



notes

ENVIRONMENTAL HEALTH and SAFETY

Laser Safety

What is a Laser?

LASER is an acronym which stands for Light Amplification by Stimulated Emission of Radiation. The energy generated by the laser is in or near the optical portion of the electromagnetic spectrum. Energy is amplified to extremely high intensity by an atomic process called stimulated emission. The term "radiation" is often misinterpreted because the term is also used to describe radioactive materials or ionizing radiation. Laser light is non-ionizing.

Laser Hazards & Beam Hazards

The laser produces an intense, highly directional beam of light. If directed, reflected, or focused upon an object, laser light will be partially absorbed, raising the temperature of the surface and/or the interior of the object, potentially causing an alteration or deformation of the material. The human body is vulnerable to the output of certain lasers, and under certain circumstances, exposure can result in damage to the eye and skin. It is now widely accepted that the human eye is almost always more vulnerable to injury than human skin.

Non-Beam Hazards

In addition to the direct hazards to the eye and skin from the laser beam itself, it is also important to address other hazards associated with the use of lasers. These non-beam hazards, in some cases, can be life threatening, e.g. electrocution, fire, and asphyxiation. Because of the diversity of these hazards, the employment of safety and/or industrial hygiene personnel to conduct hazard

evaluations may be necessary.

Safety Standards

There are a variety of laser safety standards including Federal and State regulations, and non-regulatory standards. The most important and most often

quoted are the American National Standards Institute's Z136 series of laser safety standards. These standards are the foundation of laser safety programs in industry, medicine, research, and government.

EHS Guidance

MU's Laser Safety Officer is Jack Crawford, and the Assistant Laser Safety Officer is Lee Juengermann. EHS will be providing "Standard Laser Safety Training for Laser Workers" (1 hr), and "Laser User Safety" (4 hr) beginning this July. Current laser workers and users of any class 3b or class 4 will need to take these courses. Contact EHS at 882-7018 to arrange for training.

Jack Crawford

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Radiation Safety Training

If you are interested in more detailed training than the standard introductory course, then the 20-Hour, 1 credit, NE4302/7302 course is for you. See <http://ehs.missouri.edu/train/rad.html> for more details and to register for the course.



Director's Desk Lots Going On

With the end of another academic year, I am using this column to reflect on some of the highlights of the past year, both for campus and for EHS.

In radiation safety, we recently had an NRC inspection with a focus on decommissioning. This new area of emphasis has caused us to spend considerable time going through old files back to when radioactive materials were first used on campus. Some of the interesting historical findings have made this mammoth undertaking a little more bearable. Looking ahead, a new cyclotron is being installed in an addition to the Research Reactor. We expect that this will open new opportunities for many researchers, but will also present new issues for assuring radioactive materials are used safely.

On the environmental front, EHS staff have been participating in Department of Natural Resources (DNR) stakeholders meetings in developing an appropriate state program for discarded e-scrap (computers, cell phones, and other electronic devices). Meanwhile, storm water issues are increasing in visibility. We have traditionally focused on prevention of localized flooding; but new regulations are requiring us to now also worry about downstream flooding and the quality of storm water runoff.

Our biosafety program continues development to meet an array of regulations due to increasing concerns about biological hazards. Oversight of recombinant DNA research has been strengthened to make sure we meet NIH requirements. We have stepped up training and laboratory monitoring for the dual purposes of maintaining regulatory compliance and enhancing employee safety. We are also monitoring the construction of the Regional Biocontainment Laboratory which will open up new research

opportunities for faculty, but which will also present new issues for assuring biological materials are used safely.

Of course, emergency preparedness needs to be mentioned. We have put quite a bit of energy into continued development and testing of the campus emergency plan to make sure natural disasters are addressed. With the unfortunate shootings at Virginia Tech, we are reminded that there are man-made emergencies, too.

When considering these issues, plus other continuing issues (e.g. asbestos, fire safety, unwanted hazardous materials, pedestrian safety) and newer issues (e.g. campus bike plan, hospital construction), it can be seen that EHS has plenty to do to support the campus' mission of teaching, research, public outreach, and economic development.

Please feel free to contact me if you have suggestions on how EHS can better support your needs.

Peter Ashbrook

Family Guide Available

This past winter, University Health Care distributed a Family Emergency Preparedness Plan booklet to all hospital staff. EHS has obtained an electronic copy of this booklet and placed it on the MUAAlert web site, with the following link:

<http://mualert.missouri.edu/documents/EmergencyPlan6x9.pdf>

This guide is a great reference for understanding what you can do to prepare your home and family for emergencies.

