



Atlantic PIRI in 2012:

Perspectives on 15 Years of Atlantic RBCA



Atlantic PIRI Annual Report 2012

May 2013

Executive Summary

Atlantic PIRI reached a milestone in 2012, celebrating 15 years of successful utilization of the Atlantic RBCA software and toolkit. This Report highlights the achievements of 2012, within the perspective of the work that went before. When the small group of people who were to become Atlantic PIRI first sat down together in 1996 to consider a different way of managing petroleum contaminated sites, their purpose was to find a way to be more efficient and effective in protecting human health and the environment in Atlantic Canada. All 4 Atlantic Provinces signed a Memorandum of Understanding establishing Atlantic PIRI's mandate to develop the philosophical approach known as Atlantic RBCA.

From the beginning, Atlantic PIRI has been guided by four core values: Science-based decision-making; Continuous improvement; Collaboration between stakeholders; and regional Harmonization with national standards. In 2012, Atlantic PIRI achieved unprecedented success in all four areas:

Science-based decision-making: In 2012, Atlantic PIRI broke new ground with the development, use, testing and release of completely new science around petroleum hydrocarbon toxicity in sediments. This work was accomplished by a dedicated Ecological Screening Task Group, led by Atlantic PIRI and including top scientists and researchers. The sediment toxicology criteria form the basis of a sophisticated new ecological screening referred to as "EcoRBCA".

Continuous Improvement: In parallel with EcoRBCA, Atlantic PIRI members completed the development and release of a new version of the Atlantic RBCA software tool (v3) and User Guidance that is harmonized with the 2008 CCME Canada-Wide Standards for Petroleum Hydrocarbons (CWS PHC). It includes a well-bore dilution factor, an adjustment factor and adds agricultural and industrial land uses to the look-up tables. Atlantic RBCA online training was also updated.

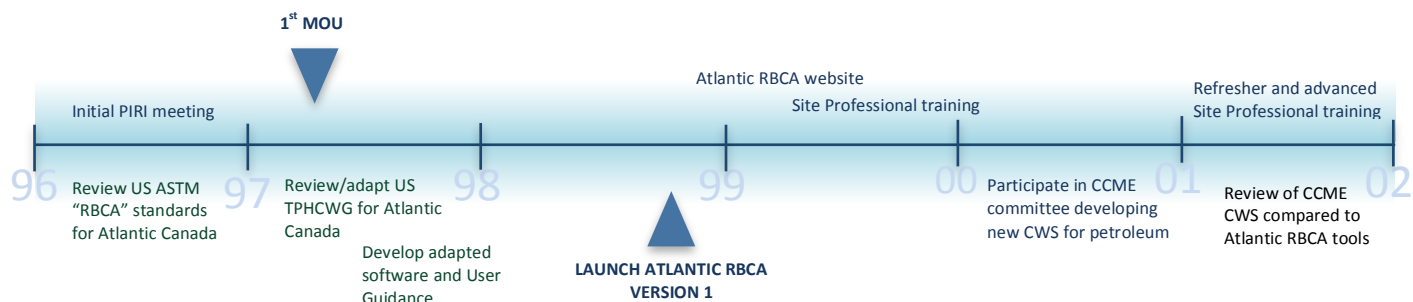
Collaboration: Atlantic PIRI's success stems from the exceptional dedication of its members. These numbered seventeen in 2012, representing 5 government departments, 6 industry companies and 3 environmental consultants. Four of these were new members. Atlantic PIRI met monthly, by teleconference or face-to-face, and members also participated in issue-focused working groups.

Harmonization: In addition to the release of version 3 in 2012, (which meets Atlantic PIRI's commitment to meeting or exceeding Canada Wide Standards), the group developed a set of Harmonization Principles that establish a basis for collaborative input and advice to facilitate partial- or fully-harmonized, regional approaches.

