

Thermo Scientific LIMS: A Solution for Water and Environmental Testing Laboratories

Improving Regulatory Compliance Management by Utilizing Informatics to Support your Processes

As a business servicing the Environmental and Water & Wastewater public sector needs, we understand that our customers are all facing the same fundamental issues.

- How do we deliver accurate, consistent, and traceable results – using standardized processes that meet regulatory guidelines, ensure public safety and monitor quality throughout the entire sampling, testing, and reporting process?
- How do we employ the most sustainable and efficient processes in our business – reducing labor intensive procedures and waste, while increasing automation?
- How do we do all this and still remain profitable – making better use of all our resources, having more harmonized processes, mitigating risks while continuously looking for process improvements?

This is where Thermo Scientific SampleManager LIMS comes in. It is already the most widely deployed LIMS around the world and with our new Water and Environmental

“A safe and secure supply of drinking water is essential to ensuring public and environmental health in every community.”

US EPA, Investing in a Sustainable Future DWSRF Annual Report

The Safe Drinking Water Act empowers the US EPA to specify the legal limits for levels of contaminants in drinking water. The EPA additionally determines the water testing methods and sampling schedules that water providers must follow, but has reported that a significant challenge exists with a deteriorating water supply infrastructure.

The demands upon the nation’s water resources have increased significantly over the last half century, and now the drinking water supply systems support over 240 million customers. With an aging water infrastructure, it has been recognized that investment is required to upgrade facilities and increase efficiency by reducing water loss, while ensuring consumer safety.

The EPA’s Drinking Water Infrastructure Needs Survey and Assessment report, released in 2009, found that an estimated \$334.8 billion would need to be invested between 2007 and 2027 in order to continue to provide safe drinking water to the public.

As a result, significant increases in funding are available to replace and update facilities across the country and, at the same time, the US EPA has also increased the funding for regulatory surveillance of the 100+ water contaminants for which mandatory and recommended limits have been established.

solution, we’ve added comprehensive ISO 17025 and NELAC compliant functionality that will be invaluable to your laboratory personnel, your quality assurance group, and your customers.

Pre-Configured for Compliance with Water and Environmental Requirements

As the industry’s leading laboratory information management system, SampleManager LIMS includes a pre-configured, ready-to-use water and environmental sample management system. The Thermo Scientific Water and Environmental LIMS solution has been built on SampleManager and provides you with the latest technology to assist in connecting your lab with the enterprise to help you make faster, more informed decisions at all levels of the organization.

Developed in conjunction with environmental experts for ISO 17025 and NELAC requirements, the solution also has built-in functionality specific for workflows found in water and environmental labs. Pre-defined test methods, batch sequences, regulatory reports, and other templates allow customers to reduce administra-

Sample Scheduling

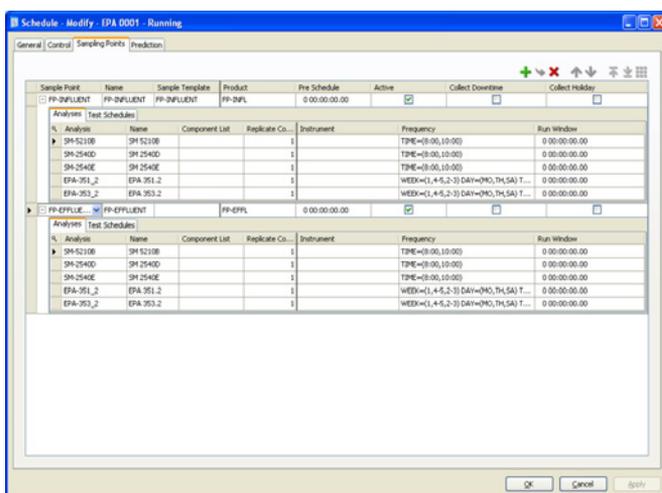


Figure 1. Water and Production Samples can be scheduled through the Sample Point Scheduler to automatically create field work as required.

