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Welcome to our newsletter specific to radiation, laser safety and X-Rays. Each bi-monthly newsletter will cover educational topics to assist lab personnel and students that work with radioactive isotopes or use lasers within the lab.

Radiation,X-Rays, and Laser Safety Focus

In the News

Toxic Chemicals are in the Food we Eat Every Day

According to the Journal of Exposure Science and Environmental Epidemiology, 79 food processing chemicals found in the body are known to cause cancer, genetic mutations, endocrine, reproductive issues, and potentially many other unknown health concerns. The chemicals utilized in food manufacturing are not only leaching into our system; compounds present in the packaging materials used for food products also contribute to this exposure. This includes plastic from bags, linings of cans, and even ink used for printing labels. At this point, we do not know exactly the amount of chemicals used in food packaging or food contact materials versus what is used for cosmetics or personal care products.

One chemical we are familiar with in our food supply is bisphenol A, or BPA. This has been used in the past to create baby bottles and other hard plastic materials. BPA is a known endocrine disruptor that has been linked to fetal abnormalities, lower birth weight and brain and behavior disorders in children. In adults, BPA has been known to be linked to diabetes, heart disease and even cancer. BPA is well known to leach into consumable food from the linings of canned foods, plastic tableware, food storage containers and water bottles.

Perfluoroalkyl and polyfluoroalkyl, known as PFAS, as well as phthalates, also have the potential to cause harm to humans regardless of age. Approximately 98% of PFAS are present in

the blood of Americans, states the National Academies of Sciences, Engineering, and Medicine. These substances have been shown to disrupt hormone levels. Furthermore, it has been shown that phthalates, which are commonly found in products such as shampoos, disrupt hormone levels, specifically causing a decrease in testosterone levels in men.

The ADVANCE Act is boosting Nuclear Energy

The bipartisan pro nuclear energy legislation was signed into law in May 2024. The Accelerating Deployment of Versatile Advanced Nuclear Energy for Clean Energy (ADVANCE Act) is the most significant nuclear energy legislation in years.

Among other provisions, the law directs the Nuclear Regulatory Commission (NRC) to update its mission statement to reflect that it should not "unnecessarily limit" civilian use of nuclear technology, reduce some NRC licensing fees, speed up the time for regulatory review of nuclear reactor applications for existing sites, and codify a separate regulatory framework for nuclear fusion technology. The NRC hopes this will help speed up applying for and building more nuclear reactors for cleaner energy.

Even though the ADVANCE Act is a step in the right direction, it still may not do enough at reducing red tape at the NRC such as requiring hearings during the reactor licensing process. This requirement adds months to the licensing schedule for new nuclear reactors. Additionally, the act does not address significant uncertainties regarding the NRC's ability to effectively license the diverse designs and potential volume of anticipated new reactor applications.

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Old Coal Plants Going Nuclear

As we continue our journey toward cleaner energy sources, there is a real opportunity to transform old coal-fired plants to nuclear energy. Renewable energy sources such as wind and solar are scaling rapidly across the globe, but there remain serious challenges to using them to displace coal-fired power.

Nuclear power is a viable option to transform these old coal plants into a clean, dispatchable energy source that can provide baseload power to the electric grid. In 2021, coal was the largest source of electricity generation, accounting for over 36%.

According to the International Energy Agency, the rapid phase out of unabated coal power is the most effective way to reduce coal-fired electricity generation. If we are going to effectively reduce these emissions sooner than later, nuclear power must play a pivotal role in replacing coal-fired electricity generation.

Ohio is at the forefront of this evolving technology with our two existing nuclear power plants, Davis–Besse and Perry. There are also eight coal-fired plants that may be converted to nuclear power soon.

Got E-Waste?

The Environmental Health and Safety office is charged with ensuring that all labs and work areas are safe for staff and visitors. Sometimes, the accumulation of non-functioning equipment in small lab spaces creates challenges to the workers. If you have any E-waste or old equipment that can be recycled, please contact Jeff Neistadt at jxn393@case.edu with the following information so we can start the process of getting the equipment properly disposed of or recycled. Please include a description of the E-waste, quantity, location, and if possible, any pictures of the item(s).

Training

Are you caught up on your mandatory EHS training? Environmental Health and Safety (EHS) offers several courses for training the Case Western Reserve community in safe practices. Pre-registration is required for all training (in person or zoom) and class sizes may be limited. Training includes:

- **Biosafety**
- **Driver Safety**
- **Formaldehyde**
- **Hazard Communication**
- **Hazardous Materials Shipment**
- **Laboratory Safety**
- **Laser Safety**
- **Radiation Safety**
- **Respiratory Protection**
- **Ultraviolet Safety**
- **X-Ray Safety**

Go to case.edu/ehs/training for more information.