

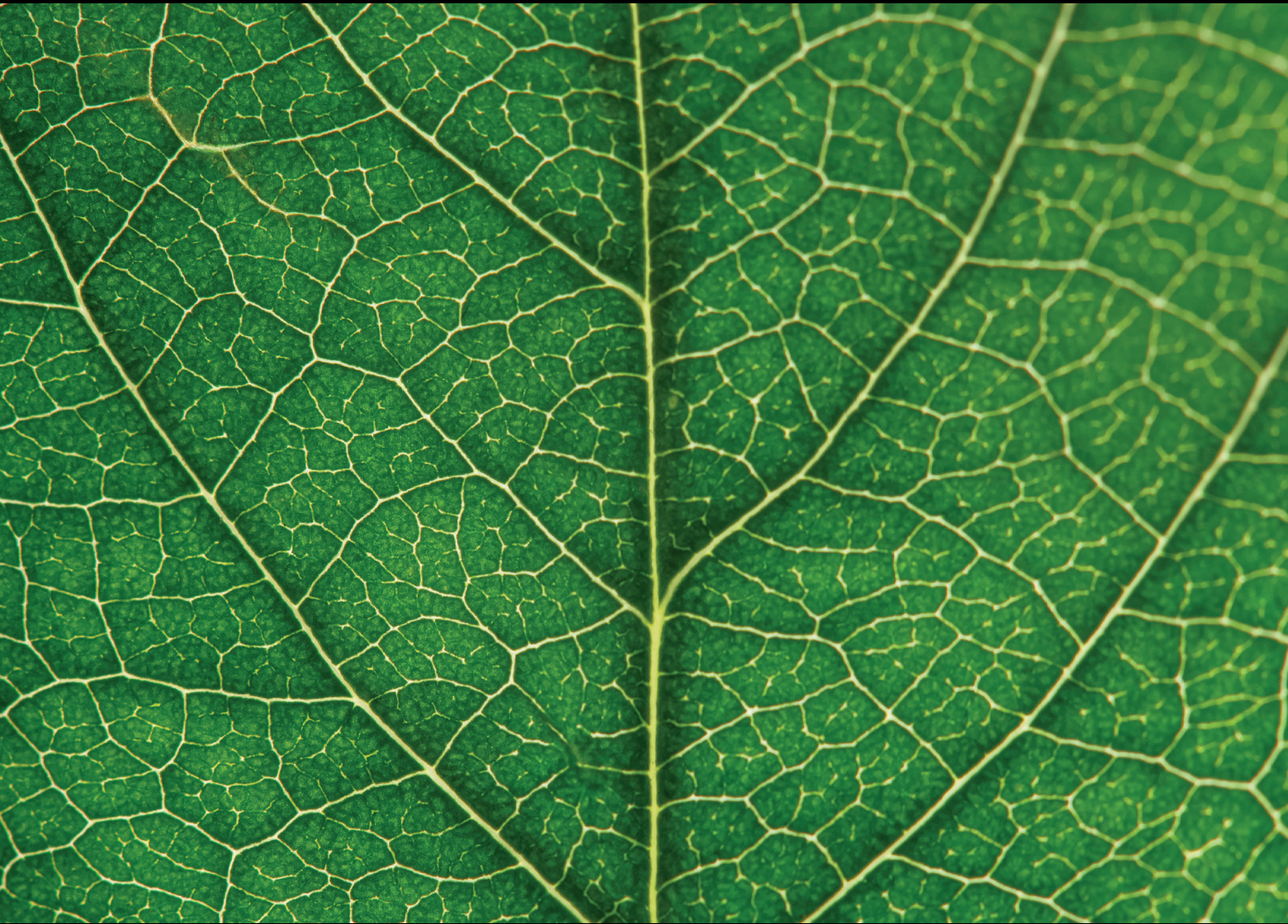
Environment Journal

TOP 25 REMEDIATION PROJECTS Canada's Biggest Cleanup Initiatives

SPECIAL EDITION

**PREVIEW OUR
2026 REPORT**





MOVE IN HARMONY

**Our engineers, scientists and advisors
tackle complex environmental challenges
to create a better planet.**

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POWERFUL PROJECTS

WELCOME TO *Environment Journal's Top 25 Remediation Projects.* We're highlighting some of the biggest and most innovative cleanup projects in Canada.

