

## **Project Overview**

University of Nebraska-Lincoln Environmental Engineering Labs

Intern: Rebecca Hitz

Major: Civil Engineering

School: University of Nebraska-Lincoln

## **Project Description**

The Environmental Engineering Labs at the University of Nebraska-Lincoln are used for class work, research, experiments and graduate thesis work. The labs are mostly used during the school months, while some graduate students do work in the summer months also.

The project for the summer of 2005 was to study the various equipment and appliances present in the lab rooms, which contribute to the consumption of energy and recommend improvements. Older refrigerators use more energy than newer, more efficient models. The production of hazardous wastes due to experiments performed in the labs require proper disposal according to the regulations and laws regulating hazardous wastes. Suggestions to enhance pollution prevention in this area were also made.

## **Pollution Prevention Benefits**

Replacing older refrigerators with newer models will decrease energy use and lower utilities costs. Also, following the proper procedures for fume hoods by fully closing the sashes after use will result in energy savings. Using different testing methods for stormwater analysis performed in the lab will decrease the amount of hazardous waste produced and the labor involved. The recycling of cardboard boxes from the receipt of supplies could also cause the University to save money in disposal costs. Improved labeling and organization of lab supplies will create a safer work environment and eliminate excess purchasing.

## **Results**

The placement of signs on all fume hoods requesting the sashes be fully closed after use was suggested. This could result in energy saving of \$143 per fume hood per year. Alternative testing methods, using ion chromatography, were suggested for stormwater analysis that would result in the production of less hazardous waste. Replacing older refrigerators with Energy Star models would decrease energy use. Although initial costs are high and the recommendation does not appear feasible, a discussion of an energy conservation program in cooperation with the University Facilities may prove fruitful in the future. Following a model from the University of Iowa, where \$250,000 in energy costs was saved in their first year of the program, the University of Nebraska should look to all its campus operations, not just the Environmental Engineering Lab, to evaluate potential energy savings.