



## Summer 2008 newsletter

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**What's in a Name?** Environmental Health & Radiation Safety/Environmental Health & Safety was the official name of our department; this unwieldy mouthful came about from the 2005 consolidation of two previously autonomous units. We are pleased to announce our department's new name, **Environmental Health & Safety (EH&S)**. Looking forward, we present our Vision Statement-the philosophy informing all of our activities to promote health and safety of faculty, staff, students, neighbors, and the environment of our surrounding community.

Environmental Health & Safety

### **VISION STATEMENT**

We provide expert guidance and timely service to the University Community through our commitment to health and safety.

Employing best practices and collaboration, and by building long term relationships, we promote a productive and safety conscious work environment.

### **It's Time for a Check-Up-Environmental Audit, September 2008**

To ensure the health and proper function of any operation or system it is important to periodically evaluate its performance against established norms or expectations. Whether it be personal health and an annual physical exam, or a vehicle's safety with an annual inspection, it is generally agreed that periodic assessments are important to the health and function of any system or operation.

EH&S takes a similar approach to evaluating the University's health (read: compliance) as it relates to a variety of regulated activities. EH&S routinely surveys "targeted" items, such as labeling of hazardous waste containers or eating or drinking in a lab, to verify that performance is consistent with the applicable regulations. These surveys provide useful information about

future areas for program development and enhancement and for education/training needs. Most important, surveys keep us connected with those whom we serve and help keep out of trouble with the regulators. Additionally, EH&S also performs more holistic evaluations of multiple programs and program components to get a pulse on the overall health picture (read: compliance) and help establish long-range plans for University-wide environmental health and safety programs.

Since the 2004/2005 survey of EH&S programs, the department has focused on aligning policies and procedures and translating them into consistent practices amongst all University activities, be it laboratory research or building operations. This Fall, EH&S will be evaluating the University's overall health status again (read again: compliance) with a multi-campus survey of environmental programs both in and outside the labs. The goal is to receive a clean bill of health for your work practices and work area. EH&S will be out and about this summer for some pre-survey preparation, but contact us directly if you'd like us to take a look under your hood before the Fall.

### **Compact Fluorescent Lamps, Safe Clean-Up**

In our previous Newsletter (Spring 2008), we discussed the environmental benefits of switching from incandescent light bulbs to compact fluorescent lamps (CFLs). There is a small downside to CFLs though: like all other fluorescent lamps, they contain small amounts of mercury that can be released if broken. And while the release from one or two broken lamps will not cause significant mercury exposure and is not a major cause for alarm, precautions should be taken because the clean-up can be tedious and in some cases VERY EXPENSIVE. EPA has issued guidance to the general public for clean-up of broken fluorescent lamps, ([http://www.energystar.gov/ia/partners/promotions/change\\_light/downloads/Fact\\_Sheet\\_Mercury.pdf](http://www.energystar.gov/ia/partners/promotions/change_light/downloads/Fact_Sheet_Mercury.pdf)). Some basic steps you should follow if you break a fluorescent lamp in your home are:

- Evacuate the area for at least 15 minutes (those not involved in the clean-up should leave the area until the clean-up is complete, especially children and pets).
- Do not step in the debris to avoid tracking it on your shoes.
- Assemble your tools (flashlight, gloves, sealable plastic bags, cardboard or heavy paper, duct/masking tape, wet wipes or wet towel) before starting the clean-up; a few minutes of thoughtful preparation will save you from making the situation worse.
- Sweep up what you can and use duct/masking tape to pickup smaller pieces of glass and place debris in double sealable plastic bags; avoid breathing dust.
- Do Not use a vacuum cleaner on a hard (wood, tile, linoleum) surface. If breakage contaminates carpeting, EPA suggests using a vacuum and immediately disposing of the vacuum bag as continued use may spread mercury contamination.

Cautious handling of mercury-containing lamps can help prevent breakage so that you may avoid the hassle and anxiety of cleaning up a mercury release.

