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# ENVIRONMENTAL HEALTH & SAFETY



## EH&S MISSION STATEMENT

The Medical College of Georgia Environmental Health and Safety Division (EH&S) provides environmental safety services to staff, patients, students, and visitors.

The six sections of EH&S, Administration, Environmental Health and Occupational Safety, Biological Safety, Chemical Safety, Fire Safety, and Radiation Safety help to ensure full compliance with all local, state, and federal laws.

We strive to continually improve the level and quality of services provided through creativity, teamwork, and innovation.

## THE DIRECTOR'S CORNER

*Submitted by: James S. Davis, Ph.D., CHP, Director, EH&S*

### EPA and BOR Self-Audit Program

On behalf of its member institutions, including the Medical College of Georgia (MCG), the Board of Regents (BOR) of the University System of Georgia (USG) signed an agreement with the Environmental Protection Agency (EPA) to perform environmental audits of all member institutions. This agreement is part of EPA's program entitled, "Incentives for Self-Policing: Discovery, Disclosure, Correction, and Prevention of Violations."

The agreement with the EPA assures the BOR that EPA will not conduct inspections of USG institutions (except under limited circumstances) while the USG is under the Self-Audit program. The agreement also requires that USG institutions perform self-audits and report the audit findings to the EPA. The agreement includes an audit schedule for all institutions within the USG. MCG is scheduled to be audited in spring of 2010. Normally, the EPA will waive penalties for any violations reported as a result of these self-audits.

The EPA does, however, reserve the right to inspect at any time and would do so if they receive a complaint from a citizen or if they become aware of a significant environmental issue. If the EPA inspects an institution, they may still levy fines even while under the self-audit program.

To prepare for this program, the BOR has hired a consulting firm to lead this effort. This consulting firm has worked with many other academic systems. They have developed audit templates, trained USG auditors, and will act as lead auditors for all USG institutions.



Some MCG staff members have taken this training and will be participating in the audit of member institutions. The audit will look at chemical and hazardous waste handling practices in laboratories, shops and clinics; universal wastes (lamps, batteries, mercury, and tires); air quality permits to include boilers and other sources of pollutants; waste oil, solvents, pesticides/herbicides, refrigerants, asbestos, vehicle maintenance, grounds maintenance, print shops, dorms, and any other areas on campus that generate hazardous waste. It will cover all areas regulated by the EPA, including the:

- Clean Water Act
- Safe Drinking Water Act
- Federal Insecticides, Fungicide and Rodenticide Act
- Resource Conservation and Recovery Act

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- Clean Air Act
- Comprehensive Environmental Response, Compensation and Liability Act, and Emergency Planning, and Community Right-to-Know Act
- Toxic Substances Control Act

Where consultants have conducted self audits before, typically 40 - 80 violations are found per institution audited. This will be a very comprehensive process similar to an actual EPA “multi-media” audit and will look at more areas than we typically audit during our semi-annual visits.

To help MCG prepare for our Spring 2010 Self-Audit, the MCG Environmental Health and Safety Division (EH&S) will expand its laboratory audit program beginning in 2008 to incorporate items on the EPA checklists that are not on the current MCG checklists. The frequency of the audits will not change. Each lab or area where chemicals are stored or used will be audited twice a year as usual, but each audit will be more comprehensive. Notifications will be sent prior to each audit and the checklist that will be used will also be provided in advance. Your support before, during, and after each audit, i.e. written response to each audit report, is expected and appreciated.

Below are the most common violations from previous audits of MCG laboratories and EPA inspections of areas where chemicals are used and where hazardous wastes are likely to be generated:

1. Failure to determine if a waste is hazardous prior to disposal.
2. Failure to label hazardous waste containers in laboratories with the words “Hazardous Waste”.
3. Movement of hazardous waste from the lab where it was generated to another lab area.
4. Improper disposal of hazardous waste – throwing in the trash or dumping down the drain. Some commonly mismanaged waste streams include acetone and alcohols being drain-disposed, and gram and other staining operations occurring over sinks.
5. Failure to keep hazardous waste containers closed.
6. Failure to identify unused chemicals as hazardous waste – if they haven’t been used for the past few years, and won’t be used any time soon, EPA considers it waste.
7. Failure to separate incompatible wastes such as acids and bases.
8. Evaporation, dilution, drain-disposal, or neutralization of wastes.

