

# Creating a Safe and Healthy Campus

## Part I: Minimizing Hazardous Waste

### The Vision:

- CU reduces the amount of hazardous waste generated by the campus while maintaining the quality and quantity of research.
- CU continues to advance pollution prevention programs to reduce the quantity of hazardous material present on campus and to promote a safer working and learning environment.

### Progress during 2002-2003 and Upcoming Plans

Eight Action Steps towards UCB's waste minimization and pollution prevention programs were originally proposed in the *Blueprint for a Green Campus* issued in April 2000. Since that time, three Action Steps have been completed and five are ongoing. Additionally, the Environmental Health and Safety Center has made several other advancements towards waste minimization and management, pollution prevention, and resource savings, including the creation and implementation of the campus-wide Environmental Council that was charged by Vice Chancellor for Administration Paul Tabolt.

**Action Step:** Institute a central chemical procurement system.

**Current Status:** The EH&S Chemical Management Specialist continues to consult with staff from CU's Procurement Service Center and others to explore a centralized chemical purchasing system.

**Action Step:** Further advance 'Best Management Practices' already adopted by many laboratories and shops to maximize safety and minimize waste. **Completed.**

**Current Status:** CU-Boulder served on a special commission sponsored and facilitated by the Howard Hughes Medical Institute and comprised of Federal/State regulators and representatives from each of the 10 EPA regions across the nation. A report of the findings from the 'Best Practices' project was submitted to Congress and the EPA. The EPA was complimentary of the report and has adopted rule interpretations that are favorable to university laboratories, based upon the recommendations of the committee. The next step in this process is for the EPA to acknowledge the best practices procedures in well-defined regulations and guidance documents.

**Action Step:** Investigate the feasibility of applying an 'advanced disposal fee' to discourage bulk purchasing of chemicals. **Completed.**

**Current Status:** The application of an 'advanced disposal fee' has been explored; however it has been determined to be not feasible at this time. Factors involving customization of procurement procedures, journal entries, and inventory control must be further considered at a future date.

**Action Step:** Further advance microscaling efforts. (Microscaling involves conducting experiments on a smaller scale thus reducing the quantity of hazardous substances use in experiments, manufacturing, and routine cleaning.)

**Current Status:** Microscaling efforts continue to be a consideration of faculty for teaching and research at UCB.

**Action Step:** Add a waste treatment specialist to the EH&S staff to run the waste treatment process and advise on waste minimization techniques. **Completed.**

**Action Step:** Continue to utilize and expand treatment techniques at the EH&S facility to significantly decrease hazardous waste volumes.

**Current Status:** For the calendar year ending December 31, 2002, the treatment facility has processed 24,627 liters of materials (6,481 gallons, equal to 118 55-gallon drums). The treatment processes have facilitated the recovery of 3.406 kg (7.5 lbs.) of silver, and 20,741 liters (5,458 gallons) of water for return to the city wastewater treatment facility. Presently, EH&S is looking at metals



removal from aqueous solutions as an option to expand the treatment facility processes, allowing a broader range of waste materials to be treated. Also, a new tank has recently been installed to allow for simultaneous treatment of wastes with the three existing processes in the treatment facility (photochemical silver recovery, acid/base neutralization, and organic ozone/UV oxidation). This will allow for increased amounts of waste to be treated and discharged and for increased savings from disposal costs in the future.

**Action Step:** Reduce photographic chemical waste by utilizing new technologies and procedures.

**Current Status:** In 1997, digital photo labs were established within UCB's Fine Arts and Publications Departments. These labs have proved a success both academically and environmentally and have significantly reduced the volume of photographic wastes generated on Campus

**Action Step:** Establish a battery recycling program so that rechargeable and alkaline batteries are recovered for recycling.

