the trigger for inclusion and level of information provided; in many cases, these support the two primary issues. In declining order based on average ranking, these are:
    - Resources for government to create and maintain database
    - Effect on land valuation
    - Liability for jurisdictions to maintain a database
    - Attribute of site condition to area and/or specific properties

- Knowledge and capacity of stakeholders
- Interpretation or classification of contamination in terms of risk

Tertiary Issues

- The remaining four are primarily seen as logistical and were generally not ranked or ranked quite low. With the exception of tracking / archiving information, none were ranked higher than third. Tracking / archiving information was identified by one pair as a top issue – in essence, it depends if seen as primary driver or logistical aspect of maintaining the registry.
  - Tracking cleanup and archiving site following remediation
  - Fees required to access database
  - Ease of information access by user
  - Integration with FOIPOP process

In addition to prioritizing the twelve issues, two issues were added: timeliness of registry updates and tying to property title. Human health was also presented as a significant driving issue.

Again, this is not a detailed survey of priorities but a helpful exercise to complete during the workshop – both in terms of outcomes and also to allow the diverse group of Atlantic PIRI members to further discuss publicly accessible database for impacted sites.

3.3.4 Broad group discussion

Finally, the remainder of the workshop engaged participants in a collective discussion about the issues, scenarios, and prioritization of issues. The discussion aimed to draw out main themes and the top three issues identified in each scenario, as well as the results of the pairs' prioritization of 12 issues. Discussion was divergent and limited in time, but it provided a vision for the subsequent development of guiding principles.

In summary, the scenario discussions, prioritization of issues, and final discussion segments of the workshop gathered important insights. The insights helped Verterra to identify principal concepts to be considered when sharing site condition information with the public. While the workshop was constructive to gathering insights and advancing the development of guiding principles, there were some limitations.

Time was a major limitation where the final discussion was delving deeper into major concepts for consideration just as the workshop was coming to a close. Additional time would have

provided an ability to explore the major concepts at greater length. As well, preparation time was limited prior to the workshop; hence research and analysis was in the early stages.

While not a limitation per se, it is acknowledged that the depth of collective experience in the room could not be mined in the limited time available and with the focus on developing guiding principles. This project will benefit from further engagement with members of Atlantic PIRI on some of the specifics of implementing impacted sites databases.

4 ANALYSIS

The literature review and jurisdictional search threaded together the research in themes and issues for consideration respectively. Building on this, an analysis is made in this section on publicly accessible information on impacted sites. Recognizing that each of the four Atlantic Provinces are in various stages of developing, augmenting or maintaining a database, these considerations reflect how to best balance both transparency and fairness on the approach used in sharing site information on impacted properties.

The analysis begins with an overview of the range of existing applications of impacted site data sharing – this includes a discussion on transparency and stakeholders, presented in a systematic and graphical manner. Analysis of the implementation of an information sharing system is completed using a well-known tool with the addition of one component (i.e., trend); that is a strength, weakness, opportunity, threat and trend (SWOTT).

The insights gathered during the research and basic analysis lead to three unique concepts to drive sharing of impacted sites information with the public. These have overlapping ideologies and encompass the key issues for consideration in developing a publicly accessible impacted sites database. These concepts have been framed as guiding principles to be used by each Atlantic Province in their own stage of developing, augmenting or maintaining a database.

This analysis sets the stage for recommendations for the path forward in Section 5.

4.1 Application Approaches

Varied practices were identified in impacted sites reporting in Canada, US and abroad. The attitudes of different stakeholders toward sharing information on impacted sites vary just as widely.

Indeed many suggest that members of the public – including prospective property purchasers – will perceive a risk that may lower property values when site-specific contamination information is shared. While the literature review indicated that contamination stigma can exist, it also showed that the effect of contamination information sharing on property value is inconclusive, that is, studies have shown different outcomes.

The importance of local context is an explanation for the inconclusive research on effect on land value. It has been suggested in the literature that the state of local real estate markets will influence a resulting change in land value from sharing contamination. It also seems to be true

that variance in levels of transparency will influence perceptions of the public. If the public perception is that the government is sharing information transparently with all stakeholders equally, there will be increased trust and less perceived risk – this is true of social policy in general.

Variance in application approaches for sharing site-specific contamination information is part of the local context. This may directly affect the outcomes, including a change in land value, if any. The application approaches vary with both level of transparency and interaction with different types of stakeholders.

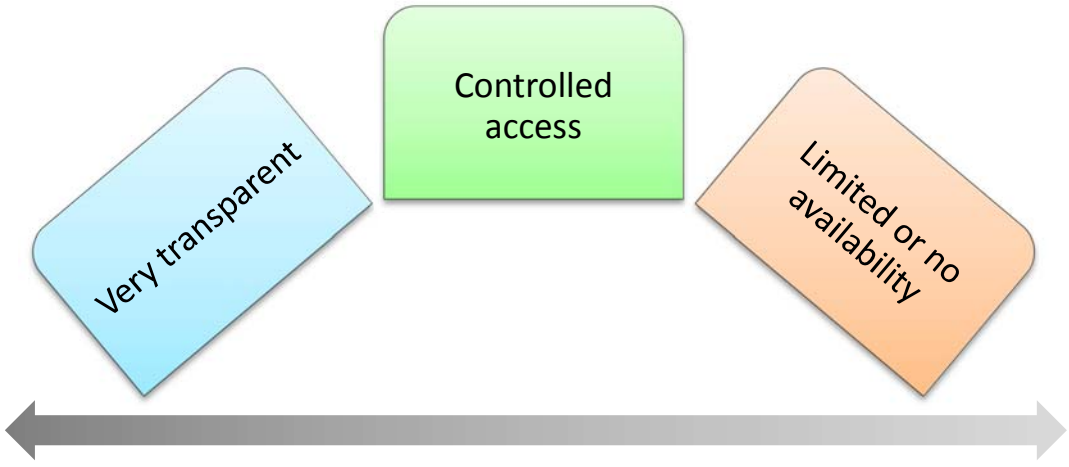
Transparency

Transparency is not just about how much information is shared; it includes many other aspects. These include but are not limited to:

- how sites are triggered for inclusion in the database;
- how information is viewed by the public;
- if information is summarized or interpreted for the viewer; and
- if information is openly available without login or fees.

Essentially, it is about how the information is provided, when it is provided and what exactly is shared. There is a range of transparency in existence identified through the research: very transparent, controlled access, and limited or no availability as shown in Figure 4-1.

Figure 4-1 Gradient of Transparency



- Very transparent: Some online databases provide a user-friendly and uncontrolled interface for members of the public; these are considered very transparent. In Canada, Alberta is one example of information sharing on impacted sites with the public that appears very transparent. In combination with their online searching tool for properties, and downloadable information including ESAs and lack of fees or login, there are also user guides available that attempt to demystify their Environmental Site Assessment Repository – in terms of the search and the contents.

- Controlled access: Many online databases require login and/or fees, or require an application for additional information beyond preliminary data available online; these are considered controlled access. In Canada, Manitoba is one example of information sharing on impacted sites with the public where access appears controlled. Viewers can see the Manitoba Contaminated & Impacted Sites List which lists sites by file number, name, city and civic address. This list includes sites for which the Province maintains a file; however, not all sites have impacts exceeding applicable guidelines. Should specific information be required, the applicant must submit a file search request.

- Limited or no availability: Some jurisdictions either do not have internal databases of impacted sites or do not share publicly unless a formal request is made under FOIPOP legislation. In Canada, Nunavut is one example of limited availability of information shared with the public on impacted sites. Nunavut has a database with site location, land use, possible and actual contaminants, source of information, and NCS score; this database is internal and a formal request is required for any information to be shared with the public.

Level of transparency – as perceived by the public – will affect level of trust in the information shared on impacted sites. This influences perception by various stakeholders on the presumed risk associated with sites identified in the public database.

Stakeholders

Stakeholders in the management of impacted sites have varied perspectives on publicly sharing site-specific information; these may be generalized as:

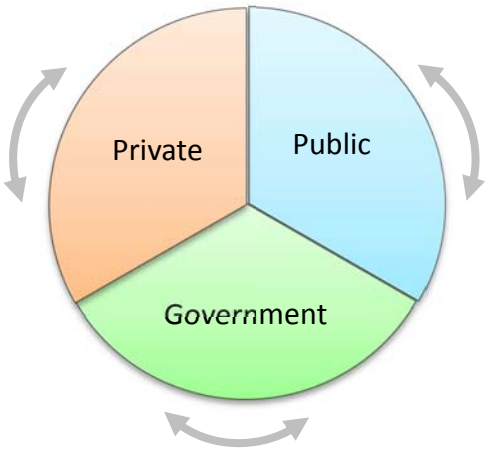
- Government: Regulators or elected officials of federal, provincial, municipal governments are tasked with upholding FOIPOP objectives while also managing private and public stakeholders' unique requirements in a resource constrained environment.

- Private: As an individual or business, the private sector could be seen as having contradictory perspectives – this depends on whether they are the existing land owner, land developer, interested purchaser, or affected off-site land owners. The existing or proposed land use may affect perspectives (i.e., residential, commercial, industrial, institutional or agricultural). Further the level of experience with site contamination varies greatly within this stakeholder group; this affects the ability to understand risk and liability associated with the contamination.

- Members of the public: Those who are not directly involved with the individual site but have a specific interest (e.g., neighbours, prospective future buyers or developers, etc.) or those with a broader interest in protection of human health and the environment and/or brownfield redevelopment (e.g., NGOs, interested citizens, etc.). Like the private sector, there is much range in knowledge and capacity to understand technical impacted site data in terms of risk.

The three groups of stakeholders each interact on this issue – both directly and indirectly. This is illustrated in Figure 4-2 Stakeholders' Perspectives.

Figure 4-2 Stakeholders' Perspectives



Stakeholders also use publicly shared data in very different way depending on circumstances. There are many questions that could be asked about the database and its contents by these stakeholders. Below is a list of examples of some of these questions; while not a comprehensive list, it shows varied perspectives of the different stakeholders.

- Provincial regulator: Is there a benefit to providing this information to the public? Does the information provided to the public meet with the FOIPOP general purpose and specific requirements?

- Municipal councillor: Does the data suggest a risk to the residents? Should this information be shared with the community?

- Land owner with domestic fuel oil spill: Will my property be listed on a public registry? Will my privacy be protected?

- Homeowner adjacent to a known brownfield site: What does this data tell me about risks to my family's health? Is this information current and can it be trusted?

- Small residential land developer: Does the publicly available data provide enough information to determine the cost to clean up the property? Will there be any reduction in property value due to a contamination stigma after remediation?

- Experienced developer of contaminated land: What is the liability associated with existing contamination, i.e., ability to manage risks? Will there be a negative perception from information publicly shared by government? Or conversely, what information may be more readily available in order to make more informed choices and decisions in a timely manner?

- Interested member of the public: What impacted sites exist in my neighbourhood? Do these sites pose a threat to human health and the environment?

- Urban business association: What are the challenges associated with development of local brownfields? Will there be reduced interest from developers due to perceived contamination stigma after redevelopment?

Yet all stakeholders require data that is accessible for their needs and usable to answer their questions within the provisions of protection of privacy. The challenges lie within the variances in capacity to interpret the data and unique specific questions of the data. The research has indicated that the level of trust that stakeholders have in the data will affect their perception of it.

4.2 Strategic Analysis

A SWOTT analysis on the use of a publicly accessible database for impacted sites is helpful to strategically evaluate the purpose and inherent risks – it assesses the strength, weakness, opportunity, threats, and trends. It is a helpful tool in evaluation of a proposed government policy or process.

Looking at internal factors (strength and weakness) and external factors (opportunity, threats, and trends), a SWOTT analysis looks both internal at the factors under control of each jurisdiction but also external driving forces, such as public, private, and other governments.

This analysis is completed at a high level – on the public availability of impacted site information in Atlantic Canada in general; however, it can also be used to evaluate the existing or proposed changes of databases in each of the four provinces. This was completed by Verterra Group based on synthesis of outcomes from the research and workshop. To facilitate this use of SWOTT in the future by individual Atlantic Canadian jurisdictions, specific questions are included below. Indeed a SWOTT analysis is often best completed in a group of stakeholders such as Atlantic PIRI members.

To support these general questions proposed by Verterra Group is a graphical depiction of the broad outcomes of a SWOTT analysis for publicly accessible information on impacted sites in Atlantic Canadian jurisdictions, i.e., Figure 4-3.

Strengths

- What are the benefits of sharing impacted sites information with the public?
- How can increased transparency align with regulatory goals?
- Who will benefit from information sharing?
- Will information sharing encourage remediation and redevelopment?
- Might the general public knowledge of impacted sites management increase?

Figure 4-3 SWOTT Analysis

Weakness

- What are the costs of sharing impacted sites information with the public?
- How may an increase in transparency create a liability of the government?
- Who may receive negative implications from information sharing?
- Will information sharing increase contamination stigma?
- Might stakeholders be able to interpret information equally and accurately?

Opportunity

- How can existing impacted sites management processes be improved via a database for public access?
- How can existing reporting systems be utilized to minimize government resources?
- How can existing property and mapping systems be employed?
- Who can support this initiative from outside of government?
- How can this initiative support current public call for transparency?

Threats

- Will the public perceive high risk to human health and the environment based on review of publicly available data?
- Will land owners perceive a decline in land valuation based on public availability of data?
- Will developers perceive decreased interest in purchases of completed development due to publicly available data?
- Might the release of contamination data to the public result in a negative effect on brownfield redevelopment?
- Might there be legal challenges from stakeholders due to release of site-specific contamination date?

Trends

- Are there technological advances to streamline the creation, maintenance and updating of an online information sharing system?
- Is the public desire for transparency increasing the specific requests for information?

- Is the public expectation for consultation and engagement increasing in all aspects of government?
- Is technical literacy increasing within members of the public?
- Do current municipal planning strategies increase pressure to develop urban brownfields?

4.3 Guiding Principles

As presented in Section 3, fourteen issues for consideration have been identified. Twelve were proposed based on preliminary research and two added during the workshop. Two specific issues were prioritized above the others. These two drive the actual content of the database:

- Trigger for inclusion of an impacted site in a database – i.e., when will the site be listed and how will criteria for contamination be used?
- Level of information provided in a database – i.e., what information will be shared and in what format?

These remaining twelve issues well support the two described above; they support the foundational questions of when, how, and what. The fourteen issues for consideration are cross-cutting. They embody many of the aspects identified in the prior SWOTT analysis.

There is a need for overarching principles to guide the development and implementation of an impacted sites information sharing system. These guiding principles support the fundamental question of why.

One chief objective of the February 19, 2014 workshop was to develop guiding principles for Atlantic Canadian Provinces to consider in sharing with the public. In the latter portion of the workshop, Atlantic PIRI members were engaged in a dialogue about some of the issues related to information sharing about impacted sites. Through group activities of role playing in unique scenarios and the subsequent prioritization of issues in pairs, three guiding principles evolved. These were developed by Verterra Group following the workshop based on inputs provided by members of Atlantic PIRI.

These guiding principles are overarching – they incorporate the dozen issues identified prior to as well as those two added during the workshop. These are described below. In Figure 4-4, their relationships with the specific issues of concern are illustrated.

Principle 1: Protection of human health and the environment

The underlying objective of sharing information on impacted sites with the public and other stakeholders should be primarily for the protection of human health and the environment by consideration of current and reasonably foreseeable future land uses. The intent of any system to provide publicly accessible information on site conditions at impacted sites should be to limit exposure to existing contaminants that are known to pose risks to human health and the environment.