While these projects have similarities—as they involve the remediation of soil, groundwater, and sediment—they are unique and challenging in their own ways, with various combinations of contamination, diverse geographic locations, and different industrial histories. From massive mines to urban waterfronts, each project brings a particular set of obstacles and opportunities.

The project teams are responsible for managing major risks, big budgets and multiple stakeholders. It's hard work but it's all worth it when neighbourhoods and public places across the country are cleaner, more efficient and productive, and more sustainable for future generations.

There are many amazing projects underway and more in store with new federal focus on big nation-building projects. There has never been so much potential for remediated sites and groundbreaking progress.

People living in Port Dover on the shores of Lake Erie are breathing easier thanks to one such exemplary cleanup project.

The Nanticoke Generating Station was once the largest coal-fired power plant in the world, with a total capacity of 4,000 megawatts at its peak operations. Throughout the late 1990s, Nanticoke provided a significant amount of Ontario's baseload power and essential electricity to southern Ontario's industrial sector, along with a super-sized amount of air pollution. Replacing coal-fired electricity generation remains the single largest climate change initiative undertaken in North America.

In 2016, Ontario Power Generation and its partners, including the Six Nations of the Grand River Development Corporation and the Mississaugas of the Credit First Nation, were selected by the Independent Electricity System Operator to develop a solar facility on the site. Demolition and cleanup of the site by Delsan-AIM Environmental Services Inc. and construction of the solar facility by PCL Construction was completed on schedule by March 2019.

The area has since received another remarkable upgrade, with the Oneida Energy Storage Project, which commenced commercial operations in May 2025. Notably, it was completed ahead of schedule and under budget and is the largest battery energy storage facility in operation in Canada.

This milestone remediation and redevelopment reflects innovative Canadian thinking and strong collaboration among the project partners, including Northland Power, First Nations Six Nations of the Grand River Development Corporation, NRStor Inc., Aecon Concessions, Mississaugas of the Credit Business Corporation, and Canada Infrastructure Bank.

These types of projects provide environmental and economic benefits but also facilitate opportunities for Indigenous reconciliation as well as employment and training prospects for the communities involved.

There are several other success stories underway, and we are excited to shine the spotlight on them through Top 25 Remediation Projects.

Connie Vitello is Editor of *Environment Journal*.



Port Hope Area Initiative
\$2.6 BILLION



Location: Port Hope and Clarington, Ont.
Owner: Canadian Nuclear Laboratories, on behalf of Atomic Energy Canada Ltd., and Natural Resources Canada
Project/Construction Manager: Canadian Nuclear Laboratories
Contractor: Wood (WSP)-CB&I Joint Venture; ECC/Quantum Murray Limited Partnership; Maple Reinders; Kenaidan Contracting Ltd.; Northwind Portage; Milestone Environmental; WSP (engineer); Graham
Engineer: GHD/MMM Joint Venture; AECOM (consulting); Wood and WSP (consulting/design/environmental)
Environmental Services: Golder and WSP (contamination investigation/remediation; Phase I ESA; geotechnical services); Arcadis-IBI Group; Dillon Consulting; EXP (environmental consulting)
Other Key Players: Hanscomb (owner's preliminary design stage cost consultant and special advisor); Tetra Tech; E.S. Fox; Colliers Project Leaders; CIMA+; Aon (risk advisor); Bird Construction; Turner & Townsend (cost consultant)
Financiers/Banks: Natural Resources Canada
Legal: Osler; Toys (acted for the lender)
Cost: \$2.6 billion
Contaminants: Historic low-level radioactive waste and 52,500 cubic metres of industrial waste from five locations in Port Hope.
Remediation Approach: Characterization including gamma scanning and borehole sampling is completed to identify and define areas of historical low-level radioactive waste (LLRW). An engineered design is created to safely cleanup the LLRW and restore the property to its original condition, or as close as possible. CNL works with the property owner to confirm the restoration plan for each property before work is completed.
Estimated Completion: Major sites work, including remediation and restoration of the Port Hope Harbour – 2027
· Cleanup and restoration of private properties – 2031
· Port Hope Long-Term Waste Management Facility capped and closed – 2032

