Interns drill down on cost saving opportunities at three Maryland manufacturers

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Three student interns were placed at Maryland manufacturing facilities this past summer with the following assignment: Identify pollution prevention opportunities that will save these companies money and reduce impacts on the environment. With the support of their host facilities and University of Maryland faculty and staff, they did just that, indentifying **$1.1 million** in savings. The students were part of an MDE/University of Maryland Technology Enterprise Institute (MTECH) program made possible through a combination of funding from the State, a federal U.S. EPA grant, and the participating facilities. MDE and MTECH have partnered on the Pollution Prevention Intern Program since 2000, placing 13 interns at 17 Maryland companies. In total, the interns have identified over **$3.5 million** in costs savings through energy efficiency, waste reduction, material use efficiency and other environmentally beneficial practices.

Atlas Container

Eva Rodenzo, a senior Chemical Engineering major at the University of Maryland, College Park, was assigned to Atlas Container, a corrugated fiberboard company in Severn, MD which offers next day or same day deliveries of custom-produced containers. Eva focused on material waste reduction opportunities using industry standards as a benchmark. She made recommendations related to trim waste, the reduction of damaged paper rolls, and the more efficient scheduling of the corrugating equipment that could save the company as much as $52,000 month. Eva also analyzed the content of the dumpsters and researched possible re-use and recycling of the materials. Finally, she made recommendations to improve the weighing of machine paper waste for better reporting and analysis and calculated that reuse of waste sheets for dunnage would save $14,000 per month. In total, her recommendations could amount to a savings of $80,000 per month or $950,000 per year with a reduction of over 2,000 tons of waste per year.

Eva was very appreciative of her experience at Atlas. "I was able to apply my engineering education at Atlas Container to understand the direct impact of waste generation issues. The internship also exposed me to the complex issues businesses in the manufacturing industry face every day. I was glad to see that fiberboard waste and environmental impact is of a particular concern of management as it not only positively affects the environment, but also has the potential to save the company hundreds of thousands of dollars annually."

Coca-Cola Refreshments Baltimore Production Facility

Rebecca Young, a graduate student in Environmental Management at the University of Maryland University College, worked at Coca-Cola Refreshments Baltimore Production Facility. The facility has an ISO 14001-certified Environmental Management System in place and recently won a 2013 Maryland Green Registry Leadership Award for its sustainable practices and commitment to continual improvement. Rebecca's assignment was to explore ways to meet the facility's natural gas reduction goal. She approached this by surveying and mapping all the natural gas heaters in the facility to determine if they needed to be repaired, upgraded with a thermostat to regulate temperature, or moved to a more effective location in the facility. She estimated that implementing these recommendations would

produce a yearly savings of $20,000. Rebecca also looked at two hot water boilers, the largest users of natural gas at the facility, and evaluated the feasibility of shutting down one of the two boilers. This is a change that would save $30,000 annually and Coca Cola is already moving forward with the implementation of this project. Rebecca also performed leak detection of the compressed air system and estimated that lowering the air pressure set points would save $85,000 annually.

The internship provided learning opportunities in a number of other important areas of environmental management, including environmental compliance, ISO 14001, energy auditing, source water vulnerability training and the evaluation of combined heat and power opportunities. As Rebecca reports, "These activities were incredibly beneficial, and I learned a lot while planning and attending events, participating in trainings, and completing administrative tasks. I was fortunate to be able to attend out-of-town trainings and spend time with Coca-Cola's Regional Environmental Manger for the Northeast Region, interact with groups from different regulatory agencies, and help plan events for people who work at the facility. These experiences helped to add to my internship experience and exposed me to different aspects of the manufacturing process."

Next Day Blinds

Michael Wellen, a senior Chemical Engineering major at the University of Maryland, College Park, worked at Next Day Blind's manufacturing facility in Jessup, MD. Michael took a close look at the paint inventory and ordering system and recommended using a higher number of square feet of product covered per gallon of paint when estimating the amount of paint required. He projected that this change in formula will save the company approximately $900 per year in paint costs. He also researched options for purchasing a paint recovery machine, which he found would offer a net savings of $2,300 per year after a three-year return on investment. Michael also worked on a project to reduce waste created when wood stiles are cut for custom blinds. To determine the optimal length, he graphed the distribution in customer orders based on number and size lengths and conducted experiments at various lengths to determine peak efficiency. Michael also gained exposure to air compressor efficiency studies and the installation of a water leak preventer. Reducing pressure set points in the system are estimated to save approximately $1,100 per year. Finally, Michael took a look at how customer service center training could improve the efficiency of service calls and reduce the number of overall trips. In total, he identified $7,087 in annual savings and $8,852 in one-time savings.

Like the other interns this summer, Michael said he learned a lot from the projects he worked on and appreciated the opportunity to work in a manufacturing setting. With success stories in hand, all three interns can now offer real world experience and results in pollution prevention practices as they move forward with their careers.

For information about the Pollution Prevention Intern Program and other technical services, contact Laura Armstrong at Laura.Armstrong@maryland.gov, 410-537-4119.

2013 MDE/MTECH Student Interns: Eva Rodenzo, UMCP ’14, Michael Wellen, UMCP ’14, Rebecca Young, UMCP ’11, UMUC ‘13

Interns and company representatives from Coca-Cola, Atlas, Container, Next Day Blinds, MDE, and the University of Maryland.