Principle 2: Balance in level of service

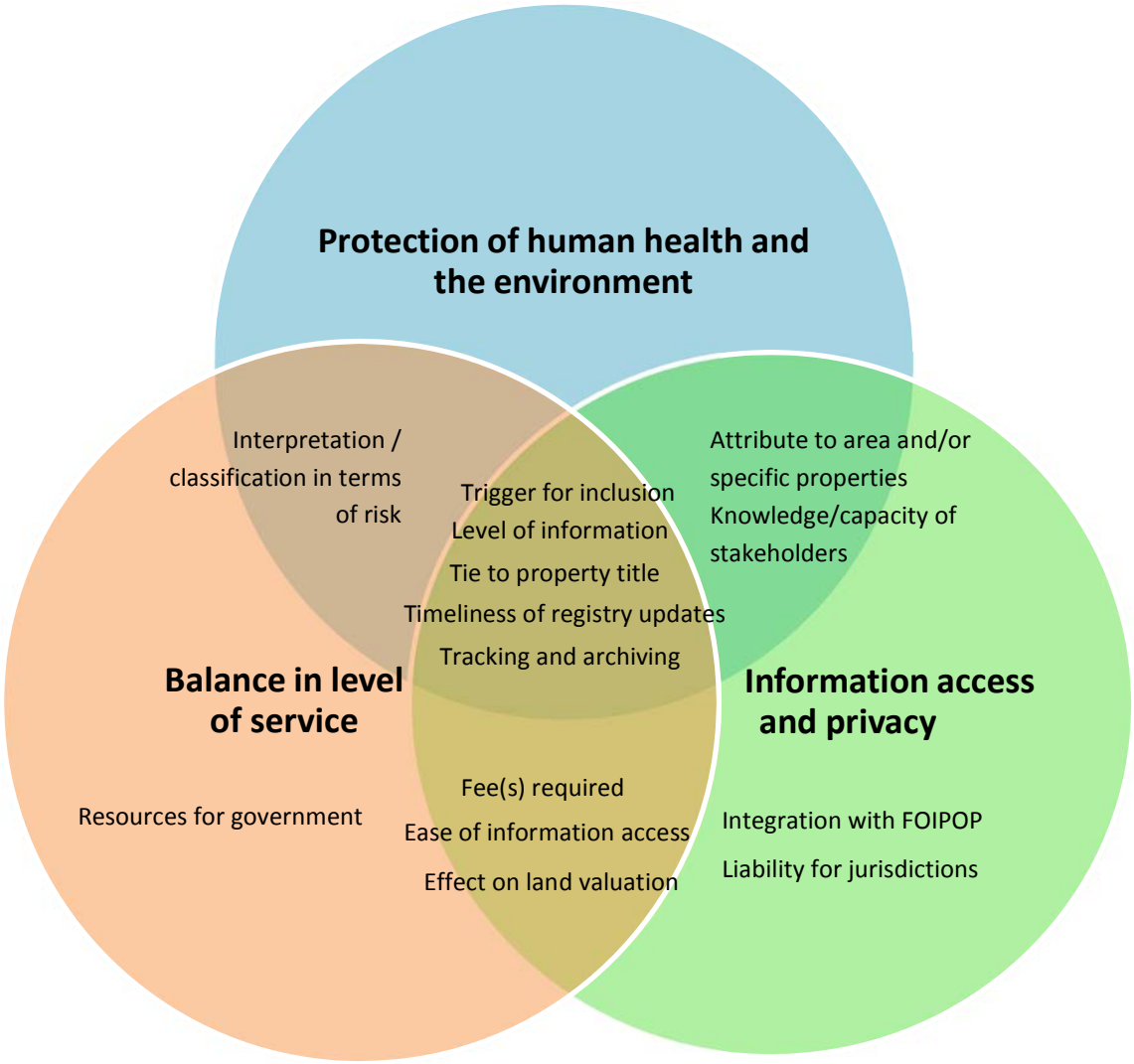
There is a wide range of logistics and approaches to the development of a system for publicly accessible information on impacted sites. The need to balance costs with service provided as well as benefits to the public is a key consideration in the development and implementation of a system which shares information on impacted sites with the public.

Principle 3: Information access and privacy

The public's right to know and an individual's right to protection of privacy are fundamental aspects to guide the sharing of governmental information on impacted site conditions and sound public policy. The level, timing, and approach to information sharing must be directed by the intent of FOIPOP, as well as any unintended consequences to land owners.

The following is a Venn diagram which graphically shows the integration of the fourteen issues for consideration in publicly accessible information on impacted sites. As shown, many of the issues are common to more than one of the guiding principles. Indeed the two top issues (i.e., trigger for inclusion and level of information) are two of the five issues that have a relationship with all three guiding principles.

Figure 4-2 Integration of Issues in the Guiding Principles



The three guiding principles are intended to drive subsequent efforts by Atlantic PIRI on a harmonized approach for publicly accessible information system on impacted sites. While the principles of balance in level of service and information access and privacy are more process oriented, they guide parameters for how to best implement an information sharing system. These two guiding principles identify the need to provide balance to the stakeholders.

The top guiding principle of protection of human health and the environment is foundational to management of impacted sites; indeed it is a keystone to environmental legislation in Atlantic Canada. Sharing information on impacted sites with the public can protect human health and the environment by allowing stakeholders to evaluate risks associated with the land and by limiting exposure to contaminants.

Specifically, the basis of this guiding principle from a protection of human health and environment perspective is to ensure that:

- people are aware of risks associated with a property prior to carrying out any activities on the site; and
- any engineered controls or restrictions attached to the property are identified to future users of the land.

It is the intent that these three guiding principles will ground any subsequent review, analysis, improvement, creation and implementation of a publicly accessible information system on impacted sites. The following section of this report presents the next steps with recommendations to assist Atlantic PIRI on the path forward.

5 PATH FORWARD

Each Atlantic Province has a unique existing impacted sites management system, including its information sharing system on impacted sites. While one province has a system that is fairly advanced, another is starting to develop a new system, and the other two have systems in place that are under review.

This report was built upon initial research completed by Atlantic PIRI and augmented by outcomes of a facilitated workshop and supplementary research. These inputs were explored and analyzed through:

- Identification of issues for consideration,
- Analysis of application approaches,
- Completion of a strategic SWOTT analysis, and
- Identification of three guiding principles.

Based on this exploration and analysis, recommendations are provided. These recommendations will not be specific to exact logistics; however, these will include some key aspects of "what" following the broader aspects of the "why" and the "how". Following these recommendations, there is a brief discussion of the limitations of this report and closing comments.

5.1.1 Broad recommendations of support

Four key broad justifications are presented for Atlantic Canadian Provinces to develop or expand the public accessibility of impacted site information, i.e., the why.

1) Protect human health and the environment: Identified as a guiding principle and a keystone of environmental legislation in Atlantic Canada, this is a fundamental reason to create, maintain and update an impacted sites database and share information with the public as appropriate for the protection of human health and environment.

   There are two key reasons why sharing of site condition information can help protect human health and the environment: i) to allow stakeholders to evaluate risks associated with the land; and ii) to limit exposure. Also literature has argued that information dissemination is also an efficient approach to stimulate site management and cleanup.

2) Stimulate brownfield redevelopment: As a key objective of Atlantic PIRI and a goal of many jurisdictions, as well as an economic stimulus and protector of human health and the environment, brownfield development can be encouraged by sharing information on impacted sites with the public – if done well to address concerns of contamination stigma.

3) Limit liability: If information is shared inappropriately, governments could be held liable; yet sharing information consistently, accurately and with appropriate disclaimers can serve to limit liability – especially where legislative framework suggests governments share information with the public.

4) Support freedom of information: There are increasing demands and legislated objectives on the right to know; governments are increasingly providing information to the public as the public's expectations simultaneously increase – this needs to be in balance with protection of privacy.

5.1.2 Overarching recommendations on development approach

Three key overarching recommendations are presented to support the continued work of each Atlantic Canadian Province as it plans any changes to the public accessibility of impacted site information, i.e., the how.

1) Complete jurisdictional strategic analyses: By continuing beyond this report with specific analysis by each jurisdiction, e.g., using the SWOTT as a group brainstorming tool, additional insight can be gathered unique to each Atlantic Province – this will further justify the subsequent implementation or revision of impacted sites information sharing with the public.

2) Integrate information sharing as one aspect of strategy development: Some jurisdictions have created a strategy for contaminated environments (e.g., Victoria, Australia), which includes roles and responsibilities, impacted environments framework, information sharing, and tool development – this integrates publicly accessible information into the broader management of impacted sites.

3) Engage stakeholders: Many of the threats identified in the SWOTT analysis related to negative reaction of stakeholders; it is important and expected that meaningful stakeholder engagement will occur as part of each jurisdiction's review and

implementation of any publicly accessible information on impacted sites – this can include follow up capacity building (e.g., educational fact sheet, etc.).

5.1.3 Selected practical recommendations

Six recommendations are selected to provide some specific practical advice to each Atlantic Canadian Province as it assesses its own potential public accessibility of impacted site information, i.e., the what. This is not a comprehensive "how to" but a selection of learnings from the exploration and analysis of research completed as part of the project.

1) Clearly define the time and criteria for including a site in a database: Research completed to date did not indicate best practice in terms of the ideal timing or criteria; however, it did identify that consistency is key to ensure fairness to stakeholders – further, it is recommended that a clear approach be developed for updating status of sites on a database as incentive for action.

2) Incorporate risk-based criteria: As risk is the primary concern of stakeholders – either actual or perceived, it is recommended that criteria for contamination be related to risk rather than generic levels; however, this should be based on most conservative land use, that is, any site with management controls should be included in a publicly accessible database.

3) Standardize level of information shared with the public: While no best practice has been identified for levels of information to be shared with the public, consistency is recommended with sufficient information such that risk can be inferred; some jurisdictions choose to categorize risk – it is suggested that this be further investigated to level the playing field across stakeholders with varying levels of experience with impacted sites.

4) Link database to property title: Regardless of the form of database and information shared with the public, it is recommended that information be linked to title – this will protect property purchasers and provide a consistent avenue of access to information.

5) Consider limiting search function to specific property information: While further evaluation is needed, there appear to be merits to controlling search functions to sites of specific interest, including aligning with the objectives of FOIPOP – this will focus

searches on those targeted for a specific interest in a site, if properties are linked where off-site impacts exist.

6) Provide a balance in level of service: As one of the guiding principles, costs need to be balanced with the benefit of public service; specifically level of effort needs to be justified in terms of the specific implementation plan of data collection and sharing interface – as per the SWOTT, utilizing existing systems can minimize costs.

The research completed to support this report included a literature review and jurisdictional survey; yet it did not include a review of grey literature critiquing existing practice. Accordingly, this report cannot recommend best practices as part of its scope. Further to the recommendations made above, it is suggested that further research be completed on the costs and benefits of the jurisdictions that are providing some form of impacted site information to the public.

Based on the research completed, the specifics of what is implemented will define the success or failure of impacted sites information sharing. There are dual characteristics that both need to align to develop a system for sharing information with the public on impacted sites – that is, a combination of transparency and fairness to stakeholders. More research would be required to identify the best practices to meet the guiding principles identified in this report.

Indeed there are many ways to publicly share information on impacted sites. Each province needs to determine their own approach based on the three identified guiding principles.

6 REFERENCES

Below list the specifics for citations made in this report; numerous other sources were consulted but not specifically cited. In particular, Appendix C contains the jurisdictional review with numerous screen captures with web links that can be viewed by the interested readers.

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APPENDIX A – Statement of Work and Consultant Proposal

Atlantic PIRI Harmonization Project

Publicly accessible Registry for Site Conditions

Contaminated Sites

Project Objective:

This project aims to analyze how different jurisdictions handle the concept of a contaminated site registry and current practices for publically accessible information related to site conditions at contaminated properties. This will involve comprehensively exploring the potentially conflicting principles of full transparency for land transactions, versus caveat emptor for a land owners desire to maximize selling price.

Scope of Work:

1. Design and conduct a *Jurisdictional Review* to research and *report* on how do other jurisdictions treat this issue, focussing on the following;

    - The Federal government (Environment Canada, Public Works, Health Canada)
    - The Provincial and Territorial government agencies responsible for contaminated land management.
    - Major Canadian municipal government centres (Toronto, Vancouver, Montreal)
    - Key U.S. regulatory jurisdictions (Federal USEPA, California, NE Seaboard and New England States
    - Key European regulatory agencies (UK Environment Agency, Netherlands)

2. Conduct a *Literature Search* to research and report on the state of practices, opinions, perspectives and discussions, including but not limited to;

    - Scientific Journals or Publications
    - Scholarly articles and opinions
    - Legal perspectives and opinion articles, including any relevant case law involving the topic

Deliverables:

1. Prepare a written draft report documenting and analyzing the results obtained, including the following;

- A compilation of the findings from the jurisdictional review, complete with relevant examples, results obtained, and web based information/references.
- A compilation of the findings from the literature search, complete with a summation of articles, journals and other references.
- An analysis of the state of current thinking, current practice and trends.

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January 8, 2014

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Re: Facilitating a Workshop and Preparing a Report on Public Registry for Atlantic PIRI

Atlantic PIRI's current project objective is to better understand the implications associated with the concept of a contaminated site registry. Verterra Group Environmental Strategies Ltd. (Verterra Group) is pleased to outline the proposed scope of work and budget as discussed.

This work includes review of practices in different jurisdictions for handling publically accessible information related to site conditions at contaminated properties, as well as a literature search on the state of practices, opinions, perspectives and discussions. There is a need to seek balance between the potentially conflicting principles of full transparency for land transactions versus caveat emptor for a land owner's desire to maximize selling price.

Through resources within Atlantic PIRI, a jurisdictional review and literature search is already underway. It is understood that Atlantic PIRI seeks consultancy services to prepare a professional report based on the findings from a jurisdictional review and literature search. Based on our discussions, a workshop is also proposed during the conference in February. A 3-hr facilitated workshop would allow fluid discussion between the PIRI members on the issues surrounding a public registry for contaminated sites. A professionally prepared report would then be completed which both documents the factual outcomes of the jurisdictional review and literature search and provides an analysis of the state of current thinking, current practice and trends.

The report will consolidate of the detailed research completed by PIRI, including:

1. *Jurisdictional Review* on how other jurisdictions treat this issue, focussing on the following;
    - The Federal government (Environment Canada, Public Works, Health Canada)
    - The Provincial and Territorial government agencies responsible for contaminated land management.
    - Major Canadian municipal government centres (Toronto, Vancouver, Montreal)
    - Key U.S. regulatory jurisdictions (Federal USEPA, California, NE Seaboard and New England States
    - Key European regulatory agencies (UK Environment Agency, Netherlands)

2. *Literature Search* on the state of practices, opinions, perspectives and discussions, including but not limited to;
    - Scientific Journals or Publications
    - Scholarly articles and opinions
    - Legal perspectives and opinion articles, including any relevant case law involving the topic

Compilation of the findings from the jurisdictional review will include relevant examples, results obtained, and web based information/references. Compilation of the findings from the literature search will include a summation of articles, journals and other references.

Beyond a factual compilation, the report will include an analysis of the state of current thinking, current practice and trends on publicly accessible information on contaminated sites. This will include perspectives shared at the workshop by the diverse Atlantic PIRI members in attendance.

The workshop will begin with a factual and concise presentation of the findings of the research. Then small groups work would be designed to utilize the multiple perspectives present (government, industry, consultants). The workshop would conclude with a facilitated large group discussion on opportunities and challenges in Atlantic Canada for a public registry for contaminated sites. The outcomes of the workshop would be summarized as an appendix to this report, but will also feed into the analysis.

The consultancy services would include the following tasks at the approximate schedule and budget as noted:

1. Review of existing research completed by Atlantic PIRI (1.5 day completed in late January)
2. Prepare factual compilation in draft (2 day completed early February)
3. Design and facilitate workshop (1 day completed in mid-February)
4. Analyze research and workshop outcome (0.5 day in mid-February)
5. Prepare report, including both research and analysis (1 day in late February)

The work would be completed by Janis Rod as the primary consultant. Janis has worked as an environmental consultant for over 15 years in Atlantic Canada. She has experience with contaminated sites management from various perspectives as a consultant for government, land owners/purchasers and utility companies. She also taught ENVS 3300 Contaminated Sites Management at Dalhousie University for several years. Further she has recent experience with Nova Scotia Environment in completing a jurisdictional review, facilitating a workshop, and subsequent reporting.

Based on a professional per diem of $1000, the total budget is $6000 plus HST. This also includes the services of a junior professional for a half day to support the primary consultant during the workshop. This cost is lump sum based on the understood scope of work; should conditions change dramatically, we will discuss before any additional fees are accrued. The report will be provided digitally (.doc and .pdf) when it is final, i.e., after draft has been reviewed and edited accordingly.

This approach is designed to be very collaborative as the primary consultant needs to rely heavily on research completed by others, as well as the expertise and perspectives shared during the workshop. A well designed workshop is key to stimulate ideas and conversation. This initial effort by PIRI In completing this report can then be expanded and move in a positive direction. Basing this in an engaging workshop will create momentum as opposed to a static report that may not be well read.

I am very excited to work with you and the other Atlantic PIRI members on this project. The balance of transparency and fairness is an interesting one in terms of publicly accessible information versus fairness to property owners. I understand that you will be the liaison for this project - I look forward to being a part of this project and working closely with you.

Sincerely,

Janis Rod, P.Eng. Principal,
Verterra Group Environmental Strategies Ltd.

