



# Lab Safety

# Spectrum

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UW - Madison Safety Department Chemical and Radiation Protection  
30 N. Murray St. 262-8769 <http://www.fpm.wisc.edu/safety>

Help Line 265-5518

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## Moving off Campus

In the search for space, some lab groups have moved off campus. If you are involved in either the decision making for such a move or in the move itself, you should be aware that your relationship with the University will be different, which may cause you more work or more money. Consider the two major areas of chemicals and radioactive material.

If you use chemicals and generate waste / surplus chemicals products on campus, the Safety Department comes by weekly to collect those products as part of their On-Site Hazardous Materials Management (OSHMM) program. If you are off campus, the EPA and Department of Natural Resources prohibits the Safety Department from collecting your waste. Depending on the amount of chemical waste you generate, you may need to file for a site-specific EPA number. The way your waste is moved in such situations is, every 60 days we contract to have the waste removed from our facility and outlying facilities (e.g., PSL, State Lab, etc.). Safety Department personnel normally go to the site, pick up the waste and bring it back to our building where we can hold it for no longer than 10 days before shipping it out.

Usually we place it directly on the contractor's truck. However, if you have an EPA number, you will be responsible for establishing a waste area within your lab and providing all the training and documentation required by the EPA and DNR. We can help, however the Safety Department can not be responsible for the area.

If you use radioactive material, it will take at least 90 days to get approval from the NRC to use that off-site address for radioactive material work.

You may wonder what is defined as "off campus." Essentially if you have to step off the contiguous campus to get to your site, it is off campus. Examples include Meriter Hospital (across Regent St.), Spring Street (between Regent Street and the railroad tracks), Research Park.

If you want to use radioactive material in the field, even a UW research facility like Arlington, the approval process will take at least 90 days from when you notify the Safety Department. If it is on private property, DNR will also have to approve.



## Emergency!

Over the past 3 - 5 years the Madison Fire Department (MFD) has responded to emergency calls from campus labs. These calls have been in response to concerns over radiation, mercury, chemicals. Did you ever wonder what happens in an emergency when you dial 911? To try to answer that, let's look at the recent incident (October 30, 2002) at Fred Hall.

The Safety Department received two calls from Fred Hall about 11:25 AM. The one that I listened in on said there was a big (about 10 gallons) acid spill with injury. The interpretation was that in winterizing the building, a large acid bath containing concentrated acid was tipped off the counter and the acid was on the floor.

While we gathered our acid spill kit (bicarbonate, floor dry, shovels, etc.), I decided to go along to see what a 10 gallon spill looked like. We parked in front of Fred Hall and were taken to the hallway outside the room the spill had occurred in. The person we had been in contact with turned out to be the building manager. He reported that he had rinsed / showered the worker involved in the spill and instructed him to contact his supervisor and go to the Emergency Room. He told us the person in charge of the room was not at work that day, but he believed there was about 10 gallons of acids including hydrochloric, sulfuric, and maybe small quantities of others.

We looked into the room. One problem was that the room had no fume hood; it was very warm (maybe 80°F) and under positive pressure and the chemical fumes were being blown under the doors into the hall. It was difficult to see the magnitude of the spill because lab benches were in the way. The intensity of the fumes prohibited entering the room without protective equipment. Because the Safety Department does not wear respirators, the only option was to call the MFD.

The spill was well contained. It could easily be cleaned up, with the right equipment. We informed the MFD that a high-profile response was not needed, but the expertise of their Hazardous Incident Team (HIT) was needed. About 5 - 10 minutes later the sirens announced the arrival of the MFD. Equipment from 3 companies responded. The reason is that the HIT group is one fire company, and two other fire companies provide equipment and support. The on-scene lieutenant was upset that we had not evacuated the building and she initiated the evacuation. Fire department personnel established a perimeter around Fred Hall; ultimately putting police tape around the building and stationing firefighters to keep all persons out of the incident scene.