Atlantic RBCA exists to make the cleanup of contaminated sites more effective. In 2012, its use resulted in the clean-up and closing of files on almost 400 petroleum contaminated sites in Atlantic Canada. In the coming year, Atlantic PIRI intends to

- Focus on key areas for regional management harmonization
- Start work on testing surface water ecological toxicity
- Conduct a benefit analysis of Atlantic RBCA
- Release online training for Ecological Screening Protocol

ATLANTIC PIRI TIMELINE: 1996 - 2002



Implementation

Atlantic PIRI is a multi-stakeholder forum for collaboration and harmonization in the development of both technical and management tools for petroleum contaminated sites in Atlantic Canada. As the technical tool evolves, through harmonization with the 2008 CWS PHC and through increasing scientific sophistication, both property owners and regulators benefit from increased confidence that remediated sites no longer present an unacceptable risk to human health or the environment.

The Regulator members of Atlantic PIRI have made the reporting and approvals process more efficient, and clarified areas where regulators in each jurisdiction exercise discretion to meet the requirements of each unique legislative framework. Since its launch, the Atlantic RBCA toolkit has been used to clean-up and close files on over 6,000 petroleum impacted sites, with almost 400 files closed in 2012.

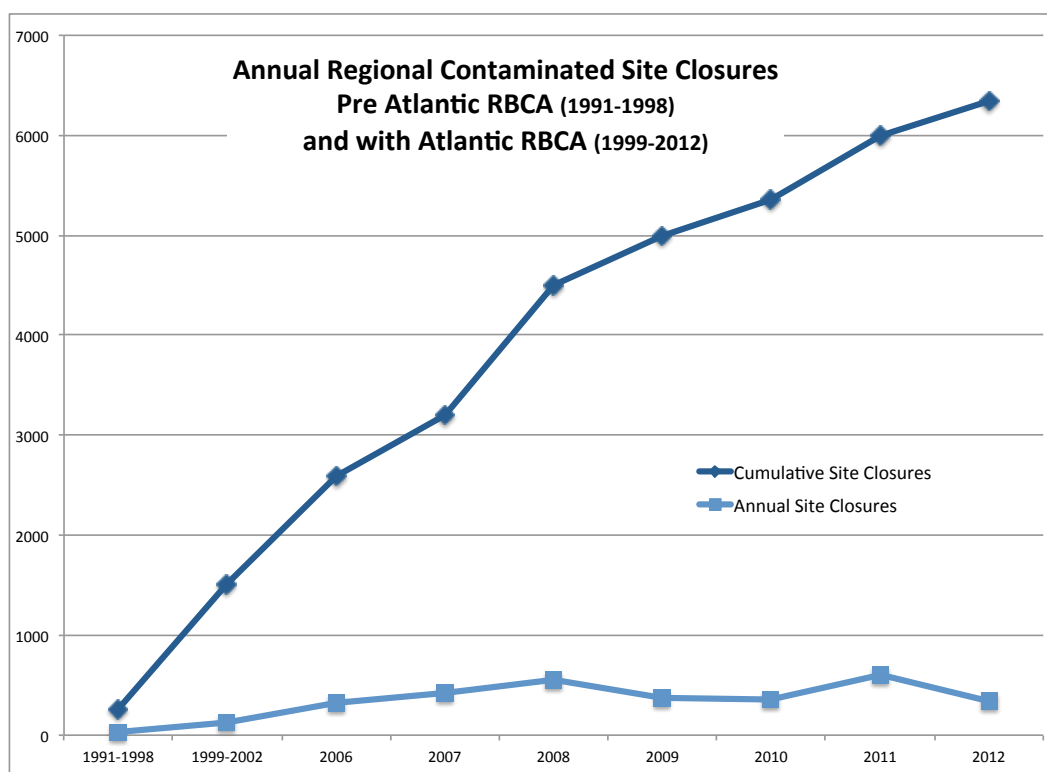


Figure 1. Under Atlantic RBCA, implemented in 1999, more sites are remediated each year, more efficiently.