APPENDIX B – Literature Review

Public Registry Literature Review
Completed by Atlantic PIRI (February 2014)

JOURNAL ARTICLES:

(1) "Environmental Liability and Redevelopment of Old Industrial Land," *Journal of Law and Economics* 53 (May 2010), 289–306

Reviewed: N/A with respect to content regarding value for public registry or CS information.

(2) "Environmental Liability in Practice: Liability for Cleanup of Contaminated Sites under Superfund," in Anthony Heyes, ed. *The Law and Economics of the Environment*, (Cheltenham, U.K.: Edward Elgar, 2001), 136–149.

Reviewed: This was sourced from a text. I reviewed the chapter, and it is N/A with respect to content regarding value for public registry or CS information.

(3) "Liability Funding and Superfund Clean-Up Remedies," *Journal of Environmental Economics and Management* 35 (May 1998), 205–224.

Reviewed: N/A with respect to content regarding value for public registry or CS information.

(4) "Management of Hazardous Waste and Contaminated Land" (with Sarah Stafford) *Annual Review of Resource Economics* 3 (forthcoming 2011). Annu. Rev. Resour. Econ. 2011. 3:255–75

Reviewed: *This paper represents a literature review for hazardous waste and contaminated sites management policy and framework. An interesting component of the paper is found on pages 263-266 respecting "Measuring the Value of Cleanup" with an emphasis on empirical estimations. Includes a discussion concerning cost benefits and applying resources on fears of risk that may be more cheaply addressed through information dissemination. Also discusses relationship of housing valuation at Superfund sites corresponding to release of information about risks.*

(5) "Reforming Hazardous Waste Policy," Hoover Institution Essays in Public Policy (Stanford, CA: Hoover Institution, 1999).

Reviewed: N/A with respect to content regarding value for public registry or CS information.

(6) "The Effect of Joint and Several Liability under Superfund on Brownfields," (with Howard F. Chang), *International Review of Law and Economics* 27 (December 2007), 363–384.

Reviewed: N/A with respect to content regarding value for public registry or CS information.

(7) Alberini A, Meyer PB, Wernstedt K. Policies for cleanup and reuse of contaminated sites: evidence from a survey of U.S. real estate developers. Paper, 2005.

Reviewed: *This paper represents a more detailed account of the abstract noted below (#8). It focuses on the inner details of the survey design, data analysis and outputs at length and provides little value to our contaminated site registry project. That being said, some interesting points can still be found concerning brownfields and developers (a targeted stakeholder in our region). On page 5, developers surveyed are not deterred by prior contamination, once it has been cleaned up, suggesting that "contamination stigma" is probably not very important. My experience has shown that a contaminated site registry has the potential to create stigma, especially at residential sites where mortgages and sale of homes come into play. The presence of contamination can influence the price received by the developer for the completed project. On page 21, it states that "developers who deal primarily with industrial and commercial sites may react to contamination to a different extent than developers who engage mostly in residential projects." And on page 32, it states "a developer who sells his project to other parties has a predicted probability of 38.7% of choosing a contaminated site."*

(8) Alberini A, Meyer PB, Wernstedt K. Policies for cleanup and reuse of contaminated sites: evidence from a survey of US real estate developers. Presented at the European Association of Environmental and Resource Economics 13th Annual Conference, Budapest, Hungary, June 25-28, 2004. **(probably a conference version of the #7 paper…)**

Reviewed: *This paper is an abstract of the "Policies for cleanup and reuse of contaminated sites: evidence from a survey of U.S. real estate developers" paper noted above (#7) which was submitted at a conference in 2004. It reports the results of a survey of real estate developers in the U.S. and looks at hypothetical real estate development projects and asks related five questions. Although this article focus on the survey model, data trends, etc it does not speak to contaminated sites registries per say. What it does highlight on page 7 is the fact that about two thirds of the sample (real estate developers) had no or limited exposure to projects involving contaminated sites and only 7% of respondents deal with contaminated sites which suggest to me that most developers are inexperienced when it comes to contaminated sites redevelopment projects (at least, developers who are relatively small in comparison to other large development companies).*

(9) Hersh, Robert and Kris Wernstedt. 1999: "Land Use, Risk, and Superfund Cleanups: At the Nexus of Policy and Practice." *Public Works Management & Policy*, 4(1). 31-40.

Reviewed: Discusses Superfund sites, the overall process for them, the integration of future land use into clean up and three repercussions of inclusion: transparency, participation of stakeholders, and long-term management via institutional controls.
Could be relevant on page 38 – discussion of institutional controls and some of the pros/cons of them. This ties into registries because the paragraph discusses how to manage such controls and how they can change over time given changes in resourcing, interpretation, etc. Could provide

some insight into what a registry could contain and the importance of managing information related to institutional controls.

(10) Wernstedt K, Meyer PB, Alberini A. Attracting private investment to contaminated properties: the value of public interventions. *Journal of Policy Analysis and Management* 2006;25(2):347-369.

Reviewed: Not relevant. Asks private developers their preference for policy instruments and incentives for brownfield clean up and redevelopment. Pg. 348 discussed typical incentives provided (liability release, risk-based standards, etc.).
Outlines various incentives that are used to encourage redevelopment of brownfields. Findings show that subsidies and third party liability protection is a potentially useful policy tool to promote redevelopment of brownfields from a developer's perspective

(11) Wernstedt, Kris and Robert Hersh. 1998: "Through a Lens Darkly: Superfund Spectacles on Public Participation at Brownfields Sites." *Risk: Health, Safety & Environment*, 9(2). 153-173.

Reviewed: Not relevant. Review of case study of one Superfund site and discusses public participation in the process of brownfield cleanup.

(12) Wernstedt, Kris, Robert Hersh, and Katherine Probst. 1999: "Grounding Hazardous Waste Cleanups: A Promising Remedy?" *Land Use Policy*, 16(1). 45-55.

Reviewed: Not relevant. Discusses Superfund sites and whether or not linking expected future land use to clean up requirements offers a more rational and cheaper cleanup process. They aren't sure that the benefits of linking land use / remediation to Superfund sites will provide the assumed benefits, but suggest that the current conversation on this ignores underlying issues.

APPENDIX C – Jurisdictional Search

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PIRI

Jurisdictional Review

Version 1

Contents

Government of Canada (Federal)

- **The Federal Contaminated Sites Inventory (FCSI)** includes information on all known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government.
- The FCSI displays a standard set of basic and annually-updated information for federal contaminated sites. **Each site record includes information such as the location of the site, the severity of contamination, the contaminated medium, the nature of the contaminant, progress made to date in identifying and addressing contamination, and how much liquid and solid-based media have been treated**. Search results can be displayed as a table or a map. **Also displays population of the surrounding area.**
- FCSI custodians shall designate a FCSI authorized official who is responsible for naming one or more data submitter(s)
- The treasury board secretariat is responsible for FCSI maintenance
- It does not contain information on whether there contamination extends off property.
- Information is not removed, only updated
- Linked to Federal Real Property
- Seems to be “one stop shop” for federal info
- http://www.tbs-sct.gc.ca/fcsi-rscf/home-accueil-eng.aspx
- Official contacts: http://www.tbs-sct.gc.ca/fcsi-rscf/officials-officiels-eng.aspx
- No fees for viewing

Treasury Board of Canada Secretariat

Canada

Search

Departmental Activities | Policy Suite | Information for | Resource Centre

Home > FCSI > Classification

Federal Contaminated Sites Inventory

Official Contacts

Search All Sites By

- Classification
- Contaminants or Media
- DFRP Property Number
- Federal Site Identifier
- Highest Step Completed
- Internal Identifier
- Keyword
- Location
- Reason For Federal Involvement
- Reporting Organization
- Site Status
- Map Navigator

Reports

- Financial Summaries

Find Sites by Classification

The table below summarizes the number of sites in the inventory by their classification type as defined by the National Classification System of the Canadian Council of Ministers of the Environment.

Classification Type	Suspected	Active	Closed	Total
High Priority for Action	4	786	789	**1,579**
Medium Priority for Action	2	2,008	850	**2,860**
Low Priority for Action	1	1,535	668	**2,204**
Insufficient Information	0	211	274	**485**
Not a Priority for Action	0	713	1,795	**2,508**
Site(s) not yet classified	4,013	1,258	7,463	**12,734**
Total	**4,020**	**6,511**	**11,839**	**22,370**

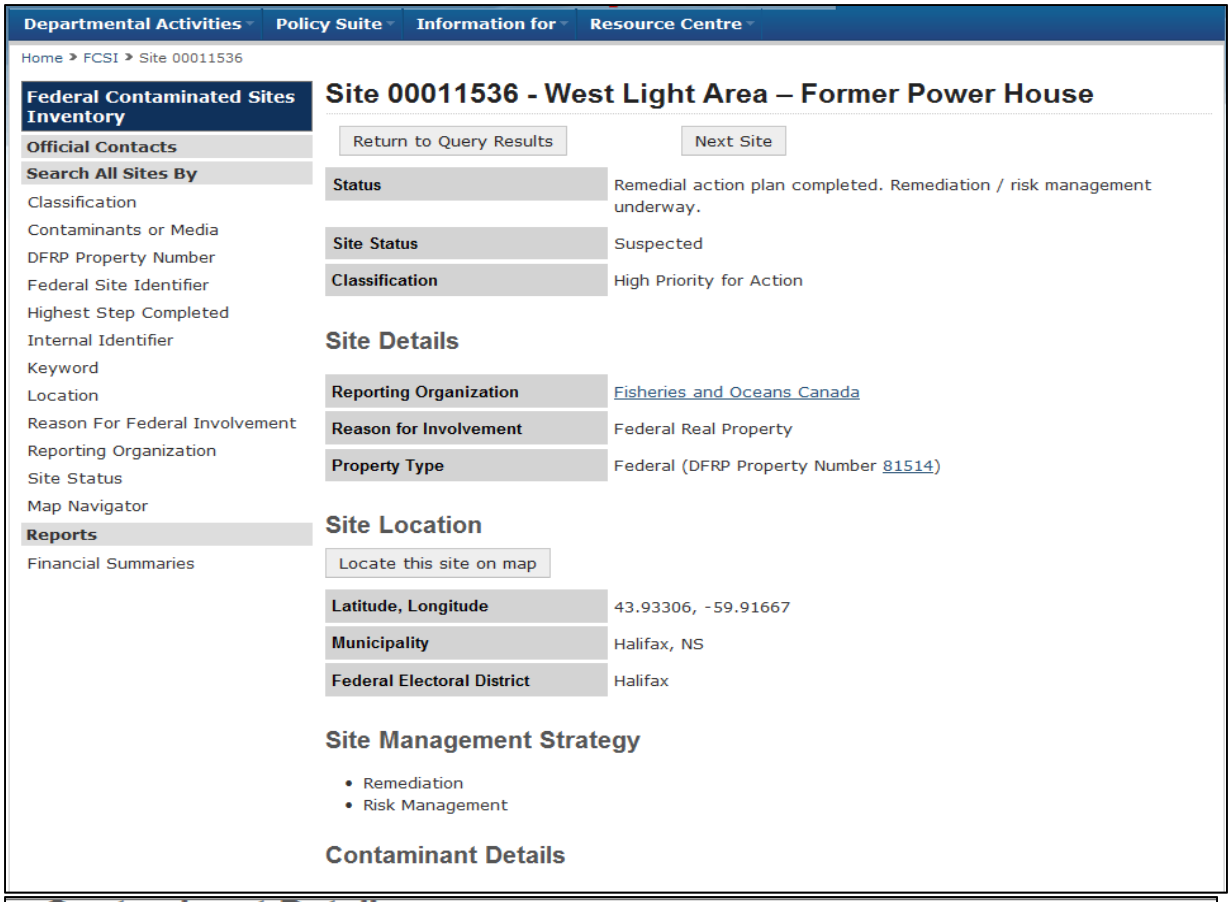
The following are the definitions for the three site status types for contaminated sites:

Suspected
Further assessment work is required to confirm whether the site is considered a "contaminated site."

Active
Active sites are confirmed contaminated sites where remedial action is or may be required.

Closed
No further action is required.

Version: 9.50



Departmental Activities | Policy Suite | Information for | Resource Centre

Home > FCSI > Site 00011536

Federal Contaminated Sites Inventory

- Official Contacts
- Search All Sites By
  - Classification
  - Contaminants or Media
  - DFRP Property Number
  - Federal Site Identifier
  - Highest Step Completed
  - Internal Identifier
  - Keyword
  - Location
  - Reason For Federal Involvement
  - Reporting Organization
  - Site Status
  - Map Navigator
- Reports
  - Financial Summaries

Site 00011536 - West Light Area – Former Power House

Return to Query Results | Next Site

Status	Remedial action plan completed. Remediation / risk management underway.
Site Status	Suspected
Classification	High Priority for Action

Site Details

Reporting Organization	Fisheries and Oceans Canada
Reason for Involvement	Federal Real Property
Property Type	Federal (DFRP Property Number 81514)

Site Location

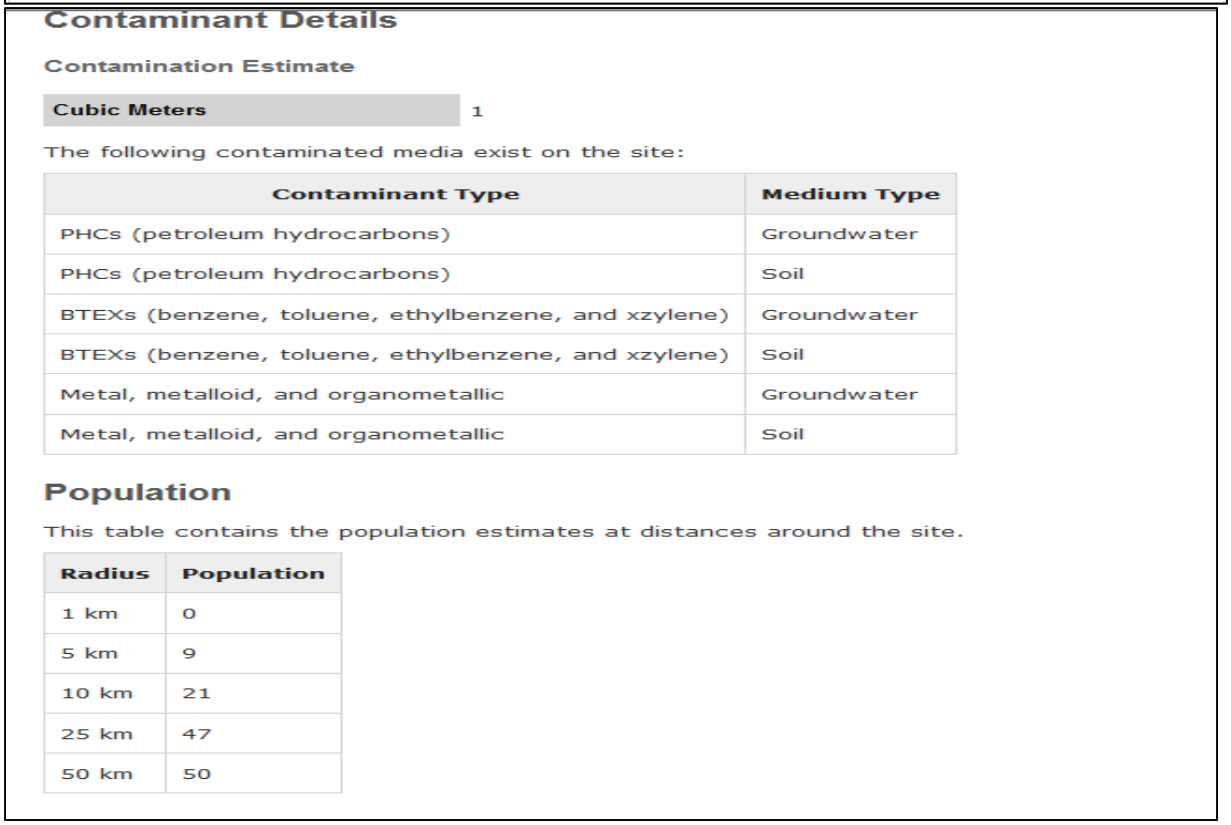
Locate this site on map

Latitude, Longitude	43.93306, -59.91667
Municipality	Halifax, NS
Federal Electoral District	Halifax

Site Management Strategy

- Remediation
- Risk Management

Contaminant Details



Contaminant Details

Contamination Estimate

Cubic Meters	1

The following contaminated media exist on the site:

Contaminant Type	Medium Type
PHCs (petroleum hydrocarbons)	Groundwater
PHCs (petroleum hydrocarbons)	Soil
BTEXs (benzene, toluene, ethylbenzene, and xzylene)	Groundwater
BTEXs (benzene, toluene, ethylbenzene, and xzylene)	Soil
Metal, metalloid, and organometallic	Groundwater
Metal, metalloid, and organometallic	Soil

Population

This table contains the population estimates at distances around the site.