Key Words

- ISO 17025 and NELAC Compliance
- Preparation and Analytical Batches
- Sub-sampling
- Customer and Project Management
- Training and Demonstration of Capability (DOC)
- Regulatory Reports

Customer Management: Projects and Statement of Work

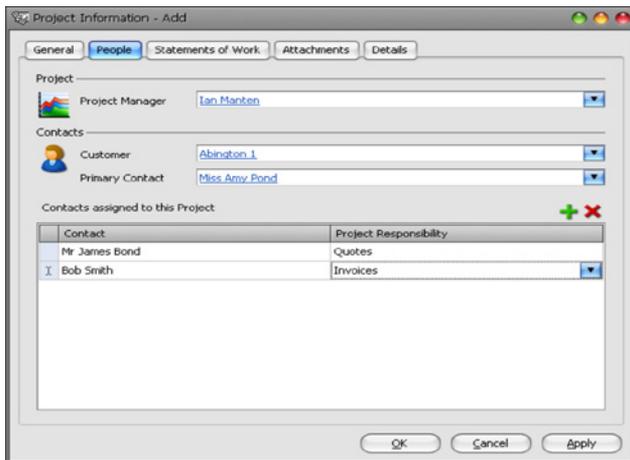


Figure 2. Customer Information is managed in the Project Information area. This includes the Statement of Work (SOW), People (Contacts), and Attachments (Files related to customer/contract review, such as emails, purchase orders, etc.)

Contracts

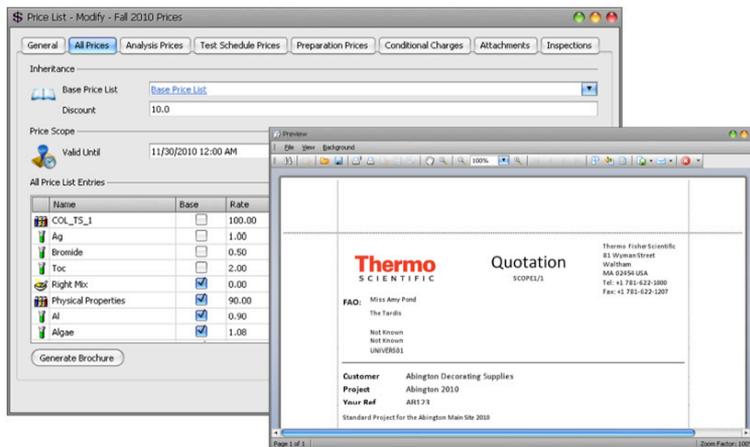


Figure 3. Pricing, Quoting and Invoicing can be managed from within SampleManager LIMS, reducing the need for other software applications within your business solution. This also reduces implementation and integration costs.

Sample Management: Sub-sampling

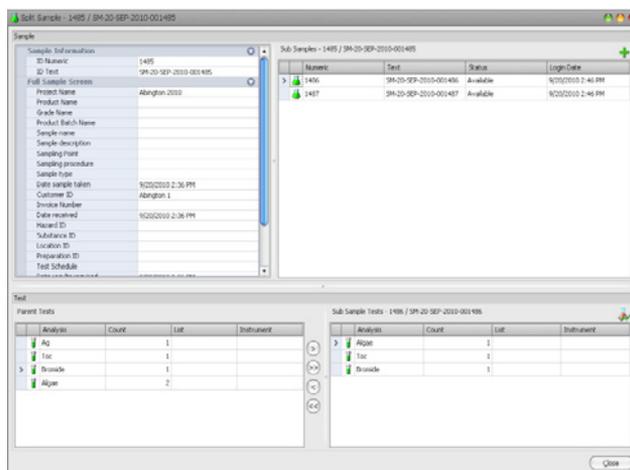


Figure 4. Sub-sampling allows users to easily manage sample allocation to various containers upon receipt to the laboratory ensuring traceability of the sample from arrival to disposal.

tion overhead, cost, and implementation time. In addition, comprehensive dashboard functionality helps to address the regulatory and operational needs of three distinct but interrelated parts of your laboratory's business – your personnel, your quality assurance group, and your customer.

Key Features and Benefits:

- Statement of Work (SOW) and project management capabilities ensure proper documentation of customer interactions and contract review. (Fig. 2)
- Customized pricing, quoting and invoicing management reduces the need for other software applications and associated costs. (Fig. 3)
- Extensive sample and sub-sample scheduling functionality, including the use of handhelds/PDAs, ensures proper traceability and management of field sampling information. (Fig. 1 and 4)
- Built-in, pre-defined test methods and calculations eliminate the need for external spreadsheets and other software for better quality results and more efficient operations.
- Preparation and analytical batches, and their associated methods and matrices, are linked to ensure traceability throughout the sample process. (Fig. 5)
- Project, job and sample templates capture customer and sample information, guaranteeing chain of custody.
- The ability to add attachments to samples or projects and generate reports specific to the water industry facilitates compliance with NELAC and EPA regulatory requirements. (Fig. 9)
- Automatic scheduling and maintaining Demonstration of Capability (DOC), Limits of Detection (LOD) and Limits of Quantitation (LOQ) studies eliminate manual report generation.
- Data visualization tools and SampleManager's intuitive interface allow users to easily manage and track sample information. (Fig. 7 and 8)

