



# Lean & Environment Case Study: Columbia Paint & Coatings



## Executive Summary

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# Lean and Environment Pilot Project Case Study: Columbia Paint & Coatings

**Project Activities:** October 2006 through March 2007

**12 Month Review Completed:** May 2008

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**Project Conducted by:**

Washington State Department of Ecology, Hazardous Waste and Toxics Reduction  
Program ([www.ecy.wa.gov/programs/hwtr](http://www.ecy.wa.gov/programs/hwtr))

Washington Manufacturing Services ([www.wamfg.org](http://www.wamfg.org))

**Pilot Facility Participant:**

Columbia Paint & Coatings, Spokane, Washington ([www.columbiapaint.com](http://www.columbiapaint.com))

**Case Study Prepared by:**

Ross & Associates Environmental Consulting, Ltd., Seattle, WA ([www.ross-assoc.com](http://www.ross-assoc.com))

*If you need this information in an alternate format, please call the Hazardous Waste and Toxics Reduction Program at 360-407-6700. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.*

# Lean and Environment Case Study: Columbia Paint & Coatings

The Washington State Department of Ecology (Ecology) and Washington Manufacturing Services (WMS) partnered in a lean and environment pilot project to provide technical assistance to the Columbia Paint & Coatings (Columbia Paint) manufacturing facility in Spokane, Washington. Columbia Paint manufactures high-quality residential, architectural, and industrial paint and coatings. Ecology provided environmental expertise for this pilot project, while WMS provided lean expertise and management of on-site activities at Columbia Paint from October 2006 through March 2007. Funding for the pilot project was provided by Ecology, the National Institute of Standards and Technology, and the U.S. Environmental Protection Agency.

The primary objectives of the pilot project were to:

- Develop a collaborative partnership between Ecology and WMS.
- Evaluate the benefits and synergies of deliberately integrating environmental tools into on-the-ground lean practices.
- Gain the expertise to offer and promote future lean and environment projects to manufacturers statewide.

## Project Activities and Results

Pilot project activities included a “lean 101” training session to introduce lean methods to Columbia Paint staff, a value stream mapping workshop to identify improvement opportunities, and three “get ‘r done” events to implement process changes. (Get ‘r done events—often known as kaizen events by companies implementing lean—are rapid process improvement events that typically last 3-5 days.) The three get ‘r done events supported by Ecology and WMS were designed to address the following priority areas:

- Develop a production scheduling system driven by customer demand.
- Streamline the quality control process.
- Improve material organization and flow to increase batch-making velocity.

In addition to the planned pilot project activities, Columbia Paint independently conducted several lean and environment activities during the pilot project period, including changes to the plant’s layout and improvements to the oil-decanting and shrink-wrapping processes.

The collective efforts of Columbia Paint, Ecology, and WMS yielded considerable operational and environmental benefits. Through project activities, Columbia Paint reduced production lead and cycle times, overproduction, material loss and damage, operator travel time, and downtime. The process improvements also reduced raw material wastes, wastewater discharges, volatile organic compound (VOC) emissions, and hazardous wastes. Furthermore, as a result of pilot project activities, Columbia Paint now reuses all wash water from white paints and incorporates it into products. Cost savings for Columbia Paint are expected to total about \$210,000 per year.

The cost, time, material, and environmental savings from the project are summarized in Table 1 below:

Table ES-1. Annual Cost, Time, and Environmental Savings

Reductions	Annual Cost Savings	Annual Time, Material, & Environmental Savings
Raw Material	\$109,200	49,200 lbs of paint solids from wash water 18,000 lbs of shrink wrap
Hazardous Waste	\$10,000	17,600 lbs
Wastewater	(included above) <sup>a</sup>	36,900 gallons
Labor	\$90,600	2,500 hours
<b>Total Cost Savings</b>	<b>\$209,800</b>	

<sup>a</sup> Cost and material savings associated with the paint solids in wash water are included with raw material savings.

The project also resulted in numerous other benefits, including improvements in product quality, customer service, worker health and safety, and staff morale. Highlights of these benefits include the following:

- Decreased the total lead time for making non-stock products from 6-10 to an average of 5 days.
- Reduced the quality control inspection cycle time by 36 percent and decreased the overall number of process steps in the quality control process
- Lessened the potential for distressed batches by streamlining and standardizing raw material storage.
- Decreased the potential for accidents by reducing forklift traffic congestion, decreasing drum handling, and eliminating safety hazards associated with a conveyer system.
- Reduced worker exposure to ammonia and other volatile organic compounds.
- Freed staff time to focus on value-added tasks such as supporting additional process improvement efforts.
- Enhanced staff morale, improved communications between staff and management, and empowered staff to initiate process improvements activities.

### Post-Pilot Project Improvement Activities

Since pilot project activities concluded in March 2007, Columbia Paint has continued to improve its operational and environmental performance. As part of its ongoing continuous improvement efforts, Columbia Paint has (1) reduced water use by recycling white and off-white wash water to clean tanks, (2) saved energy by decreasing the amount of product cycling through the still during the decanting process, (3) taken over all of the production from the Helena, Montana facility using half the labor used in Helena, (4) implemented several 5S projects throughout the facility, and (5) developed a list of improvement activities for future “get ‘r done” events. In September 2007, Columbia Paint was acquired by Sherwin-Williams, the largest national producer of paints and coatings.

### Conclusions

All the organizations participating in the pilot project felt that the combination of lean and environmental objectives contributed to the project’s overall success. In many respects, the project was a better lean project because of the environmental component. The project saved Columbia Paint money, improved the facility’s responsiveness to customer demands, and increased the efficiency of the facility’s production system, while it also eliminated an environmental waste stream and improved the health and safety of the workplace. Furthermore, the project provided participants with an opportunity to learn more effective strategies for integrating lean and pollution prevention technical assistance. Finally, the project instilled a continual improvement culture among Columbia Paint staff and generated positive momentum for additional lean and environment improvement efforts.

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*This case study summary was prepared for the Washington State Department of Ecology by Ross & Associates Environmental Consulting, Ltd. For more information about this pilot project, please contact John Blunt of Ecology’s Eastern Regional Office at [jblu461@ecy.wa.gov](mailto:jblu461@ecy.wa.gov) or 509-329-3525.*