Radius	Population
1 km	0
5 km	9
10 km	21
25 km	47
50 km	50

Financial/Annual Information

2012-2013 | 2011-2012 | 2010-2011 | 2009-2010 | 2008-2009

2012-2013

Reporting Organization	Environment Canada
Internal Identifier	00011536
Highest Step Completed	**07** Develop Remediation/Risk Management Strategy
Planned Completion Date (Step 7)	no data
Planned Completion Date (Step 8)	no data
Planned Completion Date (Step 9)	no data
Total Assessment Expenditure	$0.00
Total Remediation Expenditure	$0.00
Total Care Maintenance Expenditure	$0.00
Total Monitoring Expenditure	$0.00
FCSAP Assessment Expenditure	$0.00
FCSAP Remediation Expenditure	$0.00
FCSAP Care Maintenance Expenditure	$0.00
FCSAP Monitoring Expenditure	$0.00
Actual Cubic Meters Remediated	0 m^3
Actual Hectares Remediated	0 ha
Actual Tons Remediated	0 t
Closed	No

Vancouver

- Appears to use the BC Registry. Waste water discharge permits for contaminated sites links to BC policies on land reclamation (http://vancouver.ca/home-

property-development/wastewater-discharge-permit-for-construction-at-contaminated-sites.aspx)

- Planning a brownfield inventory. http://www.env.gov.bc.ca/epd/remediation/presentations/ppc-03-13/brownfields/jennifer_mayberry.pdf

Toronto

- Seems to use the Ontario registry. The contaminated site assessment explicitly requires the use of the Ontario Record of Site Condition. Source: http://www1.toronto.ca/static_files/CityPlanning/PDF/contaminatedassessment.pdf

Calgary

- "**EnviroSite" is a property report showing a historical list of commercial and industrial users occupying a site**, including the years of operation and the types of land use. It also provides a historical number of petroleum storage tanks on the site. Finally, **the report provides the titles and author/publisher of any environmental assessment reports** that have been written and submitted to The City of Calgary. Source:
- http://www.calgary.ca/CS/IIS/Pages/City-online/City-online-products/Envirosite-report/EnviroSite-FAQ.aspx
- **Has a "Site Contamination Statement**", so it's possible they have an internal database, or this may be available with Envirosite.
- **Not free to use**
- http://www.calgary.ca/PDA/DBA/Documents/development/site_contamination_statement.pdf

Edmonton

- **Uses ESAR** and has no contaminated site registry
- **People can have the departments canvased for historical information** related to a property and this information may or may not include contamination.

Montreal

- Information concerning soil contamination in Montréal is still incomplete. The **City intends to create a database of contaminated or possibly contaminated sites.**

- http://ville.montreal.qc.ca/portal/page?_pageid=2762,3100735&_dad=portal&_schema=PORTAL

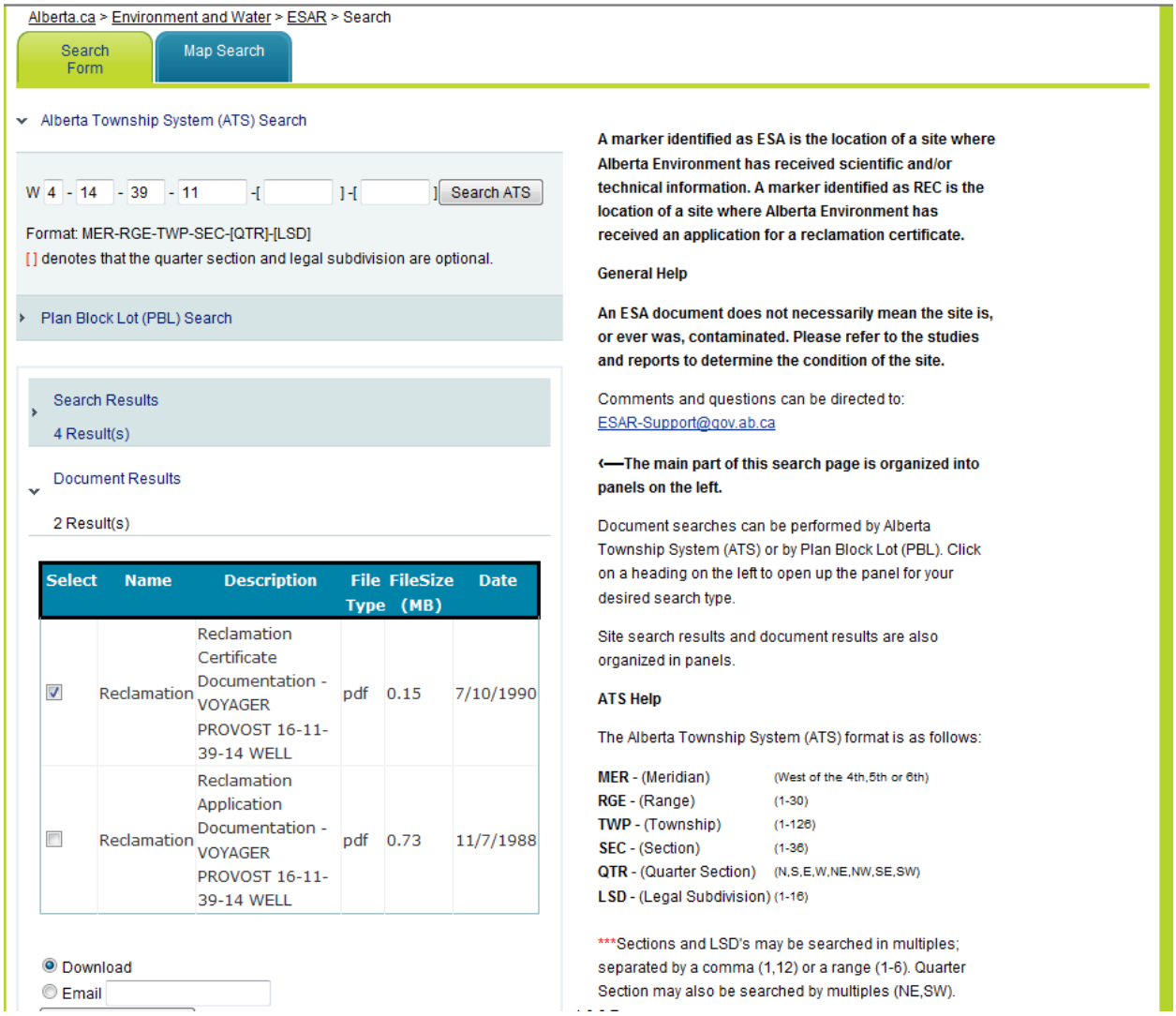
Halifax

- **The Province** is responsible for the management and remediation of contaminated sites and has a database of all reported locations in HRM, which due to confidentiality, HRM has not been privy to. Source: http://www.halifax.ca/regionalplanning/Chapter2-Environment.pdf

Saskatchewan

- **Spills Registry…**
- **http://www.saskspills.ca/hazardousmaterial.asp**
- Have/developing a classification system: http://www.saskspills.ca/PDF/IR2SkAdoptsNationalClassificationSystemContaminatedSites.pdf
- Contact page:
- http://www.environment.gov.sk.ca/Contact

Alberta



Manitoba

- Only file number, name of operation and address provided without fees.
- http://www.gov.mb.ca/conservation/envprograms/contams/pdf/sites_list_2013.pdf

British Columbia

- Must pay to access

Yukon

- Must contact Environmental Programs Branch

Quebec

- Seems to only be available in French

Répertoire des terrains contaminés

Les renseignements présentés sont ceux qui ont été portés à l'attention du Ministère avant le 09 décembre 2013.

L'ensemble du répertoire compte 9258 enregistrements.
1908 enregistrements répondent au critère suivant : Nom de région : Montréal

Raffiner votre recherche | Nouvelle recherche

Nom du dossier Numéro de la fiche	Adresse Latitude Longitude (Deg. Déc. NAD83)	MRC	Nature des contaminants[1]		État de la réhabilitation (R)[2] et qualité des sols résiduels après réhabilitation(Q)
			Eau souterraine	Sol	
(06) Montréal					
2242, Saint-Antoine Ouest, Montréal (résidence) 9520	2242, Saint-Antoine O Montréal 45,4882166667 -73,5768277778	Ville de Montréal		Hydrocarbures pétroliers C10 à C50	R : Non terminée
5570-5578 boul. Pie-IX à Montéal 9380	5570-5578, boul. Pie IX Montréal 45,5594666667 -73,5707222222			Hydrocarbures aromatiques polycycliques*, Hydrocarbures aromatiques volatiles*, Hydrocarbures pétroliers C10 à C50	R : Terminée en 2010 Q : > RESC
Jardins communautaires Hochelaga 9480	Montréal	Ville de Montréal		Benzo(b+j+k) fluoranthène	R : Non terminée
Samcon St-Antoine inc. 9236	1210, St-Antoine Est Montréal			Hydrocarbures aromatiques polycycliques*, Hydrocarbures pétroliers C10 à C50, Métaux*	R : Terminée en 2010 Q : Plage A-B

Nunavut

- Not electronic

NWT

- Not electronic

NS

- Does not exist

NL

- Internal

PEI

Prince Edward Island
CANADA

Environment, Labour and Justice

Environnement, Travail et Justice

Île-du-Prince-Édouard
CANADA

Environment Division
PO Box 2000, Charlottetown
Prince Edward Island
Canada C1A 7N8

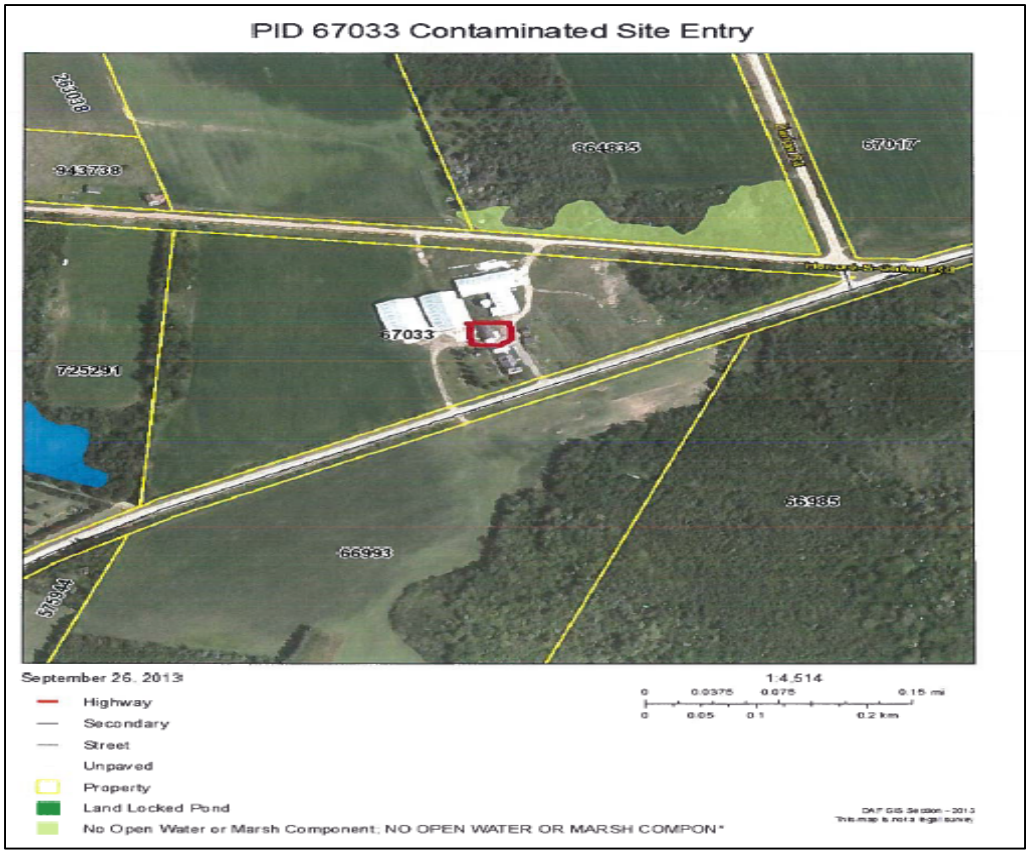
Division de l'environnement
C.P. 2000, Charlottetown
Île-du-Prince-Édouard
Canada C1A 7N8

Contaminated Site Registry Entry – PID # 67033
Condition of Concern for Contaminated Site Designation

1. A report of an oil spill was received by the Department on or about October 1, 2012 and soil samples were taken. Results of the soil samples indicate an exceedance of the *Environmental Protection Act* Petroleum Hydrocarbon Remediation Regulations.

2. The owner of the property was directed by the Department to remediate the contaminated area however only a partial excavation of soil occurred and the property remains in contravention of the *Environmental Protection Act,* Petroleum Hydrocarbon Remediation Regulations.

3. Only preliminary sampling occurred and no environmental site assessment or remedial action plan was submitted to the Department.



- Source: http://www.gov.pe.ca/photos/original/elj_pid67033.pdf, AND http://www.gov.pe.ca/Contaminated_sites/

Environment

HOME /

SHARE A A A

Contaminated Site Registry

A property may be listed as contaminated if:

- Analysis of soil and groundwater on the property indicate it is contaminated in excess of acceptable clean-up criteria
- Environmental or human health risk management measures have been implemented for the property
- Solid waste landfills (closed, decommissioned or inactive).
- Inactive construction and demolition debris disposal sites.

Please Note: Properties where contaminant impacts are in the midst of assessment and/or cleanup, are **NOT** included on the registry at this time. For a more comprehensive review of the Department's records, you may request a site-specific Environmental Records Review.

Enter the property identification number below in order to find information about a particular site.

Enter a Parcel Identifier (PID)

Enter a parcel identifier (PID number) to search for sites entered into the registry.

Enter PID Number: 67033

Find this Parcel ID

Results of a search for Property ID 67033

Date entered in registry	Description	Notes
September 26, 2013	A report of an oil spill from a storage tank inside a workshop was received by the Department on October 1, 2012. A partial clean up of the site occurred through soil excavation however soil sample results indicated that some contamination remains at the soil/bedrock interface. Site closure has not been granted by the Department.	link

