

Seattle Water Quality Lab Automates Water Sampling



The Challenge

The City of Seattle's Water Quality Lab field technicians endure the Northwest's assortment of weather (including winter's rain and snow and summer's heat) to collect daily water samples from various areas within the King County watershed.

As they covered their collection routes, the field technicians kept track of sample data on paper forms. At the end of the day, they returned their water samples and associated paper forms to the office, where other employees matched the paperwork to the collection bottles and reentered the data into the lab's computer system.

Reentry of data always means duplication of effort and an increase in the risk of human error, such as transposing or incorrectly typing numbers. In this case, it also meant interpreting cryptic handwriting on potentially wet or torn paper. The lab needed a more accurate way to handle the data.

The Solution

JMT Systems Consulting designed, built, and deployed a mobile data collection interface for the Water Lab's legacy water sampling database.

The JMT solution is a mobile application which allows the field workers easy entry of pH, turbidity, temperature, etc. That data is validated in the field and stored securely on rugged Intermec mobile bar code scanners.

The field process starts in the office by printing bar code labels and attaching them to sterilized sample bottles. Then the system downloads each technician's daily route to a bar code scanner. The technician picks up the scanner with his route and a set of labeled sample bottles and leaves for the first sample site.

Upon arrival at each sample site, the technicians scans the site ID bar code, selects an empty bottle, scans the bottle's bar code label, and then enters the analyzed sample criteria. The scanner retains the site/sample bottle association with its corresponding data.

The Benefits

Field technicians no longer need to write on paper forms in harsh or windy weather conditions. Office personnel also benefit by not having to decrypt handwritten field data on wet, torn, or dirty forms.

Scanning bar codes instead of handwriting text has eliminated the potential of transposing and incorrectly writing the values. The error-checking logic in the JMT scanner application validates criteria for each sample at the time of entry, further protecting the data.

The addition of bar codes and scanning has decreased data entry, making fieldwork more efficient. The final result is fewer errors and increased productivity.