Federal Contaminated Sites Action Plan (FCSAP)

Fort Nelson Airport Remediation Program

A long-term remediation program for contaminated soil provides an opportunity to identify and implement best practices for sustainable remediation.

Background

Located in northern British Columbia, the Fort Nelson Airport was constructed in 1941 for wartime use by the U.S. Army Air Force. Contamination of several sites at the airport—much of it dating back to the Second World War—affects an estimated 153 000 cubic metres of soil. To address this problem, Transport Canada has initiated the long-term Fort Nelson Airport Remediation Program, which includes assessment, remediation and soil-treatment activities involving a large number of stakeholders. The objectives for the program are to decrease greenhouse gases associated with the clean-up and to divert waste from the landfill by reducing, reusing and recycling materials.

The Challenge

As part of the program, Transport Canada initiated a pilot project to identify and implement several best practices for sustainable remediation. This initiative will also lead to the identification of performance indicators that can be used to develop a project management tool to aid in the selection of green remediation approaches at other federal sites.

Several challenges common to remediation efforts in remote locations also apply to Fort Nelson Airport: there is a limited season in which remediation activities can take place, electrical power is at a premium, and equipment and materials are expensive to move. There is also limited access to recycling services and alternative fuels.

Two challenges were specific to designing the sustainability initiatives for the Fort Nelson Airport. First, the project timeline had already been defined by the overall remediation effort, which meant that project managers and analysts had to accommodate the schedule they were given. Second, though reducing emissions was a core goal of the project, the federal government cannot purchase carbon offsets.

The Solution

In 2008, Transport Canada implemented a Sustainability Management Plan to measure greenhouse gases and encourage waste-diversion practices that continued throughout the project. At the Fort Nelson Airport, Transport Canada also worked with consultants to develop sustainable remediation practices specific to the site.

Soil treatment at Fort Nelson Airport

This project was made possible with support from the Federal Contaminated Sites Action Plan (FCSAP), a program aimed at reducing the environmental and human health risk, and associated federal financial liabilities, from known federal contaminated sites. More information about FCSAP is available at www.federalcontaminatedsites.gc.ca.

The procurement process used to select contractors included sustainability requirements, which were built into the contracts of companies that were selected for the work.

The consultants and contractors completed fuel records, met sustainability requirements, and provided feedback on program effectiveness and areas for improvement.

Transport Canada and its suppliers incorporated sustainable remediation and best practices throughout the remediation process. During the course of the project, several policies to promote sustainability were identified and put into practice, in areas such as:

- recycling and reuse of materials,
- prohibition on idling vehicles,
- alternative methods of transportation, such as carpooling and cycling,
- fuel-efficient heavy equipment,
- reporting of fuel consumption, and
- project-based accounting for greenhouse gas emissions.

These policies reached into almost every type of process used in the remediation effort. For example, a new tilling and raking method was implemented at the soil-treatment facility in 2010. As the table shows, project officers tracked both the fuel consumed and the amount of soil treated—and were able to demonstrate the effectiveness of the new tilling and raking method, which saved 7873 L (42%) of fuel for treating roughly the same amount of soil.

Soil-treatment indicator	Total fuel (L)	Volume of soil treated (m^3)	Performance
2009	19 068	11 070	1.7 L/m^3
2010	11 195	11 100	1.0 L/m^3

Outcomes and Benefits

Best practices emerged from this project in several areas.

Process efficiency

- Create a process that facilitates discussions and feedback.
- Develop sustainable remediation practices that are specific to the site.
- Use local contractors to minimize mobilization to and from the site.

Reporting requirements

- Use consistent contract wording to ensure that parties understand their requirements.
- Standardize data reporting so that it can be aggregated from many suppliers.

New methodologies

- Implement practices to reduce fuel consumption and decrease greenhouse gas emissions.
- Build the soil-treatment facility on site to decrease emissions associated with transporting soil.

Performance indicators

- Develop soil-treatment performance indicators to measure levels year to year.

Challenging the project team to consider sustainability in the remediation process resulted in a number of best practices that resulted in reducing the environmental footprint of the project.

Site inspection, 2008

Public Works and Government Services Canada is mandated by FCSAP to promote the use of innovative technologies, approaches and best practices in the remediation of federal contaminated sites. This is one of a series of profiles featuring innovative, sustainable and green remediation technologies, approaches, and best practices in Canada.

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