



# Reducing Waste Opens Door to Implementing Lean



## McNeil-PPC, Inc.

Located in Lititz, Pennsylvania  
Headquarters: Fort Washington, Pennsylvania  
Subsidiary of Johnson & Johnson®  
Employs: 750 workers  
Manufactures all Listerine distributed in the United States and more than 85 percent worldwide.

## Green Suppliers Network Findings

Estimated annual waste reduction: 200,000 gallons  
Estimated annual water savings: 40,000 gallons  
Projected cost savings: more than \$250,000

## About the Green Suppliers Network

Working in collaboration with the U.S. Department of Commerce (DoC), the U.S. Environmental Protection Agency (EPA) established the Green Suppliers Network to help small and medium-sized manufacturers stay competitive and profitable while reducing their impact on the environment.

The Green Suppliers Network review took place in May 2007. The review team consisted of:

**MANTEC, a NIST MEP**  
Mark Robertson

**Pennsylvania Technology Assistance Program**  
Warren Weaver

**Pennsylvania Department of Environmental Protection**  
Richard Illig  
Robert Zaccano

**M**cNeil-PPC Inc., the manufacturer of common healthcare products such as Listerine and Lubriderm for Johnson & Johnson®, recently teamed up with the Green Suppliers Network to explore opportunities for helping its suppliers improve product quality and to reduce the environmental footprint of its supply chain through the Network’s hallmark—the *Lean and Clean Advantage*.

McNeil first began investigating lean manufacturing concepts after the facility was acquired by Johnson & Johnson in late 2006. Mark Keller, Director of Environmental Health and Safety for McNeil, states, “Johnson & Johnson’s corporate culture emphasizes lean manufacturing concepts. While we began our lean efforts to improve manufacturing and supplier process efficiency, we now also focus closely on improving our own environmental footprint.”

## The Situation:

Having heard about the Green Suppliers Network via EPA’s Performance Track program, Keller contacted the program with his interests already piqued. Keller says, “Our ISO 14001 environmental management system requires us to look outside our company’s boundaries for environmental improvements. We felt that the Green Suppliers Network was a good model in which to do that.” After receiving a brief introduction to the program, McNeil officials decided to participate in a pilot review at their own facility to learn first hand what their suppliers would be facing if they agreed to participate.

With the assistance of Green Suppliers Network representatives Warren Weaver of the Pennsylvania Technology Assistance Program and Mark Robertson of MANTEC, McNeil’s review team created value stream maps of its 1.5 liter Listerine product line, which was selected because of its large volume and associated high rates of waste. In fact, waste generated by this line was actually acting as a barrier to implementing lean improvements. The current state value stream map showed that 450 gallons of product and about 60 gallons of water were wasted every time the company switched batches on the line. To combat this high rate of waste, McNeil employed longer batch run times. This approach caused the facility to carry large inventories—a practice contrary to lean manufacturing techniques—and implementing just-in-time inventory practices would create even more waste.

## The Solution:

The current state value stream map examined the way in which the product line is flushed after running a flavor batch. Typically, lines are purged to a waste tank and sent offsite for alcohol reclamation; excess water goes down the drain. In an improved future state, the remaining product would be completely drawn down into product packaging, thereby reducing waste and line flushing by using the next



product formula until its content is homogenous. To reduce the amount of waste generated by flushing, the review team identified several opportunities, including:

- Grouping product run batches by families of formulas to minimize cross- contamination and the need for extensive flushing.
- Predicting exactly how much product is needed to fill orders.
- Allowing lines to drain as much as possible to reduce waste.

The effect of implementing these recommendations could reduce product waste by as much as 80 percent and would completely eliminate water used for flushing.

McNeil is currently conducting extensive testing to determine if these process changes would be suitable, given the testing protocols required by the Food and Drug Administration, as well as internal corporate procedures. Once implemented, McNeil could save more than 200,000 gallons of wasted product and nearly 40,000 gallons of water per year. Additionally, the changes to the product line flushing protocol would reduce batch changeover times by 70 minutes, improving capacity and increasing potential revenue—a truly valuable lean accomplishment. Furthermore, McNeil expects a total annual savings of more than \$250,000 from the review efforts.

While lean initiatives were the primary driver, the Green Suppliers Network review demonstrated the clear symbiotic benefits of the *Lean and Clean Advantage*. Keller says, “We had never looked at product packaging, water use, or energy use as part of our lean discussions. We now realize how wasteful our practices really were and understand the connection between lean initiatives and clean benefits.” McNeil managers are currently reporting their findings to the company’s corporate headquarters and are planning to implement the opportunities for reducing the waste generated by flushing on all seven of its Listerine product lines. McNeil has also begun evaluating its liquids and lotions product lines for similar potential process improvements.

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—Mark Keller, Director of Environmental Health and Safety,  
**McNeil-PPC, Inc.**