For the next 30 - 45 minutes they appraised the situation. Because there was no danger to persons nor property, the safest way to proceed is to gather information and plan the response. The persons who were to enter the hazardous area needed to dress in their blue suits. There were two teams of two responders each dressed up to respond. A hot line was set up by one of the companies which also supplies the back-up team. Large fans were deployed at several locations to move air from the enclosed space. Approximately 2 hours after we received the first call, the MFD was ready to enter the room. Their first goal was to open the windows; a task which seemed to take about 5 minutes. In this instance the room had a floor drain that drained to the sanitary sewer system. They connected a hose and used a squeegee to move the acid into the drain. Clean-up took about 15 - 20 minutes. They cleared the area for occupancy at about 2:45 and had departed by about 3:15 PM.



While faculty, staff, and students try to do the best with the facilities at hand, given that there are over 2000 laboratory rooms and perhaps 5000+ persons working in those labs, accidents and incidents requiring outside assistance may happen regardless of the precautions taken. Reviewing this incident, here are some of the important points to remember in a MFD emergency in your building:

1. A call to MFD will require the building be evacuated. It is important to appraise the situation. Ask yourself whether this incident requires outside support or whether it can be dealt with using personnel and equipment at the University level. Fires obviously require MFD response. There is more information on spills in our Chemical Safety and Disposal Guide. Most lab spills that are not inhalation hazards do not require MFD and can be cleaned up by occupants. Labs have posted numbers for the Safety Department as well as Safety Department personnel home phone numbers for after hours guidance.
2. How long will the building be closed to workers? If the MFD is required to respond and clean up an incident, it will take at least 2 hours. In the example of Fred Hall, we should have told the Chair to enable him (in the time the MFD was coming) to set up classes elsewhere. Bring your clothing. It was cold outside. Many people who left without their jackets were not able to get back into the building for 2 hours. In a significant incident, it may be longer.
3. Don't cross the Police / Fire line. Remember, their intent is to protect lives in an unpredictable situation. The fire department needs to isolate the scene so they worry about only one problem.
4. When evacuating the building, turn off your equipment. Heaters and other apparatus left unattended may cause a fire after several hours. Just like in grammar school, turn off your equipment, turn off the lights and close the door on your way out.

### Transilluminator UV Safety

UV transilluminators provide an optimum platform for visualization of agarose and polyacrylamide gells. Samples are placed on the illumination window and are illuminated by the UV light. These devices seem to operate at one or several bands depending upon the type of sample. The standard bands are: 254 nm, 312 nm and 365 nm. Transilluminators usually come with an adjustable UV blocking cover to protect the user from harmful UV. These UV blocking covers should not be removed since viewing fluorescently labeled DNA unprotected can cause damage to the face and eyes. There have been reports of injuries to researchers who did such viewing without wearing protective eye wear or using a face shield. Some simple laboratory rules for UV transilluminator work:

- The acrylic shield / UV blocking cover supplied should be closed while the UV light is on.
- If the work requires the shield to remain open:
  - ▶ All persons in the room must cover all exposed skin.
  - ▶ Face and eyes must be covered by wearing an appropriate UV absorbing full face shield.
  - ▶ Heavy duty rubber gloves should be worn on the hands, standard laboratory gloves are not suitable for hand protection from UV.

### CORD Fee

We have kept the fee at \$33.25 for about 5 years. We have slowly reduced staffing, but have still built up a bit of a debt. CORD now has a single person being funded through that account. However, orders have shrunk considerably and are now below 4000 per year. In order to get into the black, I will recommend that the CORD fee be raised to \$40 per order.



### Training Schedule

Chemical and radiation safety training is available weekly. There are two types of classes. Chem AM classes have the chemical safety class beginning at 9:30 AM and the radiation safety class beginning at 12:30 PM. Rad AM classes have radiation safety classes beginning at 8 AM and the chemical safety class beginning at 1 PM. The schedule of these classes from 1 February through 26 June, 2003 is in the table:

Chem AM Chemical Safety 9:30 Radiation Safety 12:30	February 5, 11, 17; March 6, 18, 24; April 4, 10, 16; May 8, 14, 20; June 4, 10, 17, 26
Rad AM Radiation Safety 8:00 Chemical Safety 1:00	February 28; March 12; April 22; May 27; June 13, 19

All training classes are held in the Union South. No sign up is needed; a quiz is used to document training. Booklets for either class can be picked up at our Annex, room 62, Biochemistry. A complete listing of classes is found at <http://www.fpm.wisc.edu/safety>



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