

# A Matter of Safety

Environmental Health and Safety Newsletter

## Target Arson - Don't Get Burned

How do you feel about being robbed of three billion dollars every year? Did you know that each year arson fires take billions of dollars from individuals, communities and businesses? This impacts jobs, the community's tax base, schools and other services we all count on.

Arson affects all of us – from the core of our cities to the heart of our rural communities. That's why May 3 - 9 has been designated as National Arson Awareness Week.

There is nothing more tragic than seeing what you hold precious and dear, or something you have worked for all your life, go up in flames. That's arson. Every year, arson robs, injures and kills thousands of people. People like you. What most people don't realize is that *you* can prevent this crime. Get involved with your local fire department.

"Target Arson" and don't get burned.

(See page 3 for more information on arson.)

## Departments Rise to Meet EPA Challenges

The Environmental Protection Agency (EPA) has made it very clear that they intend to hold colleges and universities to the same standards as industry in regards to environmental regulations. Past issues of *A Matter of Safety* have highlighted EPA enforcement activities at peer institutions. The stakes are high and the costs of noncompliance greatly exceed any benefits that could be realized from substandard environmental performance. The news has indeed been startling across the country. With every story of noncompliance, the EPA commits additional resources to ensuring the protection of the environment at institutions of higher learning. The EPA inspection of Iowa State's facilities last fall only revealed minor instances of noncompliance; however, this was a cursory investigation. Iowa State may be subjected to an in-depth, multimedia environmental compliance assessment at any time.

### Chemistry Department Takes the Initiative

Recognizing that education is the foundation of sound environmental practice, the Department of Chemistry, in cooperation with Ames Laboratory, offers a graduate level course (Chem 550) during the fall semester, which teaches proper laboratory procedures and handling of chemicals. Other Chemistry efforts include:



Meera Dasai - photo by Peter Meleiski

- ❖ The formation of a chemistry safety committee for advanced chemistry students, which interacts with EH&S to learn about EPA and OSHA requirements. This committee is intended to help maintain a high level of safety awareness throughout research laboratories.
- ❖ Supplementary readings and pre-laboratory quizzes for undergraduate introductory chemistry students, with chemical safety in mind. These readings and quizzes deal with waste handling procedures, first aid, Material Safety Data Sheets (MSDSs) and the use of safety equipment.

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## Congress Repeals Controversial Standard

On March 20, 2001, President Bush officially signed the repeal of OSHA's ergonomics standard. This followed Congress' swift action invoking the "Joint Resolution of Disapproval" to repeal the standard passed last November.

Though the OSHA standard is no longer a federal rule, EH&S has been meeting with campus departments that have personnel responsibilities to discuss the ergonomic needs of Iowa State. Further, EH&S still offers Office Ergonomics training courses, performs workplace evaluations and has many ergonomic-related resources on the EH&S web site at <http://www.ehs.iastate.edu/ih/ergo/ergo.htm>.

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## LESSONS LEARNED: Preventable Campus Accidents



This winter, a fire ravaged one of Iowa State's Residence Hall kitchens. The fire resulted in \$250,000 worth of damage and closed the kitchen for two months.

The blaze began one evening after the kitchen had closed for the night. Earlier, a worker had unloaded linens containing kitchen aprons and rubber gloves from an industrial dryer, and placed the laundry in a container located on a table next to a set of shelves

containing stacks of clean, folded laundry. Two hours later, the Ames Fire Department received a fire call. Upon arrival, they found the large kitchen full of smoke and the linens burning vigorously. The ceiling above the fire was heavily damaged by the flames and heat, while soot covered exposed surfaces, including food that required prompt disposal.

The laundry, which had been removed from the dryer and placed in the container while still hot, had no way of releasing the heat stored in it. The resultant blaze demonstrated that if the four components of a fire (fuel, air, heat and chain reaction) come together, a fire can occur quite easily. Even though the laundry had been allowed to go through the cool down cycle in the dryer, sufficient heat had remained to evolve into a fire through free radical formation.