As part of the audit program, EH&S reminds all researchers that it is unlawful to improperly dispose of chemicals. MCG’s policy requires that all hazardous waste must be disposed through MCG’s Chemical Safety Office (CSO) and NEVER down the drain. Such wastes include wastes generated from procedures like solvent wastes (acetone used to rinse glassware), xylene, methanol, and other solvent-based de-stains, and methanol used in Western blotting. University of Washington officials learned recently (see link for article), the unauthorized disposal of hazardous waste could subject researchers to fines and criminal prosecution. The researcher in this particular case potentially faces up to five years in prison and a fine of \$250,000 for knowingly disposing of a hazardous waste down a laboratory sink.

[http://seattlepi.nwsourc.com/local/306457\\_dump08.html](http://seattlepi.nwsourc.com/local/306457_dump08.html)

The MCG CSO does not charge researchers to dispose of hazardous waste. To request a waste pick-up or if you would like to request a courtesy environmental compliance audit of your laboratory, contact the CSO at 1-2663 or by email at [kerondu@mcg.edu](mailto:kerondu@mcg.edu).

## NOTICE REGARDING AUTHENTICATION OF CULTURED CELL LINES

Submitted by: Stacey Kraemer, Ph.D.



The NIH recently issued a Guide notice (<http://grants.nih.gov/grants/guide/notice-files/NOT-OD-08-017.html>) in response to an open letter to U.S. Department of Health and Human Secretary Leavitt (<http://cellbank.nibio.go.jp/cellbank/qualitycontrol/OL7-11-07.pdf>) from Dr. Roland Nardone and his colleagues.

Dr. Nardone, Professor Emeritus, Catholic University of America's Discovery Center for Cell and Molecular Biology identified a number of instances in which research findings have been based on misidentified cultured cell lines.

Authentication of experimental materials is an important aspect of any research protocol and the NIH relies on peer reviewers to identify applications that employ appropriate methodology.

The NIH encourages the community to develop acceptable practices in this regard and to ensure that all scientific findings are based on the most reliable methodology available. Additional information on this important issue is available in the notice.

## NEW EDITION OF THE CDC/NIH BMBL ISSUED

Submitted by: Stacey Kraemer, Ph.D.

The Centers of Disease Control and NIH have recently released the new 5<sup>th</sup> edition of the "Biosafety Bible" *Biosafety in Microbiological and Biomedical Laboratories* (BMBL).

This can be accessed online at: <http://www.cdc.gov/od/ohs/biosfty/bml5/bml5toc.htm>.

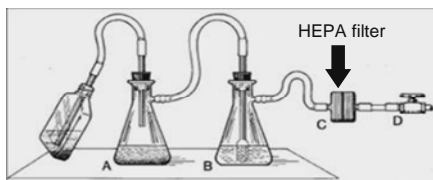
The IBC would like to draw researcher's attention to some new changes in the standards that may affect MCG research operations:

- Chairs in all labs must be covered in a non-porous material to facilitate decontamination.  
(Previously, this was required for labs at  $\geq$  BSL-2)
- Animals and plants are not permitted in BSL-2 laboratories unless associated with the work being performed.  
(Previously, BSL-2 restrictions applied to animals, but not plants)
- Vacuum lines in BSL-2 laboratories should be protected with HEPA filters (or equivalents).  
(Previously, this was not required until BSL-3)

Researchers should review the BMBL standards and address any non-compliant issues that may exist in their laboratories.

Because we anticipate a number of labs will have to address the in-line vacuum filter, IBC members have tested two models of in-line vacuum filters available from Fisher Scientific and found them satisfactory for use. The ordering information for these models is:

Millipore Millex 50 Filters (Fisher cat. #SLFG 050 10; Pack of 10 for 98.00)  
HEPA-Vent Filter (Fisher cat. #09-744-79; Pack of 10 for \$57.69)



## REPORTING REQUIREMENTS TO THE BIO-SAFETY OFFICE

Submitted by: Stacey Kraemer, Ph.D.