- Use the right tool for the job; use a step stool or ladder to reach the fixture when needed, as reaching for the fixture will cause you to focus more on your balance than the task at hand.
- Make sure your hands are dry and free of oil or moisturizer.
- Keep a firm grip on the lamp until it is seated in the fixture; CFLs are sturdier than incandescent lamps so they can be grasped a bit more firmly.

A little knowledge can go a long way to avoiding (or managing) an incident. With some advanced planning and basic response tools on hand, everyone can Go Green safely.

### **Solvent Recovery Program**

In continuing the Go Green effort at Columbia University, EH&S has been working with the Chemistry Department to expand a solvent recovery program aimed at laboratories using acetone for glass washing. By recycling and reusing acetone, we hope to divert approximately 45 gallons of hazardous waste per month from our waste stream, reducing outgoing waste

solvents and expenses by over 10%. Acetone recycling will not only save money, it will keep more than 500 gallons of waste per year out of the environment!

Since 2003, the Medical Center has had two machines that recycle xylene and alcohols achieving comparable financial savings and environmental benefits.

It doesn't have to stop there! EH&S is also looking to expand its recycling efforts to other commonly used solvents used in everyday laboratory work. If your lab would like to participate in the program give us a call; we look forward to speaking to you about taking part in this program.

### **Battery Recycling: collection sites added**

Batteries contain a wide variety of hazardous metals and corrosive chemicals. Due to their widespread use and potential hazards to the environment, all batteries should be collected for recycling. CUMC now has 45 battery recycling containers throughout the campus. Following this model, EH&S successfully piloted a battery collection program in a select number of buildings at the Morningside campus and will be expanding to new locations. Current locations for the battery collection containers include:

CEPSER lobby  
Fairchild 7th floor  
Havemeyer 3rd floor  
Mudd 4th floor  
Public Safety Office, Low  
Library  
Pupin lobby  
Journalism lobby

Butler Library Café lounge  
Butler Library 2M04  
International Affairs Building  
lobby  
Jerome Greene lobby  
John Jay lobby  
Hamilton lobby  
Kent lobby

Avery lobby  
Mathematics lobby  
Wien lobby  
Lewisohn lobby  
Dodge Fitness Center lobby  
Dodge Hall lobby  
B-230 near the Service Center

Please help us protect the environment by properly handling batteries at the end of their useful life. For more information on reuse, recycling, or environmental issues, please visit:

<http://www.ehs.columbia.edu> or <http://www.columbia.edu/cu/environment/index.html>. If you have additional ideas for reuse or recycling, please send your suggestions to: [environment@columbia.edu](mailto:environment@columbia.edu)

### **Let's BBQ-The Safe Way**

It's almost summer and you can't wait to be basking in the sun somewhere on campus or at the beach. In one hand, you're holding a cool drink, in the other a spatula. A couple of juicy steaks or burgers are sizzling on the grill. The last thing on your mind is safety, right?



It shouldn't be! According to the U.S. Consumer Product Safety Commission, warm weather activities such as barbecuing led to product-related injuries for more than 3.7 million people in 2004. But with just a few simple, precautionary steps, you can enjoy a safe cookout, every time. After all, what's more important than having the peace of mind to enjoy the real fun at any barbeque: the food, family, and friends?

#### **Any Time You Grill**

- **Never grill indoors. Carbon Monoxide**, a byproduct of combustion, can cause rapid asphyxiation.
- Before cooking, roll up your sleeves and use oven mitts. Loose-fitting clothes can ignite if they contact a hot surface; if clothes do catch fire STOP-DROP-and ROLL.  
*(The following are not just good practices, but NYC Fire Department regulations)*
- Keep grills **at least 10 feet** from any structure or any combustible material.

- Grills may **NOT** be used on a building roof. Most buildings have combustible materials on the roof surface; dropping hot coals may cause a roof fire capable of dropping into the attic or top floor of the building.
- The grill area for any barbeque may not exceed 10 square feet.
- A minimum of two 2 1/2 gallon pressurized water extinguishers, a sixteen quart pail of water, or a charged water hose **must be present** during grill use.