The extent of the damage was compounded by the lack of fire separation and sprinklers in the kitchen. While the washer and dryer were located in a separate room, the kitchen itself was used for folding and storing the linens. A separate storage area is preferred for such activities, and a sprinkler would have extinguished the flames before they involved the stored linens.

It is recommended that:

- ❖ Storage areas have proper fire separation.
- ❖ Hot laundry is placed in a location that allows air to circulate freely.
- ❖ Hot items are allowed to cool down in a location free of combustible materials.
- ❖ Rubber gloves are allowed to air dry. They should never be placed in a dryer.
- ❖ Whenever possible, kitchens should be equipped with sprinklers.

### Microwave Oven Safety

When properly used, the microwave oven is a safe and convenient way to heat a variety of foods in a short amount of time. However, microwaves can cause serious scalds if used improperly. Even heating a cup of water in a microwave can be dangerous if not properly attended. Liquids superheated by the microwave oven may not boil, despite their high temperatures. Mere movement of the container holding such a liquid can cause the creation of a steam bubble, which can cause the hot liquid to splash out.

#### Tips:

- ❖ Although microwave-safe containers may only feel slightly warm, the contents may be very hot.
- ❖ Hot steam escaping from a container as the cover is lifted can cause burns.
- ❖ Microwave ovens do not always heat evenly. Foods can feel cool in one part of the container, yet be scalding hot in another.
- ❖ Microwave popcorn should never be left unattended. Overcooking can easily result in scorching, smoke and/or fire.

## Fire Marshal Safety Inspection

Inspectors from the State Fire Marshal's Office will be visiting the campus this summer to conduct inspections in campus buildings.

The Fire Marshal has been critical of several buildings for recurring violations. These violations include

wedging fire doors open, using extension cords improperly, obstructing corridors, poor house-keeping and using space heaters. In addition to deficiencies needing abatement by building occupants, Iowa State was cited for maintenance issues, such as burned out exit lights, inoperable emergency lights and fire doors in need of adjustment. Deficiencies were also cited that were attributable to building design and/or construction, including the need for installing fire

alarm systems, sprinklers, secondary exits and fire doors.

Continuous efforts have been made to eliminate past fire safety deficiencies and to prevent new ones from occurring. The following measures can help the university maintain buildings in a manner free of fire hazards and avoid receiving fire safety deficiencies from the State Fire Marshal's Office:

- ❖ Fire doors must not be wedged open. Doors leading into corridors are fire doors and must never be wedged. Such doors should only be held open with electromagnetic hold-open devices. Individuals who meet with students are granted an exemption by the Fire Marshal that allows them to block their office doors open with chairs during such meetings.
- ❖ Extension cord use must be minimized. Extension cords are allowed only if used for less than three days. Longer periods can be addressed by using a UL-approved multiple plug outlet

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In addition to ensuring that students receive the necessary information, Chemistry's efforts have the added advantage of assisting principal investigators in meeting their obligation to inform those working in their laboratories of potential hazards that could result in injury or property damage.

Chemistry has also established a check-in/check-out procedure for graduate students and post doctorates. Individuals starting work in a lab are informed of their obligation to identify chemicals in their workspaces. Before leaving the university, these individuals are required to clean their workspaces, arrange for disposal of all hazardous wastes, and label any materials that are left behind. The intent is to greatly minimize waste, ensure that unknown chemicals are not left behind, and leave the workspace in better condition for the next user. EH&S recognizes this practice as a major step forward in regulatory compliance, and encourages other departments to do the same.

Finally, Chemistry maintains a safety committee comprised of professors and staff members to conduct peer environmental inspections and review procedures. A committee of this nature helps ensure compliance by recognizing that environmental, health and safety issues offer ongoing challenges that require periodic attention and incremental improvements. The efforts by the Department of Chemistry paid off last fall during the EPA inspection by resulting in zero violations in the laboratories inspected. This was no small feat, considering that Chemistry is the largest generator of hazardous waste on campus.