Perspective on Regional Consistency *Atlantic RBCA's regional scope has created a level playing field for petroleum contaminated site management. Regulators across the region have adopted the same standards and principles, and areas of regulatory discretion are well understood and clearly defined. This is a dramatic contrast to pre-RBCA, when each Province had its own generic standards and sometimes relied on subjective evaluations of the smell, look and feel of a soil sample to decide if a site was sufficiently clean. Just as important, prior to Atlantic RBCA, it was not unusual for files to remain open for many years. In the 15 years since Atlantic RBCA was implemented, more sites are remediated to risk based levels each year, more efficiently.*

Perspective on Effective Site Closures *Prior to 1999, without science-based guidelines for remediation, owners of petroleum contaminated sites faced significant uncertainties. Cleanup required in-depth site investigation, expensive "dig-and-dump" remediation, and lengthy report evaluation by regulators. With Atlantic RBCA, owners know what standards the remediation has to meet, and they can expect the timeframe to site closure be measured in months instead of years. They can find the right remediation approach for their property and get the land back into productive use faster; and regulators can close many more files in a year.*

Atlantic RBCA version 3

Atlantic RBCA is a management approach built upon PIRI, the Atlantic RBCA software, and supporting tools, such as the User Guidance documentation. Atlantic PIRI is committed to continuous improvement of Atlantic RBCA. With the 2012 release and implementation of version 3, the software was updated to harmonize with the 2008 CWS PHC. This included updated Tier I Risk-Based Screening Level and Tier II Pathway-Specific Screening Level look up tables, as well as new User Guidance.

Atlantic PIRI augmented the release of version 3 of the software with several new or updated tools:

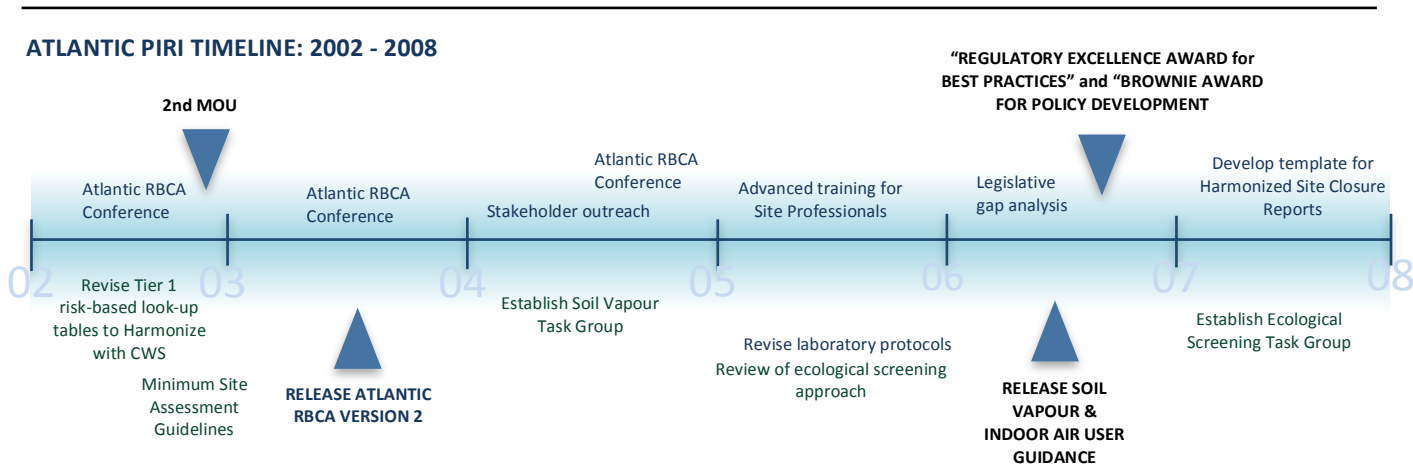
- updated minimum site assessment requirements in a Best Management Practices guide
- updated Atlantic RBCA Ecological Receptor Screening Protocol
- new Tier I Ecological Screening Levels for soil, sediments, groundwater and surface water;
- a new, regionally-harmonized, Site Closure Checklist
- a regionally-harmonized list of areas where regulatory discretion is exercised

Following release of version 3, a series of information sessions were held across the region for both technical and general audiences. About 110 people attended the general information sessions, and about 175 site professionals and other interested stakeholders attended technical information sessions.

