



Illinois

Environmental Protection Agency



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## *Office of Pollution Prevention*

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- The mission of the Office of Pollution Prevention (OPP) is to promote pollution prevention (P2) as the preferred strategy for environmental protection. Reducing or eliminating pollution at the source is preferable to treating or managing it after the fact. P2 not only can help businesses and others achieve better environmental protection, but it can also help them save money, improve efficiency and ease regulatory concerns.
- Website: <http://www.epa.state.il.us/p2/>



# *Office of Pollution Prevention*

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**The Office of Pollution Prevention  
conducts...**

- **Educational Outreach**
- **Technical Assistance**

**And coordinates the...**

- **Pollution Prevention (P2) Internship  
Program - Now includes P2 and E2**



## *P2 Internship Program*

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- Each year, Illinois EPA's Office of Pollution Prevention recruits upper-level university students to work on pollution prevention (P2) projects during the summer. While students have been placed primarily at manufacturing facilities, they have also worked at small business development centers, trade associations, local government facilities, environmental groups and military installations.
- The purpose of the program is to help facilities identify, research and pilot P2 technologies and practices.



# *Pollution Prevention Internship Program*

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## **In 1988...**

The Illinois Chamber of Commerce made initial request to the IEPA for assistance.

## **In 1989...**

The Agency responded by placing two interns at two separate electroplating facilities in Chicago.



# *P2 Internship Program*

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In 1989, there were 2 interns...

In 1997, ..... 27 .....

In 2006, ..... 20 .....

In 2007, ..... 15 .....

In 2008, ..... 17 .....



# **SALARY**

The salary is under consideration for being increased. Presently we are paying:

Undergrads - \$2,100/month and w/relocation + \$400/month

Grad. Students - \$2,300 / month and w/relocation + \$400/month



## *Salaries are paid by...*

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**First requests..... IEPA 100%**

**Second .....Facility 50% : IEPA 50%**

**Third .....Facility 75% : IEPA 25%**

**Fourth, on.....Facility 100% : IEPA 0%**



## *Participating Schools*

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- **IIT, Chicago**
- **U of I, Chicago**
- **U of I, Urbana-Champaign**
- **Bradley, Peoria**
- **SIU, Carbondale**
- **SIU, Edwardsville**
- **Northern Illinois University, DeKalb**
- **Northwestern University, Evanston**



# *Time Frames for the Summer of 2009*

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## **October 24<sup>th</sup>, 2008**

- Student applications due
- On-campus interviews will be conducted by the end of Fall Semester

## **December 1<sup>st</sup>, 2008**

- Facility applications due along with a P2/E2 project or both

## **January 15<sup>th</sup> through May 15<sup>th</sup>**

- Student selection; notify facilities
- Conduct site visits
- Establish contracts for payment to students



## *Time Frames (Continued)*

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**May 18<sup>th</sup> – May 22<sup>nd</sup>** (week prior to Memorial Day)

- Training is conducted

**May 26<sup>th</sup>** (the day after Memorial Day)

- Intern starts working at the host facility

**August 10<sup>th</sup>**

- Last day of the Internship



## *Actual Internships*

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One (1) week of training  
+ Eleven (11) weeks at facility

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**Total = Twelve (12) weeks**



# *P2 Intern Training*

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## **Pollution Prevention topics include:**

- What is P2 ? Process Efficiency ?
- Process Mapping
- Waste Auditing
- P2 Internship 101
- Intern ethics and requirements
- General safety guidelines



# *P2 Intern Training*

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## Energy Efficiency topics include:

- Energy auditing
- Lighting
- Air Compressor systems
- Boilers, steam traps, condensate
- Motors, VFDs
- HVAC, refrigeration, chillers



# *P2 Intern Training*

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## **Training includes a...**

- Facility on-site waste and energy audit at a nearby facility
- Brainstorming session on recommendations for that specific facility

## **Training concludes with...**

- Each intern making presentations on the specifics of his/her project



# *P2 Internship Resources*

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## **Instruments available to interns...**

- Ultrasonic leak detector (2)
- Thermal imaging gun
- I/R temperature guns
- Lumen meters
- Windvane anemometer
- Ballast checker, Sylvania flicker checker
- Fluke clamp-on power meter

## **Instruments that we may purchase...**

- Data Loggers



# *IEPA Responsibilities include.....*

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- **Recruiting and training students**
- **Attending initial on-site visit with student**
- **Establishing contracts**
- **Researching project beforehand**



# *Intern Responsibilities include.....*

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- **Attending Training**
- **Working normal hours at facility**
- **Submitting semiweekly progress reports**
- **Writing a final written report**
- **Attending final presentations**



## *Facility Responsibilities include providing .....*

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- **Workers compensation insurance coverage for student while on-site**
- **An on-site assigned supervisor**
- **Facility specific safety training**
- **Any miscellaneous expenses**



## *Facility Benefits Include:*

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- **Fresh perspective with focus on a specific P2 or E2 project**
- **Low cost resource**
- **Reduced releases & liabilities**
- **\$\$\$ Savings \$\$\$, reduced overhead costs**
- **Greenhouse gas emission reduction**



# *Intern Success Stories*

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## **City of Olney**

- **The city of Olney has a population of 8,600 and is the county seat of Richmond County. The city covers 5.8 square miles.**
- **The intern project focused on identifying energy efficiency opportunities at the city's wastewater treatment plant and water plant.**



## *Intern Success Stories*

**The intern made the following recommendations:**

- **Retrofit the aeration system at the wastewater treatment plant with fine bubble diffusers. This system has the potential to save \$58,000 a year, with a simple payback period of 1.9 years. CO<sub>2</sub> emissions would be reduced by 596 tons per year.**
- **Install variable speed drives (VSD) on two motors at the water treatment plant to save energy. This would also prevent throttling and bypassing of the pumped water. One motor is 100 hp and the other is 150 hp. The total yearly savings would be over \$26,000 using VSDs, and the payback period would be less than 6 months. CO<sub>2</sub> emissions would be reduced by 280 tons per year.**



# *Intern Success Stories*

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## **City of Aurora**

- **The City of Aurora has a population of 157,267. Aurora has steadily grown to become the second largest city in the state.**
- **The intern conducted both an energy audit and a waste audit for a majority of the buildings owned by the city.**



# *Intern Success Stories*

## **The intern made the following recommendations:**

- **Convert existing T12 lamps with magnetic ballasts to T8 lamps with electronic ballasts, and install motion sensors in office areas. The water treatment plant alone could save over \$8,000 by converting to more efficiency lighting fixtures.**
- **Retrofit 29 heavy-duty diesel vehicles with technology (e.g. particulate filters and oxidation catalysts) to reduce diesel exhaust emissions.**
- **Replace two solvent-based parts washers with aqueous based part washer to minimize volatile organic compound emissions.**
- **Recycle used oil filters and oil absorbent mats to reduce items being sent to the landfill.**
- **Recycle empty aerosol cans with other metals.**
- **Recycle insulated wires and other core parts containing metal. Recycle rubber v-belts and hoses.**
- **Buy windshield washer fluid in bulk instead of plastic gallon jugs to help reduce disposal costs.**



# *P2 Internship Program*

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## **COORDINATOR**

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## *How do I apply?*

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The application form to host a student is posted year-round. The Website is :  
[www.epa.state.il.us/p2/internships](http://www.epa.state.il.us/p2/internships)