



Government of Canada

Trade Commissioner Service

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Canada

CANADA'S CLEANTECH INDUSTRY: BRINGING INNOVATIVE LAND AND WELLSITE RECLAMATION TECHNOLOGIES TO THE OIL AND GAS SECTOR



Canadian clean technology companies are important collaborators in meeting the oil and gas industry's requirements for sustainable and cost-effective land reclamation and remediation.

Canada has several strengths in clean technologies that are being employed in land and wellsite reclamation, including:

- ✓ mapping and remote sensing
- ✓ testing, monitoring and analysis of environmental media
- ✓ soil and water remediation
- ✓ waste management
- ✓ reporting and risk management
- ✓ data management
- ✓ leak detection
- ✓ emergency spill response and oil spill clean-up

The industry's rapid growth is supported by various networks and partnerships, including Canada's Oil Sands Innovation Alliance, the Canadian Land Reclamation Association, the Petroleum Technology Alliance Canada and oil spill cooperatives. Government policies and incentives in this field include the National Research Council Industrial Research Assistance Program, the Strategic Innovation Fund and the Sustainable Development Technology Canada Tech Fund.

STRONG NETWORK OF NETWORKS

In recent years, environmental management of legacy oil and gas assets has become a major focus for industry and government stakeholders. The **Clean Resource Innovation Network** helps to drive change, drawing on input from researchers and technology developers working on the ground who have insight and the ability to form collaborative teams to streamline innovation. Also instrumental in supporting scientific innovation for various aspects of asset retirement are the **Petroleum Technology Alliance Canada**, Canada's Oil Sands Innovation Alliance and the **Canadian Land Reclamation Association**. The members of all 3 share their significant expertise in land reclamation.

EDUCATIONAL AND RESEARCH INSTITUTIONS

Canadian educational and research institutions active in the land reclamation field are well aligned with industry, supporting innovative solutions to pressing challenges. Programs such as the Bachelor of Science in Environmental and Conservation Sciences from the University of Alberta and the Bachelor of Science in Environmental Science from the University of Waterloo produce graduates with solid skills and innovative mindsets, driving development and adoption of technologies.

NOTEWORTHY CANADIAN CLEANTECH OIL AND GAS COMPANIES

> AGAT Laboratories

Environmental analysis of air, water and soil

> North Shore

Environmental Consultants
Excavation, removal and treatment services for soil and water

> 360 Energy Liability Management

Environmental liability management services

> Matrix Solutions Inc.

Site assessment, remediation and reclamation services

> Vertex Environmental Inc.

Remediation, water treatment, and high resolution characterization

> Trium Environmental Inc.

Hybrid remediation company specializing in advanced chemical remediation

> Maapera Analytics

Rapid soil analysis systems

> Nelson Environmental Remediation

Soil remediation and contaminated site preparation and restoration

> Hi-Point Industries Ltd.

Oil spill containment and response products

INNOVATIVE LAND AND WELLSITE RECLAMATION TECHNOLOGIES FOR THE OIL AND GAS SECTOR

CANADIAN COMPANIES WORKING GLOBALLY



AGES THERMAL PROCESSING CORP. > agestpc.com

AGES Thermal's environmental remediation technology uses heat to increase the volatility of contaminants so they can be removed from a solid matrix, collected and condensed to permit recovery and reuse. Their unique technology can also be configured to thermally destroy the volatilized contaminants.

Most thermal technologies are incineration based and burn off any hydrocarbon content in waste matter. **AGES' thermal** process is designed to separate hydrocarbon contamination from solids using indirect heat under an inert operating environment. It vapourizes but does not oxidize the hydrocarbons, and the recovered hydrocarbons can produce a sales oil with a basic sediment and water of <0.5%, - 99+% hydrocarbons.

WIKINET > wikinet.ca

WikiNet's TraceNet is a project management tool that uses artificial intelligence. The TraceNet platform allows the complete tracking of soil movement projects—starting at the construction site and continuing through the soil's journey all the way to the treatment facility—to ensure proper disposal or remediation. The technology supports both process streamlining and sustainability via routing optimization and diversion, as appropriate.



DELTA REMEDIATION > deltaremediation.com

Specializing in bioremediation, **Delta Remediation** has created an amplified natural process to handle hydrocarbon contaminants quickly and on site. **Delta's** proprietary bioremediation process, known as BioLogix, eliminates liability and creates economic savings compared to conventional methods, such as landfilling.

Delta's secondary technologies include the EcoBinder for liquid waste solidification, as well as the Screen Logix Field analysis tool for screening soil samples for petroleum hydrocarbons in real time. **Delta Remediation** is also a distributor for Ultratech International and Green Ocean Absorbents, offering innovative containment and absorbent solutions.



GOLDER ASSOCIATES > golder.com

Golder Associates has a proven record of global experience and presence, as well as the knowledge and expertise of more than 800 professionals specializing in site investigation and remediation.

Golder's remediation experts identify and quantify a site's environmental composition. They assess the short- and long-term risks and explore possibilities for continued use. Their goal is to develop solutions that can minimize cost and liabilities while improving environmental conditions.

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