"Safety Comes First"

Case Western Reserve University

Environmental Health and Safety

2220 Circle Drive, Service Building, 1st Floor
Phone: (216) 368-2906/2907
FAX: (216) 368-2236
Website: case.edu/ehs

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2016-4

Safety in the office

What not to do

Perhaps the greatest single office hazard is that most office workers don't think of offices as hazardous workplaces and consequently don't take office safety seriously. You must be aware of office hazards and know the precautions you need to take to prevent accidents and injuries on the job.

Follow these guidelines to stay safe in the office.

DON'T:

- Block emergency exits.
- Use extension cords unless necessary.
- Overload electrical outlets.
- Carry loads you can't see over.
- Run in aisles, halls, or on stairways.
- Leave containers of chemicals open.
- Smoke in unauthorized areas.
- Throw objects or engage in horseplay.
- Leave combustible trash in open containers.
- Leave cords, boxes, and other materials in aisles.
- Stand on chairs or other furniture or items to reach for objects on high shelves.
- Leave cabinet drawers open when not in use.
- Stack items unevenly or too high, or exceed shelving weight limits.

Source: Safety.BLR

Ultraviolet Radiation (Part II): Effects on the Biosphere

"Common eye problems resulting from over-exposure to UV-B include cataracts ..."

Some Effects of Ultraviolet-B (UV-B) Radiation on the Biosphere

Human health professionals and biological scientists would love to be able to demonstrate a direct correlation between the amount of exposure to UV-B radiation and the harm it causes. This is an enormously complicated question that depends on many different variables, such as varying degrees of susceptibility among different species, and most of these variables are not yet completely understood. For example, the same organism in different bodies of water in different parts of the ocean may respond differently to UV-B increases. Furthermore, stress to organisms and ecosstems from increased exposure to UV-B is modified by interactions among many other stresses, such as lack of water or nutrients. We live in a complex biosphere.

Marine organisms living in shallow water experience damaging levels of ultraviolet (UV) radiation. A healthy green sea urchin embryo (Strongylocentrotus droebachiensis) appears above left. A UV-irradiated green sea urchin embryo (above right) displays an abnormal, extruded gut. (Micrographs courtesy Nikki L. Adams, University of California, Santa Barbara)

We know that increased exposure to UV-B radiation has specific effects on human health, crops, terrestrial ecosystems, aquatic ecosystems, and biogeochemical cycles. ("Biogeochemical cycles" refers to the cycling of chemicals such as carbon and energy throughout the Earth system.) This article will touch briefly on these effects, then will explain what determines how much UV we are getting and how we know.

The effects of UV-B radiation on human skin are varied and widespread. UV-B induces skin cancer by causing mutation in DNA and suppressing certain activities of the immune system. The United Nations Environment Program estimates that a sustained 1 percent depletion of ozone will ultimately lead to a 2-3 percent increase in the incidence of non-melanoma skin cancer. UV-B may also suppress the body's immune response to Herpes simplex virus and to skin lesion development, and may similarly harm the spleen.

Our hair and clothing protect us from UV-B, but our eyes are vulnerable. Common eye problems resulting from over-exposure to UV-B include cataracts, snow blindness, and other ailments, both in humans and animals. While many modern sunglasses offer some UV protection, a significant amount of UV can still reach our eyes in a high exposure situation.

(Continued on page 3)

Ultraviolet Radiation (Part II): Effects on the Biosphere, cont.

(Continued from page 2)

With regard to plants, UV-B impairs photosynthesis in many species. Overexposure to UV-B reduces size, productivity, and quality in many of the crop plant species that have been studied (among them, many varieties of rice, soybeans, winter wheat, cotton, and corn). Similarly, overexposure to UV-B impairs the productivity of phytoplankton in aquatic ecosystems. UV-B increases plants' susceptibility to disease. Scientists have found it affects enzyme reactions that conduct fundamental biological functions, it impairs cellular division in developing sea urchin eggs, and it changes the movements and orientation of tiny organisms as they move through ocean waters. Since some species are more vulnerable to UV-B than others, an increase in UV-B exposure has the potential to cause a shift in species composition and diversity in various ecosystems. Because UV-B affects organisms that move nutrients and energy through the biosphere, we can expect changes in their activities to alter biogeochemical cycles. For example, reducing populations of phytoplankton would significantly impact the world's carbon cycle, because phytoplankton store huge amounts of carbon in the ocean.

Much of scientists' work to determine the effects of increased UV-B on the marine biosphere has focused around Antarctica because the stratospheric ozone depletion there has been so dramatic, and because phytoplankton—which grow in abundance around Antarctica—form the basis of the marine food chain. Largely because of phytoplankton, oceans are responsible for the production of at least half of the organic material in the biosphere.