**Current Status:** A study was completed during the past year to determine disposal requirements and the need for recycling alkaline batteries. Though most battery types are regulated and require proper disposal, alkaline batteries have been determined to be non-regulated and trash disposable. Laws prohibiting the production of alkaline batteries with added mercury have been in effect since 1993, and levels in current batteries are well below regulated levels. After consultations with the State, and analyses of samples of alkaline batteries by an independent laboratory and the consideration of cost analyses, it was determined that recycling of alkaline batteries on Campus is not feasible at this time. The existing battery recycling

program within the Hazardous Materials Group has been expanded to include campus drop-off sites, which make proper disposal (recycling) of batteries easier for all campus departments (for an updated list of sites around Campus, call 2-7845).

### **Additional Progress by Environmental Health and Safety**

- As of February 2003, the EH&S chemical inventory management pilot has been successfully tested and is ready to be implemented as a fully operational system. Once EH&S has installed a new dedicated server, the program will be ready for widespread campus and outside agency use. Campus staff will be able to access the system for:
  - A one-stop chemical hazard database that provides a vast array of information about chemicals, e.g., physical properties, safety and parameters, toxicological information, and spill cleanup protocol, etc.
  - Laboratory managers will also have the ability to quickly update and edit their own chemical inventories. Special attention was given to make the program user-friendly, and, most important, secure with password protection.
  - EH&S, as well as outside emergency responders, e.g., Boulder Fire Department, will access the database through special passwords to assist them in knowing what chemicals are on campus and where they are located, providing better knowledge in the event of an emergency.
- The EH&S Chemical Management specialist was effective in acquiring new chemical storage cabinets, primarily in the Chemistry Department, to provide additional chemical security as well as to bolster pollution prevention measures.
- EH&S has published and distributed the *Generators' Guide to Hazardous Material/ Waste Management*. The new booklet has several improvements, including comprehensive biowaste management procedures and a simplified Emergency Action Plan, in an improved, easier-to-use, format.
- UCB essentially completed the identification and labeling of all interior and storm water drains on the main and east campuses. Turf and grassy areas are expected to be marked during the summer of 2003.
- EH&S has completed implementation of most of its Spill Prevention Control and Countermeasure Plan (SPCC) for above-ground petroleum tanks and emergency generators. This includes secondary containment, berms and spill prevention equipment. Full campus implementation is expected by June 2003.
- Last year, a pilot program, funded primarily by a water conservation project, installed six new specialized vacuum pumps in Ekeley and Cristol Chemistry that replaced water aspirators used to distill solvents. Based upon the success of this pilot program, UCB will be installing several more new vacuum pumps to replace the water wasteful aspirators. The obsolete water aspirators waste millions of gallons of water per year, cause sanitary sewer violations and the threat of potential fines, and cause concern among building occupants

about odor and health issues. These issues will be successfully mitigated once the installation of the vacuum pumps is completed. This project is now able to be expanded campus-wide. Any one still using water aspirators are urged to contact Moe Tabrizi, at the UC-Boulder Energy Conservation Office.

- UCB strives to comply with, and, in most cases, exceed the new EPA regulations for storm water management and permit requirements. The Boulder Campus began implementing storm water management programs and practices more than 20 years ago to control and eliminate sources of water pollutants. UCB has developed and maintained a number of aggressive storm water management programs, placing UCB in a position of environmental leadership.
- The Environmental Council was established through a directive from Vice Chancellor for Administration Paul Tabolt and began holding meetings as of January 2003. The Environmental Council is comprised of members who represent cross-functional areas of the campus and includes staff, faculty, and students.

“The Environmental Council (EC) is charged by the Vice Chancellor for Administration (VCA) to observe environmental practices of the University. The EC shall serve for two years and may be re-charged at the conclusion of a two-year timeframe. The EC is expected to carefully ascertain impacts and evaluate programs that could lead to new or revised environmental policies as well as operational strategies that have the potential to:

- Enhance University compliance with applicable environmental laws, regulations, rules, policies and procedures.
- Reduce environmental impacts of Boulder campus.
- Promote the Boulder campus as a leader in campus sustainability.
- Coordinate environmental efforts.
- Promote environmental education for the campus community.“