Perspective on Adapting and Updating *From the beginning, the Atlantic RBCA version 1 software was conceived as an adaptation of the US-developed software, incorporating Canadian toxicology data and reflecting land uses and geophysical conditions in Atlantic Canada. With its launch, members of Atlantic PIRI turned its focus to the needs of both technical and implementing users. Through this exposure, they gained extensive knowledge of petroleum contaminated site management issues in the region, with a deep interest in the potential of the tool they had launched. So, when the CCME began its process to look at standards for PHC in soil, Atlantic PIRI members rose to the challenge by undertaking a detailed review of the Atlantic RBCA software tool.*

Atlantic RBCA v2, released in 2003, not only harmonized with the 2001 CWS-PHC, it added pathway-specific screening levels and in 2006, guidance on soil vapour and indoor air assessments. With version 3, Atlantic PIRI continues to ride ahead of the wave, not only harmonizing with the 2008 CCME CWS-PHC, but adding new science and adapting Canadian standards for the protection of ecological receptors from exposure to petroleum hydrocarbons in soil, sediments, groundwater and surface water.

In addition to the release of version 3 of the software tool and associated User Guidance, the Regulator Co-Chair participated in the CCME Soil Quality Guidelines Task Group, and Atlantic PIRI submitted written comments to the public review of a new protocol relating to soil vapours, (an issue Atlantic PIRI addressed in 2006 for petroleum hydrocarbons) and the public review of a protocol for groundwater quality guidelines.



A New Tool: EcoRBCA

Freshwater and marine ecosystems are critically important in Atlantic Canada, contributing nursery areas, habitat and food supply for valuable fisheries that support communities across the region, agricultural plants and animals, and the extensive networks of wildlife in the fields and forests, rivers, shores and seas that are the outstanding natural spaces for which the region is acclaimed.

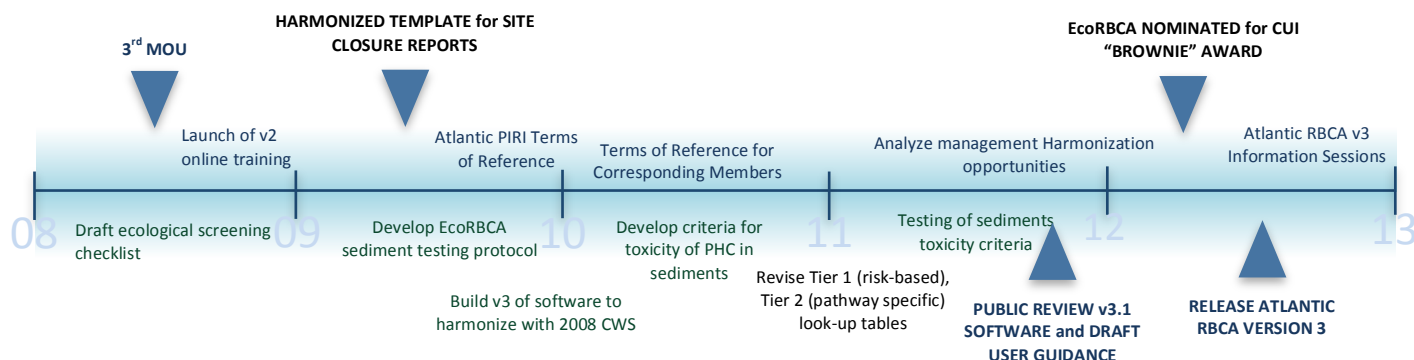
EcoRBCA provides standards for the protection of non-human organisms exposed to PHC in soil, sediment, surface and groundwater. The EcoRBCA Task Group reviewed Canadian and international approaches for assessing ecological risks to organisms exposed directly and indirectly to contamination. For the first time, with the assessment of ecological risks associated with PHC in aquatic sediments, Atlantic PIRI was a catalyst for the development of new tests and toxicology standards.

