



Wednesday, April 30, 2008
Stream F – Managing Large Environmental Remediation Projects

Topic Keynote

LOCATION: GRAND BALLROOM B

8:45 am - 9:30 am



Bill Mitchell, B.Sc., M.Sc., Geology
Indian and Northern Affairs Canada

Bill Mitchell is a geologist with over 30 years experience in mineral exploration, project management and mine development. For the past five years, Bill has worked with Indian and Northern Affairs Canada as Manager of the Giant Mine Remediation Project.

**WEDNESDAY, APRIL 30, 2008**

9:30 am - 9:55 am

Project Management Tools for Site Remediation and Risk Management Projects

Gino Dalla Coletta¹, M.Sc., MPM, Don Plenderleith¹, P.Eng.,
Chris Ludwig², M.Sc., P.Eng., Clayton Truax³, M.A.Sc., P.Eng.
¹Golder Associates Ltd.

²Franz Environmental Ltd.

³Public Works and Government Services Canada, Contaminated Sites Division

Generic project management principles, tools and techniques as developed by the Project Management Institute (PMI) have been in existence since the 1960's and have become a standard for managing large projects of any type. To better equip the federal custodians and proponents to manage their site remediation and risk management projects, the generic project management tools have been customized to address contaminated sites.

Since 2005, Public Works and Government Services Canada (PWGSC) and two consulting firms, Golder Associates Ltd. and Franz Environmental Inc., with input from Federal Contaminated Sites Action Plan (FCSAP) departmental representatives, have been developing a set of optional project management tools to assist custodians manage their FCSAP projects. These tools are based on the PMI's industry-standard procedures. Currently 12 tools have been developed:

1. Project Initiation;
2. Project Charter;
3. Project Quality Planning;
4. Project Procurement Planning;
5. Project Scope Management;
6. Project Time Management;
7. Project Cost Management;
8. Project Risk Management;
9. Project Status Reporting and Integrated Change Control;
10. Project Communication Management;
11. Lessons Learned; and,
12. Project Closure.

Project management literature indicates that a large number of projects fail due to poor planning. These tools emphasize the planning aspect of project management (scope, time and cost). Additionally, the tools show how the earned value management technique, may be applied to contami-

nated sites projects, so that the sponsor and proponent can track and forecast deviations in schedule and budget proactively, and that corrective actions can be applied early in the project when they have the greatest potential to improve project performance.

This presentation is addressed to a government and consultant audience and outlines, at a high level, some of the main tools that could lead to a common language and expectation for project management on federal contaminated sites.

9:55 am - 10:20 am

Management of Mega-Contaminated Sites: The Complex Problem Challenge

James Armstrong¹, Katharine N. Farrell², Ken Lyon¹,
Mario Schirmer³

¹WorleyParsons Komex

²Department Economy, Helmholtz Centre for Environmental Research UFZ, Germany

³Department Hydrogeology, Helmholtz Centre for Environmental Research UFZ, Germany

Industrial activity in Europe has led to special recognition of sites with mega-contamination (mega-sites), distinguished by the magnitude and chemical complexity of their contamination. They can become nearly intractable problems due to complex and intertwined influences of socio-economic, hydrogeological, biological and political elements. Mega-sites are, or will likely become, part of the inherited environment in 21st century societies. Using a mega-site case study at Leuna, Germany, new long-term strategies were developed where conventional remediation and management approaches may be untenable.

Based on historical lessons gained from Leuna, re-examination of project planning approaches for potential mega-sites in Canada (i.e., post-closure oilsands mines) were done. Those lessons highlighted risks associated with incomplete consideration of complex socio-ecological interactions which cannot easily be modelled or their influences predicted. Accordingly, a broader risk management approach with adaptive assessment of site and environmental sustainability was proposed. The approach draws on stakeholder involvement to design post-closure coping strategies. The underlying modelling challenge is to identify sufficient relevant problem factors to cover the broad scope of site characteristics without becoming ensnared in irresolvable detail. Procedures and practices that may be helpful for developing tailored long-term management of a mega-site will be presented.

All presentations will be delivered in English, unless noted otherwise.