NB

- Must pay to access

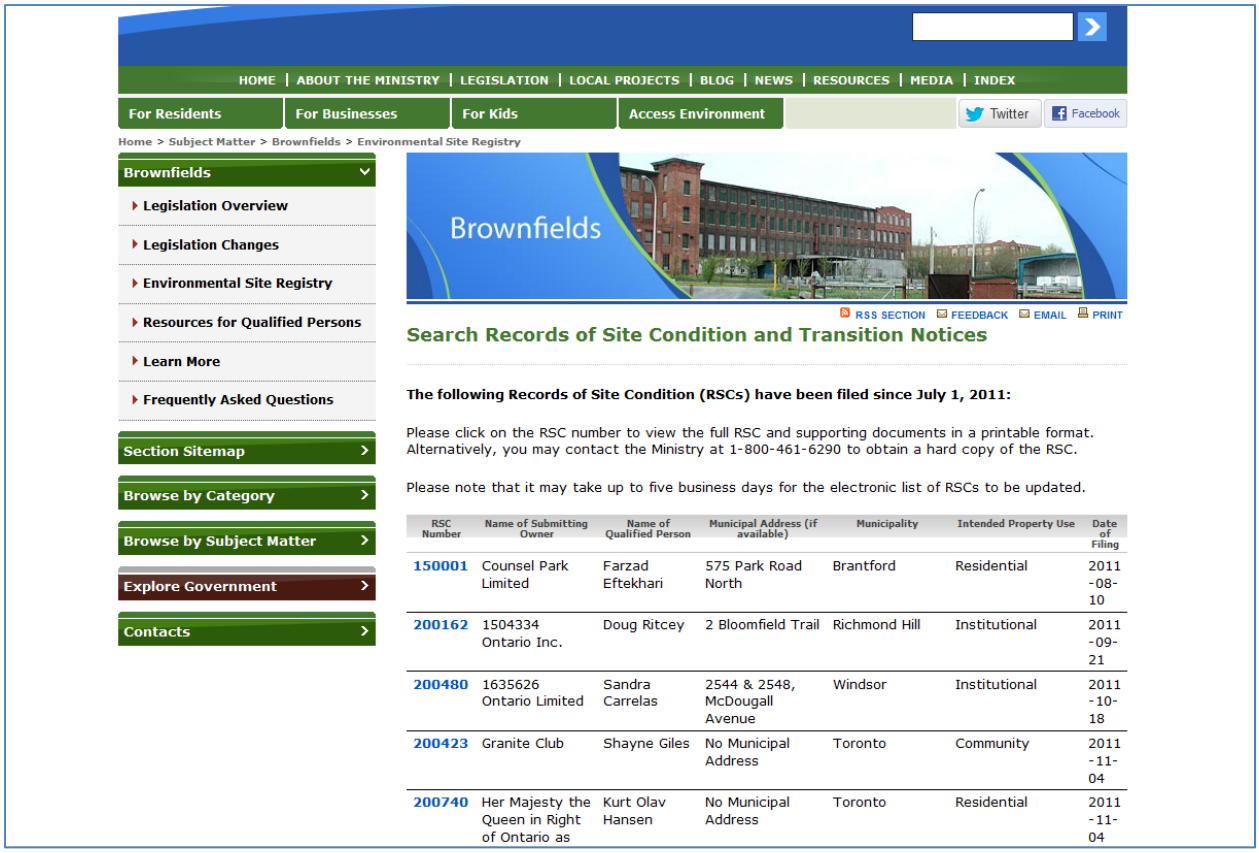
MN

File No.	Company Name	City/Town/RM	Address
41058	10 MINIT PIT STOP (FORMER) - CS	Winnipeg	1280 PEMBINA HWY
20135	100 WALLACE AVENUE - STRIJACK - CS	Flin Flon	100 WALLACE ST
31440	129 PROCTOR STREET WOODLANDS - CS	Woodlands	129 PROCTOR ST
35601	1415 - 1425 WHYTE AVE - CS	Winnipeg	1415 - 1425 WHYTE AVE
39127	1816 MCGILLIVRAY BLVD	Winnipeg	1816 MCGILLIVRAY BLVD
37243	202 QUEEN AVENUE SELKIRK - C SITES	St. Andrews	202 QUEEN AVENUE
46219	211 RAILWAY ST -CS	MacDonald	211 RAILWAY ST
19721	22 THIRD AVENUE - TOM BRITTON RESIDENCE - CS	Flin Flon	22 3RD AVE
31574	230 MAIN ST - SELKIRK (FORMER HARRIS CHEV OLDS)	Selkirk	230 MAIN ST
46655	277 MCPHILLIPS - CS	Winnipeg	277 MCPHILLIPS ST
40267	279 SHERBROOK ST - CS	Winnipeg	279 SHERBROOK ST
18712	30 ANDERSON AVENUE - FLIN FLON - CS	Flin Flon	30 ANDERSON AVE
19099	3001237 MANITOBA (FORMER) - CS	Brandon	1880 1ST ST
31245	319 MAIN AVE PLUM COULEE - CS	Plum Coulee	319 MAIN AVE
41716	35 MAIN ST CARMAN - CS	Carman	35 MAIN ST N
20642	3905862 MANITOBA LTD - CS	Winnipeg	1680 GRANT AVE
19860	3M GENERAL STORE (FORMER) - CS	Ste. Genevieve	HWY 501
20106	56 NORTH AVENUE - SPEISS RESIDENCE - CS	Flin Flon	56 NORTH AVE
36459	60 CHESTERFIELD AVE - CS	Winnipeg	60 CHESTERFIELD AVE
51460	6403034 MANITOBA LTD - CS	Winnipeg	3373 PEMBINA HIGHWAY
19410	68 AUTO SALES INC - CS	Arborg	HWY 68
39472	7- ELEVEN GAS BAR	Winnipeg	3021 NESS AVE
38989	720 TAYLOR	Winnipeg	720 TAYLOR AVE
18713	73 GREEN ST - FLIN FLON - CS	Flin Flon	73 GREEN ST
39995	750 MARION STREET, WINNIPEG, MB - CS	Winnipeg	750 MARION STREET
20822	7-ELEVEN - 104 REGENT AVE - CS	Winnipeg	104 REGENT AVE
20710	7-ELEVEN - 1131 NAIRN AVE - CS	Winnipeg	1131 NAIRN AVE
20960	7-ELEVEN - 1622 ST MARY'S RD - CS	Winnipeg	1622 ST MARY'S RD
20928	7-ELEVEN - 456 TALBOT AVE - CS	Winnipeg	456 TALBOT AVE AT WATT ST
20807	7-ELEVEN - 801 REGENT AVE - CS	Winnipeg	801 REGENT AVE
19476	7-ELEVEN - 920 ARCHIBALD - CS	Winnipeg	920 ARCHIBALD ST
20300	7-ELEVEN - MCPHILLIPS ST - CS	Winnipeg	1007 MCPHILLIPS ST
19167	7-ELEVEN - VICTORIA AVE - CS	Brandon	3380 VICTORIA AVE

- http://www.gov.mb.ca/conservation/envprograms/contams/pdf/sites_list_2013.pdf

ON

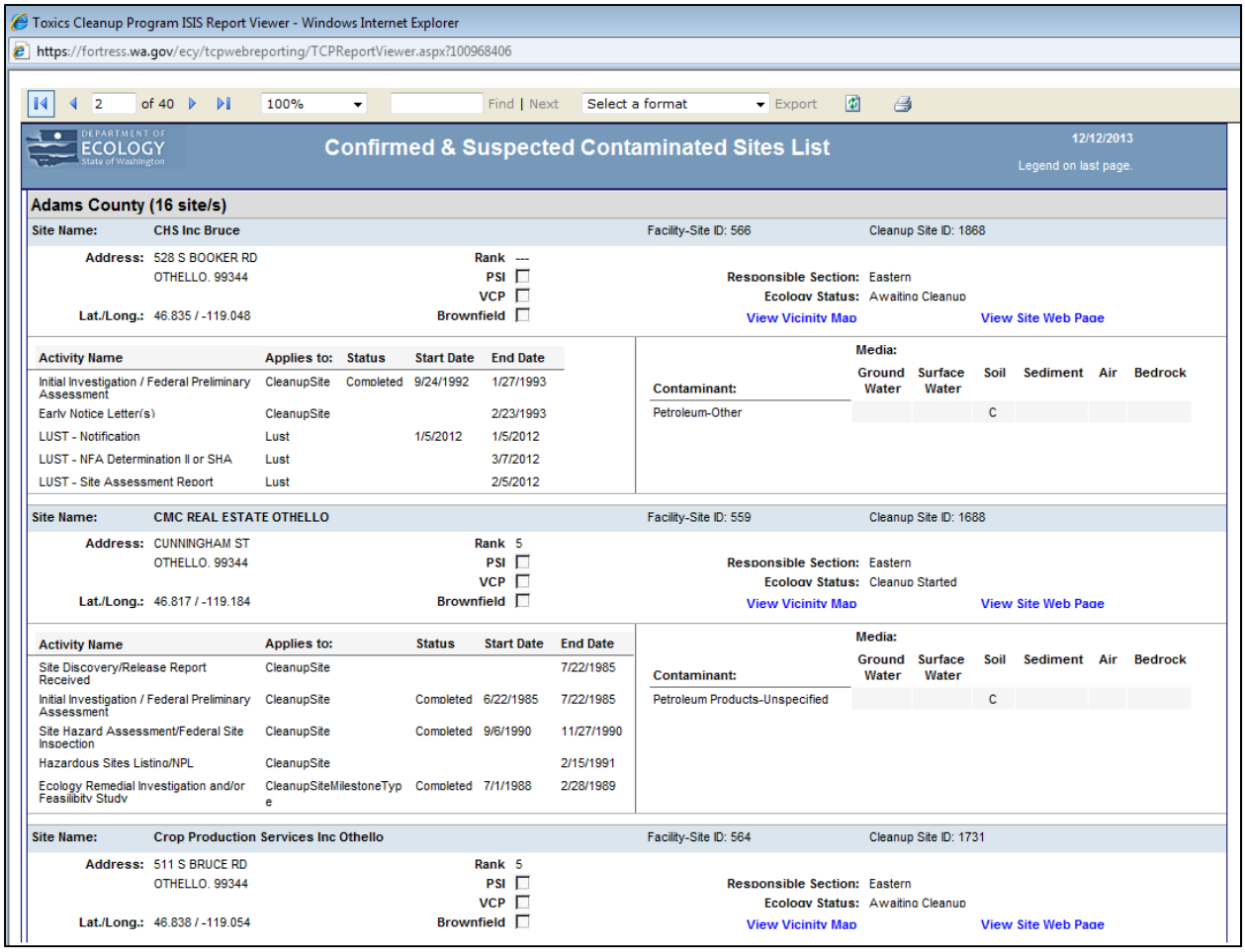
- Here is a sample file:
- http://www.downloads.ene.gov.on.ca/files/besr/RSC_150001_aug_10_2011.pdf
- Here is what the registry of site condition looks like:



Source:
http://www.ene.gov.on.ca/environment/en/subject/brownfields/STDPROD_088561.html

Washington State

- Has a list of suspected and contaminated sites
- Contains contaminants, maps, address, ecology status, a list of inspections/activity
- No fees to view
- Separate registry for underground storage tanks
- Source:
- https://fortress.wa.gov/ecy/tcpwebreporting/reports.aspx



Toxics Cleanup Program ISIS Report Viewer - Windows Internet Explorer

https://fortress.wa.gov/ecy/tcpwebreporting/TCPReportViewer.aspx?100968406

2 of 40 100% Find | Next Select a format Export

DEPARTMENT OF ECOLOGY State of Washington

Confirmed & Suspected Contaminated Sites List

12/12/2013

Legend on last page.

Adams County (16 site/s)

Site Name: CHS Inc Bruce — Facility-Site ID: 566 — Cleanup Site ID: 1868

Address: 528 S BOOKER RD, OTHELLO, 99344 — Rank: --- — PSI: ☐ — VCP: ☐ — Brownfield: ☐ — Lat./Long.: 46.835 / -119.048

Responsible Section: Eastern — Ecology Status: Awaiting Cleanup — View Vicinity Map — View Site Web Page

Activity Name	Applies to:	Status	Start Date	End Date
Initial Investigation / Federal Preliminary Assessment	CleanupSite	Completed	9/24/1992	1/27/1993
Early Notice Letter(s)	CleanupSite			2/23/1993
LUST - Notification	Lust		1/5/2012	1/5/2012
LUST - NFA Determination II or SHA	Lust			3/7/2012
LUST - Site Assessment Report	Lust			2/5/2012

Contaminant:	Media: Ground Water	Surface Water	Soil	Sediment	Air	Bedrock
Petroleum-Other			C			

Site Name: CMC REAL ESTATE OTHELLO — Facility-Site ID: 559 — Cleanup Site ID: 1688

Address: CUNNINGHAM ST, OTHELLO, 99344 — Rank: 5 — PSI: ☐ — VCP: ☐ — Brownfield: ☐ — Lat./Long.: 46.817 / -119.184

Responsible Section: Eastern — Ecology Status: Cleanup Started — View Vicinity Map — View Site Web Page

Activity Name	Applies to:	Status	Start Date	End Date
Site Discovery/Release Report Received	CleanupSite			7/22/1985
Initial Investigation / Federal Preliminary Assessment	CleanupSite	Completed	6/22/1985	7/22/1985
Site Hazard Assessment/Federal Site Inspection	CleanupSite	Completed	9/6/1990	11/27/1990
Hazardous Sites Listing/NPL	CleanupSite			2/15/1991
Ecology Remedial Investigation and/or Feasibility Study	CleanupSiteMilestoneType	Completed	7/1/1988	2/28/1989

Contaminant:	Media: Ground Water	Surface Water	Soil	Sediment	Air	Bedrock
Petroleum Products-Unspecified			C			

Site Name: Crop Production Services Inc Othello — Facility-Site ID: 564 — Cleanup Site ID: 1731

Address: 511 S BRUCE RD, OTHELLO, 99344 — Rank: 5 — PSI: ☐ — VCP: ☐ — Brownfield: ☐ — Lat./Long.: 46.838 / -119.054

Responsible Section: Eastern — Ecology Status: Awaiting Cleanup — View Vicinity Map — View Site Web Page

Source:
https://fortress.wa.gov/ecy/tcpwebreporting/TCPReportViewer.aspx?1397036628

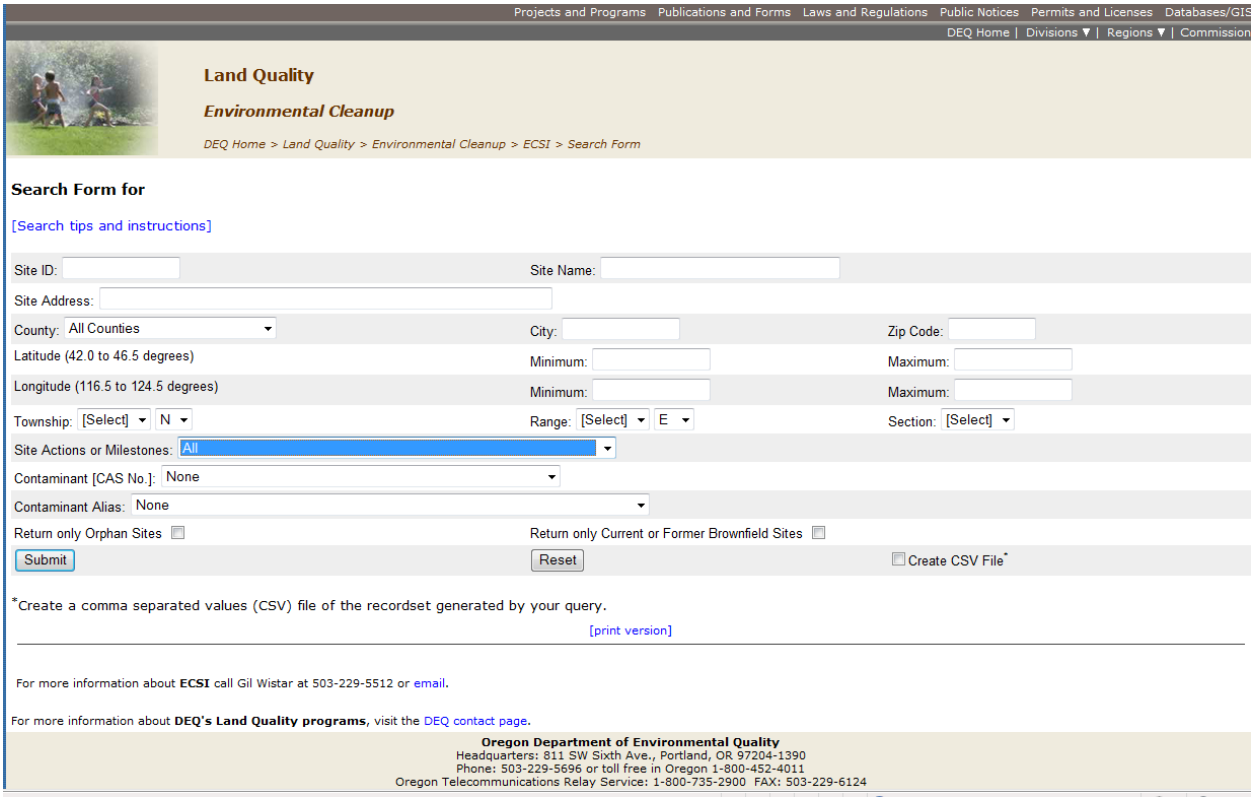
- Keeps records of site conditions:
- Clean up progress is archived in the site register
- The site register is used to notify the public of public comment opportunities, it seems
- http://www.ecy.wa.gov/programs/tcp/pub_inv/pub_inv2.html
- Source: https://fortress.wa.gov/ecy/publications/publications/1309041y.pdf

Oregon

- Each ECSI (Environmental cleanup site Information) entry contains **basic data such as site name and location**. For most sites, ECSI also indicates **how and when the site became contaminated**, **qualitative risks the contamination may pose to human health or the** environment, investigative and cleanup actions that have occurred, and prioritized further actions, if any, that are required. At many sites, ECSI documents **contaminants found in soil, surface water,**

sediments, and groundwater, with associated concentrations and sampling dates. ECSI categorizes current site status as either: 1) under investigation; 2) on the Confirmed Release List or Inventory of Facilities Needing Further Action (Inventory); or 3) cleaned up to DEQ standards (No Further Action, or NFA). ECSI also lists past and present site operations, owners/operators, and site contacts. The amount of data entered for each site varies greatly and depends on the nature of site issues, how long the site has been active in DEQ's Cleanup Program, and the priority DEQ has assigned to the site. **DEQ's UST Section maintains a separate database of sites with reported petroleum releases from UST systems.**

