

CASE STUDY



CHANGING DEMANDS IN RADIOACTIVE WASTE REMOVAL PROJECT ARE NO MATCH FOR TERRAPURE'S EXPERTISE

PROJECT DESCRIPTION

From 1955 to 1988, low-level radioactive waste from a now-closed nuclear operation was deposited in a landfill in Port Granby, Ont., along the shoreline of Lake Ontario. It remained there until 2016, when a federal government initiative launched, starting the long-awaited work to clean up the historic waste and relocate it to an engineered above-ground mound, isolated from the environment.

Although the entire project will take years to complete, Terrapure was fortunate enough to win the contract for one of its first phases: to find and remove the high-pressure, high-hazard waste cylinders from the landfill, and relocate the contaminated soil to a safer, more contained area. Terrapure was chosen for its strong health and safety program and track record, as well as its willingness to acquire specialized security clearances beyond baseline qualifications to run the equipment.

CHALLENGE

To simply begin the work on a low-level radiation site, everyone on the team needed to be up to date with the proper safety and security clearances. It was an onerous task for each crew member to get background checks, complete 15 courses and get HAZMAT certification. This process took three weeks to complete, but it was crucial to the safety and success of the project.

Beyond these requirements, there were several challenges associated with this project—namely, the constant surprises that came with digging up an old landfill. With hundreds of thousands of cubic metres of historic waste buried underground for decades, no one could say with any certainty what lay beneath. Ground-penetrating radar couldn't help in this case, because the amount of debris in the ground interfered with what anyone could decipher on the screen.

SOLUTION

Terrapure had to rely on its depth of expertise and creative problem solving to navigate these challenges. The team had to re-strategize its approach to the project almost daily because of something unexpected, such as the discovery of an unanticipated cylinder or a cylinder that started leaking once it was unearthed.

When the project was originally scoped, for example, Terrapure planned to use excavators to dig to within 0.3 metres of anything metal, and then hand dig from there. However, that proved unfeasible due to all the debris. Instead, the crew used high-pressure water and power vacuum units to remove contaminated dirt around the cylinders.

New and unexpected debris also meant the type of air risks would change, which posed health and safety concerns. Foreseeing this issue, Terrapure was ready with its field-customizable air monitoring system. The team simply adjusted the gas detection sensors to adapt to the environment so they could continue to work safely.

RESULTS

After four months of safe, flexible operation—adapting to changing and unforeseen conditions, and leveraging new field knowledge as it became available—Terrapure completed the project to the client's satisfaction. The hazardous waste cylinders were removed, and the contaminated soil was collected and relocated—without any health incident, injury or upset to the environment.

The customer was so delighted with the crew's ability to rise to the complex engineering challenges that they asked Terrapure back to the same site three more times to complete other elements of the massive project. The Port Granby project is still ongoing, but Terrapure's role in the environmental clean-up and remediation phase has laid the foundation for long-term, safe waste management in this area.

