

2008 Southwest Ohio Pollution Prevention Internship Program

In 2008, the Pollution Prevention (P2) Internship Program was expanded through a partnership between the Hamilton County Solid Waste Management District (District), Butler County Department of Environmental Services (BCDES), and TechSolve, Inc. (the local Ohio Edison Center). As a result of grant funding from the USEPA, the Southwest Ohio P2 Internship Program trained and hosted four interns at selected companies located in Hamilton and Butler Counties. In past years, the District funded 75% of the internship and the chosen companies matched 25%. This year, the District funded 50% of the internships, the grant funded 25%, and the chosen companies funded 25%.

The District hired two interns to carry out their 12-week terms at the selected host companies which had been selected based on their applications describing specific P2 projects with goals and expected outcomes. [Please note that two other P2 interns were hired by and placed with Butler County companies through this program. All four interns participated in the week-long P2 training program developed under the USEPA grant.] The District's interns and their assignments were as follows:

Intern Name/Major	College	Host Company and Contact
Laura Hughes Environmental Engineering Technology	Cincinnati State Technical & Community College	Siemens Energy & Automation Ms. Linley Hamblen, EHS Manager
Ryan Erickson Environmental Engineering Technology Manager	Cincinnati State Technical & Community College	General Mills Mr. Ed Brutz, Environmental Manager

Siemens Energy & Automation, Inc., 4620 Forest Avenue, Norwood, Ohio 45212

Projects conducted under the P2 internship program focused on reducing the amount of solvents used, thereby minimizing the amount of hazardous waste generated and managed. In addition, solid waste streams from plant operations were assessed to determine the need to implement material handling procedures such as reuse and recycling of paper, cardboard, and scrap materials. Siemens undertook these projects in their effort to formulate a certified Environmental Management System under ISO 14001.

Several options were evaluated to address the desire to reduce the amount of solvent waste generated at the plant. Ultimately, the most cost-effective and efficient solution was determined to be the purchase and implementation of a solvent recycling unit. Siemens has accepted the recommendation and is in the process of appropriating funds for the purchase of the unit.

Evaluation of solid waste streams revealed that scrap metals are collected and sold to a local broker. Likewise, skids or wooden pallets are recycled locally. Paper and cardboard make up the remaining recyclable portions of the solid waste stream. Siemens is implementing a company-wide paper recycling program within the next 12 to 24 months and the P2 intern's evaluation of the Norwood plant's current disposal and management fees will be used to evaluate recycling options at a future time. In the meantime, the plant will continue to explore options for cardboard recycling with assistance from the District.

TABLE 1 summarizes the waste reduction and potential cost savings to be realized when proposed P2 solutions are implemented.

TABLE 1- Cost savings for Siemens E&A, Norwood, Ohio

P2/ Waste Reduction Option	Waste Reduced	Estimated Cost Savings	Status										
Onsite Solvent Recycling	30 drums of hazardous waste / year	<table border="0"> <tr> <td><u>Unit payback</u></td> <td><u>After 1 year</u></td> </tr> <tr> <td>1.2 years</td> <td>\$15,951</td> </tr> <tr> <td><u>After 3 years</u></td> <td></td> </tr> <tr> <td>\$28,224</td> <td></td> </tr> </table>	<u>Unit payback</u>	<u>After 1 year</u>	1.2 years	\$15,951	<u>After 3 years</u>		\$28,224		Recommended/ Pre-implemented		
<u>Unit payback</u>	<u>After 1 year</u>												
1.2 years	\$15,951												
<u>After 3 years</u>													
\$28,224													
Paper Recycling	Numerous containers of paper going to landfill	<table border="0"> <tr> <td>Pull and return fee</td> <td>\$86.48/pull</td> </tr> <tr> <td>Landfill Fee</td> <td>\$159.84</td> </tr> <tr> <td>/cont.</td> <td></td> </tr> <tr> <td>Fuel/Environmental Fee</td> <td>\$29.61</td> </tr> <tr> <td>State Disposal Fee</td> <td>\$26.53/cont.</td> </tr> </table>	Pull and return fee	\$86.48/pull	Landfill Fee	\$159.84	/cont.		Fuel/Environmental Fee	\$29.61	State Disposal Fee	\$26.53/cont.	Recommended/ In progress
Pull and return fee	\$86.48/pull												
Landfill Fee	\$159.84												
/cont.													
Fuel/Environmental Fee	\$29.61												
State Disposal Fee	\$26.53/cont.												

General Mills, 11301 Mosteller Road, Cincinnati, Ohio 45241

Projects conducted under the P2 internship program focused on refining an in-process recycling system, reducing wasted product, and finding ways to reduce energy consumption. In the General Mills plant, almost every material used can be recycled. The challenge they faced was to further refine their operations and material handling practices to achieve a “less than 1%” waste goal.

The baseline assessment determined that approximately 1,200 lbs of product was wasted each day. The solution to recover the product and re-feed it into the process required changes to material handling operations, including providing obvious collection points for bags of cereal, cereal liners, and cardboard cartons. New operating procedures were tested, a training session was developed and presented to the shift workers, and the new process was implemented. Within a two-week period approximately 1,000 lbs/day of saleable product was recovered and re-fed into the process line, thereby reducing the amount going to the landfill. Further, the plastic bags, box liners, and boxes were more easily segregated and staged for recycling rather than mixed for disposal.

Exterior lighting at the plant is provided by 14, 270-watt lamps that are on 24 hours a day, 7 days a week. It was agreed by the plant manager that constant outdoor lighting was unnecessary, so the intern was tasked with finding a solution that would reduce energy usage and costs while still providing adequate lighting for safe operations. The intern worked with an approved vendor to identify photocell switches that could be installed on the existing lamps. Use of these automatic switches is estimated to save the company more than \$3,500 per year in energy usage costs alone. Further savings should be realized through reduced bulb replacement frequency.

TABLE 2- Cost savings for General Mills, Cincinnati, Ohio

P2/ Waste Reduction Option	Waste Reduced	Estimated Cost Savings	Status
Product re-feed operations	364,000 lb/yr (diverted from landfill)	\$300,000/year	Recommended/ Implemented
Outside lighting (12-hr operation)	Energy usage and bulb replacement	\$3,626/year	Recommended/ In progress