

Project Startup Report

Submitted to Project Oversight on 12/22/2022

GENERAL INFORMATION

Project Name: DEQ Chemistry LIMS Replacement

Agency Name: Department of Environmental Quality

Project Sponsor: Jim Quarnstrom

Project Manager: Gary Haberstroh

PROJECT DESCRIPTION

This project will be to implement the SampleManager LIMS system from Thermo Fisher Scientific (TFS) at the NDDEQ Chemistry Lab. This will be a complete replacement of their current Northwest Analytical (NWA) LIMS system that was originally implemented at the lab in the 1980's and which is no longer being updated.

The intent is to implement the SampleManager LIMS as a cloud hosted application. The system will be configured to meet the NDDEQ Chemistry business processes and all of the laboratory instruments will be configured with this LIMS system. While TFS will do the main work of implementing this LIMS system, NDDEQ Chemistry Staff will also take training on the SampleManager LIMS system so they are able to use the system but also to do some configuration of the various components of the system going forward.

BUSINESS NEEDS AND PROBLEMS

Business Needs:

- A LIMS that runs on current technology and interfaces with modern lab equipment.
- Reduce staff time entering data and improve data quality.
- Improved documentation for sample analyses data and meta data.
- Service to the state (customers) by providing better access to result data.

PROJECT BASELINES

Project Start Date	Baseline End Date	Baseline Budget	Funding Source
12/1/2021	7/12/2023	\$984,288	General Funds

Notes:

OBJECTIVES

Business objectives and measurements come from the project charter.

Business Objective	Measurement Description
<p>1.1 Ensure the Lab, including the LIMS can operate even when there is power outage and Lab is on backup power and when internet is down. After 12 months of operation, the LIMS nonscheduled downtime shall not exceed .3% total and for normal business hours, which would be a maximum total downtime of 2 hours per month and a maximum of 30 minutes per month during normal business hours.</p>	<p>1.1.1 LIMS nonscheduled downtime will be measured in minutes per month that LIMS is not accessible for data entry, not including scheduled downtime as measured annually starting 12 months after go-live. It would track both downtime during normal business hours as well as total nonscheduled downtime.</p>
<p>2.1 The login process must be efficient and easy to login many samples from multiple sources including in person and mailed in samples. Within 12 months of implementation, reduce overall average login time of samples by 25% as compared to current LIMS login process.</p>	<p>2.1.1 After the system has been in operation for 12 months compare the total time login staff need to login samples by the total number of samples, to get a ratio of Time/# samples. Compare this to the same time/sample ration taken before new LIMS was installed.</p>
<p>2.2 Reduce the amount of hand entry for sample data to improve data quality and potential for transcription errors. Within 6 months of implementation, reduce the amount of hand entry of data at login by 25% from samples sourced from NDDEQ.</p>	<p>2.2.1 After the system has been in operation for 6 months, compare the number of data fields that are hand entered vs electronic data transfer as compared to that same process prior to LIMS implementation.</p>
<p>2.3 Improve data accuracy and staff efficiency by being able to transfer analytical data into LIMS rather than hand enter as per the following metrics measured at times indicated after LIMS is implemented: Within 1 month, 100% of result from machines currently connected to LIMS; Within 3 months, 50% of remaining devices that have ability to connect to LIMS; Within 6 months, 100% of devices that have the ability to connect to LIMS.</p>	<p>2.3.1 Percent of lab devices that can communicate with LIMS compared to the number of devices that have an automated transfer of data to LIMS without requiring staff to transcribe data as measured 1 month, 3 months and 5 months after full implementation and then yearly thereafter.</p>
<p>2.4 Bidirectional dataflow and control will be created between the LIMS and Chromeleon. At least one will be established in each major instrumental area (gas chromatography, liquid chromatography, and ion chromatography) in 2 months. All established workflows that interact with Chromeleon will have these capabilities at 12 months.</p>	<p>2.4.1 Number of instruments supported by Chromeleon that have bidirectional data flow configured compared to total instruments supported by Chromeleon as measured after 2 months of implementation and annually thereafter.</p>
<p>3.1 Within 3 months after implementation the LIMS will be able to generate all QAQC reports required by the QA officer. At point of implementation the LIMS will evaluate all defined criteria QC measures in an SOP/workflow.</p>	<p>3.1.1 QA Officer defined reports are incorporated into the LIMS system such that they are able to be generated by the LIMS system, compared to the total number of QA Officer defined reports that they determine should be in the LIMS system as measured 3 months after implementation and annually thereafter.</p>
<p>3.2 Workflows/processes will be tied to all established laboratory Standard Operating Procedures (SOPs). Workflows, including QC measures, will be built for 35% of the laboratory SOPs in 4 months, 70% in 8 months, and 100% in 12 months.</p>	<p>3.2.1 Number or SOP used within the LIMS that have workflows/processes tied to the SOP's compared to all SOP within the LIMS system as measured at 4, 8 and 12 months and then yearly.</p>
<p>4.1 Improve access to final result data for the NDDEQ customer by having systems in place within 12 months after implementation that allow the results for 85% of samples to be accessed electronically on demand by NDDEQ customers with appropriate security.</p>	<p>4.1.1 At a time that is 12 months after implementation, measure the % of NDDEQ related samples whose results can be access electronically, on demand, by NDDEQ customers with appropriate security.</p>

KEY CONSTRAINTS AND/OR RISKS

Constraints:

- The Lab will continue to function and will be able to meet customer's needs in a timely manner throughout the LIMS implementation and transition period.
- This project will be worked on by current staff with the assistance of the vendor. The implementation of the LIMS can be done with current staff and no new DEQ staff or temporary staff will need to be added to work on the project.
- This project will be able to be completed within the current biennium. Money appropriated is for the current biennium.

Risks:

- Project shall not extend into the 2023-2025 biennium unless there is approval from the legislature to allow the money to carry over into this next biennium.