

The Time Is Right for Automated Data Management and Reporting at Your Water/Wastewater Treatment Facility

Executive Summary

Water and wastewater treatment facilities are an indispensable link between environmental sustainability, public health, and economic growth. For this reason, their operations are subject to strict regulations and reporting requirements. Unfortunately, their systems and processes for data recording, analysis, and reporting are not making the best use of time, resources or technology.

Despite their immense importance to society, many facilities operate with outdated reporting tools or software that lacks the capability and flexibility to communicate with other systems and provide automated reports. Some facilities still use paper-based systems that require days or weeks of data gathering, entry, and analysis to produce reports.

Without automated reporting solutions, facilities are needlessly burdened by time and cost inefficiencies. Given government agencies' ever-tightening budgets and inevitable requirements to modernize data processing, now is the time for water treatment facilities to add efficiency and reduce workload by investing in an automated data management and reporting system.

Facilities are Struggling to Keep up with Reporting Requirements

Water treatment involves a large number of highly complex processes that produce a continuous stream of data. This enormous amount of raw data must be monitored, recorded, organized, and analyzed on an ongoing basis as part of a facility's normal operations.

In addition to producing reports for their own purposes, staff must also comply with extensive reporting requirements imposed by municipalities, counties, states, and other regulatory authorities.

Treatment facilities that are still managing data using manual processes can spend days or even weeks producing the necessary reports. Not only is this a time-consuming effort, it also leaves a large margin for human error. Each time data is manipulated by hand, a new opportunity for mistakes to be made is created. Each error has a ripple effect throughout the data and can be difficult to track down and correct.

The problem is so widespread that the U.S. Environmental Protection Agency (EPA) proposed a new rule on July 30, 2013, to modernize Clean Water Act reporting. The proposed rule requires facilities subject to National Pollutant Discharge Elimination Systems (NPDES) regulations to switch from paper to electronic

reporting. The goal of the rule is to ensure consistent and complete reporting by expediting the collection, processing, and reporting of data.

The rule becomes a mandate in 2015, regulated facilities will have two years from the effective date to implement digital reporting systems.

Paper-Based & Legacy Software Systems are Burdensome

Using traditional paper processes and legacy software for collecting, inputting, and reporting data places a tremendous time, cost, and accuracy burden on treatment facilities. When relying on a paper-based system, it can take days or weeks to record raw data, analyze that data, and generate a report. A mistake made at any step in the process takes additional time and resources to search for the source of the error and correct it.

In an attempt to streamline processes, many facilities have installed customized data collection and reporting software systems. Unfortunately, most of these systems are expensive to maintain and update. Additionally, there is often difficulty setting up the system to produce the required data because many of these systems were not designed specifically for water and wastewater facilities. As a result, facilities do not realize the efficiencies they anticipated.

Facilities relying on paper-based systems or legacy software often turn to Microsoft Excel to help them do the calculations necessary to chart and report their data. While Excel is a powerful tool, it is most effective for ad-hoc analysis and simple data manipulation. When large data sets are involved, using Excel for long term data storage and complex analysis becomes difficult to manage. Excel often has multiple data links on different spreadsheets across several tabs and does not have the security and audit information to understand who has been interacting with the data. This can quickly compromise data and, without industry-specific functions, analysis takes extra time and effort to produce reliable results.

In addition, Excel does not work seamlessly with other systems frequently used in water and wastewater facilities. Data must be re-entered into Excel from paper records or imported from other systems. This takes time and creates more opportunities for errors. After data is entered, someone must create the necessary charts and reports. This step adds even more time and opportunity for errors.

Water and Wastewater Treatment Facilities Need Automated Data Management Systems

What today's modern water treatment facilities need is an integrated data management and reporting system that is easy to use, customizable, and powerful enough to handle a wide range of reporting and analysis requirements. This type of automated platform has the effect of optimizing all of the functions within a facility.

An integrated water information management solution brings data from across all drinking water and wastewater treatment systems into a central, secure database. This helps operators get a complete picture of their entire system, empowering them to make informed decisions and facilitating fast and accurate reporting.

It streamlines data collection, enhances analysis capabilities, and speeds up the reporting process while significantly reducing opportunities for human error. An automated data management and reporting system also provides significant time and cost savings. Multiple data points can be recorded in near real time. Reports can be generated automatically and with greater accuracy. And, because critical data irregularities can be seen immediately, operators can make adjustments that result in energy and cost savings.