► The Port Hope Area Initiative (PHAI) is a federal environmental clean-up program. Its mandate is the remediation and local, long-term, safe management of approximately 1.7 million cubic metres of historic low-level radioactive waste in the municipalities of Port Hope and Clarington in southern Ontario. The historic waste resulted from the radium and uranium refining operations of the former Crown corporation, Eldorado Nuclear Limited, and its private sector predecessors, which operated until 1988.
The PHAI has two projects: the Port Hope Project and the Port Granby Project.

The Port Hope Project involves the construction of an engineered above ground mound and supporting infrastructure for the safe, long-term management of approximately 1.2 million cubic metres of historic low-level radioactive waste, cleanup of the waste from various major sites and small-scale sites in Port Hope and transportation of the waste to a new long-term waste management facility (LTWMF) currently under construction. After the facility is capped and closed, anticipated to be in 2025, ongoing maintenance and monitoring will continue for many years. ●

Giant Mine Project
\$934 MILLION



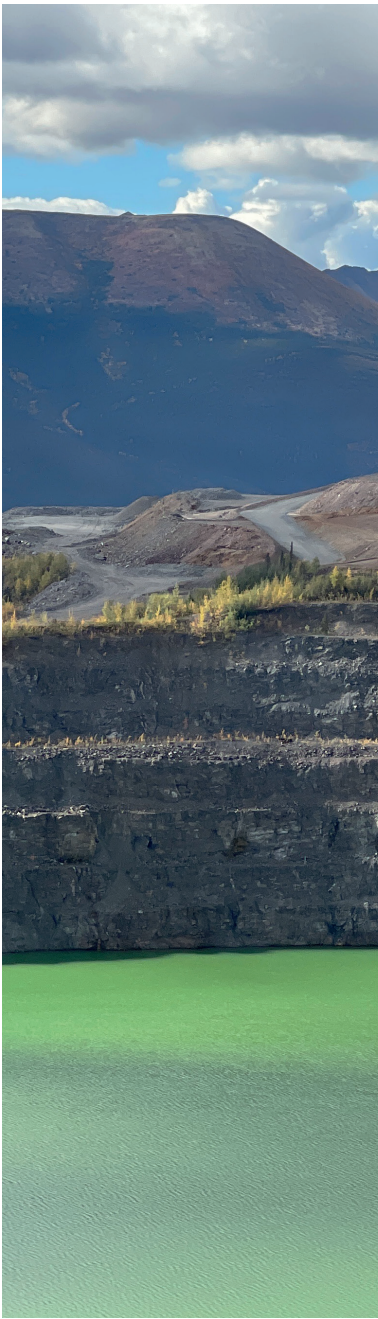
Owner: The Government of Canada (led by Crown Indigenous Relations and Northern Affairs Canada with support from Public Service and Procurement Canada) and the Government of the Northwest Territories (led by the Department of Environment and Natural Resources).
Project Manager: Parsons Inc. Engineer: AECOM (design); Golder (WSP) (multidisciplinary consulting services/general and civil design)
Environmental Services: Dillon Consulting; SLR; BluMetric Environmental Inc.
Other Key Players: SRK Consulting; Wood (WSP - consulting engineer/risk advisor); Hatch; KPMG (commercial advisor); SRK Consulting; Arcadis-IBI Group; Tiree/Colliers Project Leaders (management consultant); McElhanney (site surveyor); Englobe; Stratos; Turner & Townsend (cost consultant); Nahanni Construction Ltd., QM Environmental Inc. (off-site borrow); Midlite Construction Ltd. (new power supply lines and substations); Stantec (technical consultant)
Funding: Public
· Federal: \$903.5 million
Contaminants: The greatest challenge associated