Perspective on Relevance *Environment Canada, with its mandate to develop new science, was able to leverage its participation in Atlantic PIRI to engage leading scientists in the development of the ecological risk-based screening levels that are the basis of EcoRBCA. The work took place over 6 years:*

- 2007: Terms of Reference for an Ecological Screening Task Group, led by Atlantic PIRI’s Environment Canada representative, and recruitment of expertise in ecological risk assessment
- 2008: Draft ecological screening checklist for soil, sediments, surface and groundwater
- 2009: Development of an ecological sediment testing protocol
- 2010: Establishment of toxicity criteria for petroleum hydrocarbon in sediments
- 2011: Testing of the sediment toxicity criteria with invertebrate receptors
- 2012: Public review of Draft Ecological Receptor Screening Guidance and release as part of Atlantic RBCA version 3

Within the first 6 months of implementation, industry users were providing positive feedback on the EcoRBCA approach to evaluating ecological receptors

ATLANTIC PIRI TIMELINE: 2008 - 2012



Harmonization

For Atlantic PIRI, harmonization within the region is as important as meeting or exceeding national standards. The Atlantic PIRI forum enables regulators, industry and consultants to work together to identify barriers and bottlenecks that arise because of jurisdictional processes. Atlantic PIRI enables the different jurisdictions to agree on harmonized approaches, while policy requirements can be upheld through regulatory discretion. In 2012, this exercise resulted in a statement of Harmonization Principles that identify effective, feasible ways to respond to harmonization opportunities.

Perspective on Regional Effectiveness *Prior to the formation of Atlantic PIRI, there was no consistent venue for regulators to share their experiences and expertise. With each Province addressing similar issues independently, there was disparity in process that was inefficient, frustrating for companies working across the region, and difficult to defend. Atlantic PIRI has enabled all four jurisdictions to share intellectual resources, making all of them more effective and enabling them to bring forward processes more responsive to people's needs, without limiting or compromising jurisdictional authority.*

In addition to Atlantic RBCA technical toolkit, the harmonized processes that have come out of Atlantic PIRI include:

- *harmonized petroleum contaminated site management documentation*
- *a draft framework for contaminated site legislation*
- *harmonized Site Closure Report checklist*
- *Atlantic RBCA online training*

Atlantic PIRI stays abreast of petroleum contaminated site and brownfield initiatives across the country, through regular review and updates on provincial regulations. As recognized leaders in petroleum contaminated site management, Atlantic PIRI supports, when requested, each of the participating provinces in the development of regulatory processes. In 2012, this support contributed to Nova Scotia's release of Contaminated Sites Remediation regulations, and included discussion of New Brunswick's Contaminated Sites Remediation Program. In 2012, for the first time, the co-Chairs of Atlantic PIRI took this support further, by meeting with each of the Atlantic Environment Deputy Ministers. Their discussions enabled the co-Chairs to gather insight on jurisdictional directions, gauge the value of Atlantic PIRI to each Province, and to exchange ideas with each Deputy Minister about future direction and collaboration opportunities related to petroleum contaminated sites management and brownfield redevelopment.

Stakeholder Outreach

An important aspect of stakeholder outreach is engagement of individuals in technical and non-technical sectors (such as insurance, academia, and manufacturing) in its work, as "Corresponding Members" of Atlantic PIRI. The insights of these subject matter experts are provided through review of draft documents developed by Atlantic PIRI Working Groups and Task Groups. Their input strengthens Atlantic RBCA, and helps to build a base of support and understanding among people and organizations who are affected by, or who can influence implementation of, risk-based remediation.