- No fees
- Also has a **Confirmed Release List** and the **Inventory of Hazardous Substance Sites (Inventory)**
- The difference between the three are here: http://www.deq.state.or.us/lq/ecsi/listing.htm



- Source: http://www.deq.state.or.us/lq/ecsi/ecsiquery.asp

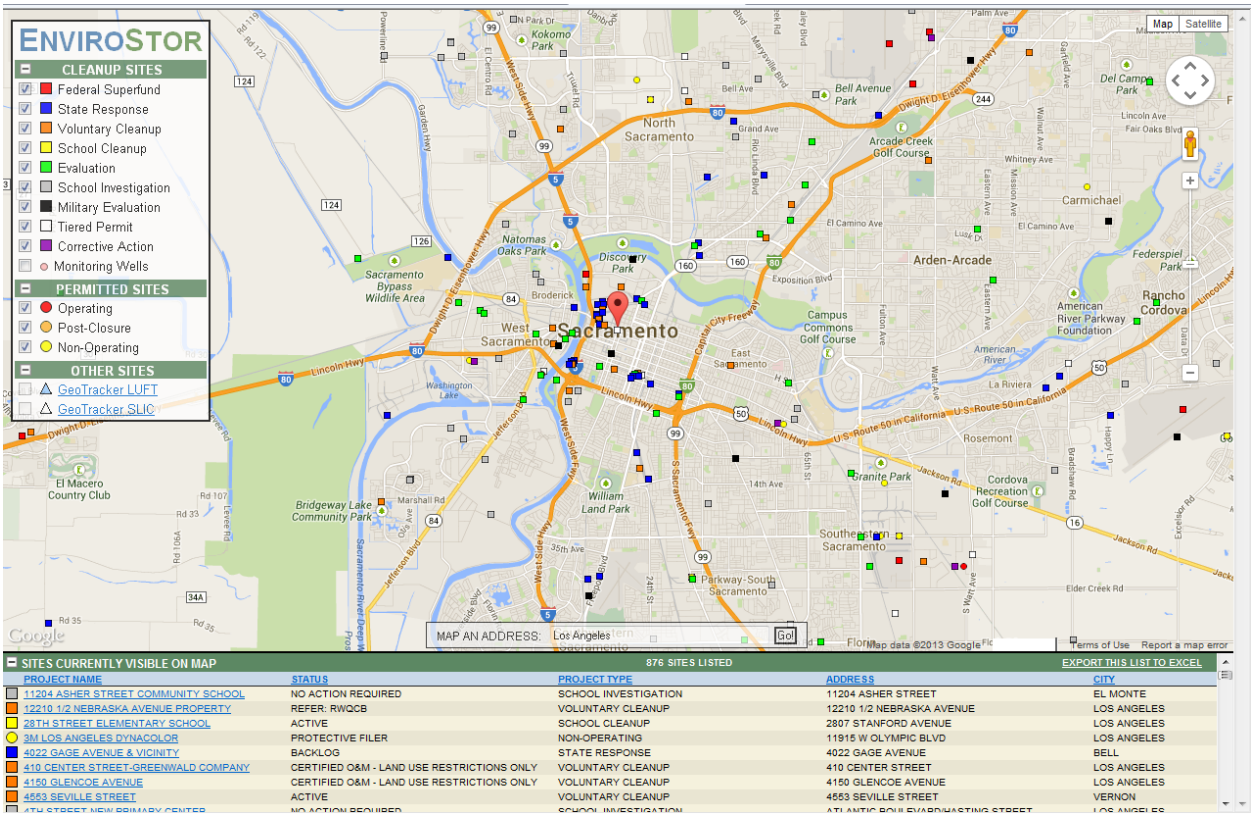
California

- The Department of Toxic Substances Control's (DTSC's) **EnviroStor database is an online search and Geographic Information System (GIS) tool for identifying**

sites that have known contamination or sites for which there may be reasons to investigate further

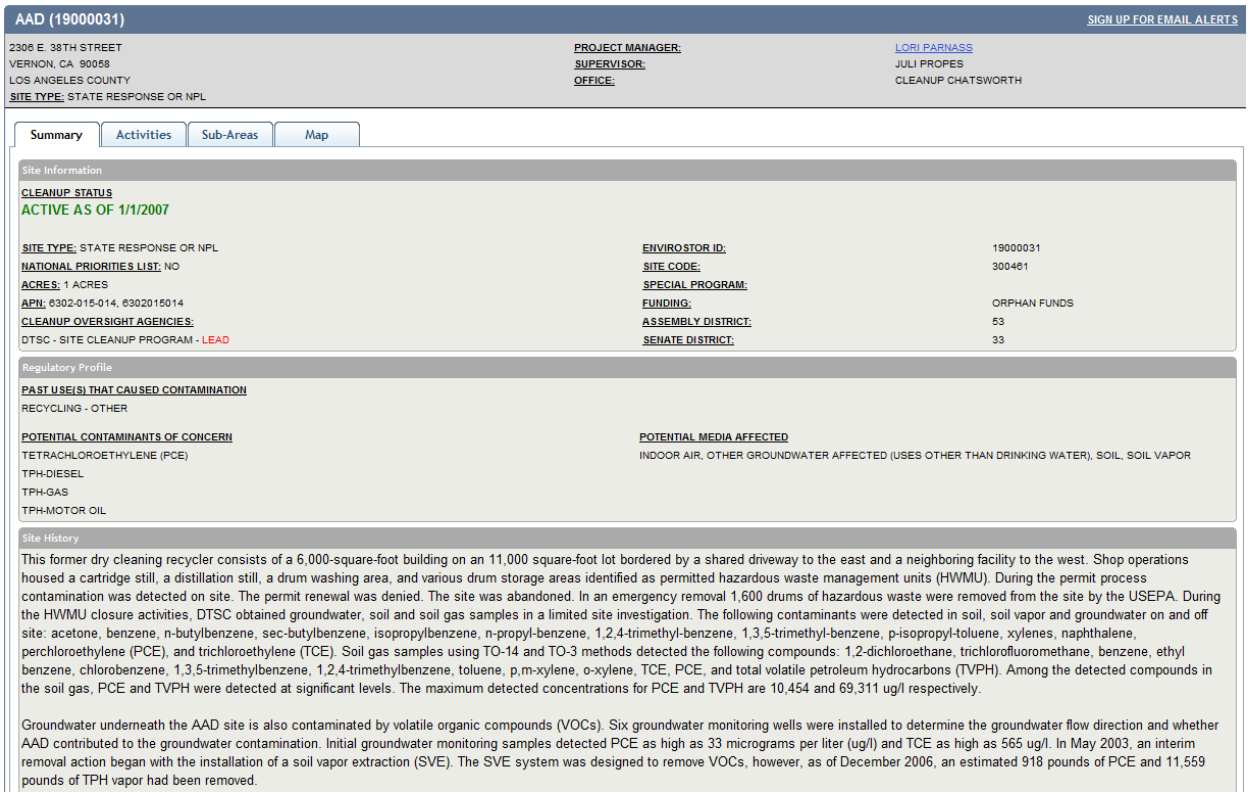
- http://www.envirostor.dtsc.ca.gov/public/

- The EnviroStor database includes the following site types: **Federal Superfund sites (National Priority List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites**. You can obtain information that includes **site name, site type, status, address, any restricted use (recorded deed restrictions), past use(s) that caused contamination, potential contaminants of concern, potential environmental media affected, site history, planned and completed activities.** The EnviroStor database also contains **current and historical information relating to Permitted and Corrective Action facilities.** The EnviroStor database includes **current and historical information on the following permit-related documents: facility permits; permit renewal applications; permit modifications to an existing permit; closure of hazardous waste management units (HWMUs) or entire facilities; facility corrective action (investigation and/or cleanup); and/or post-closure permits or other required post-closure activities.**



http://www.envirostor.dtsc.ca.gov/public/mapfull.asp?global_id=&x=-119&y=37&zl=18&ms=640,480&mt=m&findaddress=True&city=lOS%20ANGELES&zip=&county

=&federal_superfund=true&state_response=true&voluntary_cleanup=true&school_cleanup=true&ca_site=true&tiered_permit=true&evaluation=true&military_evaluation=true&school_investigation=true&operating=true&post_closure=true&non_operating=true



AAD (19000031) SIGN UP FOR EMAIL ALERTS

2306 E. 38TH STREET
VERNON, CA 90058
LOS ANGELES COUNTY
SITE TYPE: STATE RESPONSE OR NPL

PROJECT MANAGER: LORI PARNASS
SUPERVISOR: JULI PROPES
OFFICE: CLEANUP CHATSWORTH

Summary | Activities | Sub-Areas | Map

Site Information

CLEANUP STATUS
ACTIVE AS OF 1/1/2007

SITE TYPE:	STATE RESPONSE OR NPL	**ENVIROSTOR ID:**	19000031
NATIONAL PRIORITIES LIST:	NO	**SITE CODE:**	300461
ACRES:	1 ACRES	**SPECIAL PROGRAM:**	
APN:	6302-015-014, 6302015014	**FUNDING:**	ORPHAN FUNDS
CLEANUP OVERSIGHT AGENCIES:		**ASSEMBLY DISTRICT:**	53
DTSC - SITE CLEANUP PROGRAM - LEAD		**SENATE DISTRICT:**	33

Regulatory Profile

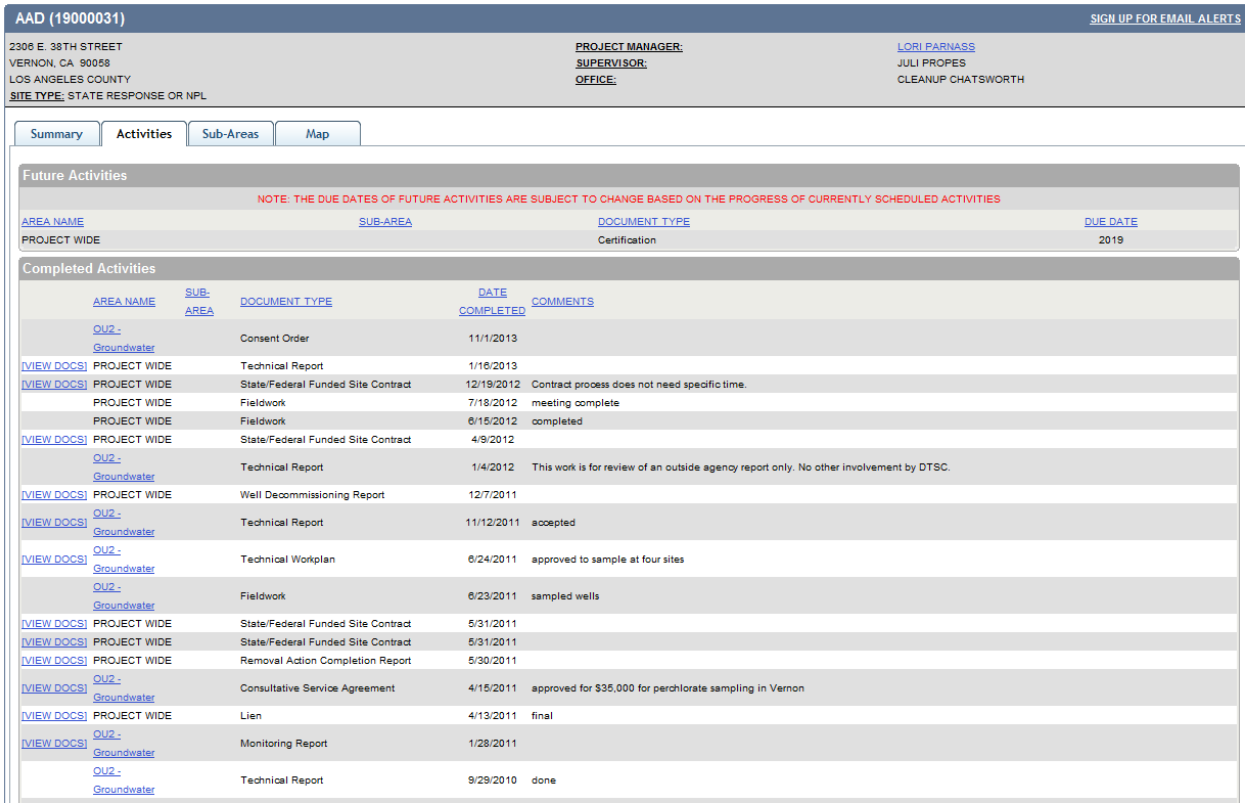
PAST USE(S) THAT CAUSED CONTAMINATION
RECYCLING - OTHER

POTENTIAL CONTAMINANTS OF CONCERN	POTENTIAL MEDIA AFFECTED
TETRACHLOROETHYLENE (PCE)	INDOOR AIR, OTHER GROUNDWATER AFFECTED (USES OTHER THAN DRINKING WATER), SOIL, SOIL VAPOR
TPH-DIESEL	
TPH-GAS	
TPH-MOTOR OIL	

Site History

This former dry cleaning recycler consists of a 6,000-square-foot building on an 11,000 square-foot lot bordered by a shared driveway to the east and a neighboring facility to the west. Shop operations housed a cartridge still, a distillation still, a drum washing area, and various drum storage areas identified as permitted hazardous waste management units (HWMU). During the permit process contamination was detected on site. The permit renewal was denied. The site was abandoned. In an emergency removal 1,600 drums of hazardous waste were removed from the site by the USEPA. During the HWMU closure activities, DTSC obtained groundwater, soil and soil gas samples in a limited site investigation. The following contaminants were detected in soil, soil vapor and groundwater on and off site: acetone, benzene, n-butylbenzene, sec-butylbenzene, isopropylbenzene, n-propyl-benzene, 1,2,4-trimethyl-benzene, 1,3,5-trimethyl-benzene, p-isopropyl-toluene, xylenes, naphthalene, perchloroethylene (PCE), and trichloroethylene (TCE). Soil gas samples using TO-14 and TO-3 methods detected the following compounds: 1,2-dichloroethane, trichlorofluoromethane, benzene, ethyl benzene, chlorobenzene, 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, toluene, p,m-xylene, o-xylene, TCE, PCE, and total volatile petroleum hydrocarbons (TVPH). Among the detected compounds in the soil gas, PCE and TVPH were detected at significant levels. The maximum detected concentrations for PCE and TVPH are 10,454 and 69,311 ug/l respectively.

Groundwater underneath the AAD site is also contaminated by volatile organic compounds (VOCs). Six groundwater monitoring wells were installed to determine the groundwater flow direction and whether AAD contributed to the groundwater contamination. Initial groundwater monitoring samples detected PCE as high as 33 micrograms per liter (ug/l) and TCE as high as 565 ug/l. In May 2003, an interim removal action began with the installation of a soil vapor extraction (SVE). The SVE system was designed to remove VOCs, however, as of December 2006, an estimated 918 pounds of PCE and 11,559 pounds of TPH vapor had been removed.



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Summary | Activities | Sub-Areas | Map

Future Activities

NOTE: THE DUE DATES OF FUTURE ACTIVITIES ARE SUBJECT TO CHANGE BASED ON THE PROGRESS OF CURRENTLY SCHEDULED ACTIVITIES

AREA NAME	SUB-AREA	DOCUMENT TYPE	DUE DATE
PROJECT WIDE		Certification	2019

Completed Activities

	AREA NAME	SUB-AREA	DOCUMENT TYPE	DATE COMPLETED	COMMENTS
	OU2 - Groundwater		Consent Order	11/1/2013	
[VIEW DOCS]	PROJECT WIDE		Technical Report	1/16/2013	
[VIEW DOCS]	PROJECT WIDE		State/Federal Funded Site Contract	12/19/2012	Contract process does not need specific time.
	PROJECT WIDE		Fieldwork	7/18/2012	meeting complete
	PROJECT WIDE		Fieldwork	6/15/2012	completed
[VIEW DOCS]	PROJECT WIDE		State/Federal Funded Site Contract	4/9/2012	
	OU2 - Groundwater		Technical Report	1/4/2012	This work is for review of an outside agency report only. No other involvement by DTSC.
[VIEW DOCS]	PROJECT WIDE		Well Decommissioning Report	12/7/2011	
[VIEW DOCS]	OU2 - Groundwater		Technical Report	11/12/2011	accepted
[VIEW DOCS]	OU2 - Groundwater		Technical Workplan	6/24/2011	approved to sample at four sites
	OU2 - Groundwater		Fieldwork	6/23/2011	sampled wells
[VIEW DOCS]	PROJECT WIDE		State/Federal Funded Site Contract	5/31/2011	
[VIEW DOCS]	PROJECT WIDE		State/Federal Funded Site Contract	5/31/2011	
[VIEW DOCS]	PROJECT WIDE		Removal Action Completion Report	5/30/2011	
[VIEW DOCS]	OU2 - Groundwater		Consultative Service Agreement	4/15/2011	approved for $35,000 for perchlorate sampling in Vernon
[VIEW DOCS]	PROJECT WIDE		Lien	4/13/2011	final
[VIEW DOCS]	OU2 - Groundwater		Monitoring Report	1/28/2011	
	OU2 - Groundwater		Technical Report	9/29/2010	done

http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=19000031

Texas

- The Texas Commission on Environmental Quality (TCEQ) has launched the Texas Environmental Data System (TEDS) to **capture analytical, geological, and spatial data on remediation sites in Texas**. The purpose of TEDS is to provide a data management system whereby **data submitted electronically** to the TCEQ are then utilized and evaluated in mapping and modeling software applications to better manage remediation sites on both an individual basis and regionally. **TEDS captures spatial, chemistry, and geologic data into a database which interfaces with other software, such as:**

  •ArcGIS and Google Earth for mapping,
  •RockWorks for subsurface visualization,
  •LogPlot for detailed well logs,
  •Surfer for modeling, and
  •Other applications such as MS Excel and Adobe Acrobat.