### College of Design Makes Its Mark

The College of Design invited EH&S to conduct a walk-through of every room in the Design Building to identify environmental, safety and fire hazards. As issues were identified, the College assigned responsibility for correction of the situation to faculty and staff members, and identified individuals who would periodically check for continued compliance. This effort resulted in several major cleanouts of potentially hazardous waste, and the establishment of procedures to ensure that waste does not accumulate in the future. Now



that responsibilities have been assigned to individuals, the College has a mechanism in place to quickly address problems if they arise. An example of the efficiency of having designated staff was demonstrated recently when EH&S brought the issue of waste paper accumulation in paint booths to the attention of the College. The situation was corrected within 24 hours and a system was put into place to ensure that future problems are avoided. The College of Design experience emphasizes the benefits of top management support of compliance activities and the delegation of responsibility

The College of Design also invited EH&S to address environmental and safety issues during a mandatory seminar for freshman design students. This arrangement ensures that students are aware of the issues that impact safety, environmental stewardship and compliance within their College. The students benefit from the information the College imparts and the College enhances its compliance efforts.

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equipped with a circuit breaker.

- ❖ Corridors must be kept free of obstructions. Corridor furniture must be properly designed, constructed and located.
- ❖ Space heaters are prohibited.
- ❖ All gas cylinders must be chained.

Proper housekeeping begins by reducing the quantities of combustible storage. This is a good time to go through storerooms and eliminate any items no longer needed. This is especially needed in laboratories. All flammable, combustible liquids and flammable gas containers must be properly stored, preferably in flammable liquid storage cabinets.

Questions or concerns can be directed to Lou Mitchell or Troy Carey at 294-5359.

### Sun Safety



Now that spring has arrived, many people will be dashing to the pool to lie out and soak up some sun. Precautions must be taken to prevent sunburn and skin cancer.

In addition to the article we ran last summer, there are many other resources available on the web.

Check some of them out and have a safe and healthy summer!

[Centers for Disease Control and Prevention](#)

[American Academy of Dermatology](#)

[MelanomaWeb](#)

### Newsletter Editorial Board

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### **Facilities Planning and Management (FP&M) Does Its Part**

Examples of proactive efforts are not exclusive to academic departments. Several months prior to the EPA's inspection last September, EH&S was contacted by the Facilities Services Group at FP&M for an environmental compliance walkthrough. This unit of FP&M provides painting, electrical, custodial, grounds keeping, and other services to the university. Their work utilizes a wide variety of shops, storerooms and workspaces.

The result of this cooperative effort was the removal of many potentially hazardous materials, improved gas cylinder storage and secondary containment of stored lubricants. The EPA specifically requested a tour of FP&M shops during their September visit. Thanks to the proactive efforts of the FP&M staff, the EPA found no violations at FP&M during the inspection. FP&M continues to assess its own performance and requests assistance from EH&S as needed.

## **Arson Facts and Figures**

**Arson is the second leading cause of fire death in the United States.**

**Arson is the leading cause of property damage due to fire. Direct damage results in more than \$3 billion per year.**

**Juveniles account for 55% of all arson arrests.**

**One out of every four fires occurring in the United States each year – approximately half a million – are due to arson.**

**Because arson is a major fire threat, it is important to follow building security measures.**

**Unauthorized persons should not be allowed into offices, laboratories or other work areas.**

**Combustible materials should be eliminated or minimized in areas accessible to the public.**

**Suspicious activities should be reported to a supervisor or other administrator immediately.**

### **A Silver Lining?**

No one looks forward to a regulatory compliance inspection. They are unannounced, time-consuming and can put a lot of stress on those involved. We often need to remind ourselves that the goal of the EPA and all environmental regulations is the protection of human health and the environment. The challenge to the academic community is implementing the policies and procedures necessary to achieve this goal. So, what are some other positive benefits of the EPA enforcement initiative?

- ❖ There is a greater awareness of environmental obligations among university personnel.
- ❖ The volume of potentially hazardous materials stored on campus has been significantly reduced.
- ❖ Clean work environments are safer, healthier and can improve productivity.
- ❖ Implementing programs that conserve resources and reduce waste will result in lower costs and better use of scarce resources.

