2009
Southwest Ohio
Pollution Prevention (P2)
Internship Program

*Internship Handbook*

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Background

Hamilton County
The Hamilton County Department of Environmental Services (HCDES) houses both the Solid Waste Management District and the Air Quality Management Division (AQMD). The District is dedicated to promoting recycling, waste reduction and responsible waste management within Hamilton County. The AQMD works with local, state and federal government agencies and serves Butler, Clermont, Hamilton and Warren counties to achieve and maintain healthy air quality standards.

In 2004, HCDES implemented a pollution prevention internship. The program pairs upper level undergraduate or graduate students with local companies during an intense 12-week or 26-week internship to further company’s environmental goals. The goals of the program are to:

- Introduce businesses to innovative solutions to waste reduction
- Reduce business operating costs
- Encourage economic development in Hamilton County

Butler County
Butler County Recycling & Solid Waste District (SWD) promotes recycling and waste reduction through a variety of services and programs targeting residents, commercial businesses and industries in Butler County.

Beginning in 2007, the District invited local manufacturers to participate in the Pollution Prevention Internship Program. The program selectively places (2) full-time undergraduate or master’s level interns in local businesses for a 12-week summer program. The major goals of the program are:

- Implement cost-saving waste reduction solutions for local companies
- Offer Ohio students professional experience in an industrial setting
- Develop successful partnerships with Butler County industries which enhance the value and implementation of pollution prevention strategies countywide.

The District also provides annual grant funding and on site waste audits to local businesses and industries.

U.S. EPA
In October 2007, U.S. EPA awarded $42,000 as part of its Source Reduction Assistance Grant to TechSolve, Hamilton County Environmental Services and Butler County Solid Waste District. The purpose of the grant is to develop pollution prevention expertise and capacity in the southwest Ohio region, and apply that knowledge in a manufacturing setting. Grant funds provide intern training, and technical assistance to the partner organizations. Training efforts are led by TechSolve engineers.
TechSolve, Inc.
TechSolve Inc. is a professional services organization that helps its clients achieve top-line growth, bottom-line savings and improved profitability. For more than 20 years, TechSolve Inc. has helped businesses around the globe identify and implement process changes that will make them more successful. In the past four years, TechSolve’s team of business specialists, engineers and scientist have helped their clients realize cost savings of more than $173 million with a sales impact of over $812 million.

Private Enterprise
Over the past few years, intern programs in Butler and Hamilton Counties have helped the following companies save money and improve their environmental impact:

- Aeronca
- Dell
- Formica
- General Mills
- HB Fuller
- Lanxess Corp.
- MillerCoors LLC
- Siemens Energy & Automation
- Skyline Chili, Inc.
- Smart Papers Holdings LLC
Goals

While the specific economic and environmental goals for each host company will be unique, some general goals apply to the Southwest Ohio P2 Internship Program. They are:

- Help companies implement cost-saving solutions
- Help companies meet environmental goals
- Encourage economic development in Butler and Hamilton Counties
- Offer students hands-on experience in an industrial setting
- Encourage technically skilled students to stay in Ohio
- Provide Butler County SWD and HCDES with data and success measures

Some of the economic benefits for businesses participating in the internship are:

- Reduced operating costs
- Reduced compliance costs
- Reduced exposure to future liability costs
- Improved worker safety
- Improved image
- Increased productivity
- Realized continuous improvements

Environmental benefits for businesses may include:

- Prevent pollution
- Reduce waste at the source
- Increase recycling
- Divert waste from landfill
- Increase energy efficiency
- Conserve resources
Roles and Responsibilities

Student Interns
Student interns will:

- Work full time (35-40 hours per week) for the duration of the internship, provide his/her own transportation, and comply with all company policies, regulations and aspects of confidentiality regarding the company’s processes and products.
- Attend mandatory P2 training in June.
- Establish with company supervisor a work schedule and timeline for the project.
- Develop a working knowledge of plant processes and determine how and at what rate waste or emissions are currently produced in processes at the company.
- Research and evaluate process variables, economic factors and options for reducing waste.
- Develop hypotheses and rank potential solutions.
- Develop a cost comparison between the use of existing procedures and proposed suggestions.
- Identify, recommend and, as time permits, implement options/strategies with support from the host company, the Butler County SWD and HCDES.
- Maintain weekly contact with the county advisors and TechSolve engineers.
- Notify the county advisors if for any reason planned projects are modified, added to or redirected.
- Make arrangements with company supervisor if he/she is unable to work the required workweek due to personal or medical issues.
- Submit a daily log of work and weekly progress reports.
- Provide project results in a final internship report and, if time permits, a PowerPoint presentation.

Refer to the “Reporting Requirements” section of this handbook for specifics on project deliverables required by the Butler County SWD and HCDES.

Host Company Supervisor
This person will be responsible for overseeing the intern’s work and offering assistance needed to accomplish tasks. Company supervisors will:

- Develop a project work plan/timeline in conjunction with the intern, county advisors and TechSolve consultant.
- Provide ongoing direct daily supervision of the intern.
- Provide the intern with appropriate resources to work, including a desk or work table, access to a computer with Internet capabilities, a telephone, fax machine, and safety equipment.
- Inform management and other employees about the intern and the project goals and objectives.
Facilitate employee cooperation with the intern to ensure that the intern receives the assistance and information needed to accomplish the project.