WEDNESDAY, APRIL 30, 2008

10:50 am - 11:15 am

A Disciplined and Practical Approach to Cost Share Partnership: The Sydney Tar Ponds and Coke Ovens Remediation Project

Kenneth Swain, Public Works and Government Services Canada

Heavy industries such as mining, smelting, the production of steel or paper, and the exploitation of oil and gas are costly ventures that find themselves intertwined with the social fabric of the communities where they are located. Their success or failures greatly impact on the economic viability of these communities, an issue which governments are often asked to address and resolve when jobs and human wellbeing are in the balance. Because of their involvement in these ventures and the roles they played in keeping these industries afloat, governments often find themselves saddled with the responsibility of dealing with the aftermath of their demise when avenues to keep them viable have been exhausted. This is particularly true of the environmental legacy that lingers after their closure. Very often, the issue is compounded by the mere fact that private companies have disbanded and several levels of government find themselves liable, if not financially, at least socially or morally for the remediation of the sites where these industrial activities took place.

This is the case of the Sydney Tar Ponds and Coke Ovens remediation project. The governments of Canada and Nova Scotia recognized that something had to be done to deal with the contamination of 100 acres at the heart of the Sydney community. In 2004, both governments signed a Memorandum of Agreement (MOA) and announced their intention of joining efforts to remediate the sites. This MOA was the cornerstone of the partnership and described in very general terms how the project was to be handled.

The challenge was left to staff to apply a project structure which would respect the terms and the intent of the agreement. A major objective was to serve several imperative criteria such as of public accountability, good business practice, prudence and probity, as well as uphold the interests of the respective governments and protect the investments they made in the joint effort.

This presentation will provide an overview of the project structure, mechanisms and governance which were negotiated and put in place along with the checks and balances which are required to deliver a \$400 million project within budget and schedule. It will attempt to explain how the negotiated cost share agreement for the project was structured in order to allow for a disciplined approach to delivering this joint project under a cost share agreement; it will identify the optimum level of flexibility which the implementer

requires to apply professional decision making while still meeting the general objectives of public accountability and rigorous management practices.

Participants will benefit from Public Works and Government Services Canada's (PWGSC) practical experience and approach to delivering complex projects under a multi-stakeholder cost share structure, learn about the independent engineer concept as a cornerstone of our management framework for this project as well as appreciate the value of good governance and management practices, and how to adapt these features to your future joint partnership projects.

11:15 am - 11:40 am

The Largest Remediation Project in Canada: Clean-up of the Sydney Tar Ponds and Coke Ovens Sites in Sydney, Nova Scotia

David Wilson¹, P. Eng., Dr. Chris Holt¹, Frank Potter²

¹Earth Tech Canada Inc.

²Sydney Tar Ponds Agency

Earth Tech Canada has been retained by the Sydney Tar Ponds Agency (STPA), a special operating agency of the Province of Nova Scotia, to execute the detailed design and construction oversight of the Sydney Tar Ponds and Coke Ovens Sites in Nova Scotia – the largest remediation project in Canada and funded jointly by the Government of Canada and the Province of Nova Scotia.

The Sydney Tar Ponds clean up is the result of nearly 100 years of steel production in Sydney, Nova Scotia. At one time, Nova Scotia produced almost 50% of Canada's steel. When production ceased in 2001, a legacy of contaminated soils, sediments and groundwater remained, bearing such contaminants as PAHs, VOCs, PHCs, PCBs, and heavy metals. What remains today is one million tonnes of contaminated soil and sediment spread over two major sites – the North and South Tar Ponds, and the former Coke Ovens sites; an area spanning 168 acres.

Commenced in October 2006, the project will take 8-10 years with an anticipated completion date of 2014. Earth Tech Canada is conducting the detailed design engineering for the remediation project and overseeing the work including inspection and contract management. Local companies will have opportunities to compete for components of the work.

Remediation technologies employed, within a complex marine, aquatic and terrestrial environment, include: channel creation; brook remediation, reconstruction, and enhancement; solidification and stabilization of impacted sediments

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**WEDNESDAY, APRIL 30, 2008**

and soils; capping of solidified and stabilized materials; diversion and collection of contaminated groundwater through walls, trenches and related collection systems; treatment of contaminated groundwater; capping of impacted soils; creation of landfills; and, creation of materials processing infrastructure.

11:40 am - 12:05 pm

The Role of an Independent Engineer in the Implementation and Management of the Sydney Tar Ponds Remediation Project

Alan Van Norman, Walter van Veen
Conestoga-Rovers & Associates

The Sydney Tar Ponds remediation project is a visible, sometimes contentious, and large environmental cleanup project. With a final phase budget of \$400 million, it would be considered large anywhere in the world. Transparent governance and demonstrable accountability are important to the funding partners. The governance structure includes federal and provincial departments in the role of owners, a provincial agency as implementing agent, a design engineer and an independent engineer.