► Between 1948 and 2004, operations at the Giant Mine site grew to encompass roughly 900 hectares, including several ponds and small lakes. In 1999, the former operator entered receivership and the Government of Canada, and the Government of Northwest Territories became responsible for the site. Mining operations continued until 2004. Several environmental and site remediation needs were identified. This included cleaning up the

with cleaning up Giant Mine is the arsenic trioxide waste, which is stored underground. Lead and Cadmium are also contaminants of concern, and with arsenic, are the main substances of concern. The site also includes surface-level tailings, which are the leftover materials from the gold extraction process, metals, petroleum hydrocarbons leftover from historical spills or improper maintenance of storage tanks, asbestos and cyanide.
Remediation Approach:
Components of the remediation plan include:
· closure of the underground, which included stabilization efforts through paste backfilling (completed);
· decommissioning, decontaminating, demolishing, and removing the majority of existing site infrastructure;
· freezing of arsenic chambers and B1 pit;
· filling the open pits;
· addressing cover tailings areas and dams;
· remediating the areas previously developed for mining, except the townsite and marina
· construction (complete) and operation of a non-hazardous waste landfill;
· generating rock quarry and fine-grained borrow to fill the pits and construct covers on tailing containment and other areas;
· realignment of sections of Baker Creek to allow for passage of water in the instance of a major flooding event;
· removing all contaminated sediment from Baker Creek and creating a suitable fish habitat;
· water management, including construction and operation of a new water treatment plant and decommission the effluent treatment plant.
Estimated Completion: 2038
Remediation is anticipated to be completed by 2038. At that point, the project will move into the adaptive management and long-term monitoring phase. It is anticipated that the Perpetual Care Plan will be complete and will be used as a guidance tool to support the long-term requirements post remediation.

237,000 tonnes of arsenic trioxide dust left behind in underground chambers and 16 million tonnes of tailings, open pits, debris, and site infrastructure. Today, the project's goals are to: minimize public health and safety risks; minimize the release of contaminants from the site to the surrounding environment; remediate the site in a manner that instills public confidence; and implement a remediation approach that is cost-effective and robust. ●

Faro Mine Project
\$700 MILLION



Location: Faro, Yukon
Owner: Government of Canada Construction and Care and Maintenance
Manager: Parsons Inc.
Remediation Design Engineer: AECOM Canada Ltd.
Other Key Players: Ensero Solutions Canada Inc. (environmental monitor); CH2M Hill Canada Ltd. (water treatment plant designer), Tetra Tech Canada Inc., WSP (geotechnical); Golder (WSP) (environmental assessment/regulatory support services); Tiree/Colliers Project Leaders (performance management services and contaminated site project valuation); Victaulic (supplier); AGAT Labs; McElhanney (site surveyor); KPMG
Funding: Public
Contaminants: The dominant contaminants of concern are sulphate, zinc, cadmium, iron, and manganese. Also, elevated concentrations of aluminum, cobalt, copper, and nickel were measured in several locations, and elevated concentrations of antimony, arsenic, beryllium, lead, selenium, and thallium were measured in a few locations.
Remediation Approach: After many years of research, extensive professional review and consultation, a remediation approach was selected in 2009. Key features of the selected "stabilize in place" remediation approach include:
· upgrading dams so tailings stay in place;
· re-shaping, covering, revegetating and establishing surface drainage on waste rock and tailings;
· extending and upgrading diversion channels to keep clean water away from contamination; and,
· improving and expanding contaminated water collection systems and building a new water treatment plant.
Estimated Completion: 2040
After the Yukon Environmental and Socio-economic Assessment Board process is complete (expected in 2025), a Water Licence application will be filed with the Yukon Water Board, and a Fisheries Act Authorization application will be submitted to Fisheries and Oceans Canada. The active remediation phase is expected to begin once all of the designs are complete and regulatory approvals are in place. Remediation is expected to take about 15 years to complete, after which significant operation, monitoring and maintenance is planned for another 10 years. Beyond this period, water treatment operations, maintenance, monitoring and management will continue into the long term.

