

Boiler Control Manufacturing Lean Process Improvement

Vertical

Manufacturing | Pharmaceutical | Healthcare | Portfolio | **Logistics** | Financial | Government | Business

Genre

Case Study | **Project Review:** | White Paper | Technology Overview

Client

A High Tech Leader in Engineering and Manufacturing

Situation

An international leader in high tech engineering and manufacturing on seven continents with specialties in fluid management and flow control, continues to expand its operations globally. They wanted to build a new Boiler Manufacturing facility in an emerging market and base operations upon a current plant in the U.S. But first, management wanted to ensure that the facility being replicated was utilizing best practices, so Lean practitioners began analyzing its operations.

One of the manufacturing cells to be replicated was dedicated to assembly of boiler control devices. This product was currently being produced with a two-shift operation at the U.S. facility. Traditional Lean tools suggested that capacity could be met with one shift, however the client could not achieve this goal.

Prior success with ProModel solutions in another division led them to seek our assistance accelerating this lean initiative. Lean practitioners had already developed a Value Stream Map and made several assumptions about where process bottlenecks were and what needed to be changed.

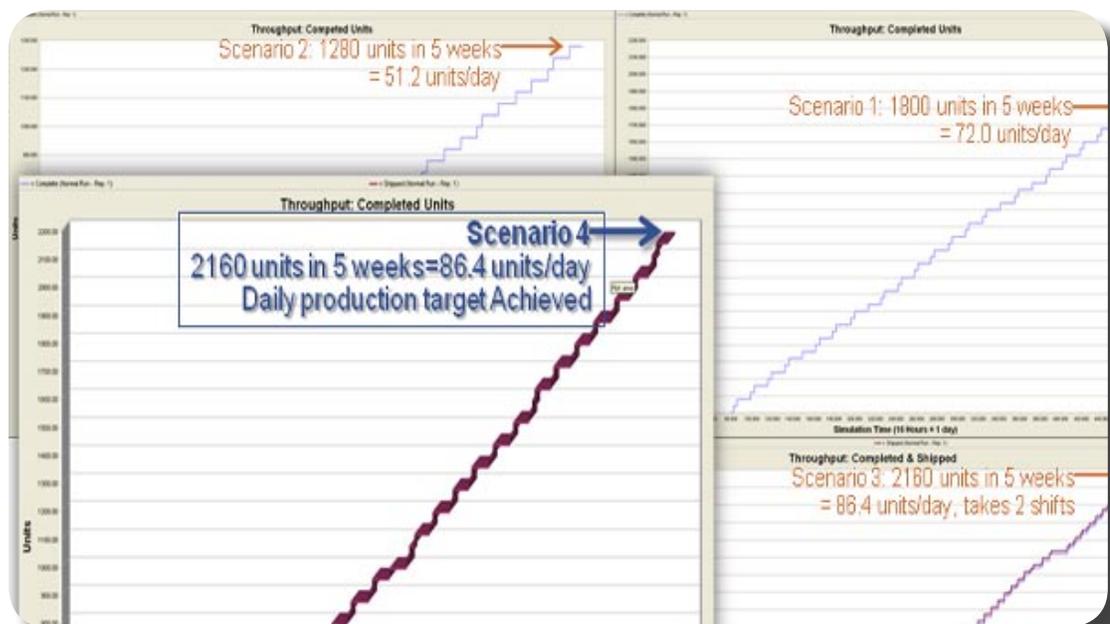


Objective

- Accelerate Lean Implementation for Boiler Control Assembly Cell
- Eliminate 2nd shift requirement while maintaining production volume
- Ensure sustainable best practices are implemented at U.S. facility and new international location

Results

The 80% reduction of the second shift improved the process and saved the organization about \$200,000 annually in the new and existing facility for a total of \$400,000. The benefits to their Lean initiatives can also be realized with every future Lean event. For example, seven scenarios were required to discover the best result. To observe the performance of a single scenario in real life, the team would have had to wait five weeks. To run each scenario as a Virtual Kaizen in the simulation model took only five minutes. Therefore what would have taken 35 weeks (7 scenarios x 5 weeks) took about 1 hour by using ProModel's Process Simulator solution.