Preparation and Analytical Batches

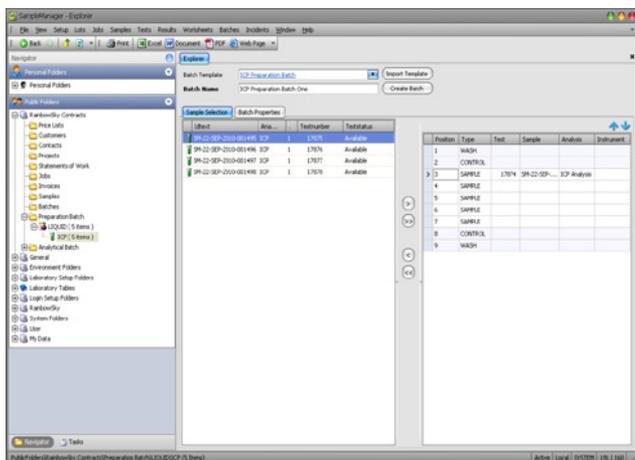


Figure 5. Pre-configured preparation and analytical batch templates with increased functionality to allow the user quick set-up of batches based on the method and the matrix. Preparation batches are linked to analytical batches to ensure traceability from sample preparation to the instrument analysis.

- Integration with other systems including Electronic Document Management Systems (EDMS) and instrument software improves data quality by eliminating timely and manual transcription processes. (Fig. 9)

The enhanced and industry-specific functionality built into the core product allows customers to easily meet ISO 17025 and NELAC requirements.

For Laboratory Personnel and Management: Optimized Lab Operations

Laboratory managers are under increasing pressure to maximize the utilization of their staff and equipment to gain better efficiencies in the lab and minimize time-consuming manual processes. The Water and Environmental LIMS solution provides comprehensive sample handling (Fig. 1), documentation from pricing to invoicing (Fig. 3), project and customer management (Fig. 2), instrument integration, and automated reporting capabilities – giving you tighter control and saving you time on routine tasks. Dashboards are configured to display sample and project metrics, labor costs, and monitor hold times at a glance (Fig. 7 and 8), so users can view the health of their lab and make more informed decisions about their operations. Furthermore, by automating and centralizing how samples are monitored and tracked, throughput, quality and lab productivity are also improved, allowing lab managers and analysts to focus on value-added activities. For LIMS users, the Water and Environmental solution delivers an extensive set of built-in functionality and configuration that delivers significant productivity gains by automating time-consuming activities.

Reporting: Regulatory Reports, DMR

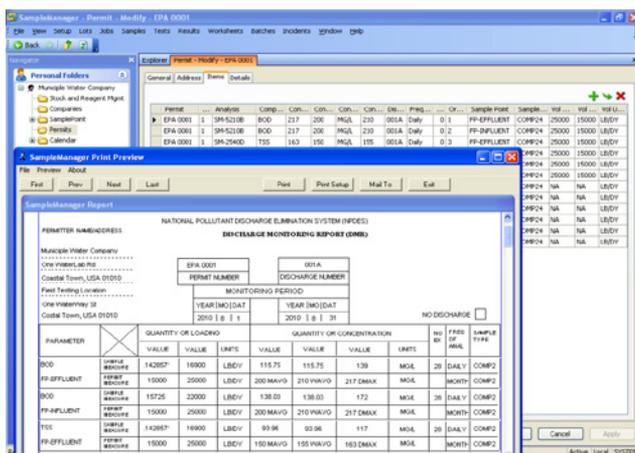


Figure 6. Pre-defined report templates allow customers to automatically generate regulatory required reports at a fraction of the time.

Data Visualization: Dashboards

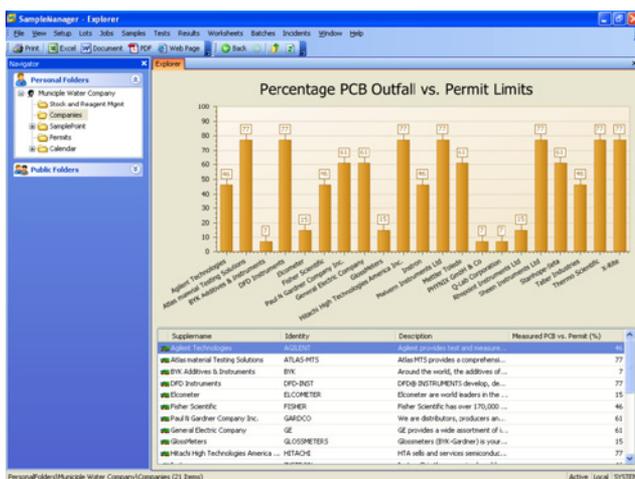


Figure 7. Dashboards provide graphical representations of information to allow laboratory management and analysts to visualize critical information in various forms.