► Faro Mine is a former open-pit lead-zinc mine, one of the largest of its kind in the world at approximately 25 square kilometres. It is located in south-central Yukon on the traditional territory of the Kaska Nations, near the town of Faro. Abandoned in 1998, resource

extraction led to 70 million tonnes of tailings and 320 million tonnes of waste rock. The project is considered to be one of the most complex mine cleanup projects in Canada due to the mine's size, remote location, and harsh climate. ●

25 REMEDIATION PROJECTS ON THE RADAR

SOME OF THE OTHER TOP PROJECTS that will be featured in our inaugural edition of Top 25 Remediation Projects:

- **BOAT HARBOUR** (Pictou County, Nova Scotia)
The cleanup of Boat Harbour, a former pulp mill effluent treatment lagoon, involves the remediation of sediments to return the site to its natural state as a tidal estuary.
- **NAMUR-HIPPODROME NEIGHBORHOOD PROJECT** (Montreal, Quebec)
This carbon-neutral neighbourhood vision will be built on a former hippodrome site that requires remediation from the impacts of nearby highways and railways.
- **RANDLE REEF** (Hamilton, Ontario)
This project involves the cleanup of contaminated sediment in Hamilton Harbour, which is one of the most polluted areas in the Great Lakes.
- **UNITED KENO HILL MINE** (Keno City, Yukon)
A former silver mine, the site is undergoing remediation to relocate waste, construct water treatment facilities, and reclaim mining materials.
- **MARWELL TAR PIT** (Whitehorse, Yukon)
This project involves the remediation of a former wood-preserving site contaminated with creosote and other wood-treating chemicals.
- **SYLVIA GRINNELL RIVER DUMP** (Iqaluit, Nunavut)
This northern initiative focuses on the cleanup of a former landfill site near the Sylvia Grinnell River.
- **GREAT BEAR LAKE REMEDIATION PROJECT** (Sahtu Settlement Area, Northwest Territories)
This project involves asbestos and lead paint abatement, as well as building demolition.
- **ESQUIMALT HARBOUR** (Victoria, British Columbia)
This project is focused on remediating contaminated sediments from a Department of National Defence site located by Esquimalt Harbour.

Top 25 Remediation Projects + RemTech East

The inaugural edition of Top 25 Remediation Projects will be distributed at RemTech East 2026, which will be presented by the Environmental Services Association of Alberta (ESAA) and the Ontario Environment Industry Association of Ontario (ONEIA) on April 8 - 10, 2026 in Ottawa.



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Environment Journal

SUBMISSION CALL



Randle Reef in Hamilton Harbour on Lake Ontario was once the largest contaminated sediment site on the Canadian side of the Great Lakes. The final stage of the project is scheduled to be completed in 2025.

Attention All Canadian Remediation Professionals and Enthusiasts:

We're searching for the biggest and best remediation projects across the country. We look forward to highlighting innovative, influential and impactful cleanup projects in Canada.

To submit your project, please visit our website—EnvironmentJournal.ca—and complete the online submission form. Projects will be listed in order of financial investment.

The information required includes:

- Project Title
- Owner & Project Team
- Contaminant Types
- Estimated Completion Date
- Cost & Location
- Project Scope
- Remediation Approach

The deadline for submissions is **October 20, 2025**.

Don't miss this incredible opportunity to showcase your project on a national stage and to be recognized as a leader in Canada's remediation industry. Together, let's showcase our collective commitment to a sustainable future.

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Affiliate Publications:

Top100 Projects by ReNew Canada:

<https://www.renewcanada.net/top100-projects/>

Top50 Projects by Water Canada:

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