



**Tuesday, April 26, 2016**  
**Stream 1B - International Regulatory Frameworks**  
**Location: Level 3, Salons 6&7**

**1:30 pm – 1:50 pm**

**Atlantic PIRI “The Atlantic RBCA Approach”**  
*Michel Poirier, Atlantic PIRI*

**The objective of the presentation is to showcase a successful regional collaboration model between provincial regulators and industry stakeholders who develop workable guidelines and science-based analytical tools for site-specific and sustainable remediation approaches of petroleum hydrocarbon impacted sites and brownfields in Atlantic Canada.**

**Abstract**

Since 1997, the Atlantic Partnership in RBCA Implementation (PIRI) has had a mandate to establish risk based corrective action (RBCA) as the approach used to manage petroleum hydrocarbon impacted sites in Atlantic Canada. Atlantic PIRI works by bringing together Atlantic Provincial regulators and regional stakeholders in a collaborative approach to developing workable guidelines and science-based analytical tools. Atlantic RBCA is a process to help ensure the consistent and cost effective assessment and remediation of petroleum hydrocarbon impacted sites in the region. Affected properties are remediated and managed based on scientifically based principles and in relation to actual risks posed to human health and the environment.

Atlantic PIRI’s vision is to improve impacted site management and brownfield remediation in Atlantic Canada by: enhancing the Atlantic RBCA process and regulatory programs and ensure they are effective in serving the needs of Atlantic Canadians; delivering upon the objectives of the Memorandum of Understanding using our core strengths and areas of expertise, which are principally related to scientific and technical fields, and related legislative issues with respect to impacted sites management; and, engaging stakeholders and promoting site-specific and sustainable remediation approaches in the region with the goal to be sought by jurisdictions and stakeholders outside of Atlantic Canada for the demonstrated thought leadership of Atlantic PIRI.

Embedded in its strategic plan is a “sustainable remediation approaches” key performance indicator. The partnership continues to explore metrics for measuring sustainable remediation approaches in the Atlantic region which may include: incorporation of sustainability principles and tools into Atlantic RBCA approach (use of best management practices, qualitative ranking processes and quantitative analysis) and monitoring sustainable remediation approaches throughout the region (percentage of traditional vs. sustainable remediation approaches).

In recent years, Atlantic PIRI reached some notable milestones as the partnership continues to be guided by four core values: science-based decision-making; continuous improvement; collaboration between stakeholders; and, regional harmonization. Atlantic PIRI was successful in all four areas. The Atlantic RBCA toolkit has been successfully used to assess or remediate petroleum impacted sites and facilitate regulatory file closures for over 6,700 sites in Atlantic Canada since 1997, readying a number of them for potential brownfield redevelopment opportunities. The toolkit was updated to support development efforts to produce additional technical user guidance for other common site contaminants and for vapour screening levels. The forum also enables provincial jurisdictions to agree on harmonized guiding principles and approaches, while policy requirements can be underpinned through regulatory discretion. Guided by these principles for recommending a more cohesive approach for our region, Atlantic PIRI completed with the assistance of a consultant, an analysis of publicly accessible information on impacted sites. By providing web-based training of the Introduction to Atlantic RBCA training course and Ecological Screening Protocol for Petroleum Impacted Sites module, stakeholders can acquire knowledge of the basic principles and concepts of Atlantic RBCA. A website [www.atlanticrbca.com](http://www.atlanticrbca.com) is maintained and updated on a regular basis by Atlantic PIRI and provides new contaminated site information released by Atlantic Provincial regulators.