#### Safety for Charcoal Grills

- **Do not use lighter fluid**-Columbia University policy requires the use of "Match Light"-type charcoal for all grills used on campus.
- If you are using charcoal lighter fluid off-campus, **do not use** it on coals that are already lit. Flames can travel up the stream of fluid, igniting the can being held.
- Operate charcoal **AWAY** from **air intakes** near campus structures. Even after grilling when you may assume all the coals are extinguished, they will still produce carbon monoxide for an extended period of time, so **keep your charcoal grills outside at all times.**



- **Safety for Gas Grills**

- Propane cylinders **may not** be transported into New York City via tunnels or lower levels of bridges.
- Propane tanks **may not** be refilled within New York City limits.
- Be sure to keep tanks upright, and move gas hoses away from dripping grease and hot surfaces.
- **NEVER** use cigarettes, lighters, or matches near your gas grill, whether it's in use or not. You can't be sure that there's not a slight gas leak somewhere in the unit, so it's always better to be **safe** than sorry.
- If you must transport your propane tank for any purpose, be sure you choose a relatively cool day. Keeping containers or any other grill parts that are under pressure in a hot car will cause an increase in the pressure of the gas, which could cause an explosion.

### **ChemTracker Expands to Medical Center Campus**

Building on the success of *ChemTracker* on the Morningside Campus, EH&S has made the program available to Medical Center laboratories on a voluntary basis. The first lab to take us up on this was that of Dr. Anne Marie Schmidt of the Department of Surgery. *Safety Matters* recently interviewed Dr. Schmidt's laboratory manager, Mr. Phillip Camp, who cited many of the positives of this system. Please contact us if want to find out more about how *ChemTracker* can help manage your chemical inventory.



*"ChemTracker has been a great addition to our lab management. Not only does ChemTracker allow for the lab to reduce spending by having the most updated chemical lists, but it also reduces hazardous risks by having MSDS sheets readily available for new chemicals. It has been much easier to track hazardous and flammable materials, as well as to organize them into distinct chemical categories. Whenever the government requires an inventory of certain chemicals, I am able to produce an accurate chemical list in a fraction of the time."* **Philip Camp**

## Don't Get Stuck: Use Safer Sharps

*Effective programs, including ours, can always benefit from cooperation with peer groups having similar functions. The article below has been adopted from the University of Medicine and Dentistry of New Jersey's Newsletter BenchSmart and is used with their permission.*

Safer sharps are an important tool for working in the research environment. These redesigned needles and scalpels reduce the risk of needle stick injuries for laboratory workers. Since laboratory workers account for up to 21% of needle sticks, individuals should consider safer sharps alternatives whenever possible. Replacing glassware with plastic-ware is an easy alternative that many labs have already adopted. Avoiding the use of needles is another solution. If the use of sharps is required, select a specially designed safety device.

Many new safety devices are currently on the market, including:

- Needleless systems
- Needles that retract into the syringe barrel
- Hinged or sliding shields that cover a needle or blade
- Self-blunting needles

These safety sharps provide protection to workers by eliminating the need for a needle or blade, permanently isolating the sharp so it never poses a hazard, or by providing a method to encase the sharp after use.



Live animals bring an added safety risk to research making safe sharps especially important for researchers using animals. Safety devices can reduce this risk and protect workers from exposure to hazardous biological and chemical agents and drugs. Pathogens, recombinant DNA, human cell lines and body fluids are among the materials upon which a high premium is placed on such exposure reduction. Safe sharps are **required** when potential exposure is to material covered by OSHA's Bloodborne Pathogens Standard.

If you are using conventional sharps in your research consider the use of safer alternatives. Most major suppliers like VWR, Fisher, and BD sell a variety of sharps with safety features.

