



Sample Master® LIMS Solves a Number of Challenges for the City & County of Broomfield, Colorado

Collaboration between two laboratories has resulted in higher lab
productivity and data quality

Organization Profile

The City and County of Broomfield, Colorado is a northwest suburb of Denver and has an estimated population of 66,000 residents. Since the 1990s, Broomfield and other area suburbs have seen significant economic growth and a similar increase in new residential and commercial development. There have also been a number of high tech and R&D firms that have opened national or regional offices recently, drawing new residents to the area.

The Environmental Laboratory's mission is to maintain a safe drinking water supply and meet quality requirements set forth by the US EPA and the Colorado Department of Public Health and Environment (CDPHE). The Wastewater Laboratory is focused on testing that supports the wastewater reclamation facility. This includes testing on wastewater discharged into Big Dry Creek to meet the requirements of federal discharge standards.

Their Challenge

The Environmental Laboratory is staffed by a laboratory supervisor and 6 full-time / 1 seasonal employees. The Wastewater Laboratory is staffed by a laboratory supervisor and 3 full-time / 1 part-time employees. In 1999, the Environmental and Wastewater laboratories implemented a commercially available LIMS (Laboratory Information Management System) that was in place for 15 years. During that time the LIMS performed adequately although over time the laboratory realized there were additional capabilities needed by the staff. This included the following:

- Sample results were manually typed into the LIMS and this meant occasional transcription errors.
- Due to limitations of the LIMS, samples had to be logged in twice. First, in the water laboratory, where a Chain of Custody was handwritten. Then the same sample was logged in at the wastewater laboratory.
- Results from instruments were manually keyed into the LIMS. This process was slow and another source of potential transcription errors.
- The LIMS did not have the ability to keep track of important data for sample preparation. Common scenario was preparing a potentially dissolved sample. The analyst would preserve with acid and wait 96 hours to filter it as part of the prep process. Tracking this process in the LIMS was not possible so it would have to be documented manually.



City and County of Broomfield, Colorado

www.broomfield.org

The City and County of Broomfield, CO government currently employs 1,000 people. The Environmental Services Division is dedicated to protecting the environment, preserving natural resources and providing water quality monitoring services for its citizens. The Environmental Laboratory (drinking water) and Wastewater Laboratory (wastewater treatment) are the key facilities that conduct critical environmental testing that will meet federal and state drinking water and wastewater compliance requirements.



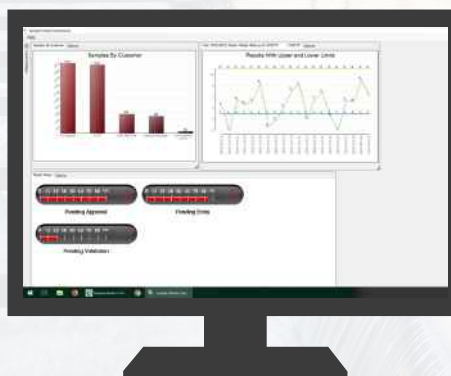
- Reporting in the LIMS was very limited and both labs ended up exporting data to Microsoft Excel and then generating basic reports.
- The labs required more robust QA/QC capabilities in the LIMS that was easy to use. They ended up exporting data to Excel and creating graphs and control charts.
- Support from the LIMS provider was limited. Software updates were limited, and technical support was provided by one person. As the workload for both labs continued to increase, there was a growing concern that they needed a data management solution that would be able to scale as the volume of testing grew.

Our Solution

In 2014, both laboratories agreed that they needed to evaluate alternative LIMS options to address the shortcomings in their current LIMS as well as move to a solution that could provide additional capabilities they would likely need in the future. A LIMS evaluation team was assembled consisting of three employees from each laboratory and led by the Environmental Services Superintendent.