  TEDS will **accept data on all types of remediation sites** – Voluntary Cleanup Program sites, Petroleum Storage Tank program sites, Industrial and Hazardous Waste Corrective Action sites, Superfund sites, Dry Cleaner Remediation sites,

and others. TCEQ project managers are using TEDS to conduct analysis of site data, including running custom reports, developing maps, and modeling.

- The TCEQ is using software called EQuIS, from EarthSoft, Inc., as the data management system. **The data provider, typically the consultant**, enters data from the laboratory and field work into a MS Excel spreadsheet; processes it through EarthSoft's EQuIS Data Processor; and is sends it to the database electronically via the Web. EarthSoft's EQuIS Data Processor is a free data checker that can be downloaded from the EarthSoft website or by using the link below. Specialized software is not required to submit data electronically.
- Does not appear to be open to the public for reviewing
- http://www.tceq.texas.gov/remediation/teds/teds.html

Connecticut

- List of Contaminated or Potentially Contaminated Sites in Connecticut
- http://www.ct.gov/deep/lib/deep/site_clean_up/sites/sites_s-z.pdf
- **name, address, site type, Investigation Started, Remediation Started, Post remedial monitoring started, Remediation Completed**

- **Connecticut also has state superfund list.** This list contains some additional info. Source: http://www.ct.gov/deep/cwp/view.asp?a=2715&q=325020&deepNav_GID=1626

US EPA

- Superfund is the federal government's program to clean up the nation's uncontrolled hazardous waste sites. We're committed to ensuring that remaining National Priorities List hazardous waste sites are cleaned up to protect the environment and the health of all Americans. Source: http://epa.gov/superfund/
- The superfunds work in conjunction with the National Priority List
- Superfund information is archived. But National Priority List info is deleted.
- Searching the superfund: http://cumulis.epa.gov/supercpad/cursites/srchsites.cfm

- Sample listing: http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/ViewByEPAID/cad980358832?OpenDocument
- Gives a National Priority List history, location, contaminated media, pollutant, responsible parties, investigative and clean-up activities, and results
- Sample progress report: http://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0901718
- Gives location, cleanup progress summary, cleanup impact summary, contamination information, cleanup progress
- The Superfund Program is in the process of deploying a new information system, the Superfund Enterprise Management System (SEMS) which is replacing CERCLIS. CERCLIS was frozen as of November 12, 2013. Updated data will become available in early 2014 when SEMS is fully operational.

APPENDIX D – Canadian Jurisdictional Questionnaire

Appendix D – Questionnaire

1. *Do you have a contaminated sites information registry or similar? Either stand alone or as part of another property listing system.*

   Click here to enter text.

2. *If no, do you have plans to develop one? If you are planning a registry, what stage are you at, and what information do you plan to make available?*

   Click here to enter text.

3. *If you have a registry of site condition (separate or otherwise), what information does it contain? (i.e. records of clean up only, all information, file summaries, etc)*

   Click here to enter text.

4. *If you have a registry of site condition (separate or otherwise),* does it keep track of work in progress*?*

   Click here to enter text.

5. *If you have a registry of site condition (separate or otherwise), what information do you make available on request?*

   Click here to enter text.

6. *How does your registry become populated? Is it electronic filing, ministry staff, or other? If other, please explain how?*

   Click here to enter text.

7. *Once information is filed in a registry, is it ever removed?*

   Click here to enter text.

8. *Do you link the information with other property based environmental information, such as real property title information, etc?*

   Click here to enter text.

9. *Does your registry contain information concerning "area wide" impacts, such as contamination that may extend off a source property to adjoining lands, or is it property specific?*

   Click here to enter text.

10. *Are there fees associated with viewing, printing or receiving information? If so, what are the fees?*

    Click here to enter text.

11. *Can you provide us with a website link or additional information as to where we might access this information?*

    Click here to enter text.

12. *Is there anything else you can share with us either from your jurisdiction or from another one where we may obtain additional information?*

    Click here to enter text.

Questionnaire Results (1 of 2)

Province/ Territory	Has A Contaminated Site Registry?	Plans to Develop a Registry?	Comments	Has A Registry of Contaminated Site Condition	Type of Info Stored	Tracks Work Progress?	Type of Info Available Upon Request	Method of Registry Population	Is information removed?	Info Linked w/ Other Property Based Enviro. Info	Info Area wide or property specific	Comments	Fees For Info Access?	Link to Info	Other Contacts
AB	Yes*	/	*Currently contains info for unapproved facilities	Yes	Tracks all info unless protected under FOIP*	Only if submitted to the department	All FOIP unprotected info**	Electronically by mininstry staff***	No	Linked directly to legal land description	Proprty specific, but notes contamination found off property	*Contains a note that additional info is available after approved access (FOIP restrictions). A record of site condition form is being deployed, but currently has limited application to ESAR sites *** A publicly available electronic filing system is in development	No	hhtp://www.esar.alberta.ca/esarmain.aspx	/
BC	Yes	/	/	Yes*	Contains info on all kinds of sites: contaminated, non-contaminated, remediated, cleaned, etc.	Yes	All FOI unprotected info	Electronically by mininstry staff	No	Yes, legal land descriptors, PIDs, etc.	Area wide - sites get "associated"	*Contains all kinds of information on sites including sites that are not contaminated, unkown contamination status, remediated sites	Yes	http://www.env.gov.bc.ca/epd/remediation/site_info/index.htm	"GeoTracker" system employed in California
MN	Manitoba Conservation currently keeps a "Designated Contaminated Sites"/"Designated Impacted Sites" and an "All Sites" Registry that is accessible via the government web page. The registry only provides a file number, name of the operation and the address of the site. This is a stand-alone document and is not part of another property listing. A file search request can be completed and all information related to the site can then be reviewed by the person requesting the information. The person conducting the file search request pays a nominal fee and can photocopy or scan documents relating to the site (Phase I, II, Remediation Reports, etc.).	Manitoba Conservation has recently updated how the information on the registry is viewed. As mentioned above, Manitoba Conservation now has two categories into which sites are now designated. They are "designated contaminated sites", "designated impacted sites". A third list exists where Manitoba Conservation has a file on the site. This list is called the "all sites" list. The above information is reflected on the Manitoba Conservation website.	Registry contains file number, name of operation, address	No	/	/	/	Manitoba Conservation's registry is populated through our EMS database which is completed by Environment Officers. Once Manitoba Conservation has been made aware of a site and it's conditions (through report submittal), the site is entered into the database. The registry that is made available to the public is updated annually and is posted on the website.	No.Typically the information in the "All Sites" registry is never removed. The site may change from list to list but once we receive information it will be designated in one of the categories.	Property title has a "contaminated site" designation.The only time this happens is when the site is designated as a "contaminated site" as defined by the CSRA. The designation is listed on the property title.	Property specific.The registry itself does not contain information concerning area wide impacts and is property specific. The reports from the site investigation may contain this type of information, if applicable.	/	Yes. Currently Manitoba Conservation charges $94.50 to conduct a file search request. This allows the proponent to come view the contents of the file that they requested in the file search. This process is currently under review and may change in the future.	Information on the Contaminated Sites program for Manitoba Conservation can be found at: http://www.gov.mb.ca/conservation/envprograms/contams/index.html	Amendments to the CSRA have been completed and came into force on April 1, 2014. Manitoba Conservation now administers the program out of the Programs and Strategies Branch in Winnipeg. Regional Manitoba Conservation staff still assists in program activities such as site inspections and complaints related to contaminated and impacted sites. Please see link above for new information that will be posted as program delivery changes.
YK	Yes	/	/	/	Records of communication, reports, contaminants of concern, parameters above standard, site description	Yes. The public registry (which is essentially a hard copy registry) is updated by our staff regularly as new information becomes available.	All non confidential info	/	No	Not automatically. If title info is known, then it is added to file	property-specific	/	Only for requesting a copy of the file - viewing/accessing is free	envprot@gov.yk.ca or 867-667-5683	/
QC	Yes	/	/	The registry they have in place keeps track of site condition	Name, address, municipality, nature of contaminants, state of condition, soil quality	Keeps track of state of intervention: "under assessment, assessed, under rehab, rehabed"	Notice of contamination includes: Location of land, name of site owner, municipality of land, summary of assessment study. Land use restrictions also identify clean up plan and works done on the site	Populated by regional offices	No	Yes, the land title will have a notice of contamination and/or notice of land use restriction	Property specific	/	No	/	Ministry Register: http://www.mddefp.gouv.qc.ca/sol/terrains/terrains-contamines/recherche.asp Notices on Land Titles: http://www.mddefp.gouv.qc.ca/sol/terrains/registre_foncier/index.htm
ON	Yes	/	/	yes	Only contain information required for filing for a particular land use type	no, only RSCs filed in accordance with the regulation are currently visible in the registry	All info	Proponents file RSC electronically through the web	No	Certificate of property use (Risk assessments that require risk management measure) are referenced on poperty titles	Property specific	/	No	http://www.ene.gov.on.ca/environment/en/subject/brownfields/STDPROD_075742.html	http://www.ene.gov.on.ca/environment/en/subject/brownfields/STDPROD_087094.html
NT	Yes	/	/	yes	Database current reported state. Hard copy file contains info from creation to present.	No, tracked through hard copy files	The reports are not provided to public (considered private)	Populated by ENR Staff	No	Not currently, but working on it	Yes, in the hard copy files	/	/	Info available upon request Mike Martin, 867-873-7562, Mike_Martin@gov.nt.ca	Report requests must go through land owner

Questionnaire Results (2 of 2)

Province/ Territory	Has A Contaminated Site Registry?	Plans to Develop a Registry?	Comments	Has A Registry of Contaminated Site Condition	Type of Info Stored	Tracks Work Progress?	Type of Info Available Upon Request	Method of Registry Population	Is information removed?	Info Linked w/ Other Property Based Enviro. Info	Info Area wide or property specific	Comments	Fees For Info Access?	Link to Info	Other Contacts
NB	No*	See below	They have a Remediation Sites Management System (internal database)	RSMS	Remediation file info WRT to property impact	yes	Basic summary of propertby based enviro info. (ex. Presence of PCB or petroleum storage tanks, remediation of impacted properties (record of site condition if applicable))	Populated by database admin	No, but the option is being explored	Yes, Petroleum storage tanks, compliance and enforcemnet info, remediation site info, PCB storage, dumpsite info are all linked to the Land Gazzette	Area wide	/	Yes	http://www2.gnb.ca/content/gnb/en/services/services_renderer.2495.html http://laws.gnb.ca/en/showdoc/cr/2002-1	/
NL	Yes (internal)	/	/	Yes	Sites are open or if regulatory closure achieved (conditional/unconditional and the closure date). Also it is listed what Tier it was closed using (I,II or III), if monitor wells have been installed/decommissioned, the CoCs, the site professional, if remediation was conducted.	No, either ongoing or closed. There is space for notes/updates	Info requests get general info - whether there are contaminants, if the site has reached regulatpry closure, registered tanks, certificates of approval. Further info requires official access to info request	Manually entered by dept staff	No	No	Property specific, but notes contamination found off property	/	Yes, for more detailed info	http://www.atipp.gov.nl.ca/ also, See attached fee schedule.	/
PEI	Yes	/	/	Yes	Spill details, date of spill, etc. Also has genereal locator map.	No, in the internal documentation only	Everything on the registry is public, further info requires FOIPP request	Electronic database populated by staff	Yes, once remediated	PID and civic #	property specific unless delineated as area wide	/	No	http://www.gov.pe.ca/Contaminated_sites/ (if you enter PID # 67033 you'll see an example of a "hit" on the registry)	/
NU	Nunavut responded to the questionnaire but details are not provided in this document.	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NS	No	Currently exploring and electronic system of notification, but would need to determine what information can be made publicly accessible	/	No	/	/	/	/	/	/	/	/	/	/	/

APPENDIX E – Workshop Materials

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Atlantic PIRI – Contaminated Sites Registry Workshop

12:30 to 3:15pm, Wednesday, February 19, 2014

Agenda

12:30pm	Introductions & presentation of findings to date, including issues to consider
1:00pm	Small group discussions on scenarios with roles & guiding questions provided
1:45pm	Sharing of outcomes with larger group

Break (10min)

2:10pm Large group discussion on issues from stakeholder perspectives

- Discuss perspectives at high level (5min)
- In pairs, prioritize issues – bubble up & down (15min)
- Review as a group -> can we develop "guiding principles"? (25min)
- Conclusion (5min)

3:00 Recap and next steps

Adjourn

ATTACHMENTS: Initial Summary of Jurisdictional Review
Issues for Consideration
Scenarios for Discussion

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Initial Summary of Jurisdictional Review

A high level review of other jurisdictions' practices to publicly share information on contaminated sites was completed by Atlantic PIRI. The jurisdictional review focused on Canadian provinces and territories, but also included some review of cities and US states. An initial summary and discussion is provided below as a primer for the workshop. This will be augmented in the end report which will be shared after the workshop.

Based on Verterra's initial review of PIRI's research, varied practices were identified in contaminated sites reporting in Canada.

- ***Very transparent***: Five provinces and territories have a high degree of transparency in the completeness of information provided; these are Alberta, British Columbia, Quebec, Prince Edward Island and Yukon. In some cases, there is a fee for access to this information, e.g., British Columbia.

- ***Controlled access***: Two provinces and territories have a more controlled approach to accessing information but still had an available registry of contaminated sites in some form; these are Ontario and Manitoba. The extent and ease of access varies in these examples, e.g., Manitoba provides an online list only of contaminated sites.

- ***Limited or no availability***: The remaining six provinces and territories either have internal registries or similar tracking system (e.g. database) of some nature where public access to information is limited or there is no registry maintained. In both cases, some available information can accessed by Freedom of Information (FOI) as appropriate.

In addition, the federal government publishes information on all known federal contaminated sites. The Federal Contaminated Sites Inventory includes classification of the sites using an enhanced version of Canadian Council of Ministers of the Environment's National Classification System (NCS). Some Canadian jurisdictions have adopted the NCS system, e.g., Nunavut and Saskatchewan.

This initial review of PIRI's research on jurisdictions has identified a few outstanding examples in both Canada and the United States with pioneering ideas regarding registry of site conditions. These are presented for consideration in this initial summary to support the discussions planned at the workshop.

Oregon[1]

Each Environmental Cleanup Site Information Database entry contains basic data such as site name and location. For most sites, information also indicates how and when the site became contaminated, qualitative risks the contamination may pose to human health or the environment, investigative and cleanup actions that have occurred, and prioritized further actions, if any, are required. At many sites, data includes contaminants found in soil, surface water, sediments, and groundwater, with associated concentrations and sampling dates. The past and present site operations, owners/operators, and site contacts are also available.
The online database categorizes current site status; this is generally that this site is under investigation, priority for further action or removed as no further action is required. The amount of data entered for each site varies greatly and depends on the nature of site issues, how long the site has been active in cleanup program, and the priority assigned to the site.

Ontario[2]

The Environmental Site Registry provides a public database with records of site condition and transition notices. A record of site condition (RSC) is a document that summarizes the environmental condition of a property, as certified by a Qualified Person as of a particular date. The information provided publicly is limited to information required for filing for a particular land use type, i.e., as required by legislation. Only Record of Site Conditions filed in accordance with the regulation are currently visible in the registry, i.e., the Ontario Regulation 153/04, Records of Site Condition. This includes a change to a more sensitive land use, e.g., from industrial to agricultural. Based on limited review of the registry, there is much variance in the level of information publicly available; some sites contain much public information while others are quite limited.