## Eating/drinking in Laboratories...NOT



Columbia University's laboratory safety policy prohibits eating, drinking, and food storage in laboratories that use Chemical, Biological, Radiological or any other hazardous materials. This policy is based on the potential for food/drink in the laboratory to become contaminated with subsequent ingestion associated with harmful effects. In the case of certain radioactive materials, trace amounts can cause great harm; therefore all radiation regulatory agencies consider it a major violation if food/drink is found in a laboratory that uses radioactive materials. Also consider that the effects of certain chemical exposures may be cumulative; 'small' unapparent exposures over time could add up until a threshold for adverse effects is reached – **every little bit (or bite) may ultimately hurt.**



## Recombinant DNA: history and current requirements

The cloning and introduction of foreign genes into new hosts is so integral to life-sciences research that it is almost unimaginable to conceive of a time when so much apprehension surrounded this technology that scientists, in 1971, implemented a moratorium on such activities. But it did happen and not that long ago, at least for some of us.

In 1975, researchers, physicians, lawyers, and representatives from the NIH, convened in Asilomar, California to address the implications of the new technology. Out of this meeting came the NIH's Recombinant DNA Advisory Committee which authored and continues to update the *NIH Guidelines for Research Involving Recombinant DNA Molecules*. For a description of this unprecedented exercise in self-regulation and to see just how much the collective approach to this field has evolved, see: [http://www.biotech-info.net/asilomar\\_revisited.html](http://www.biotech-info.net/asilomar_revisited.html), just one of many histories on the topic.

And even though high school kids are now doing work that would have been considered groundbreaking (and perhaps even too dangerous to contemplate) back in 1971, the *Guidelines* are still very much in effect. A few things you should know about them:

- They are not "Guidelines"-they are rules that apply to all rDNA activities, **regardless** of the funding source.
- The NIH's risk assessment criteria for most viral vectors are quite conservative regarding 'replication deficiency', requiring the same hazard assumptions as if wild type virus were being used along with the commensurate safety requirements.
- All activities using rDNA must be described in a submittal to the Institutional Biosafety Committee (IBC). The NIH defines a category of 'exempt' (from submission requirements) activities, but this category is narrower than most people assume and investigators must, at a minimum, submit an initial application for the IBC to make this determination.

As the NIH has initiated site surveys to check institutional compliance, this would be a good time to make sure that your lab is up to date on its rDNA submittal(s). To submit to the IBC:

- Go to <https://www.rascal.columbia.edu>.
- Select 'Hazardous Materials' from the menu on the left side of the welcome screen.
- Log in with your Columbia Uni and password.
- Select and then complete **Recombinant DNA (Appendix A)** which can then be submitted online.



### Will Your Eye Wash Be Ready When You NEED It?

Many laboratories have an eye wash attached to the faucet and you have probably heard us tell you to run the water at least weekly to confirm adequate flow. There is another thing to keep in mind: After you use the eye wash, DO NOT force the red caps down too tightly. Otherwise, they may not pop off when the eyewash is activated resulting in inadequate water flow when you need it. If you believe you need an eye wash in your work area, contact EH&S.

## Laboratory Vacating Procedures

Researchers vacating or relocating laboratories within the University must contact EH&S for assistance with clearance of their space. All chemical, biological, radiological and any other hazardous materials must be removed and any unwanted chemicals must be disposed through EH&S by filling out the chemical waste pick up form on our website ([www.ehs.columbia.edu](http://www.ehs.columbia.edu)). Contamination-prone work surfaces and equipment - e.g. fume hoods, refrigerators, freezers - must be decontaminated before moving or disposal. The ultimate responsibility for leaving any work space suitable for re-occupancy or renovation lies with the Principal Investigator to whom the laboratory was assigned. For Vacating Procedures, see: <http://www.ehs.columbia.edu/Labvac.html>.

