

# LIMS: Technology in the Lab

Laboratory information management systems bring even more technology into the lab.

**T**wo leading water supply companies, American Water Works (Belleville, IL) and Montgomery Water Works and Sanitary Sewer Board (MWWSSB, Montgomery, AL), have increased the efficiency of their laboratories and enhanced productivity by using advanced laboratory information management systems (LIMS) to automate previously manual tasks. American Water Works has configured its LIMS to automatically create work orders and print labels and chain of custody documents for the many samples that laboratory analyzes regularly. The MWWSSB, on the other hand, uses simple custom programs to automate the transfer of data from instruments to LIMS to an unusual degree.

For example, data are transferred from gravimetric measurements to a spreadsheet, then checked and moved directly to the LIMS with one button push. The MWWSSB has saved additional time by creating custom reports that provide information that used to have to be manually collected and formatted in the past.

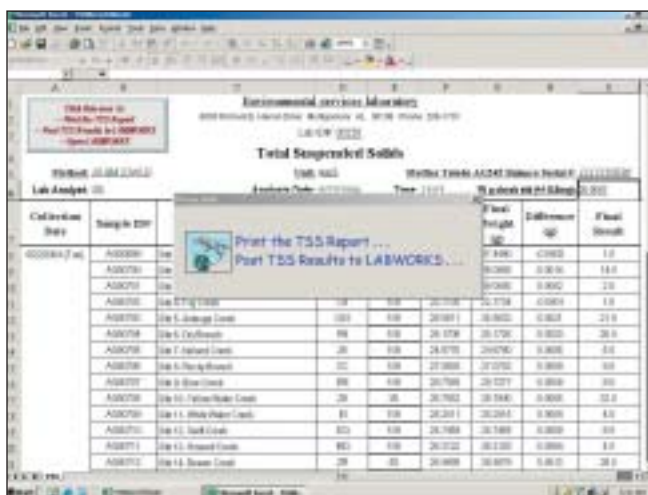
## Consolidating Schedules from 300 Districts

American Water, a part of RWE Thames Water, provides high quality water, wastewater, and other related services to 20 million customers in 28 states, four Canadian provinces, Puerto Rico, and Chile. The company has more than 8,000 employees. Originally, American Water used a home grown database to store laboratory samples, but it did not offer any significant process automation capabilities. So there were only minimal time savings compared to the manual approach. Over the past several years the company implemented first the Access version and later the SQL Server version of the Labwork LIMS (PerkinElmer, www.perkinelmer.com). "PerkinElmer has provided considerable custom programming assistance to fit the product to our needs," said Dan Monahan, LIMS Administrator for American Water's Belleville Laboratory. "For example, we have to be flexible enough to handle sample schedules from approximately 300 districts from 24 states. The sample scheduler

amount of manual data entry that was expensive and subject to potential errors. The technicians in the various districts log into the LIMS through the Citrix Winframe remote access server that utilizes the Internet to provide inexpensive remote access. They enter the information associated with each sample, such as the location, collection date and time, and type of sample, either effluent, raw, or distribution. The schedule usually remains fairly constant for the entire year, but when changes are needed they can easily be entered into the process scheduler. Based on the consolidated schedules created by the custom program, the process scheduler automatically prints out the chain of custody labels and bar coded sample labels. Clerks package them up into kits monthly and send them to the districts. This represents a major improvement over the previous process in which the data for each individual sample had to be hand-written on the label.

When the sample is received, the clerk simply scans the label and the sample is logged into the system and enters into the workload of the analysts or group of analysts responsible for that particular test. The sample is automatically upgraded to pending status. Each analyst can go into the system to check their backlog of pending samples, check samples out, and enter the results. When the analyst saves the results, the sample moves into the validation queue of the manager whose responsibility it is to review that particular type of sample. The software offers the ability to track internal chain of custody through the use of electronic signatures. At the present time, one state in American Water's territory does not recognize electronic signatures so the company must maintain physical signatures. LABWORKS is about to release a module that will store and track paper signatures and

The LABWORKS process scheduler plays a key role in automating a large



The LABWORKS Explorer is opened up and the user is then able to call up the queue that shows all the pending tests.