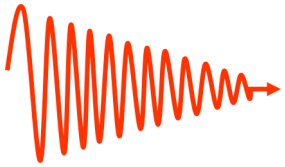
In the Antarctic, increased exposure to UV-B radiation due to the appearance of the ozone hole commonly results in at least a 6-12 percent reduction in photosynthesis by phytoplankton in surface waters. In a study of California coastal waters, effects of current levels of UV-B radiation compared to historical levels range from 40 percent reduction of photosynthesis by phytoplankton to a 10 percent increase. In fact, phytoplankton off the California coast sometimes turn out to be more susceptible to UV-B radiation than phytoplankton in Antarctica, to the surprise of biologists.

Communities of plants, animals, and microorganisms may be more resilient than we yet know. In spite of increased ultraviolet exposure in Antarctica over the last decade or so, no catastrophic events have occurred at the ecosystem level. However, the reason for this may be that the large ozone hole lasts only from September to December and covers a small geographic region relative to the entire globe. If the ozone hole should remain for longer time periods, or if ozone were to be reduced over a wider area every year, sooner or later, we could expect to see major ecosystem changes. So many studies in both the laboratory and the field have demonstrated serious consequences of increased UV-B radiation on the biosphere that we need to improve our understanding of the complex Earth environment and its responses to that radiation.

Overexposure to ultraviolet radiation can change the flowering times of some kinds of plants and therefore will affect the animals that depend on them.

Next issue: What Determines UV at the Surface *Source: NASA*

"...an increase in UV-B exposure has the potential to cause a shift in species composi-tion and diversity in various ecosys-tems."



Preventing Norovirus Outbreaks

"1 in 5 food service workers have reported working while sick with vomiting and diarrhea."

About 20 million people get sick from norovirus each year, most from close contact with infected people or by eating contaminated food.

Norovirus is the leading cause of disease outbreaks from contaminated food in the US.

Norovirus often gets attention for outbreaks on cruise ships, but those account for only about 1% of all reported norovirus outbreaks. Norovirus is very contagious, and outbreaks can occur anywhere people gather or food is served. People with norovirus usually vomit and have diarrhea. Some may need to be hospitalized and can even die. Infected people can spread norovirus to others through close contact or by contaminating food and surfaces. Food service workers who have norovirus can contaminate food and make many people sick. In norovirus outbreaks for which investigators reported the source of contamination, 70% are caused by infected food workers.

People infected with norovirus are very contagious.

- While sick, they shed billions of tiny viral particles in their stool and vomit. It takes a very small amount—as few as 18 viral particles—to make another person sick. People can get sick if they are exposed to a tiny amount of stool or vomit from an infected person.
- They are most contagious when sick with vomiting and diarrhea, but may also infect others before symptoms start and after they feel better.
- Because symptoms come on suddenly, an infected person who vomits in a public place may expose many people.

Food service workers often go to work when they are sick and may contaminate food.

- 1 in 5 food service workers have reported working while sick with vomiting and diarrhea. Fear of job loss and leaving coworkers short staffed were significant factors in their decision.
- Of outbreaks caused by infected food workers, 54% involve food workers touching ready-to-eat-foods with their bare hands. Ready-to-eat foods are foods that are ready to be served without additional preparation, such as washed raw fruits and vegetables for salads or sandwiches, baked goods, or items that have already been cooked.
- Observations of food service workers have shown that they practice proper hand washing only 1 of 4 times that they should.

Norovirus is hard to kill and stays on food, kitchen surfaces, and utensils. It can

- Remain infectious on foods even at freezing temperatures and until heated above 140°F.
- Stay on countertops and serving utensils for up to 2 weeks.
- Resist many common disinfectants and hand sanitizers.

The food service industry can help prevent norovirus outbreaks by:

- Making sure that food service workers practice proper hand washing and avoid touching ready-to-eat foods, such as raw fruits and vegetables, with their bare hands before serving them.
- Certifying kitchen managers and training food service workers in food safety practices.
- Requiring sick food workers to stay home, and considering use of paid sick leave and on-call staffing, to support compliance.

Source: CDC

Computer Screen Eyestrain

Keep your eyes healthy in the digital age

August was **Eye Injury Prevention Month,** a good time to have looked at the growing problem of computer eyestrain. Between work and home, more people are spending more time peering at computer screens than watching television.