Engaging in discussions with specific stakeholders and stakeholder groups, bringing in experts to address specific topics, archiving a library of relevant documents, providing training for users of Atlantic RBCA and making presentations to regional and national conferences are all part of Atlantic PIRI's outreach activities. In 2012, this included information sessions about Atlantic RBCA v3 held in three provinces, and development of content to update the online training for version 3. Members of Atlantic PIRI made presentations to the Real Property Institute of Canada's *Federal Contaminated Sites Workshop*, the Canadian Land Reclamation Association's *Atlantic Reclamation* conference, the Canadian Urban Institute's *Canadian Brownfields* conference and CCME's Soil Quality Guidelines Task Group annual face-to-face meeting.

The Atlantic RBCA website continues to be a valuable resource for users of Atlantic RBCA across the region, with 534 subscribers and almost 5,000 site visits over the year – with 58% of these occurring the three month after release of version 3. The new User Guidance documentation has been viewed >1000 times.

Atlantic PIRI Members – 2012

Its process and its success have made Atlantic PIRI the region's pre-eminent process for cross-jurisdictional, multi-stakeholder collaboration, recognized by awards from the Canadian Urban Institute and the Community of Federal Regulators. But above all, it is the people of Atlantic PIRI who are the authors of its success.

Those who participated as members of Atlantic PIRI in 2012 are:

Susan Barfoot, Newfoundland and Labrador
Normand Benoit, Suncor
Paul Currie, Nova Scotia
John Czechowski, Shell Canada
Jeff Earle, Dillon Consulting
Dan Hemsforth, Nova Scotia
Martine Hirou, Shell Canada
Barry Jackson, Prince Edward Island
Ulysses Klee, Stantec Consulting

Rita Mroz, Environment Canada
Tania Noble, Stantec Consulting
Michelle Paul-Elias, Cobalt Properties
Michel Poirier (Co-Chair), New Brunswick
Roger Poirier, Conestoga Rovers & Associates
Jean-Sébastien Pomares, Ultramar
Bill Simpkins (Co-Chair), Canadian Fuels Association
George Vincent, Imperial Oil

In 2012, seven new Corresponding Members were added to the two who engaged in 2011 to bring their expertise to specific projects of Atlantic PIRI. Atlantic PIRI was supported in its work in 2012 with coordination by Mary-Louise Rossiter, Atlantic Resources Company Inc. and graphic design and website management by Joe Oliver, Inspiration Design.

Perspective on Personal Commitment

Over the years, more than 50 people from government departments, petroleum industry companies and regional environmental consulting companies have participated in Atlantic PIRI. Adding to their regular responsibilities, Atlantic PIRI members participate in face-to-face meetings, regular conference calls, and Working Groups to address the challenging issues of petroleum contaminated sites. The work is intensely focused, and demanding, based on a high degree of contact between peers from different companies and industries. Many members contribute to Atlantic PIRI for 5 years or more, rating their Atlantic PIRI experience as a highlight of their careers.

In 2012, Atlantic PIRI recognized the outstanding value of the contribution of its members by inviting all current and former members to a recognition event during its regular fall face-to-face meeting.

Atlantic PIRI Priorities for 2013

Continuous Improvement

- Surface water ecological toxicity testing
- User Guidance for chlorinated solvents
- Additional User Guidance for petroleum hydrocarbon fractionation defaults
- Review of applicability of four- Phase Model / Raoult's Law
- Scope of work for the Soil Vapour and Indoor Air Assessment guidance documentation

Harmonization

- Continue development of Harmonization Principles related to petroleum contaminated sites and brownfields
- Report on economic, social and environmental values delivered through the implementation of Atlantic RBCA
- Monitor new and emerging sustainable remediation approaches
- Regular review and updates on Provincial contaminated site and brownfield regulations or guidelines.

Stakeholder Outreach

- Implement online training for version 3, including a marketing strategy
- Survey subscribers and update the Atlantic RBCA website
- Coordination of Atlantic PIRI meetings and communications
- Coordination of Corresponding Member participation

Resources

Atlantic RBCA website : www.atlanticrbca.com

Contact Atlantic PIRI: info@atlanticrbca.com

Atlantic RBCA online training : www.rbcatraining.com