## Hope You Came To See Us

This past April, EH&S held its first Open Lab Forum in the Chemistry Department and another one in May in Biology. The Forum is designed for the lab personnel to come and speak with the EH&S team in a relaxed, informal setting about whatever they want. During the Forum, EH&S fielded questions on glass disposal, proper chemical management, solvent recovery and the Chemical Tracking System. By having an open, friendly dialogue with the labs, EH&S gained a better idea of researchers' concerns and their perspective on safety issues and programs in their department. This forum provided us with many new ideas to improve our programs and relationships with the labs and we look forward to incorporating them in the future. EH&S is planning on holding these forums for other department as well another for Chemistry in the near future. Watch for our flyers and check our website to see when we will be holding one for your department. We look forward to seeing you there....any by the way, we serve refreshments.

## A Minor Situation

The research and educational programs at Columbia University benefit from the presence of many individuals who are not faculty, staff, or registered students, but who come here to observe, to learn or to teach. The presence of volunteers, trainees, and observers promotes the mission of the institution. We have an obligation to ensure that their activities are conducted in a safe, professional, and responsible manner; as a result, they all must attend the same safety trainings required of faculty, staff and students. ***Special provisions apply to minors***, due to the unique hazards that may be found in labs. No one under the age of 14 is allowed in a University laboratory at any time (even with parental supervision). Additionally, no one under the age of 18 may handle radioactive materials or research animals, nor may they be left alone in the laboratory. For more information please visit <http://www.ehs.columbia.edu/VolTraineesPolicy.html>.

## Laboratory Spills-Guidelines and Examples

Nothing can alter a day's plans like a chemical spill. While no one plans on a spill, everyone should know what to do so that normal activities can be resumed safely.

First, alert people in the immediate area; everyone should leave the lab and hold their breath if the material is volatile. Close all doors leading to affected area. Notify the laboratory supervisor and/or principal investigator. Next is the decision process as to whether laboratory personnel are sufficiently trained, knowledgeable and equipped to handle the situation. If the situation is manageable, lab personnel can address the spill. Consult an MSDS for the material's hazardous properties, incompatibilities, and other safety information. Don appropriate protective equipment-safety glasses, gloves, and a long sleeve lab coat. If the spill involves a flammable liquid, turn off all ignition and heat sources.

For unmanageable spills, who are you going to call? Not Ghostbusters... Call EH&S (212)854-8749 at Morningside or (212)305-6780 at CUMC for instructions and assistance between 9am-5pm weekdays and Public Safety (212)854-5555 at Morningside or (212)305-7979 at CUMC at all other times. Be prepared to give the chemical name, volume spilled, location (building and room), and any other pertinent information. Have a person knowledgeable about the incident available to provide information to responders. Keep personnel away from affected area until EH&S can evaluate the situation; assist anyone contaminated by chemicals by helping them remove contaminated clothing. When feasible, flush the affected body area with water.

Where injured staff and students obtain medical treatment depends upon campus location, employment status (staff vs. student), and time of day (on nights and weekends, it will be either the New York Presbyterian or St. Lukes-Roosevelt ER. Wouldn't this be good time to review the EH&S Emergency Response Wall Guide, just in case? Call us if you need one.

- On a recent Friday night, a lab was cleaning out some old boxes in a shared cold room. Hidden behind one of them was a bottle of acetaldehyde, a flammable, malodorous compound. The bottle broke, creating a potentially explosive situation – a cold room filled with flammable vapors waiting to be ignited! Luckily, the lab’s quick action—calling Public Safety and EH&S—averted a disaster. The spill was cleaned and the room reopened several hours later.
- A few weeks later, there was an accidental release of trimethylphosphine, a flammable material that is air and oxygen sensitive. The reaction of the lab personnel was perfect. They isolated the area and put up signage to let other lab members know not to enter the room and made sure all ignition sources were off. EH&S was called to address the situation. The material was immediately contained, quenched, and packaged by EH&S staff wearing the proper personal protection equipment. The room was cleared for use the following morning after industrial hygiene monitoring was completed.

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Thank you for taking the time to share your thoughts about the EH&S *Safety Matters* Newsletter. Feel free to comment on the usefulness, clarity, or any other aspect of the articles. We also welcome your suggestions about topics we might cover in of future editions, which will appear quarterly.