

City of 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. The technicians would keep track of their collection route's data on paper forms.

At the end of the day, field technicians would return all of their collected sample bottles and associated paper forms to the office. Here, an office person would then match the paperwork to the collection bottles and then reenter that same data into their computer system.

Reentry of data meant a task of interpreting cryptic handwriting on potentially wet or torn paper. It also introduced the potential for transposing or incorrectly typing numbers while entering data into the system. These are human errors typical with data entry, but increased with duplicated data entry.

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 comprised of 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 the rugged Intermec mobile bar code scanners.

The field process is initiated in the office with the printing of bar code labels. These labels are affixed to a set of sterilized sample bottles. The technician's daily route is then downloaded to the scanner.

Prior to leaving the office, each technician takes with them a handheld scanner containing their daily route and an appropriate number of empty sample bottles.

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

Benefit

Field technicians no longer need to write on paper forms in harsh or windy weather conditions. Office personnel also benefit by no longer having to decrypt handwritten field data, whose forms may have become wet or torn. They no longer have to reenter the data that had already been collected in the field.

Redundant data entry is eliminated. The technicians scan the site ID and bar code label to create the association – the criteria is stored for that association. Data is entered once, in the field, and automatically transferred to the host database with the touch of a button.

Scanning bar codes, instead of handwriting text has eliminated the potential of transposing and incorrectly writing the values. The addition of bar codes and scanning has decreased data entry making the data more reliable and the fieldwork more efficient.

Additionally, error-checking logic was developed into the JMT scanner application to validate criteria at the time of entry further protecting the data.

The final result, errors are reduced and productivity has increased.