

PVI Industries, LLC

TEEA 2014 Winner: Pollution Prevention



In 2011, PVI Industries, a manufacturer of water heaters, decided it wanted to both improve its products and simultaneously move towards a more environmentally conscious operations model. What resulted was the development of a new product line that was more impervious to corrosion for long-term storage of heated water and reduced reliance on organic coating and electroless nickel plating, a common method in the industry. Because concentrations of volatile organic compounds emissions can pollute indoor and outdoor air, PVI is helping to prevent pollution by changing its processes, which is especially meaningful in the Dallas–Fort Worth area.

The new product line is made with duplex stainless steel. With the elimination of the electroless nickel process, PVI saw savings in natural gas used in heating process water, reductions in potable water consumption, and the elimination of heavy-metal and hydrochloric acid waste streams. Liquid nickel waste went from 1.3 million pounds in 2008 to nearly zero pounds in 2014. Switching to the new line has greatly reduced the facility's water usage (now at its lowest in over eight years), requires no nickel plating and reduced organic coating, and has also reduced the company's hazardous waste streams.

This move alone seeded a significant improvement in the environmental impact of PVI's operations but that is only one in a series of efforts to reduce waste, energy usage, and water usage at the company's Fort Worth facility.

The company replaced all of its lighting fixtures with energy-efficient compact fluorescent fixtures, replaced its skylights to allow in more natural light, and modified its production hours, resulting in significant reductions in energy costs. By purchasing a filter press, PVI switched from hauling off liquid nickel waste to be deep well injected, to treating the waste and capturing the solids in the filter press operations to accumulate dry nickel filter cake, which is then sent off for metal reclamation.