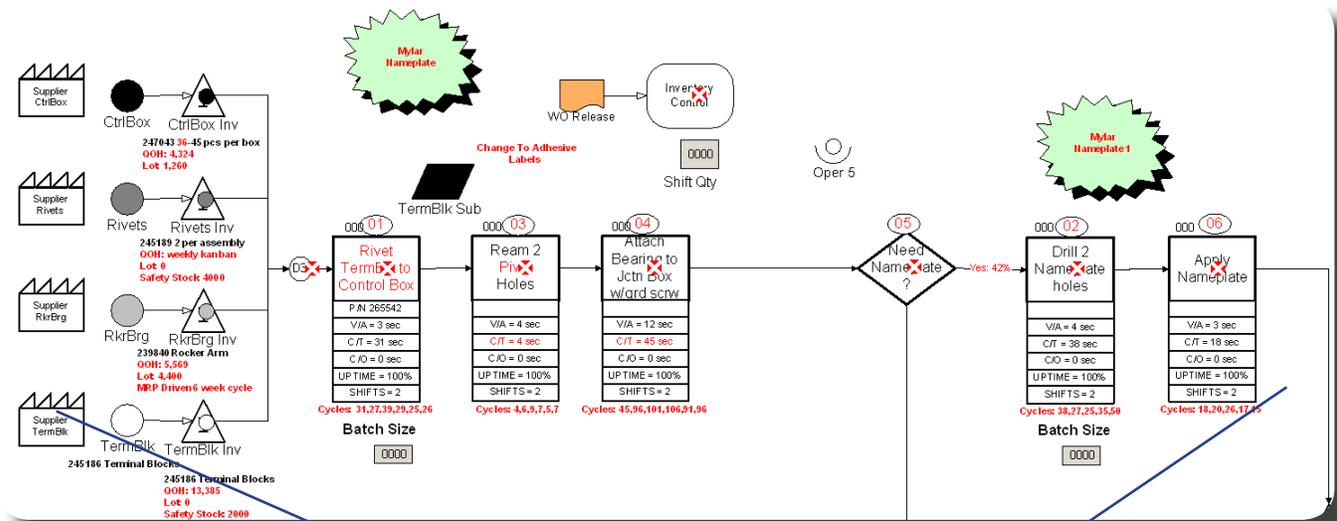


Solution

The client's Lean practitioners had already developed a current state Value Stream Map in MS Visio® for the Boiler Control Assembly Cell, including supplier lead times and replenishment policies for all critical parts suppliers. Using Process Simulator, ProModel consultants converted the existing Visio® diagram into a simulation model and tested the current state assumptions. This initial test exposed significant discrepancies between the model's performance and the actual process performance, which led the team to more closely examine their data. On closer inspection, it was clear that the individual cycle time observations for many steps in the process were highly variable, so the assumptions were changed to take that variability into account. As soon as this variability was considered, the model performed very much like the actual process, and the team was able to move forward.

Next, the team developed "what-if" scenarios, testing a wide variety of improvement ideas with the model. In this Virtual Kaizen phase, a total of seven scenarios were analyzed and evaluated. Each scenario was tested for a production period of five weeks, and each scenario was run in less than five minutes. The evaluation showed many suggested "improvements" to have little or no positive impact on overall throughput. In many cases these changes would have only shifted inventory from one point in the process to another.

The evaluation also showed which combination of improvements would yield the best possible results. Virtual Kaizen revealed that, due to highly variable constraints in the process, it would be impossible to completely eliminate the second shift without a very significant capital expenditure in additional equipment. Instead, 80% of the second shift operations could be eliminated through task rebalancing and different inventory management policies to enhance first shift performance and meet throughput requirements.



Close-up of One Task

Shows the Entire Manufacturing Process

