



Lean and Environment at Givaudan (Silverton)

Project Date: 2009 through 2010
Project Conducted By: Pollution Prevention Resource Center (PPRC), Northwest Food Processors Innovation Productivity Center, and Oregon Manufacturing Extension Partnership

Introduction

Givaudan (Silverton, Oregon) invited the Northwest Food Processors Innovation Productivity Center (IPC) and PPRC to assist them with an environmental assessment at their facility, using a lean manufacturing framework. Prior to this assessment, the Oregon Manufacturing Extension Partnership (OMEP) had assisted the company with value stream mapping, and provided some energy efficiency improvement recommendations.

A facility walk-through with staff and the assessment team, along with review of the previously-generated value stream map that included some environmental inputs and outputs, resulted in identification of future-state environmental opportunities.

Activities & Findings

The assessment team found examples of very good environmental practices already in place, along with indicators of environmental waste in their processes. For instance, about 70% of their water use is for plant cleaning. Kosher product runs require a significant amount of heated water to ensure the equipment meets standards.

Some of the other potential future state opportunities included the following.

Water Use and Wastewater Generation:

- Switch to smaller diameter hoses and high impingement nozzles, designed for low water volume;
- Increase the amount of “dry clean-up” of food residuals by mechanical and manual or other means, prior to using water clean-up and make this standard procedure;
- Install finer-mesh catch screens under equipment to reduce the amount of solids and fines entering the wastewater pre-treatment system;
- Explore potential uses for their cleaner streams of wash water;

- Install catch screens in drains;
- Inquire with local composters who might take more of the food residuals if the company increased recovery of the solids prior to washing;
- Improve containment and storage of wastewater pre-treatment chemicals, and reduce their use by reducing wastewater generation

Energy Consumption

- Revisit previous energy recommendations;
- Monitor the air compressor and air delivery for air leaks and energy efficiency.

Additional potential suggestions were collectively identified with respect to chemical use, solid waste, and general sustainability.

Lean & Environment Results

Over the course of a year or so, the company has implemented several of the recommended changes and continues to evaluate payback and benefit of additional opportunities.

They have achieved a reduction in water use and wastewater generation by over 30%, by implementing manual solids clean-up and by capturing condensate return water for reuse in boiler make-up. They re-lamped the facility with T-8s, saving over \$15,000 in energy costs annually. They are achieving additional energy savings due to reduced use of heated water and reduced wastewater pre-treatment.

Most recently, taking advantage of incentives from the Energy Trust of Oregon, they installed advanced controls on their cold storage system. These control equipment run-time based on the load detected by the system. They have reduced the time the evaporator fans run and the frequency and duration of the defrost cycle. The annual savings for this upgrade is 49,231 kWh and over \$3,300.

Collectively, their energy improvements have reduced annual CO₂ emissions by over 200 metric tons.

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