For Quality Assurance: Meeting ISO 17025 and NELAC Requirements

Meeting stringent requirements for Water and Environmental samples has introduced labor intensive procedures to ensure compliance; such as, record keeping, Demonstration of Capability (DOC), document control, reagent and standard traceability, proof of training and reporting. Quality assurance can rely on integrated work

Data Visualization: Location Mapping

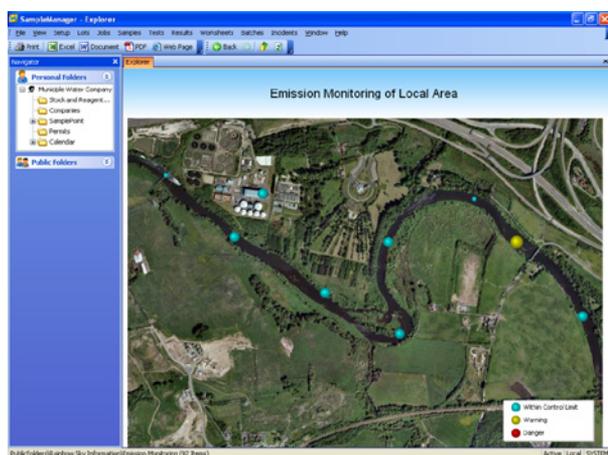


Figure 8. Data Visualization allows users outside the laboratory to monitor field collection sites quickly and easily within LIMS.

processes that ensure compliance with environmental regulations. Records are maintained electronically in a validated and secure environment, and can be easily retrieved during audits. In addition, the Water and Environmental solution demonstrates the capability of scheduling, recording and reporting on training related to annual Demonstration of Capability (DOC), scheduling and testing of annual Limits of Detection (LOD) and Limits of Quantitation (LOQ). Overall, data is available and readily retrievable for quality assurance.

For the Customer: Data Validation and Traceability

Each customer relies on the laboratory to provide accurate and valid data. Whether the laboratory is “in-house” or a commercial facility, customer management is a key part of contract review and sample handling within the regulatory environment. The Thermo Scientific Water and Environmental LIMS solution facilitates compliance by documenting customer processes within a secured environment and maintaining the information for easy retrieval.

The Statement of Work (SOW) allows the project manager to associate multiple customer contacts and comply with reporting, pricing, and testing requirements in one system (Fig. 2 and 3). In addition, the Water and Environmental solution allows customer communication to be saved within the project and documents any changes to the contract, which is an important part of contract review. All versions of quotes, invoices and reports are saved to ensure data traceability and version control.

Meeting the Needs of Water and Environmental Laboratories

Take advantage of the pre-configured solution that helps the laboratory improve efficiency, maintains records and traceability, and meets your compliance requirements for ISO 17025 and NELAC.

The Thermo Scientific Water and Environmental LIMS solution will support the way you manage compliance in the laboratory. With its extensive built-in features for customer and sample management, the Water and Environmental solution will generate, store and report on valid and traceable data to support your quality and laboratory processes. Now you have the ability to redefine your laboratory processes for improved efficiencies, cost savings and compliance with a configurable and expandable system that will grow with your business and support your data management needs in the future.

Instrument and Software Integration

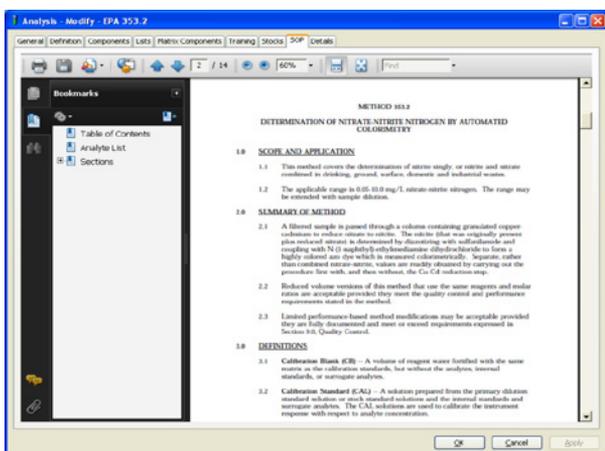


Figure 9. The ability to link external documents such as Standard Operating Procedures (SOPs) to analytical methods further demonstrates the ability of SampleManager LIMS to integrate critical laboratory information through one central source. Integration to instrument software and other enterprise systems ensures SampleManager is flexible and expandable to fit your business operations.

For More Information

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