2:00 pm – 2:20 pm

**Common Ground for Sustainable Remediation in the European Union Based on Industrial Emissions Directive**  
*Joerg Frauenstein, UBA*

**The objective of the presentation is to discuss sustainable remediation within the European Union in the light of the Industrial Emissions Directive.**

**Abstract**

Activities of industrial and commercial installations might cause serious pollution in soil and groundwater. Due to the experiences with historic contaminated sites it is obvious how complex and expensive remediation measures are. Therefore, remediation requirements have to be reduced seriously by the strict implementation of precautionary principles for any installations, which are still in operation. With the application of Best Available Techniques References (BREF) the standard of technical installations is increasing. As long as the installation will be operated in line with existing regulations, the occurrences of soil and groundwater pollution are barred. However, the avoidance of any contamination seems to be a much more sustainable approach than any sustainable remediation. The Industrial Emissions Directive (IED) took up this approach and considered this by introducing two new elements.

First a baseline report is required. The report should preserve evidence and should provide reference for a possible obligation to return the site to the baseline situation. The operator of an installation in which relevant hazardous substances are used, produced or released must submit a baseline report together with the permit application documents, whenever relevant hazardous substances are present. Those documents have to compile all relevant data on the substances used, produced or released. With the definite final cessation of an installation, the competent authorities are obliged to compare the status described in the baseline report with the current situation of the site.

Secondly, the competent authority has to decide about further obligations for the operator and whether to return the site back to the baseline situation. In case of a significant increase of pollution the operator has to fulfill this duty by technical interventions. However technical feasibility of such measures may be taken into account.

The IED does not give further advice or guidance to member states, how to implement regulations especially related to the significance of pollution and their remediation requirements. An interdisciplinary working group was initiated in Germany in order to develop guidance documents for the baseline report and the decision process in line with Article 24 IED.

The presentation will focus first on experiences and challenges concerning the practical implementation of the baseline report procedure in Germany. A new concept will also be presented relating to how authorities should assess the significant increase of pollution and about the criteria and requirements to return the site to the baseline situation.

There are also highly demanding challenges relating to the re-use of former industrial sites with historic contamination. In the German legal system this is achieved by the parallel application of soil protection and pollution control laws. The different requirements for sustainable remediation under these different laws play a prominent role. The various legal and technical issues will be discussed, and initial solutions will be outlined.

The establishment of practical and legally admissible criteria are important for the practical implementation. They will provide an essential step towards a more sustainable use of industrial and commercial sites and for the prevention and mitigation of new contaminated sites.



2:30 pm – 2:50 pm

### **Sustainability Assessment Tool of Soil Remediation and Redevelopment Projects**

*Peter Van den bossche<sup>1</sup>, Johan Ceenaeme<sup>2</sup>, Maarten Schäffner<sup>1</sup>, Griet Van Gestel<sup>2</sup>*

<sup>1</sup>Witteveen+Bos

<sup>2</sup>OVAM – Public Waste Agency of Flanders

**The objective of the presentation is to demonstrate an assessment tool used to evaluate and quantify the sustainability of projects regarding land development, soil remediation and land use.**

#### **Abstract**

The Public Waste Agency of Flanders (OVAM) aims to make soil remediation in Flanders greener and more sustainable. In order to evaluate and quantify the sustainability of projects when looking at land development, soil remediation and land use, an assessment tool was developed. This tool combines development alternatives with remediation options in order to evaluate their sustainability. In addition, sustainability of a selected remediation strategy can be optimized using this tool.

The assessment tool contains approximately 30 criteria grouped into five themes: economic costs and benefits; society and social aspects; sustainable soil management; environment and climate; and, ecology and biodiversity. The criteria and themes were selected based on Witteveen+Bos experience relating to sustainability, stakeholder management and international criteria, e.g. SuRF and NICOLE Roadmap. The tool was further optimized through case study implementation. During development of the assessment tool, the relevant stakeholders on soil remediation and development in Flanders were engaged via bilateral conversations, workshops and conferences.

The tool was developed for use by soil remediation experts, contractors, project developers, the OVAM and other governments. The instrument can be used in a flexible way and on a voluntary basis to evaluate the sustainability of projects regarding land development, soil remediation and land use. Furthermore, the instrument is applicable in a general way but can also handle project-specific aspects of sustainability.