There were several LIMS vendors who submitted proposals. The evaluation team pared the list of proposals down to a manageable number and then scored the proposals based on a list of their functional requirements. In the end, the City and County of Broomfield selected ATL Sample Master® LIMS based on the following factors:

- ATL Sample Master LIMS consists of nine modules – customers select only the modules they need. They can start with the core modules and purchase additional modules as needed. The two laboratories at the City and County of Broomfield liked this modular concept and purchased six modules: Sample Tracking/Data Entry/Sample Scheduling/QA-QC/Electronic Data Transfer/Resource Management. They also implemented the LIMS Maintenance module, which is provided at no additional charge for all customers.
- Sample Master LIMS configurability – The LIMS evaluation team appreciated the flexible configurability of Sample Master. This included the ability to quickly change labels and captions on any screen. It also is very easy to configure the LIMS to the workflows and business rules of the laboratory.
- Ability for both labs to collaborate – The ability for Sample Master LIMS to allow either the water or wastewater laboratory to log in a sample and have the other lab be able to bring it up in the LIMS database and NOT have to log in the sample again ended a data management headache and made collaboration between the labs a reality.



- Complete lab automation = Higher lab productivity and data quality – In addition to implementing a new, modern LIMS in Sample Master, both laboratories also had ATL interface their instruments to the LIMS. And ATL also recommended positive ID, with the installation and use of barcode labels and hand-held scanners – a huge time saver as samples make their way around the lab.
- Improved reporting – ATL Sample Master LIMS includes a rich inventory of standard reports that can be modified as well as the ability to create new reports as needed. The analysis report shown here is an example of a report that is easy to create and has been concisely formatted for the end user.
- ATL's experience – ATL has been a leader in LIMS for over 25 years and the City and County of Broomfield was comforted in knowing that ATL was very comfortable in deploying their LIMS in the environmental and water/wastewater sectors. Sample Master LIMS has also been upgraded to include new functionality for customers in these industries.

Report of Analysis

For: NPDES
2985 W. 124th Ave.
Broomfield, CO 80020

Attn: _____
Lab Supervisor: _____ 28-Apr-19

Client Sample ID: _____ Lab Sample ID: 19032902-01
Site: Effluent Collection Date: 4/1/2019

Analyte	Method	Sample Result	Detect Limit	Analyst	Anal Date
BOD, carbonaceous	SM 5210B	< 2.00 mg/L	2	selis	4/3/2019
Solids, total suspended	SM25-40D	3 mg/L	1	selis	4/2/2019
Ammonia	SM4500NH3-H	0.12 mg/L	0.09	kbaca	4/5/2019

Client Sample ID: _____ Lab Sample ID: 19032902-02
Site: Influent Collection Date: 4/1/2019

Analyte	Method	Sample Result	Detect Limit	Analyst	Anal Date
BOD, carbonaceous	SM 5210B	192 mg/L	2	selis	4/3/2019
BOD, total	SM 5210B	250 mg/L	2	selis	4/3/2019
Solids, total suspended	SM25-40D	518 mg/L	1	selis	4/2/2019
Ammonia	SM4500NH3-H	37.80 mg/L	2.25	kbaca	4/5/2019

NA = not analyzed

Since going live with Sample Master, both laboratories at the City and County of Broomfield, CO have been very happy with the LIMS. ATL provides both laboratories with excellent technical support and maintains a regular schedule of formal classroom and web-based training options, in addition to their annual Sample Master LIMS Boot Camp.



City and County of Broomfield Laboratory



City and County of Broomfield (CO) Environmental Services Staff

“Sample Master has been a great addition to both of the laboratories at the City and County of Broomfield. It has helped us collaborate between the two laboratories, reduce duplication of efforts and eliminate errors with the ability to import results directly from the instruments.”

- Dawn Cowell, Laboratory Supervisor

Accelerated Technology Laboratories (ATL), headquartered in West End, NC, provides laboratory automation solutions to a variety of industries from analytical, environmental, food & beverage, water and wastewater, chemical, government, public health, clinical testing and manufacturing. ATL's LIMS products are installed in over 575 laboratories around the world and supported by a steadfast commitment to excellence in product quality, support and training. ATL is one of the few LIMS providers that is ISO 9001:2015 certified. For additional information, visit: www.atlab.com.

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