Asbestos

EHS has maintained an asbestos services program for many years. The main goal of the asbestos services program is to protect human health. We also provide compliance assistance and seek to minimize the long-term costs of dealing with asbestos on campus. We offer our services in three main areas: field work, laboratory analysis, and training.

Before a renovation project can begin, EHS will perform an inspection to determine if asbestos is present. Our building inspectors are licensed to identify building materials that may contain asbestos and to collect samples for later analysis. They report their findings to project managers so that asbestos removal can be incorporated into renovation plans.

In addition to building inspections, the asbestos team also monitors campus abatement projects. Some abatement projects are conducted by University employees while others are conducted by outside contractors. EHS monitors the work of both groups to ensure it is done safely and in compliance with the law. EHS typically monitors 150 to 200 asbestos projects each year. After asbestos is removed from a particular area, EHS will test the air inside to ensure it is safe for re-occupancy.

EHS has extensive laboratory capabilities to complement the work we do in the field. Our on-site laboratory can provide answers in hours rather than days, which saves the University time and money. EHS has made significant investments in equipment and training over the years to ensure we have these capabilities. To ensure the integrity of our work, analysts participate in nationally recognized quality assurance programs up to 8 times per year.

Finally, the asbestos group provides training courses to the campus community. Several hundred licensed asbestos workers have been trained through our program. We currently provide annual training for about 40 licensed MU asbestos workers each year. We also offer asbestos awareness training which is intended

for all persons who work near—but not directly with—asbestos.

If you have a question or concern about asbestos, please take a look at our web site or call us at 882-7018.

Dennis Elmore
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Biological Safety Cabinet Use

MU investigators use biological safety cabinets to protect their researchers from exposure to potential infectious aerosolized biohazardous materials (personnel protection). Biological safety cabinets can also protect biological material from outside contamination and exposure during manipulation (product protection).

A biological safety cabinet (Class II type) is required for biohazardous materials rated at Biosafety Level 2 and higher containment (personnel protection). All biological safety cabinets require an annual certification by a technician who has passed the NSF/ANSI Standard 49 certification program. MU investigators can use their choice of companies with NSF-accredited technicians or use an NSF-accredited vendor contracted by EHS. Signage that may be placed on biological safety cabinets includes “UV light protection required”, “Product Protection Only” and the “Annual Certification Label” posted by the NSF 49 certified vendor.

If you have any questions about certification of biological safety cabinets, please contact EHS at 882-7018.

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DHS Chemical Security

Some of you may have heard of a proposed regulation from the Department of Homeland Security (DHS) called “Chemical Facility Anti-Terrorism Standards.” And most of you may have assumed – incorrectly like most colleges and universities – that this regulation wouldn’t apply to MU. But when DHS published the final rule in April along with a list of almost 400 chemicals of concern including 132 with a threshold quantity of “any amount” – the higher education community took note. And the situation was aggravated when it became clear DHS didn’t care if the threshold quantities were exceeded under one roof or spread out over the hundreds or thousands of separate locations throughout a major research university.

Consequently MU joined almost 5,000 other entities in providing written comments to DHS on this list of chemicals. (It was too late to comment on the rule itself, although MU did request that DHS reconsider opening the rule for further comment.) DHS received so many comments, and some questionable press, that they’ve called some of the commenters (including MU) to say they appreciate the input and are taking the comments

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seriously. We are waiting for a final list at the time of this writing. While we’re hoping the revisions will eliminate our concerns, should MU end up needing to determine if the final regulations apply, **it is vital that the chemical inventories of Registered Users be up-to-date now.** EHS will have only 60 days to determine applicability after publication of the final rule.

If you’re an RU, navigate to <http://ehs.missouri.edu/haz/>, choose “User Inventory” in the upper right and sign-in to the inventory system. Please note the system uses your EHS Password not your Pawprint (MU) Password. Make sure your inventory is accurate, and if not, update it. At a minimum, we need to know about the chemicals on DHS’ list (Appendix A), which can be found at:

http://www.dhs.gov/xprevprot/laws/gc_1175537180929.shtm

EHS appreciates the attention MU researchers will no doubt give to this matter and wants to assure the MU community that we serve as watch dogs to such legislation, making sure to represent the best interests for all of us at Mizzou.

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