The instrument can also be applied to different phases of soil remediation and development: from the investigation and design stages to the execution and evaluation phase. The ambition level of the project is determined at the start in a well-motivated and transparent way using stakeholder involvement. Several phases of the project are then evaluated and the criteria are scored based on phase-specific themes and criteria.

3:30 pm – 3:50 pm

### **Increased Reuse of Soil Arisings – A Sustainable Approach**

*Nicola Harries, CL:AIRE*

**The objective of the presentation is to provide an overview of the Definition of Waste: Development Industry Code of Practice and share three case studies demonstrating the wide sustainability benefits it has brought to the development industry.**

#### **Abstract**

Launched back in September 2008, and revised in March 2011, the Definition of Waste: Development Industry Code of Practice (DoWCoP) is a voluntary approach to materials re-use which offers significant sustainability benefits. The DoWCoP was developed in partnership with the environmental regulator – Environment Agency, development industry and land contamination industry. It sets out a more flexible, easier to use, cheaper and quicker alternative to standard waste permitting. A wide range of organisations have benefitted from its use, principally those involved in the design and management of site-excavated materials such as developers and construction firms. Working to the DoWCoP has become an indicator for some organisations to demonstrate their commitment to sustainable development and recognised within their corporate social responsibility policies and performance reporting.

Applying in England and Wales the Code of Practice covers a range of excavated materials, irrespective of whether contaminated or not, and provides a cost effective alternative to dig and dump.

Four key factors must be met when using the Code of Practice; ensuring the waste legislation is not undermined. These include proving materials are suitable for their intended use, certain to be used in appropriate volumes and maintain protection of human health and the environment. These factors are all proven through the production of a materials management plan (MMP) document.



This plan is reviewed by an independent qualified person who signs a declaration allowing the project to commence. Projects are completed by the production of a verification report which shows how the project followed the MMP.

The Code of Practice allows clean materials, free from anthropogenic (manmade) impacts to be moved directly between sites and allows for materials to be re-used on their site of origin, through clusters (multi-sites) or soil treatment facility networks.

The Code of Practice has to date been successfully applied on over 1,700 projects, which have benefited from very significant savings in terms of landfill tax, time and cost savings due to a more efficient regulatory process with measurable sustainability benefits.

This presentation will give an over view of the DoWCoP, and provide three real case study examples where a qualitative sustainability assessment has been carried out using the SuRF-UK indicator categories to demonstrate the wide sustainability benefits it has brought to the development industry, with a glimpse into the future with further new developments.

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4:00 pm – 4:20 pm

### **Does Sustainable Remediation Passes on Risks and Burdens to Future Generations?**

*Griet Van Gestel, Nick Bruneel, Johan Ceenaeme  
OVAM – Public Waste Agency of Flanders*

**The objective of the presentation is to discuss improving regulation instruments in order to facilitate sustainable remediation.**

#### **Abstract**

Very often contamination remains behind in soil or groundwater after investigation and remediation. This happens for a variety of technical reasons, for example: contamination under a building or paving that cannot be removed with measures that meet the BATNEEC principle; it results from a risk-based approach; or, by the current use of the land, the contamination remaining in soil or groundwater causes no risks.

Problems with remaining contamination occur when there are unforeseen changes of land use. Then risks can occur. Or even more importantly, when excavation works are carried out on the site, the removal and cleaning of the contaminated soil can entail very high costs. These costs are often not foreseen and the liability is often not clear.

In practice, this problem is frequently at the core of discussions with developers, owners, consultants and other stakeholders when options for sustainable remediation are discussed. It is about balancing reducing the environmental footprint of remediation works now against passing on possible risks and financial burdens to future generations.

Together with other partners, the OVAM (the Flemish authority responsible for soil management) is working on solutions for this problem. Two main areas of focus include: (1) improving the information given to stakeholders on soil and groundwater quality, in relation to possible future activities and land uses; and, (2) developing specific decision frameworks as part of an assessment method to evaluate sustainability of remediation and development of contaminated sites.

