



Case Study: Utilizing Lean Six Sigma To Reduce Time & Cost In Testing Environmental Samples

After they are collected, water, soil, and other environmental samples must be tested within a reasonably short period of time—some as short as 48 hours or less—before the sample is no longer viable. Because the Oregon DEQ essentially competes with private contractors for testing business, it has significant pressure to keep turnaround times and costs competitive with the marketplace.

To find ways to improve overall efficiency, Guidon worked with the Oregon DEQ to assemble a cross-functional Kaizen team of division employees from across the state—as well as three external volunteers requested for their expertise—to brainstorm solutions. Participants learned Lean basics and, using that training, mapped the current process on a 40-foot wall. The exercise revealed a 93-step process.

A discussion about each step and the related wait times helped the team identify redundant or unnecessary steps and find ways to eliminate them. That resulted in a 42 percent reduction in the number of steps for each testing process. In addition, a number of “quick wins,” or easy-to-implement solutions were realized by the team, including the use of bar coding to minimize data entry time and errors, form standardization, prioritization dates, electronic approval signatures; error tracking to identify problem areas, and many others. Longer-term improvements included reduction or elimination of redundant quality control checks; client insight on turnaround times; and enhanced system functionality for the laboratory. Significant improvements included:

- Physical hand-offs reduced by 85 percent (26 to 4)
- Electronic hand-offs reduced by 60 percent (10 to 4)
- Loop-backs reduced by 56 percent (9 to 4)
- Decision points reduced by 53 percent (17 to 8)
- Steps in the process reduced by 42 percent (93 to 54)
- Number of waits reduced by 38 percent (16 to 10)
- Value-added percentage increased by 72 percent (3.2 percent to 5.6 percent)

The “quick wins”—simple improvements that could be put into place immediately, with little effort included:

- Bar coding to minimize data entry time and errors
- Form standardization to improve accuracy
- Due date-driven prioritization to ensure timely analysis
- Electronic approval signatures for quicker processing
- Communication boards to improve communication
- Error tracking to identify error-prone areas
- Performance measures and turnaround time reports to help managers monitor efficiency
- Standardization of work to facilitate work flow

The team also identified long-term improvements like eliminating redundant quality control checks, defining client turnaround expectations, and enhancing the functionality of the lab. Just as important, the organization experienced a change in mind-set.

“I was struck by the number of good ideas people already had that just needed a vehicle to make them stick.” and, “I was amazed at how much we could accomplish without spending a penny.”

Client: State of Oregon Department of Environmental Quality (DEQ)

Industry: Government

Service: Kaizen event

Challenge:

- Water, soil, air, and other samples were often not tested within the necessary time frame which resulted in additional costs
- Remain competitive with other private collection facilities

Solutions: Over a four-day Kaizen event, the cross-functional team:

- Mapped out entire process
- Identified 80 unique solutions
- Implemented bar coding, form standardization, prioritization dates, electronic approval signatures, and many others

Results:

- Reduced physical hand-offs by 85% and electronic hand-offs by 60%
- Steps in the process reduced by 42%
- Waits reduced by 38%
- Value-added percentage increased by 72%