When the EPA announced its proposed e-reporting initiative, it projected substantial financial savings at all levels. Authorized state NPDES programs are expected to save \$28.7 million annually. NPDES-regulated facilities are expected to save \$1.2 million annually. And, the EPA projects that it will save \$500,000 annually. At each level, organizations and treatment facilities will see the cost and time-saving benefits from the responsible implementation of an automated reporting solution.

Powerful Data Management Saves Time & Improves Efficiency – Case Study

The Brush Creek Wastewater Treatment Plant operating in Cranberry Township, Pennsylvania processes 3.2 million gallons of wastewater each day from area homes, businesses, and industries. Once processed, the water is released into Brush Creek for use by Cranberry Township and several neighboring communities.

Before deploying the Hach Water Information Management System™ (Hach WIMS™) in 2012, the facility's data recording and reporting processes were bogged down by mountains of paper. Staff recorded raw data on bench sheets that were stored in an ever-growing collection of binders. Due to the sheer volume of data, only a small portion of it was ever entered into Excel spreadsheets.

Now that they are using Hach WIMS™, they are able to quickly capture all of their facility's data in one central location. The software then handles the necessary calculations and populates customized reports that are automatically emailed to staff on a pre-programmed schedule. If the data appears to be incorrect, they can respond faster and follow an audit trail to uncover any errors.

They are also enjoying instant access to all of their current and historical data. This has improved their quality assurance and quality control processes. Additionally, they have the new ability to easily create meaningful graphs to help analyze trends in a way they never could with their previous paper-based system.

What to Look for in a Water Information Management System

Recognizing that treatment facilities are headed in the direction of automating data management, software vendors are stepping up their marketing efforts. Because it's easy to be distracted by fancy names and features, it's important to make sure that the system you choose has the right breadth of capabilities.

Here is what to look for in a state-of-the-art water information management system.



To easily monitor and manage operations, you need to be able to:

- Enter raw data once into a secure database
- Use built-in equations to convert raw data into meaningful information
- Automatically populate graphs and reports
- Review errors that are automatically identified by the system
- Use built-in tools to troubleshoot errors, compliance issues, and other data issues
- Validate data by reviewing audit trails
- Assign privilege and access levels to various users
- Instantly access data locally or remotely over the web.

To improve operations and save time and money, you need to be able to:

- Easily identify cost reduction opportunities by comparing data from throughout your operation
- Quickly compare data in unique ways to get new perspectives of your operation
- Effortlessly configure graphs for trend analysis, correlations, and control charting
- Access historical records that are safely stored and always available.

For efficient visualization and reporting that saves valuable time and provides actionable insights, you need:

- The ability to create near-real-time graphs and reports with a few keystrokes
- Built-in, industry-specific formulas that quickly and accurately perform complex calculations and easily handles data qualifiers
- Pre-programmed EPA and state report templates that create both paper and digital regulatory reports
- The ability to schedule the automatic creation and distribution of reports.

For a smooth transition from a paper-based or legacy software system, you need:

- The ability to configure customized online, multi-user, and multi-facility solutions
- Support for integrating with LIMS and SCADA interfaces for automated, seamless data transfer
- An integrated mobile solution using doForms™ on iPhones, iPads, and Android devices
- A partner that provides onsite installation, configuration, and programming
- A partner that provides customized onsite and web-based training
- A partner that provides ongoing tech support and training.

Conclusion

To ease the burden of regulatory reporting requirements, increase data accuracy, and realize significant time and cost savings, treatment facilities must transition to an automated system for recording, analyzing, and reporting data.

Hach WIMS™ integrates data collection, calculation, verification, and compliance engines into one secure platform. It is flexible, customizable, and powerful enough to optimize the workflow processes of any facility. Armed with accurate data, real-time insights, and automated reporting capabilities, you can make confident decisions about how you operate your facility.

Because it can be difficult to select the right system, it helps to have a knowledgeable vendor. By partnering with Hach, you'll have access to more than 60 years of industry experience. Contact Hach today to learn more about how the Hach WIMS™ can reduce your data reporting burdens and help you optimize your water treatment facility.

About Hach

For more than 60 years, Hach has been dedicated to making water analysis faster, simpler, greener, and more informative. With unsurpassed customer partnerships, knowledgeable experts, and reliable products that are easy to use, Hach is modernizing the industry's capacity to manage water. Our analytical instruments, reagents, and laboratory information management software are used to test and report on the quality of water in a wide variety of industries and markets — from around the corner, to around the globe.

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