The Institutional Biosafety Committee (IBC) would like to remind all researchers of their responsibility to report the following to the Biosafety Office (x1-2663):

### Personal injuries and/or possible exposures or illnesses which may be the result of exposure to biological agents as a result of work activities, including:

- Needlesticks, cut exposures while handling biological materials
- Splashes, spray or aerosol exposure to mucous membranes
- Animal bites/scratches/possible mucous membrane exposure to any non-human primate materials
- Animals bites/scratches/possible exposure to infected or genetically engineered animals

### Accidents involving biological agents, such as:

- Large volume biological spills
- Spills of high hazard  $\geq$  (Risk Group 2) agents
- Spills of biological materials outside of laboratories

### Potential releases of biological materials from primary containment:

- Failure of bio-safety cabinets
- Centrifuge tube breakages involving  $\geq$  RG2 agents
- Vacuum trap overflows
- Improper disposal of infected or genetically modified materials
- Escapes of infected or genetically modified animals

Please remember that "biological agents" include blood and other human fluids and tissues, cell lines, recombinant DNA (including recombinant viruses) and microbial agents.

This is one of the terms of your Biosafety Material Usage Agreement issued by the IBC. Failure to comply would be considered a violation of this agreement and MCG policy, but also may be a violation of NIH Guidelines, which our institution must follow as per the NIH Grants Policy Statement. For further guidelines for NIH reporting requirements see :

<http://www4.od.nih.gov/oba/IBC/Incidents.htm>.

## MERCURY THERMOMETERS

*Submitted by: Duane Perry, Environmental Safety Office*

Laboratories across the country are replacing their mercury thermometers with non-mercury thermometers due to the inherent hazards associated with mercury release from broken thermometers. In some cases, replacing mercury with non-mercury is now mandated by state or local regulations. Non-mercury thermometers (typically alcohol or solvent based) are becoming more widely available and are often easier to read than mercury types. Mercury types may be more accurate at the extreme ranges but both types read similarly in mid-ranges. The most common range used in labs is -20°C to 110°C.

### Thermometer Tips

Before purchasing a new or replacement thermometer, take an inventory of thermometers in the lab. Consider removing any mercury thermometers from areas where risk of breakage is high, such as shakers, freezers, heating blocks, drying ovens, water baths, and refrigerators. A broken mercury thermometer may go unnoticed for an extended time period, vaporizing into the lab air and causing a mercury vapor hazard.

- If a thermometer is broken, identify the type replacement needed (partial or total immersion), the accuracy needed, measuring range desired, and whether or not special certification is needed. The tendency is to replace with the most accurate type available (more expensive) when this may not be needed. Most non-mercury thermometers are less expensive.
- Identify alternative types available, some of which include: **Red spirit** (-100°C to 200°C), good for water baths, ovens, and refrigerators; **Ever-safe** (-10°C to 260°C), replaceable for most all mercury types; **Envirosafe** (-10°C to 260°C), more problematic than other types as liquid may separate in the capillary tubing resulting in inaccurate readings; and **digital** (similar temperature ranges to mercury and often more accurate).

### Thermometer Storage

When stored horizontally, such as in a drawer, non-mercury thermometer fluid separates more frequently than does mercury, but all types should be stored with the bulb lower than the expansion chamber. Special drawer trays for storing these thermometers at the proper angle may be purchased. VWR, one such vendor, has available models 61010-012 or 61222-502. These trays are 1 ½ inches high and will fit into most lab drawers.

The Medical College of Georgia Environmental Health and Safety Division (EH&S) will be embarking on a program aimed at reducing mercury use on campus, consistent with our overall mission to promote environmental stewardship by locating and replacing these mercury thermometers in 2008.

Laboratory audits in 2008 will include efforts to try to identify these thermometers. Once identified, the next step will be to collect them and encourage their replacement with non-mercury equivalent. EH&S will replace them at no cost to the researcher as long as it is understood that the items will be replaced with non-mercury thermometers.

