



# Whirlpool Trains Staff on *Lean and Clean Advantage*



**W**hirlpool Corporation, the world's leading manufacturer and marketer of major home appliances, invited Green Suppliers Network representatives Kurt Middlekoop, of the Texas Manufacturing Assistance Center, and Judy Wlodarczyk, of CONNSTEP, Inc., to its Monterrey, Mexico, facility to provide training on the *Lean and Clean Advantage* to more than 40 staff members representing 19 North American Whirlpool manufacturing facilities.

## Whirlpool Corporation

Headquarters: Benton Harbor, Michigan

Employs: 73,000

Annual Sales: \$18 billion

Facilities: more than 70 worldwide

## 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 April 2007. Lean and Clean training provided by:

**Texas Manufacturing Assistance Center, a NIST MEP**  
Kurt Middelkoop

**CONNSTEP, Inc., a NIST MEP**  
Judy Wlodarczyk

## Why Turn to the Green Suppliers Network?

Whirlpool officials were already investing efforts toward a lean acceleration project that they initiated earlier in the year. Robert Karwowski, director of environmental health and safety for Whirlpool Corporation, North America, explained that the company had been committed to lean initiatives for years, but the lean acceleration project sought to expand these initiatives to every part of the company's operations—including the external supply chain. "We would like the Green Suppliers Network to play a considerable role in activities to engage the supply chain," he said. "The efforts in our Mexico manufacturing facility were vital to training our internal staff on incorporating lean and clean concepts into process operation activities."



Karwowski believes that lean and clean methods are a positive addition to many current Whirlpool activities. Prior to the training event, Whirlpool already had an embedded culture of waste prevention, lean ergonomics, and worker health and safety. Using the Green Suppliers Network to train process engineers and environmental health and safety staff tied all of these ideals together in a unified approach.

## The Advantage of Building Relationships

During the training event, participants learned about the symbiotic relationship between lean and clean manufacturing techniques. With a better understanding of how to identify waste, environmental health and safety staff broke into small workgroups and walked the facility production floor. Each workgroup focused on one operation of the Whirlpool clothes washer assembly line—including receiving, stamping, welding, surface coating, and assembly process lines. The workgroups then came together as a team and completed both current and future state value stream maps of the product line with the assistance of Middlekoop and Włodarczyk.



Following the training, Whirlpool implemented improvements to the stamping process line, reducing scrap metal generation by about 35 percent compared to the amounts generated in prior months. "Stricter monitoring procedures are now in place to measure the generation of scrap metal. Scrap rates reached an all-time low for the facility during the month following the training event," said Victoria Rios, continuous improvement specialist at Whirlpool's Monterrey, Mexico, facility.

Whirlpool is now working on establishing relationships between environmental health and safety personnel and process engineers so that they are better able to jointly identify non-value added steps in the manufacturing and supply chains.



"Our efforts to get **lean and clean improvements** into the nitty-gritty of our process operations will help us reduce our environmental footprint and **establish a culture** that we can carry over into our supply chain."

—Robert Karwowski, Director of  
Environmental Health and Safety,  
**Whirlpool Corporation**