Assure the intern works in a safe environment. Make certain the intern understands the hazards of chemicals and/or equipment they work with and understands the company’s personal protection program and requirements.

Review project progress on a regular basis. Periodically consult with the project technical advisor regarding project development and status and satisfaction with the intern’s work.

Review final project report and presentation for accuracy and company confidentiality standard and approve for public distribution.

Evaluate the intern’s performance and the overall program by completing a program and project evaluation at the conclusion of the project.

Implement cost-effective waste reduction measures identified by the student, when feasible.

Provide Butler County SWD and HCDES with feedback describing the benefits of this project, i.e. figures on waste or pollution reduced as well as cost savings and pollution prevention measures achieved as a result of the intern program.

**County Advisors**

Each county advisor will:

- Help conduct pre-visit and on-site tour of facility.
- Work with TechSolve to develop and implement intern training.
- Converse weekly with the intern to assess progress on the project.
- Provide guidance in the collection of technical information, offer resource leads and assist the intern with implementing solutions.
- Assist in the review of project designs and any options proposed for implementation.
- Periodically consult with the company supervisor regarding project development and status and satisfaction with the intern’s work.
- Review the daily, weekly and final project reports and assist with the intern’s PowerPoint presentation.

**TechSolve Engineers**

TechSolve engineer will:

- Lead pre-visit and on-site tour of facility.
- Develop and implement intern training.
- Provide guidance with intern projects.
- Help review intern reports and presentations as needed.
Reporting Requirements

Interns will be responsible for maintaining a daily work log and submitting weekly progress reports and one final report. Reports should be clear and concise. Report pages should be numbered, single-spaced, double-sided, and stapled. Interns will present their findings and recommendations using PowerPoint software at a wrap up session with participating companies, TechSolve, and the Hamilton and Butler County Solid Waste Districts.

Daily Work Log
Use a daily work log to track information about assigned project(s). Daily work logs should include the following:

- Project specifics and particular issues being studied.
- Technical questions that have arisen.
- Data and observations. Keep notes on process data and record observations. Document any assumptions you may have made and any calculations used to determine numbers (i.e., flow rates). These will be valuable for communicating outcomes and recommendations later on.
- Meetings attended and who was present.
- Resource people and their telephone numbers and addresses. Keep a list of resource people that you have corresponded with, met, or talked to.

Weekly Progress Report
Information from daily work logs will be used to prepare short weekly progress reports and a final report. These reports will keep company supervisors and technical advisors up to date on project progress. Progress reports should include a summary of results and conclusions from the week’s work and projected activities for the following week. These reports should be e-mailed to company supervisors and technical advisors at the end of every work week.

Final Report
Company personnel should be able to follow the information in the final report to begin/implement project recommendations. Final reports must include a(n):

- Cover
- Table of contents
- Abstract
- Background
- Project
  - Incentives for change / Project Need
  - Process description
  - Project activities
  - Challenges
  - Measurements, outcomes
  - Recommendations & Project Status
  - Appendices
Background

- Identify the key people at the company as well as any outside resource people who were particularly valuable in shaping the project(s); include all names, company affiliation, titles, project roles and contact info.
- Company description should include a company profile, address, telephone and fax numbers; category of products or services and number of employees.

Project

- Incentives for change—outline the reasons why the company wanted to undertake this project; include impact information related to regulations, raw material costs, waste disposal or management costs, etc.
- Process Description—give an overview of the processes on which the project focused; charts and a floor plan may be useful in depicting process flow.
- Project activities
  - Project overview
  - Purpose of the project
  - Project status
- Challenges—what was learned about obstacles to implementing changes to process. What alternative practices were not recommended and why.
- Measurements and outcomes
  - Baseline quantity of waste/emissions (use the most appropriate measure, e.g. gallons of hazardous waste, tons of solid waste/emissions, kWh or Therms of energy)
  - Outcomes or main waste reduction opportunities
  - Identify overall environmental and economic benefits of implementing intern suggestions

<table>
<thead>
<tr>
<th>Project</th>
<th>Annual Cost Savings</th>
<th>Environmental Results</th>
<th>Status</th>
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<tbody>
<tr>
<td>Waste reduction</td>
<td>$115,000</td>
<td>250 tons/year</td>
<td>Implemented</td>
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<td>Water conservation</td>
<td>$15,900</td>
<td>2,400,000 Gallons</td>
<td>Implemented</td>
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<td>Heat recovery</td>
<td>$85,000</td>
<td>95,000 Therms</td>
<td>Recommended</td>
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<td>Lighting improvements</td>
<td>$35,840</td>
<td>704,000 kWh/year</td>
<td>Recommended</td>
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Project status falls into one of three categories:

- Implemented
- Recommended (not yet implemented)
- Not recommended (not feasible)

Appendices should augment the narrative of the report and include supporting documents such as: a bibliography of useful written documents and resource materials, test results, MSDS/technical sheets, calculations, process drawings and regulatory background.
# Program Schedule

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- **MillerCoors Intern Starts**: May 11
- **Weekly Progress Report Due (MillerCoors)**: May 15, June 12
- **Tedia Intern Starts**: June 15
- **Training**: June 16-18
- **Weekly Progress Report Due (Tedia)**: June 26

Holiday: May 25

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2009 Southwest Ohio P2 Internship Program
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