The Mayo Clinic offers guidance. Here's how to set up your computer to minimize eyestrain:

- **Position the monitor 20" to 30" from your eyes**, which is about the distance of our fingertip when your arm is stretched out in front of you.
- **Set monitor height so that the top edge is even with your sight line.** Tilt the screen upward so you are not looking at the image at an angle.
- **Set monitor screen resolution so that text is easy to read**—600 x 800 is standard.
- **Set monitor's brightness to low** and contrast to high.
- **Set monitor refresh rate to 75 Hz** or higher.
- **Minimize glare** by making sure background light level is about the same as the screen light level. Minimize direct sunlight or bright lights in front of or behind the monitor. Attach a glare shield, if necessary.
- **Place a document holder at the same level as the monitor** to prevent repetitive eye movement from paper to screen.
- **Keep the screen clean.**

Follow these tips to keep your eyes healthy at the computer:

- **Give your eyes a 20/20/20 break**. Every 20 minutes focus on something at least 20 feet away and hold that focus for at least 20 seconds.
- **Blink often.** The average blink rate is 22 times per minute, but it goes down to 7 per minute when looking at a monitor, which causes the eye lens to dry out. Use eye drops, if necessary.
- **Place your palms over your eyes for 60 seconds** every 30 minutes. This warms the muscles around your eyes and relaxes them.

Source: Safety.BLR

OSHA®

"Set monitor refresh rate to 75 Hz or higher."

The ABCs of LOTO

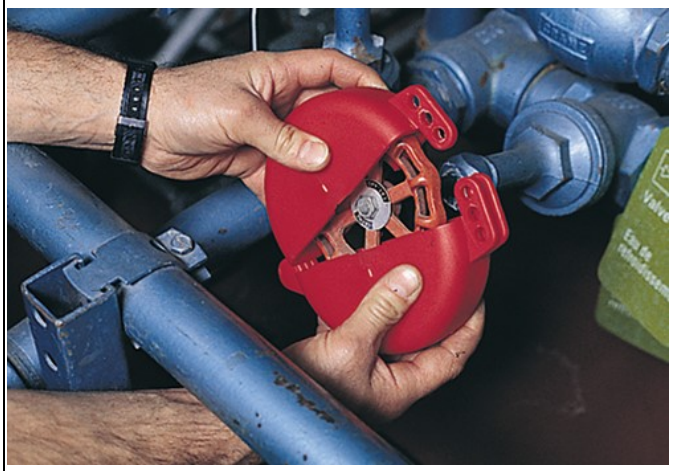
"Lockout devices hold energy-isolating equip-ment in a safe or off position."

Follow lockout/tagout procedures to stay safe

Every year, between 150 and 200 fatalities and some 50,000 injuries occur due to failure to control the release of hazardous energy. Lockout/tagout (LOTO) refers to the Occupational Safety and Health Administration's (OSHA) required practices and procedures to protect workers from unexpected start-up of machinery or hazardous energy released during service or maintenance.

LOTO consistently appears on OSHA's annual list of most-violated standards. OSHA maintains that compliance with the standard (29 CFR 1910.147) could prevent hundreds of deaths and thousands of injuries, including amputations, each year.

OSHA requires that equipment be locked or tagged out of service when there is a chance for injury from energized equipment during servicing or maintenance. Workers may not attempt to operate switches, valves, or other controls once a device is locked or tagged. An authorized person must turn off and disconnect equipment from its energy source during service or maintenance.



Locks, tags, and other methods prevent those who are unauthorized from reenergizing equipment. Lockout devices hold energy-isolating equipment in a safe or off position. They prevent equipment from becoming energized because no one can remove them without a key or other unlocking mechanism. Tagout items are prominent warning devices fastened to energy-isolating controls to warn employees not to reenergize the equipment. Tagout devices are easier to remove and, on their own, are considered less protective than lockout devices.

Source: Safety.BLR

OSHA®

Chemical Spotlight: Hydrogen Peroxide

Hydrogen peroxide is a manufactured chemical that is a colorless liquid at room temperature with a bitter taste. The chemical is nonflammable, but because it is an oxidizing agent, it can cause spontaneous combustion when it comes in contact with organic material.

Hydrogen peroxide is used for medical purposes as a general disinfectant at lower concentrations. In industry, high concentrations of hydrogen peroxide is used as a bleach for textiles and paper; as a component of rocket fuels; and for producing foam rubber and organic chemicals.

When hydrogen peroxide is released into the air, it will react very rapidly with other compounds. In water, the chemical rapidly breaks down. When it is released into the soil, the chemical breaks down by reacting with other compounds.

If hydrogen peroxide is spilled:

- Evacuate the area, control the entrances, and eliminate all ignition sources.
- Do not keep hydrogen peroxide in confined spaces, like sewers, because of the possibility of an explosion.
- Use vermiculite, dry sand, earth, or other similar material to absorb the spill. Place the used material in sealed containers.
- Ventilate and wash the area following cleanup.
- Contact the EHS office to find out how to properly dispose of your hydrogen peroxide.

