

*A Clearpath Robotics field engineer monitoring a Kingfisher in the distance as it conducts an automated bathymetric survey in a PotashCorp tailings pond.*

## SUCCESS STORY

### AMEC Puts Safety First and Uses Advanced Robotic System for Mapping Potash Tailings.

PotashCorp, the world's largest fertilizer producer, holds safety as their number one priority and abides by a company-wide mandate of no harm to people. Their standard of excellence is upheld throughout their supply chain, including international engineering consulting firm AMEC, a global leader in onsite safety. When asked to map a PotashCorp tailing pond in Atlantic Canada, AMEC's primary goal was simple - collect accurate and detailed bathymetry data while minimizing safety risks.

#### Before Clearpath Robotics

Tailings ponds are unique environments with specific safety requirements. In addition to the safety concerns, the complex chemical composition of tailings makes taking accurate bathymetric readings quite difficult. Primarily, density stratification at various depths through the brine pond can cause sonar waves to become distorted and impede quality data collection.

Vernon Banks, acting AMEC Water Resources Project Manager for this survey, discovered that the unique tailings environment made finding

an organization to even submit a proposal for the necessary data collection a challenge. "Nobody was ready to come out and do it without first investing a significant amount of time onsite to evaluate conditions, and with no guarantee that they could even do what we needed," explains Banks.

Initial estimates for the collection of sufficient data to complete a high resolution bathymetric model required at least three geo-technicians onsite for a combined 300 hours and a sizable budget.

**"Nobody was willing to come out and do it without first investing a significant amount of time onsite to evaluate conditions."**

Given the survey accuracy and resolution required by PotashCorp, paired with a strict focus on technician safety, AMEC decided that completing the job using the traditional manual method of physical probing to map surface depth was insufficient. Clearpath Robotics stepped in at this crucial time to offer a much safer and more accurate robotic solution.

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“We were able to safely collect **100 times more data** in less than 1/8th the time, cutting costs by 60%!”

## The Clearpath Advantage

Like the other service providers Banks had discussed the project with, Clearpath Robotics could not make any guarantees about the accuracy of their readings in this untested environment, but were excited to explore Kingfisher’s capabilities in such a challenging setting.

“I couldn’t believe how easy it was. To cover that area in such a short time was remarkable!”

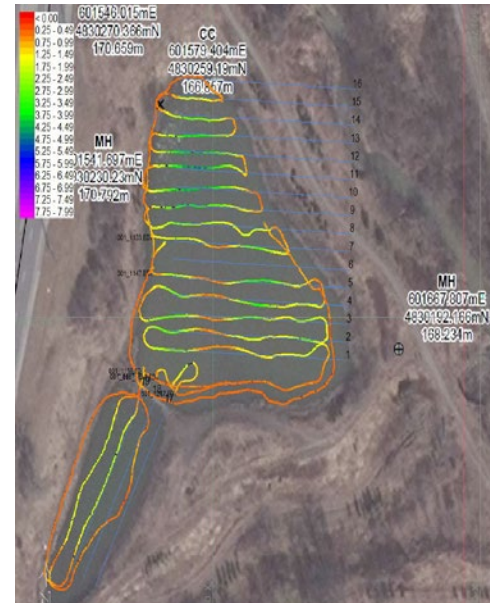
safely collect 100 times more data in 1/8th the time, cutting costs by 60%.” Marsh was very impressed; “to cover that amount of area, in such a short time was remarkable!”

Mr. Banks adds that despite initial doubts about the ability of sensors to function in such a saline environment, “It worked out very well.”

## Results

The full survey was finished in 12 hours with 89,000 usable data points collected, all from the safety of the shore.

By combining the data collected using Kingfisher with slime depth measurements taken with physical probes, AMEC was able to easily determine the capacity of the tailing pond and create a bathymetric map.



A sample topographic map built by Kingfisher after an automated bathymetric survey (PotashCorp results are proprietary and confidential).

The quality of data received from Clearpath exceeded early expectations. “The measurements we were getting physically, in the places where we have actual measurements in conjunction with sonar, agreed very well - within 5 to 10 cm. For what we were doing, that’s great,” says Banks.

AMEC plans to continue using Clearpath Robotics’ Kingfisher and their data collection services for future projects. Mr. Banks adds that he found the process to be “extremely time efficient, and as far as budget spent for amount of data given it was really great value.”



The original Kingfisher Remote Survey System as used by PotashCorp.



The new and improved Kingfisher Remote Survey System unveiled mid-2012.

## About Clearpath Robotics

Clearpath Robotics builds reliable and easy-to-use unmanned vehicles to help organizations automate their data collection needs in safety sensitive environments. Our robots are simple yet well-engineered systems that integrate powerful state-of-the-art technology and industry-leading support. Visit us at [www.clearpathrobotics.com](http://www.clearpathrobotics.com) to learn more or call us at **1-800-301-3863** to speak with an Applications Engineer today.