The independent engineer's mission is to provide real time technical and budgetary accountability. Real time accountability adds value to a multi year project through independent assurance that proposed technologies will work and that value for funding is being achieved. The role includes third party review and validation of the project's technical, financial, health and safety and schedule components. The independent engineer position requires careful management and implementation.

The presentation will include a definition of "independent engineer", a history of the role on other projects, and a discussion of value added, as well as elaborate on the independent engineer role, rules of engagement and the complexity of the role. Insights will also be provided to others planning large engineering projects.

1:30 pm - 1:55 pm

Project Management of Fort Nelson Airport Environmental Remediation Project

Ian Chatwell¹, Thomas Franz², Raman Birk³, Jan Meyer²,
Nick Dayal²

¹Transport Canada

²Franz Environmental Inc.

³Public Works and Government Services Canada

The Fort Nelson Airport is a Canadian Council of Ministers of the Environment (CCME) National Classification System (NCS) priority 1 site with over 150,000 m³ of contaminated soil. The 1997 environmental baseline study identified 56 areas of potential environmental concern (APEC) due to: fuel and oil handling; fire training areas; pesticides; maintenance activities, and, waste disposal. First constructed and operated as an airforce base in 1941, Transport Canada operated the airport from 1958 until it was transferred in 1999. At transfer, Transport Canada agreed to complete remediation and obtain a Certificate of Compliance from BC Environment under the Contaminated Sites Regulation. Remediation work began in 1999 and is scheduled for completion in 2011.

Management of this project has been a significant challenge due to the number of sites involved, the number of concurrent activities required, the northern setting, the regulatory requirements, the amount of data generated and the timeframe in which Transport Canada would like to see the project completed. In the 2007 field season, the project team intended to drill 270 monitoring wells or boreholes; complete 120 testpits; sample over 300 monitoring wells; operate an air-sparging system; treat 12,500 m³ soil in an on-site soil treatment facility; and, excavate ~15,000 m³ contaminated soil.

This presentation will demonstrate to participants how project planning, project management techniques and data management has been used to keep a project of this scale on schedule and on budget.

**WEDNESDAY, APRIL 30, 2008**

1:55 pm - 2:20 pm

Faro Mine Complex Remediation Project: Issues and OptionsStephen Mead¹, Michael Nahir²¹Faro Project Management Team²Indian and Northern Affairs Canada

In 1998, all mining operations stopped at the Faro Mine Complex after the owner, Anvil Range Mining Corporation, was placed into receivership. In January 2003, the federal and territorial governments acknowledged that the Faro Mine Complex would not reopen. The two governments then entered into a joint agreement with the Ross River Dena Council (on behalf of the Kaska Nation) and Selkirk First Nation to work together on the development of a closure plan for the Faro Mine Complex. As the planning for final closure progresses, there is a need to involve a wide range of stakeholders/interested parties in the assessment of closure options. A comprehensive and inclusive assessment process will be critical in ensuring support for the preferred closure plan taken forward for funding and regulatory approval.

2:50 pm - 3:15 pm

5 Wing Goose Bay Remediation Project

Craig Wells and Lori Whelan

Department of National Defence

The Department of National Defence (DND) is currently managing over 100 suspected and confirmed contaminated areas at 5 Wing Goose Bay (located in central Labrador) and is developing a comprehensive remediation plan that will reduce or eliminate the potential risks posed by the contamination.

Contamination at the Base can be attributed to several sources. Major hydrocarbon plumes can be attributed to leaking underground and aboveground tanks, leaking or ruptured pipelines, and historical management and containment practices. Heavy metals and other chemical contamination (i.e., PCBs, VOCs) are due to historical waste disposal practices and the existence of numerous dumpsites.

DND is taking a holistic management approach to develop and implement a comprehensive, multi-phase remedial action plan. Instead of independently assessing each contaminated site, DND is collectively considering all the sites to achieve an overall evaluation and to consider interrelated requirements between the sites. The overall objective is to assess and prioritize all the contaminated sites at 5 Wing Goose Bay and pursue combined remedial objectives and/or risk management strategies for all contaminated areas.

This presentation will address the challenges faced by DND relating to the management, planning and execution of a large-scale remediation project in a remote area.

3:15 pm - 4:00 pm

Panel Discussion – Live and Unplugged