

Implementation and Integration of SampleManager LIMS v11.1

CASE STUDY

PROJECT AT A GLANCE

Business Sector:

- Specialty Chemical
- Production / Manufacturing

Informatics Systems:

- SampleManager LIMS v11.1
- Epicor 9 EPR (Interface to LIMS)

Service Offering:

- Implementation
- Systems Integration (LIMS to ERP/MES)
- Data Migration

Elements:

- 1 Site
- 1 lab
- 10 Months

A specialty chemical company was striving to maintain its double-digit growth and its leadership position in the North American alkoxyates, polysorbates, and sorbitan esters market. To achieve its goal, the company recognized the need to expand and upgrade its manufacturing assets.

When reviewing their multi-site manufacturing operations, it was discovered that each manufacturing site utilized different laboratory information management systems (LIMS) and manufacturing information management and control systems (ERP/MES). The systems in place were found to be suboptimal, which affected both quality and productivity.

Additionally, the lack of integration between the LIMS and ERP/MES systems affected productivity and the speed of batch production and release.

CSols was selected based on our previous record of success in implementing a LIMS at another of the company's sites, our overall LIMS expertise, our expertise with LabManager LIMS, our outstanding domain knowledge (specialty chemical quality testing labs), and our systems integration skill set.

Objectives

To increase productivity, quality, and the speed of batch production and release, the company decided to standardize its quality control labs' information management systems and its ERP/MES systems. At the site on this case study is focused on, the company was utilizing Beckman's LabManager LIMS, which had reached its end-of-life support date some time ago. The static data from this legacy LIMS needed to be preserved and transferred to the new LIMS.

Additionally, the company also decided to integrate the new LIMS with the new ERP/MES system to streamline in-process testing and Certificate of Analysis (COA) production. CSols was engaged by the company based on our previous record of success in implementing a LIMS at another of the company's sites, our overall LIMS expertise, our expertise with LabManager LIMS, our outstanding domain knowledge (specialty chemical quality testing labs), and our systems integration skill set.

In summary, there were a variety of goals and objectives for this customer's project, including:

- Harmonizing and optimizing QC and Manufacturing processes and testing procedures
- Standardizing the LIMS and ERP/MES across the organization
- Increasing laboratory throughput and manufacturing productivity
- Increasing information flow and quality
- Increasing the ease and speed of product grading to support sales to customer specifications
- Increasing Certificate of Analysis creation and dissemination

Challenges

Several challenges needed to be overcome to achieve success in this project. Firstly, since the implementation of the SampleManager LIMS was not in a green field environment and the customer possessed a high level of LIMS experience, CSols' classic approach to the needs and requirements gathering, functional design, and system development needed to be adjusted. We therefore started with a review of the legacy Beckman LabManager LIMS to establish a baseline of requirements, workflows, and functionality. Several workshops were then held with the customer's LIMS team and key stakeholders to quickly validate the findings, make adjustments, and define new requirements, functions, and workflows. System



development and implementation were accomplished utilizing a rapid prototyping methodology. After each prototype was delivered and reviewed by the customer's team, adjustments were made based on their feedback, and new capabilities were added to arrive at the next prototype. The cycle was repeated until the final system was delivered.

Another challenge that this project faced was the need to preserve and migrate the static data (tests, specifications) from the legacy LabManager LIMS into the new SampleManager LIMS. The database/table structures for these two systems are not completely compatible, and the customer had utilized some fields in the Test and Specification tables in unique ways. In order to overcome this, CSols leveraged our in-depth knowledge of both LIMS' architectures and proceeded using a hybrid migration methodology. We created the data/field maps and then migrated as much as possible via transfer tools and custom developed programs. Items that could not be transferred in this way were transferred manually. Success was attained, and the static data was preserved and transferred.

Lastly, there was also the challenge of integrating the SampleManager LIMS with Epicor 9 ERP. CSols has integrated ERP systems with SampleManager many times. However, in this instance, the real challenge was not a technical one. The real

challenge was one of timing. The Epicor 9 ERP implementation was scheduled to be done concurrently with the SampleManager LIMS implementation. Unfortunately, the Epicor project was delayed, which affected the project schedule for the LIMS project. Once the Epicor implementation attained a stable state, CSols was able to pick up the integration project, verify the interfacing needs and workflows, and successfully complete this aspect of the overall project.

CSols' Role in the Solution

To accomplish the client's goals, the company chose Thermo Scientific™ SampleManager™ LIMS and Epicor 9 ERP/MES as its standards. CSols was engaged to implement SampleManager LIMS v11.1 to support quality testing for the company's manufacturing organization. We were also tasked with migrating the legacy static data (testing methods, specifications, etc.) from LabManager LIMS to SampleManager LIMS and integrating Epicor 9 with the LIMS. As part of the optimization process, CSols shared best practices with the company, leading to the automation of several previously manual processes, including Product Regrading and Environmental Test Scheduling.

This effort included the key tasks and deliverables:

SampleManager LIMS Implementation:

- Reviewed Beckman LabManager LIMS to establish baseline requirements and workflows
- Conducted workshops with the company's LIMS team and key stakeholders to verify requirements and develop/document new requirements and workflows
- Developed and delivered final Needs Requirements, Workflow, and Design documents
- Developed and delivered multiple SampleManager LIMS prototypes
- Reviewed prototype feedback and made appropriate adjustments to the next prototype

- Developed Product Regrading functionality – comparison of customer specification to testing results to determine scalability of batch
- Configured Environmental Testing schedules and testing functionality
- Developed Statistical Quality Control Specs
- Streamlined and delivered Certificate of Analysis reporting functionality
- Delivered final version of SampleManager LIMS
- Fully documented the final version SampleManager LIMS configuration
- Conducted unit and system testing of SampleManager LIMS
- Trained the customer's designated system administrator in the delivered SampleManager configuration

Migration of Beckman LabManager LIMS to SampleManager LIMS

- Developed table/field mappings between the two LIMS
- Exported Analysis and Specification information from LabManager to Excel
- Utilized ETL and other middleware tools to map and upload data to SampleManager LIMS
- Entities that could not be programmatically transferred were transferred manually

Migration of Beckman LabManager LIMS to SampleManager LIMS

- Developed the integration of Epicor 9 to SampleManager v 11.1
 - » Lot sample and In-process sample login
 - » Testing results return
- Conducted unit and system testing of the integration
- Documented the integration and delivered all required documentation
- Documented the integration and delivered all pertinent documents

Benefits

In our partnership with the client, we implemented a comprehensive strategy that has yielded significant positive outcomes. The following is a detailed list of the key benefits and improvements that the client has realized since our collaboration began.

- Risk to the customer's manufacturing organization was mitigated by the retirement of the Beckman LabManager LIMS, which was off support
- Batch production speed and quality were increased through the implementation of the SampleManager LIMS and integration of the LIMS to the Epicor ERP system
- Product sales were increased through the implementation of specialized Product Regrading functionality that enabled the company to quickly determine which customer specification was satisfied by the current batch
- Product release and overall productivity were increased through the automation of the creation and delivery of Certificate of Analysis reports, both to the customer's distribution center and directly to customers
- Regulatory compliance was increased through the implementation of Environmental Testing in the SampleManager LIMS. Sampling, Testing, Limits, Outlier reporting, etc. were automated in the system to support EPA and other environmental testing requirements



The implementation of the new SampleManager LIMS v11.1 was utilized as a medium to harmonize and standardize the company's quality control manufacturing processes, thereby increasing productivity and throughput.

In the end, the client achieved the objectives it set out to complete!