Further communication will be provided later but in the meantime, feel free to contact the Chemical Safety Officer at 1-2663 or at [kerondu@mcg.edu](mailto:kerondu@mcg.edu) if you have any questions.



*Submitted by: Ken Erondy, Chemical Safety Officer*

All MCG employees are required to take the Right to Know (RTK) Basic Awareness training upon employment. This is mandated by the Board of Regents. The on-line training program is designed to educate University System of Georgia employees to properly recognize and work safely with hazardous materials.

If you have not taken Basic Right To Know since employment with MCG, please take approximately 15 minutes to complete the online training at <http://www.usg.edu/ehs/training/rtkbasic>. If you come into contact with chemicals, other hazardous materials, human body fluid or tissue, you must complete the Chemical Specific, Hazardous Waste Awareness, and Blood borne Pathogens annual training as well. For more information, please contact Ken Erondy, ext. 1-2591.

**Environmental Health and Safety News**  
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## **CHEMICAL INVENTORY DATABASE UPDATES**

*Submitted by: Dolly Hobbs, Hazardous Materials Technician*

### **Improvement to the Chemical Inventory Data Entry Screen & Functions:**

All chemical inventory items must be linked to the Chemical Catalog in the Chemical Inventory Database in order to produce a Chemical Fact Sheet, regulatory reports, hazardous waste labels, and calculate hazardous waste totals.

Initially, database users were required to mark all items entered in their inventories as "Search Catalog," and perform a search for the Chemical Description/Name when adding a chemical to their inventory.

The "Not in Catalog" was provided to use only if you were unable to find the chemical name during the search or when the chemical was new on campus. Many of our users did not like performing the search for Chemical Description/Name, and wanted a way to bypass the function. This has been provided.

You may now use "Not in Catalog" to bypass the search systems for entering a Chemical Description/Name, as long as you:

1. Enter full chemical name with no abbreviations or chemical formulas,
2. Enter the Chemical Abstract Service number (the format for a CAS # is, reading from right to left: 87654-32-1),
3. Enter your Supplier/Vendor for the product & the Vendor's Catalog Number

The CAS # field can be blank if the chemical is a mixture with multiple numbers or when the CAS number cannot be found. The name of the Vendor/Supplier and the product catalog number must be provided. This is the minimum information required in order to specifically identify the chemical, collect a Material Safety Data Sheet, and classify the chemical in accordance with federal, state, and local regulations for handling, storage, and disposal requirements.

The Chemical Safety Office (CSO) has added a Catalog Sync application to the database utilities systems.

This will allow us to sync all entries marked as "Not in Catalog" with the Chemical Name and/or CAS # in the database catalog and link the matching items.

CSO Staff will run this application periodically to link any new entries. In testing this new feature, we found that it not only eliminates an unpopular process for many of our users, it also decreased the amount of time spent entering a new chemical significantly.

All required fields, which are highlighted in light red, have been placed at the beginning, allowing you to process and save your entry without having to go through the optional fields. Also, you may now choose "Save/Return" or "Save & Add Another Chemical" eliminating unnecessary steps when you have more than one addition to your inventory.

### **Improvements to the "Requesting Hazardous Waste Pickup & Waste Label Production" Screen and Functions:**

Requests for pickup of hazardous chemical waste are now completed using the Chemical Inventory Database in the Waste Pickup Request Module. With this feature, our chemical users go through the Web to request a pickup from their laboratory and produce a description of what they want picked up, # of containers, and quantity in each container. The detailed description of what is in each chemical waste container is generated from the lab's chemical inventory.

From the data entered in the pickup request, a hazardous waste label is produced and printed for each individual container with container specific tracking numbers and all of the information necessary to comply with EPA and DOT labeling requirements. After taping the labels to each respective container and placing the containers in a pre-arranged location for the CSO to pick up on Wednesday, your job is finished. A telephone call to schedule pickup is no longer necessary.

This method is simple, easy to learn, faster, more efficient, and produces better compliance results than the blue waste tag system which is now obsolete. The CSO will provide access and instruction on how to use this application. Please contact Dolly Hobbs at 1-2663 or [dhobbs@mcg.edu](mailto:dhobbs@mcg.edu) if you have any questions.