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Materials Testing Needs***

ADMET Concrete Traker Helps K.S. Ware Accelerate Bridge Construction

K. S. Ware & Associates, L.L.C. is a Nashville, TN geotechnical engineering firm with branch offices in Knoxville, Jacksonville, FL, and Louisville, KY. It routinely tests concrete for buildings, bridges, roads, airports, and other infrastructure projects. Following Hurricane Katrina, KSWA provided concrete and aggregate quality control testing for the reconstruction of the economically essential U.S. 90 Biloxi Bay Bridge. The design-build project required the utmost efficiency to meet the 18-month deadline for opening a new span to two-way traffic. KSWA turned to ADMET for its Concrete Traker concrete testing management system to expedite the process and accurately track specimens.

Hurricane Katrina literally knocked the U.S. 90 Biloxi Bay Bridge between Biloxi and Ocean Springs, MS off of its piers. The economic impact was huge. As a result, the Mississippi Department of Transportation (MDOT) decided to take a design-build approach to reconstruction with a goal of reopening the first span to two-way traffic in 18 months.

The deadline required perfect coordination among the 30 companies involved with the reconstruction in order to expedite the process while maintaining quality.

The consultant in charge of quality control, Volkert & Associates, Inc., turned to geotechnical engineering firm, K.S. Ware & Associates, L.L.C. to test concrete and aggregate samples.

KSWA dispatched its mobile lab, one of only a handful of American Association of State Highway Transportation Officials (AASHTO) accredited mobile labs in the country, to the site.

The mobile lab has the capacity to test more than 200 cylinders per eight-hour shift and has curing capacity for over 2,000 samples.

Automating the testing process

The accelerated construction schedule required efficient handling of the concrete cylinders. Explained Gregory Brubaker, KSWA Principal, "They wanted answers in 24 hours to let them know if they could drive equipment further out on the deck. So, we were breaking cylinders in the middle of the night to see if they met preliminary strength goals."

Brubaker knew he needed to automate the firm's concrete testing management in order to meet the schedule. He researched concrete testing database programs and narrowed the selection to ADMET's Concrete Traker.

Brubaker already had an ADMET controller on the company's Test Mark compressive testing machine and he was impressed with Concrete Traker's scheduling and reporting capabilities. He commented, Concrete Traker "is about more than just dumping data into our own database or spreadsheet."

Concrete Traker is a powerful specialized program that is built on the FileMaker Pro database engine. It supports custom reports and graphics, and facilitates networking and integration with standard

SOLUTION OVERVIEW

Industry: Construction

ADMET Product: Concrete Traker concrete management database

Customer: K.S. Ware & Associates, L.L.C.

Application: Testing concrete cylinders

spreadsheets, document processing and Web posting programs.

Concrete Traker uses barcodes

The specimen control process relies on barcodes. Two to ten cylinders are collected for testing from each pour. Cylinders are tested at 24 hours, three days, 28 days and, in some cases, 56 days with 28 days being the certified strength reading for MDOT.

KSWA uses metal-backed barcodes attached to copper wires that are inserted into the specimens during the pour, or plastic tags that are affixed later. The data is recorded on forms that specify pour details. The form and the specimens are brought to the mobile lab where they are entered into the Concrete Traker database.

“The daily sheet has information that doesn't vary from cylinder to cylinder – things like time, placement location, temperature, water content, additives and mix design,” said Brubaker. “The operator then enters the number of cylinders and the unique barcode that goes with each and the number of days to cure before testing.

“The greatest benefit of this is that we enter many things only once and the information just flows along with the system until we do a final report... it reduces the potential for errors.”

Process control/reports

Once in the database, Concrete Traker automatically manages the process. It keeps track of the specimens in the curing tanks and tracks

movement. It also generates pick lists of specimens to be tested on each shift.

The barcode affixed to the specimen is scanned before each test. This ensures that the compressive strength results are assigned to the correct specimen information and pour records in Concrete Traker.

KSWA generates a number of electronic reports each day for the contractor, who then posts them in Adobe Acrobat (PDF) format for viewing on several project repository Web sites. The reports include strength results for the day, strength reports on pours, final reports on individual locations and any number of other analyses.

Electronic records are also kept in the mobile office and printed reports are submitted for archival documentation.

Commenting on the construction of the bridge, Brubaker said, “It helped us identify the elements that were ready to be put in service. We could also track and predict strengths by individual mix design or identify a mix design that wasn't meeting its strength on a regular basis.”

KSWA's enhanced cylinder testing system was an important component in helping the initial phase of the project come in on schedule – actually two weeks early on the 18-month timeline.

KSWA continues to use Concrete Traker and has since added a second Concrete Traker database from ADMET at its lab in Nashville.



For more information:

For more information about ADMET products or services, please call us at 800-667-3220 or 781-769-0850, email sales@admet.com or visit our Web site at <http://www.admet.com>.

For additional information on K. S. Ware & Associates, L.L.C., visit <http://www.kswarellc.com>.

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