Innovative Solutions for Federal Contaminated Sites Workshop
Prairie and Northern Region

Overview of the Federal Contaminated Sites Program and Synopsis of Federal Contaminated Sites Issues

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Presentation Summary

- Federal contaminated sites
- Federal Contaminated Sites Action Plan (FCSAP)
- Prairie and North Region
- Custodian Issues in the PNR
- FCSAP and innovative technologies
Federal Contaminated Sites Action Plan (FCSAP)

- $3.5 billion program over 15 years – established in 2005
- Main objectives of the program:
  - Reduce the risks to human health and the environment;
  - Reduce the federal government's financial liability associated with high priority federal sites
- Funding approved by Treasury Board on a cost shared basis between custodial departments and FCSAP program
FCSAP – Roles and Responsibilities

- EC and TB Ministers co-lead
- **EC Secretariat** – policy lead and program delivery coordination
- **Treasury Board Secretariat (TBS)** – oversees consistency with TB policies, manages TB inventory of federal sites, oversight on financial aspects of the program
**FCSAP – Roles and Responsibilities**

- **Custodians**: federal departments, agencies or consolidated crown corporations who own or manage contaminated sites
- **EC, DFO, HC**: provide scientific, technical and regulatory advice
- **PWGSC**: liaises with industry, and informs the public on use of innovative technologies
- **Industry Canada**: facilitates engagement of Canadian proven and innovative technology vendors and industry stakeholders
Federal Contaminated Sites in PNR

- Consists of Alberta, Saskatchewan, Manitoba, Northwest Territories and Nunavut
## Regional breakdown of Federal Contaminated Sites Inventory (FCSI)

<table>
<thead>
<tr>
<th>Region</th>
<th>Federal sites in the inventory</th>
<th>% of current financial responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic</td>
<td>4,258</td>
<td>4%</td>
</tr>
<tr>
<td>Quebec</td>
<td>1,937</td>
<td>5%</td>
</tr>
<tr>
<td>Ontario</td>
<td>3,871</td>
<td>13%</td>
</tr>
<tr>
<td>Prairies</td>
<td>3,088</td>
<td>4%</td>
</tr>
<tr>
<td>BC</td>
<td>4,125</td>
<td>7%</td>
</tr>
<tr>
<td>Territories</td>
<td>1,421</td>
<td>66%</td>
</tr>
</tbody>
</table>
### Federal Contaminated Sites

<table>
<thead>
<tr>
<th>Province/Territory</th>
<th>FCSAP Sites:</th>
<th>Total Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Assessment</td>
<td>Remediation</td>
</tr>
<tr>
<td>Alberta</td>
<td>245</td>
<td>13</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>209</td>
<td>16</td>
</tr>
<tr>
<td>Manitoba</td>
<td>153</td>
<td>19</td>
</tr>
<tr>
<td>Northwest Territories</td>
<td>120</td>
<td>16</td>
</tr>
<tr>
<td>Nunavut</td>
<td>198</td>
<td>41</td>
</tr>
<tr>
<td>Canada</td>
<td>2180</td>
<td>380</td>
</tr>
</tbody>
</table>
## Breakdown of Federal Contaminated Sites in PNR

<table>
<thead>
<tr>
<th>Organization</th>
<th># of sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indian and Northern Affairs Canada</td>
<td>1,876</td>
</tr>
<tr>
<td>Fisheries and Oceans Canada</td>
<td>1,102</td>
</tr>
<tr>
<td>Environment Canada</td>
<td>316</td>
</tr>
<tr>
<td>Royal Canadian Mounted Police</td>
<td>290</td>
</tr>
<tr>
<td>Department of National Defence</td>
<td>257</td>
</tr>
<tr>
<td>Parks Canada Agency</td>
<td>171</td>
</tr>
<tr>
<td>Transport Canada</td>
<td>144</td>
</tr>
<tr>
<td>Agriculture and Agri-Food Canada</td>
<td>119</td>
</tr>
<tr>
<td>Public Works and Government Services Canada</td>
<td>30</td>
</tr>
<tr>
<td>Health Canada</td>
<td>24</td>
</tr>
<tr>
<td>Other departments</td>
<td>44</td>
</tr>
</tbody>
</table>
Federal Contaminated Sites in PNR Include:

- DEW line sites
- Abandoned mines
- First Nation Lands
- Military bases
- Weather stations
- Historical dumps
- Fuel/Oil/Chemical spills and leaks
- Others
DEW Line Sites
Abandoned Mine Sites
Abandoned Mine Sites
Abandoned Mine Sites
Former Weather Stations
Former Dump Sites
Technologies used for R/RM Projects submitted to FCSAP

- Excavation: 44%
- Bioremediation: 32%
- Soil vapour extraction: 7%
- Thermal treatment/desorption: 15%
- Other (monitor, risk manage): 2%
What are Examples of Problem Issues?

- **Large volumes of waste PHC products**
  - Multiple types of products required on-site (fuel oil, antifreeze, lubricants, etc.)
  - Remote locations
  - Aged products not useful for original purposes
  - Requires offsite removal or on-site treatment methods to deal with PHC products of a mixed nature with no or minimal environmental impact.

- **Remediation of PHC contaminated soil**
  - Impacted soil in permafrost areas has proven difficult and slow
  - In remote areas and/or areas with limited on-site space

- **Soils and sediments co-contaminated with metals and mobile fractions of PHCs (F1 and F2)**

- **Heavy metal contamination at remote and/or northern locations.**
What Site Issues do Custodians Have?

- Extensive bulky waste and debris scattered across site
  - Abandoned equipment and structures
  - Lead & PCB-based paint, lead acid batteries, asbestos
  - POL storage tanks, barrel caches (empty and some with contents)
  - Frozen dump sites

- Former dump site with diesel contamination in the local soils and groundwater
  - Unlined facility
  - Deep gravel and cobble substrate
  - Direct vertical flow of leachate into water table
  - Direct lateral flow to local waterways and fish habitat

- Terrestrial contaminant plume of perchlorethylene migrating into adjacent marsh.
  - Need to remediate surface water and sediment without impacting marsh viability
Innovative Technologies

- Promoted by FCSAP
- Technologies Advancement Working Group aims to
  - Identify ways to overcome barriers, increase awareness and promote the use of innovative and sustainable technologies at FCSAP sites

- What do we mean by Innovative Technology?
  - Limited full-scale application
  - Applied in other sectors such as manufacturing or pulp and paper, but recently adapted as a new application to the remediation sector,
  - Innovation may refer to how the technology is applied rather than the technology, itself
Innovative Solutions for Federal Contaminated Sites Workshop

- Initial attempt at showcasing and profiling innovative technologies and their applications
- Regionally bring the technology vendors and custodian staff together to interact and collaborate closer to the problem sites
Thank you for attending
Questions?
Please see our booth for additional information