Prince Edward Island[3]

PEI's Contaminated Sites Registry search is by PID number only. If records are found, summary information on the status is provided. For additional information, interested persons may apply under the Environmental Records Review Regulations. A site will be entered in the Contaminated Sites Registry where analysis of soil and groundwater on the property indicate it is contaminated in excess of acceptable clean-up criteria or where environmental or human health risk management measures have been implemented for the property. Also closed, decommissioned or inactive solid waste landfills and inactive construction and demolition debris disposal sites are included. Properties where contaminant impacts are in the midst of assessment and/or cleanup, are not included on the registry at this time; however, a site-specific Environmental Records Review may be submitted. The site-specific information is removed from the Contaminated Sites Registry once the property is remediated.

[1] Oregon: http://www.deq.state.or.us/lq/ecsi/ecsi.htm
[2] Ontario: http://www.ene.gov.on.ca/environment/en/subject/brownfields/STDPROD_086237.html#RSC1
[3] PEI: http://www.gov.pe.ca/Contaminated_sites/

verterra group
Environmental Strategies Ltd.

Issues for Consideration

This initial review of practices in other jurisdictions has also identified key issues to consider in the development of a public registry for contaminated sites. A listing of these issues is below. This will be used in the workshop. The preliminary literature review also supported the development of this initial listing.

1. Effect on land valuation
2. Knowledge / capacity of stakeholders
3. Level(s) of information provided
4. Fee required to access level(s) of information
5. Interpretation / classification of contamination in terms of risk
6. Attribute of site condition to area and/or specific properties
7. Trigger for inclusion in the registry
8. Tracking and archiving or deleting information following cleanup
9. Integration with FOIPOP process
10. Ease of information access by user, e.g., search parameters, etc.
11. Resources for governmental staff to create, maintain, and update
12. Liability for jurisdictions maintaining registry

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Scenarios

The Atlantic PIRI members will be divided into four balanced groups by the facilitator. Each group will be assigned one hypothetical case to discuss.

Hypothetical #1:
A family home in suburban Saint John is being prepared for sale by its owner in coming year. A recent heating system inspection determined a leak in the outdoor fuel oil tank.

Hypothetical #2:
A cleanup plan is underway in an area downgradient of a dry cleaning facility in Nova Scotia. The land use is residential and agricultural and there is no municipal water service.

Hypothetical #3:
A Phase I and II Environmental Site Assessment (ESA) have been completed on an old highway depot owned by Newfoundland's Department of Transportation and Works. Remediation and monitoring is recommended.

Hypothetical #4:
An urban site in downtown Charlottetown is being monitoring following decommissioning of a gasoline station. A risk-based management approach has been approved.

Discussion

Each group member will be assigned a role specific to your hypothetical case from the perspectives of:

- Government (provincial, municipal)
- Private individual / organization (landowner, developer, and prospective purchaser)
- Members of the public (neighbours, prospective future buyers).

In your discussions, consider implications of various applications of a publicly accessible registry ranging from very transparent to controlled access to limited or no availability.

The 12 issues provided on prior page will be used in your discussion. Specific discussion questions will be provided to each group which will lead to key issues, but many are common. Your group may find new issues from your discussion – this is also welcome.

There is 45min for small group discussion and then each group will be asked to report their findings (~3 minutes each). Specifically answer the question:

What is the top issue from each stakeholder perspective in your scenario?

Workshop:
Contaminated Sites Registry

ATLANTIC RBCA
RISK BASED CORRECTIVE ACTION

February 19, 2014

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Environmental Strategies Ltd.

Welcome

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Purpose

- Today: We want your insight
- Can we develop “guiding principles” for public contaminated sites registry?
- Outcome will be a report for Deputy Ministers in Atlantic Provinces

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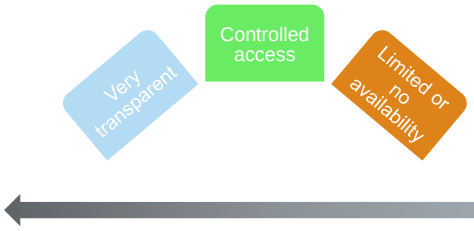
Public contaminated sites reporting



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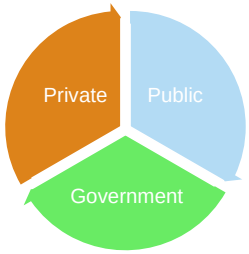
Various perspectives



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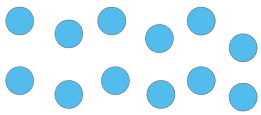
Issues for consideration

1 to 12



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Effect on land valuation

MANITOBA CONTAMINATED / IMPACTED SITES LIST

File No.	Company Name	City/Town/RM	Address
50333	A & J CONSTRUCTION LTD - CS	Winnipeg	401 PANDORA AVENUE
20817	A A A INDPON MOTORS LTD - CS	Winnipeg	64 SALTER ST
19421	A-1 B AUBI ENTERPRISE LTD - ARBORG - CS	Arborg	314 MAIN ST
20606	A M I CAMPBELL VAN LINES - CS	Winnipeg	2190 NOTRE DAME AVE
31705	A W WOOD SCRAP IRON AND METAL COMPANY - CS	Roland	80 PACIFIC AVE
20020	A-1 SEWAGE SERVICE - CS	Winnipeg	1467 DUGALD RD
20139	AACTIVE MOTORS (FORMER) - CS	Winnipeg	CHURCH AVE AT FIFE ST
32408	ABANDONED UNDERGROUND HEATING TANK - ST ADOLPHE	St. Adolphe	429 MAIN ST
49648	ABAS ESSO - CS	Rosser	SW 26-12-02 E
43656	ABLE MOVERS LTD - CS	Winnipeg	21 DAWSON RD
20053	ABM CONCRETE LTD - CS	St. Clements	CORNER OF OLD HENDERSON HWY & HWY 509 E SELKIRK
45166	ABORIGINAL CENTRE CONSTRUCTION COMPANY - CS	Winnipeg	134 HIGGINS AVENUE
39990	AC FILTER BANKS, DORSEY CONVERTER STATION, ROSSER - CS	Rosser	ROSSER, MANITOBA
19403	ACADEMY ROAD SERVICE LTD - CS	Winnipeg	191 ACADEMY RD
42770	ACCURATE FIRE AND SAFETY LTD. - CS	Winnipeg	111 CULZ AVENUE
20320	ACQUITAINE SITE - CS	Churchill	KASKATTAMA RIVER
20529	ACT-X - CS	Winnipeg	1819 PORTAGE AVE
20665	ADA HOLDINGS COMPANY LTD - 1812 KING EDWARD - CS	Winnipeg	1812 KING EDWARD ST
20327	ADMARE GAS BAR (FORMER) - CS	Fort Alexander	RM HOUSE
47722	ADMOT PROMOTIONS	Winnipeg	1985 LOGAN AVE
19668	AERO FOAM LTD - CS	Winnipeg	2485 DAY ST
45630	AGRA FOUNDATIONS - CS	Winnipeg	2233 MCGILLIVRAY BLVD.
19380	AGRICORE - BASSWOOD - CS	Beausejour	RAILWAY AVE
19621	AGRICORE - GLADSTONE - CS	Gladstone	72 CHURCH ST
19623	AGRICORE CO-OP - GRETNA - CS	Gretna	SE 05-05-05 W
19642	AGRICORE UNITED GRAIN, PLANT, ELEVATOR - CS	North Norfolk	SE 33-13-13 W

Knowledge & capacity of stakeholders

Folder name Record number	Address Latitude Longitude	NRC	Nature of contaminants		State Rehabilitation (R) and quality of residual soils after rehabilitation (Q)
			Water underground	Ground	
0021 National Capital					
National Bank of Canada	340 1st Avenue West Portneuf 46.680916 -71.892031	Portneuf		Petroleum hydrocarbons C10 to C50	R: Completed in 1998 Q: >= B
J. Dominicani inc.	201 Bishop Street Notre-Dame-de-Portneuf 46.7170038467 -71.8601366225	Portneuf		Copper (Cu), Petroleum Hydrocarbons C10 to C50, Zinc (Zn)	A: Incomplete
The school Riverene	205, rue Saint-Louis Portneuf 46.69128233333 -71.88675	Portneuf		Petroleum hydrocarbons C10 to C50	R: Completed in 2000 Q: Beach BC
Ecole Ste-Anne	1585, avenue Germain Notre-Dame-de-Portneuf 46.711428678 -71.8860783899	Portneuf		Petroleum products *	R: Completed in 1993 Q: Beach AB
Virginie Eugene	790, rue Notre-Dame Langlois-de-Portneuf 46.71244444444 -71.8809166667	Portneuf		Petroleum hydrocarbons C10 to C50	R: Completed in 1992 Q: Not specified
Audio Québec (station Portneuf)	239 Bishop Street Notre-Dame-de-Portneuf 46.7186111111 -71.8999722222	Portneuf		Polychlorinated biphenyls (PCBs), petroleum hydrocarbons C10 to C50	R: Completed in 1993 Q: Not specified
Company 1, Ford Ltd.	2250, rue du Moulin Portneuf 46.7270694444 -71.8784111111	Portneuf	Benzene, Ethylbenzene, Petroleum Hydrocarbons C10 to C50, Toluene, Xylenes (o, m, p)	Benzene, Ethylbenzene, Oil Products N.A. * Toluene, Xylenes (o, m, p)	R: Completed in 2000 Q: > C
Michel Lavallée (owner), Robert Picard (operator)	90 arthur St Notre-Dame-de-Portneuf 46.7277777778 -71.8918111111	Portneuf		Petroleum hydrocarbons C10 to C50	R: Completed in 1991 Q: Not specified

Level(s) of information provided

Final RSC Property Profile - Site Condition Standards

Soil

Contaminant Name	Maximum Concentration	Applicable Standard	Unit of Measure
ACENAPHTHENE	<	0.08	0.07	mg/g
ACENAPHTHYLENE	<	0.02	0.08	mg/g
ANTHRACENE	<	0.02	0.08	mg/g
ANTIMONY	<	0.8	1	mg/g
ARSENIC		8	17	mg/g
BARIUM		177	210	mg/g
BENZENE		0.002	0.002	mg/g
BENZO(A)ANTHRACENE	<	0.02	0.74	mg/g
BENZO(A)PYRENE	<	0.01	0.69	mg/g
BENZO(B)FLUORANTHENE	<	0.02	0.67	mg/g
BENZO(G,H,I)PERYLENE	<	0.01	0.69	mg/g
BENZO(K)FLUORANTHENE	<	0.02	0.48	mg/g
BERYLLIUM		1.2	1.2	mg/g
BROMOFORM	<	0.002	0.002	mg/g
BROMOMETHANE	<	0.002	0.005	mg/g
CADMIUM	<	0.8	1	mg/g
CARBON TETRACHLORIDE	<	0.002	0.002	mg/g
CHLOROBENZENE	<	0.002	0.002	mg/g
CHLOROFORM	<	0.002	0.008	mg/g
CHROMIUM (TOTAL)		26	75	mg/g

Fee required to access

Interpretation / classification in terms of risk

DESCRIPTION OF TERMS USED IN ECSI "SITE STATUS" COLUMN

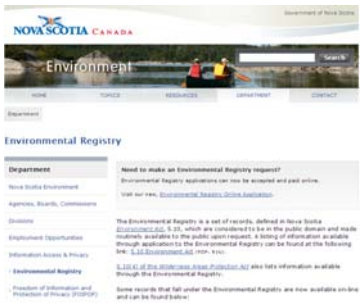
TERM	DESCRIPTION
SITE EVALUATION; SITE PRIORITY EVALUATION FOR FURTHER ACTION; Site Screening recommended (SVS); Options Letter For Further Action Sent	A *Site Screening*, also referred to as a *Site Evaluation*, is a cursory review of facility information to determine the priority for further action. This is not the same thing as a Site Inspection or *Site Investigation*. *Site Screening recommended* means that DEQ has not yet reviewed the site. *Options Letter For Further Action Sent* means that DEQ has completed an evaluation and notified site owners of their remedial options - which depend on site issues and DEQ priority assignment.
BASIC PRELIMINARY ASSESSMENT; Federal Preliminary Assessment recommended; PRELIMINARY ASSESSMENT EQUIVALENT; Preliminary Assessment Equivalent recommended (PAE); State Basic Preliminary Assessment recommended (PA); TARGETED BROWNFIELD ASSESSMENT	A *Basic Preliminary Assessment*, or PA, details site history, evaluates known or potential site contamination, and describes how contamination might affect human or environmental receptors. State and Federal PAs are similar. A *Preliminary Assessment Equivalent* (PAE) refers to one or more documents - not in typical PA format - that contain the information found in a PA. PAs normally include no sampling. A *Targeted Brownfield Assessment* (TBA) has the content of a PA or PAE, also includes sampling, and discusses environmental conditions that could affect proposed site redevelopment.
EXPANDED PRELIMINARY ASSESSMENT; State Expanded Preliminary Assessment recommended (XPA)	An *Expanded Preliminary Assessment*, or XPA, adds limited sampling to sites where a PA or PAE has been completed. An XPA is a "PA with sampling."
Federal Site Inspection recommended	A *Federal Site Inspection* is an in-depth sampling effort that usually occurs after a Federal PA. It is designed to determine if a site qualifies for EPA's Superfund program (i.e., National Priorities List). However, sampling is not as comprehensive as in a *Remedial Investigation*.
SITE INVESTIGATION; Site Investigation recommended (SI)	DEQ typically conducts a *Site Investigation* when environmental issues are straightforward, and a comprehensive *Remedial Investigation* may not be

Attribute of site condition to area and/or specific properties

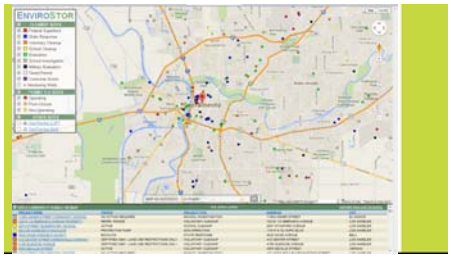
Trigger for inclusion in registry

Tracking and archiving / deleting information

Integration with FOIPOP



Ease of information access by user



Resources for gov't staff to create, maintain, update

Liability for jurisdictions

Now it is your turn…

Scenarios - roles

1: Residence in suburban Saint John

- Tania Noble; Bill Simpkins; Danny Stymiest

2: Area-wide contamination in rural Nova Scotia

- Normand Benoit; Ulysses Klee; Dan Hemsworth; Michel Poirier

3: Highway depot in rural Newfoundland

- George Vincent; Jeff Earle; Susan Barfoot; Paul Currie

4: Decommissioning a site in downtown Charlottetown

- Jessica Dillabough; Kathleen Riecken; Barry Jackson Roger Poirier

Scenarios – key questions

- Guiding questions provided to stimulate discussion - *outside box thinking encouraged!*
- Report back: *What is the top issue from each stakeholder perspective in your scenario?*

Atlantic PIRI - Publicly Accessible Information on Contaminated Sites

Prioritization of Issues for Consideration

Outcome of Workshop - Ranking of Issues (Bubble up and bubble down)

	Ranking in pairs during workshop						Average	Min	Max	Mode
	A	B	C	D	E	F				
	1-4	1-8	1-8	1-6	1-3	1-12				
Effect on land valuation	5	8	3	6	4	2	4.7	2	8	#N/A
Knowledge / capacity of stakeholders	5	1	6	5	7	5	4.8	1	7	5
Level(s) of information provided	7	2	3	4	1	4	3.5	1	7	4
Fee required to access level(s) of information	3	8	4	6	4	12	6.2	3	12	4
Interpretation / classification of contamination in terms of risk	7	3	2	6	4	9	5.2	2	9	#N/A
Attribute of site condition to area and/or specific properties	7	4	5	6	4	3	4.8	3	7	4
Trigger for inclusion in the registry	1	7	1	3	1	1	2.3	1	7	1
Tracking and archiving or deleting information following cleanup	7	4	8	6	1	10	6.0	1	10	#N/A
Integration with FOIPOP process	7	8	3	6	7	11	7.0	3	11	7
Ease of information access by user, e.g., search parameters, etc.	7	6	7	6	7	7	6.7	6	7	7
Resources for governmental staff to create, maintain, and update	7	4	1	2	4	6	4.0	1	7	4
Liability for jurisdictions maintaining registry	7	5	1	1	7	8	4.8	1	8	7
Human Health (added)			2							
Timeliness of registry updates (added)					1					
Tie to title (added)					1					