- (1) The legislation on soil remediation in Flanders includes the delivery of a soil certificate when a piece of land is sold. To this end, the OVAM has a database containing data on soil and groundwater quality supplied by soil investigations. The present emphasis on stakeholder involvement makes it necessary to improve this information service, e.g., to use more visual instruments and interpretations related to land use.
- (2) Based on international frameworks, the OVAM developed an assessment tool for the sustainable remediation and redevelopment of contaminated sites. The tool was developed in close cooperation with the users: project developers, soil remediation experts and contractors. At the request of users, a specific decision framework for contamination remaining in soil and groundwater after remediation works has been developed. This framework is very useful to reach consistent and transparent decisions. For example, what time spans needs to be considered? At what depth will excavation works likely occur in the future?

In the presentation, different aspects will be explained on the basis of concrete examples and practical cases.



4:30 pm – 4:50 pm

**The Implementation of the "Traffic Signal Model" in the Wallonian Legislation (Belgium) for Reasonable Management of Potentially Polluted Sites**

*Maryline Moutier and Henri Halen*

*Ram-Ses (Risk Assessment-Soil Expert advices and Services)*

**The objective of this presentation is to demonstrate that the implementation of the Traffic Signals Model (TSM) in Wallonia (Belgium) in the risk assessment methods and adopted principles for accepting risks leads to supportable decisions for the management of polluted sites.**

**Abstract**

As is the case with other countries or regions in Europe, Wallonia (Belgium) has seen an intense and glorious industrial past leaving in its wake numerous stigmas in the landscape. The management of these industrial wild lands is managed in Wallonia by the December 5, 2008 decree relating to contaminated soils management. Also specified in the decree are the soil protection and sanitation obligations for the soil on which potentially polluting activities were conducted, the cause of action behind the requirement to investigate the polluted sites, the successive stages of a soils study and the regulatory values by which decisions are made.

Since January 1, 2013, Wallonia has a Guide de Référence pour l'Étude de Risques (GRER) (Reference Guide for Risks Studies) that encompasses the work of experts' interpretation of data on soils pollution for sites polluted on an historical basis.

This guide is the result of a national and international collaborative effort with partners such as the CEAEQ (Québec, Canada), the BRGM (France), VITO (Flandre, Belgium) and GEOLYS (Wallonia, Belgium), Ram-Ses being the project coordinator. It was built based on a participative mode and is from a consensus between the different actors directly impacted by the application of the measures recommended in the guide.

Throughout this project, 35 methodological options that are strategic in nature were debated within the Groupe d'Intérêt en Études des Risques (GIER), a discussion group consisting of risk assessment experts from study bureaus, research institutes, enterprises, and administrations. Among them, the option of implementing the Traffic Signals Model (TSM) was chosen as an alternative to a classic binary system (acceptable risk versus non-acceptable risk). The TSM is based on the distinction of three ranges in the risk scale for human health: 1) the "green" range, which corresponds to the field of acceptable risks; 2) the "orange" range in the field of intermediary risks (management by implementation of security/follow-up measures); and 3) the "red" range in the field of unacceptable risks (risk reduction by the implementation of sanitation projects).

The implementation of this option has made it possible to: 1) ensure consistency and complete transparency between the regulatory values and the reference methods for risk studies; 2) to reconcile security and realistic application (risk acceptance thresholds maintained at realistic levels given the other sources of ambient exposure; 3) take into account the effects of potential additivity of pollutants by maintaining a reasonable level of complexity in the procedures; and 4) to make sustainable decisions for the management of polluted sites in Wallonia.

The interest of the TSM in terms of risk interpretation and management for human health will be demonstrated for two case studies presenting several types of pollution. The first case is a former distillate storage and the second is the development of an industrial wild land in a residential area.