There are several departments on campus that have aggressively implemented strong environmental compliance initiatives. The success stories highlighted here are just a few examples. Though diverse in their scope and purpose, these successful programs have several things in common:

- ❖ Each group has recognized that improved health and safety leads to increased compliance.
- ❖ Support for these initiatives has come from each unit's upper administration. They have worked closely with EH&S when developing programs or conducting self-assessments.

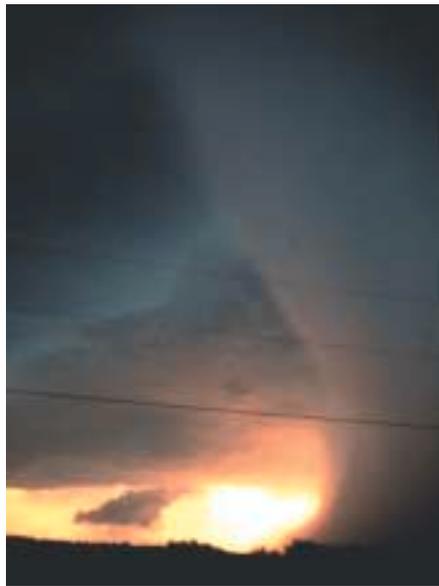
Through continued departmental efforts such as those highlighted, the Iowa State University community will ensure a safe and healthful work environment. Additionally, these efforts should result in quicker and uneventful compliance visits by regulatory agencies.

## Spring is Severe Weather Season

Long-time residents of Iowa know that April showers can bring more than May flowers. They can bring with them large hail, dangerous lightning and tornadoes. Already this year, two Iowans have died as a result of storms that have ripped through the state.

In an average year, the United States reports 1,000 tornadoes, which cause 80 deaths and over 1,500 injuries. The most violent tornadoes are capable of tremendous destruction with wind speeds of 250 m.p.h. or more. Damage paths can be in excess of one mile wide and 50 miles long.

Iowa has the distinction of being one of the states that will experience tornadoes every year. The area east of the Rocky Mountains and north of the Gulf of Mexico experiences more tornadoes than anywhere else in the world. This has given rise to the name "Tornado Alley". During the spring, thunderstorms



develop north of the Gulf along a "dry line", which separates very warm, moist air from the hot, dry air east of the Rockies.

Tornadoes happen so quickly and, as devastating storms go, are so small that predicting where and when one will hit more than 15 to

30 minutes ahead of time simply is not possible. The average warning time for a tornado with winds greater than or equal to 158 miles an hour (as with the storms that account for the most deaths) is only 18 minutes, so it is crucial not to get caught by surprise. Everyone is encouraged to review their tornado safety plans, shelters and supplies. The City of Ames' emergency outdoor warning system is activated whenever the National Weather Service issues a tornado warning for Ames. Additionally, actual sightings of tornadoes by law enforcement personnel or other reliable sources are grounds for activating the system.

*The system is routinely tested at 10:00 a.m. on the first Wednesday of each month from March through September, weather permitting, and no "all clear" siren is sounded.*

The best sources of information during severe weather are televi-

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## Lyme Disease Awareness

Summer is the season for outdoor activities, such as camping, swimming, hiking and golfing. It's also the season for Lyme disease. Lyme disease is an infection caused by the bacteria *Borrelia burgdorferi*. The bacteria are transmitted to humans in the northeastern and north-central United States by the bite of deer ticks. Deer ticks are about the size of a pinhead, much smaller than common dog and cattle ticks. Lyme disease is most common during May through August in the United States, when nymphal (young) ticks are most active and human populations are frequently outdoors and most exposed. About 15,000 cases of Lyme disease are reported annually in the U.S. On average, 19 of those cases occur in Iowa.