Source: Safety.BLR

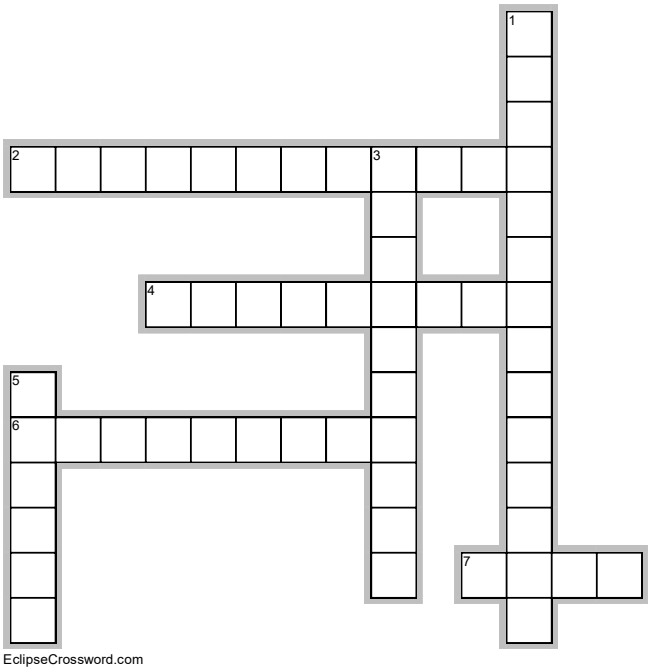
"Hydrogen peroxide is used...as a general disinfectant at lower concentrations."

Fun Page

F U N P A G E

Across

2. At lower concentrations. hydrogen peroxide is used as a general _____.
4. Part of office safety is not blocking _____ exits.
6. This is the leading cause of disease outbreaks from contaminated food in the US.
7. Last name of safety associate featured in this issue.



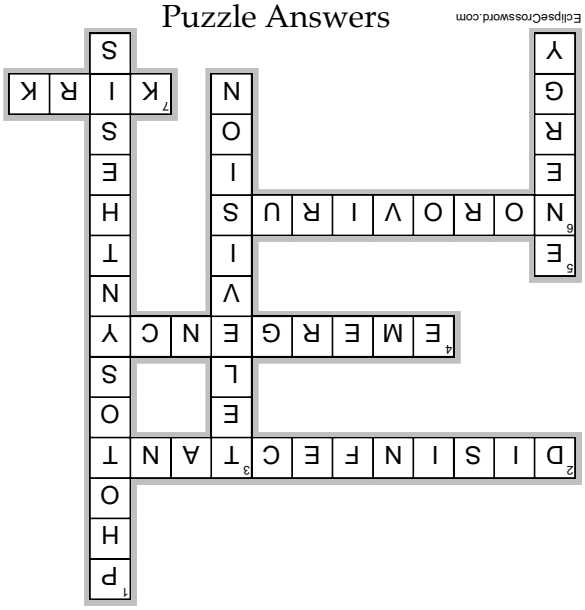
Down

1. UV-B impairs _____ in many species of plants.
3. People are spending more time peering at computer screens than watching _____.
5. Lockout/tagout is a way of controlling the release of hazardous _____.

Funny Corner

"Oh, great... now you've thrown your back out."

Puzzle Answers



Environmental Health and Safety Staff

Victoria COOK (vmr6), Health Physics Specialist II
Gwendolyn COX-JOHNSON (gxc13), Department Assistant II
Anna DUBNISHEVA (agd), Safety Services Specialist II
Brad FYE (jxf308), Asbestos and Lead Specialist I
Charles GREATHOUSE (cxg118), Analyst Programmer II
Tyler JENKINS (tsj5), Student Safety Specialist
Brandon KIRK (bxk230), Manager of Plant and Construction Safety
Kumudu KULASEKERE (kck40), Health Physics Specialist II
Robert LATSCH (rnl2), Safety Services Specialist II
Tom L. MERK (tlm8), Assistant Director of Safety Services, CSO
Yelena NEYMAN (yxt13), Health Physics Specialist II
Joe NIKSTENAS (jen), Safety Specialist II, RRPT
Eileen OSTER (emo21), Industrial Hygienist Specialist II
Heidi PAGE (hep14), Assistant Director of Biosafety, BSO
Marc RUBIN (mdr6), Director of Safety Services
Dr. Mary Ellen SCOTT (mas35), Safety Services Specialist II
Dr. W. David SEDWICK (wds), Director of Radiation Safety and RSO
Felice THORNTON-PORTER (fst2), Assistant Director of Radiation Safety, ARSO
Kelci WILLIAMS (klw84), Department Assistant II

Meet Brandon Kirk

Construction and Facilities Safety Manager

368-3120
(bxk230)

Contact Brandon with your questions about maintenance and construction issues.

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Case Western Reserve University
(216) 368-2906/2907 FAX: (216) 368-2236
(E-mail) cwruehs@gmail.com (www) case.edu/ehs