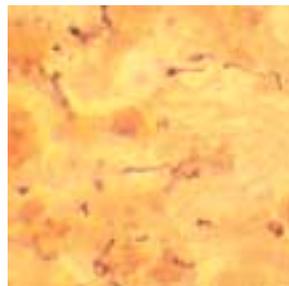
Avoiding tick-infested areas, using repellents and promptly removing ticks that become attached to clothing or the body can all help prevent Lyme disease. A Lyme disease vaccine may be recommended for those at

high risk of exposure.

For more information:

[Iowa Department of Public Health Lyme Disease Fact Sheet](#)

[Centers for Disease Control and Prevention's Lyme Disease web site](#)



Histopathology showing *Borrelia burgdorferi* spirochetes in Lyme disease. Dieterle silver stain. – Photo by CDC/Dr. Edwin P. Ewing, Jr.



Female *Ixodes scapularis* tick. Also known as *Ixodes dammini* or the deer tick. – Photo by CDC/Jim Gathany

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sion and radio stations. In addition, the Internet is becoming a popular method of staying informed about inclement weather. A variety of weather sites on the Internet contain animated maps that update every few minutes. This is a good way to keep track of storm systems in the area.

WeatherBug is becoming a very popular desktop weather application for those who are in an office setting. WeatherBug provides severe weather alerts, coverage maps, and real-time temperatures and weather stats. It is available as a free download and can be set to run automatically at startup.

Another resource for computer users is the Emergency Email Network. This service allows you to select your location, or others where you are concerned about the weather, and elect to receive email announcements when the National

Weather Service issues a watch or warning. As with WeatherBug, this is also a free service.

Every attempt is being made to ensure adequate warning time when dangerous weather is approaching.

Although many of us already know the tornado “rules”, it’s always good to review them before severe weather strikes.

**Indoors:**

- ❖ Go to the basement or to an inside hallway at the lowest level.
- ❖ Avoid places with wide-span roofs, such as auditoriums, cafeterias, large hallways or malls.
- ❖ Seek shelter under sturdy furniture, such as a workbench, heavy table or desk, and hold onto the item.

- ❖ Arms should be used to protect the head and neck.

**Outdoors:**

- ❖ If possible, seek shelter inside a building.
- ❖ If shelter is unavailable or if there is not enough time to get indoors, lie in a ditch or other low-lying area, or crouch near a strong building.
- ❖ Be aware of the potential for flooding.
- ❖ Arms should be used to protect the head and neck.

[KCCI - theiowachannel.com](http://KCCI-theiowachannel.com)  
[WOI – TV5](#)  
[WHO – TV13](#)  
[AccuWeather](#)  
[Intellicast - Ames, Iowa](#)  
[WeatherBug](#)

Despite continued attempts to increase severe weather awareness, many tornado myths still exist.

**MYTH:** Areas near rivers, lakes and mountains are safe from tornadoes.

**FACT:** No place is safe from a tornado. In the late 1980’s, a tornado swept through Yellowstone National Park, leaving a path of destruction up and down a 10,000 foot mountain.

**MYTH:** Windows should be opened before a tornado approaches to help equalize pressure and minimize damage.

**FACT:** Opening windows allows damaging winds to enter a structure.

Windows should be left alone and shelter should be taken instead.

**MYTH:** The southwest corner of a basement is the safest place to be in the event of a tornado.

**FACT:** The truth is that the part of the home towards the approaching tornado (often, but not always, the southwest) is the least safe part of the basement, not the safest. In most tornadoes, many more homes will be shifted than will be blown completely free of a foundation. Homes that are attacked from the southwest tend to shift to the northeast. The unsupported part of the house may then collapse into the basement or pull over part of the foundation, or both.

**MYTH:** Highway overpasses are a

good place to take shelter if you are on the road when a tornado strikes.

**FACT:** This is one of the worst places to be in a tornado. The winds from a tornado can be intensified as they pass under an overpass, whisking people taking shelter out into the storm. In addition, there is always a chance that the tornado will cause a portion of the overpass to collapse, trapping or killing anyone underneath. Finally, there is a greater chance of being hit by debris under an overpass, as those taking shelter have pulled their vehicles either under or close to the overpass.