Take Steps to Prevent Heat Stress

By Julia Toth

Sizzling summer temperatures and humidity create conditions that place the body under a lot of stress and can lead to various problems such as a loss of fluids, fatigue, heat-related illnesses and injuries, and even death. There are various types of heat-related injuries and illnesses: heat rash, heat cramps, heat syncope (fainting), heat exhaustion, and heat stroke. You can prevent them by:

• Ensuring sufficient ventilation in the work area to increase airflow.
• Using cooling fans when possible, especially when working indoors.
• Taking frequent rest and water breaks during strenuous activities.
• Modifying your schedule to limit hard labor to cooler times of the day.
Wearing lightweight & light-colored clothing, ideally a loose cotton material.

Drinking enough water to restore lost fluids.

If you notice a coworker suffering from heat-related illnesses, contact Emergency Services at ext. 3333 and, if possible, remove the victim from the hot environment until help arrives. For additional information and training regarding the signs and symptoms of heat-related injuries and illnesses, contact the Safety Division (safety@pppl.gov).

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**Attn: Flammable and Acid Cabinet Owners**

If you are responsible for a flammable- or acid-storage cabinet, now is a good time to take inventory. Please review the contents of your cabinet(s) and make sure that:

- Items are stored properly (not in squeeze bottles!)
  - Non-flammables should not be stored in flammable storage cabinets.
  - Incompatible materials should not be stored in the same cabinet. These may react with the flammable liquids and cause fires or uncontrolled reactions. Check the Safety Data Sheet (SDS) to identify incompatible chemicals. For example, the following cannot be stored in the same cabinet with flammable liquids:
    - Acids – hydrochloric, acetic, nitric, etc.
    - Bases – sodium hydroxide, potassium hydroxide
    - Corrosives – in addition to chemicals classified as acid or base, anything identified as corrosive to metals or skin tissue on the SDS, such as many soldering fluxes and epoxies
    - Oxidizers – usually very reactive materials such as hydrogen peroxide, potassium bromate, and sodium nitrate
    - Ignition sources such as road flares or welding torch strikers.
  - Contact the Safety Division if there are questions about proper storage of chemicals.
- Unwanted or expired items are disposed of properly (contact Environmental Services, x3380).
- Items are labeled clearly.
- SDSs for all items are available, with copies provided to Industrial Hygiene.

- Your name, the cabinet ID number, and the sheet “Requirements for Chemical Storage” are posted on each cabinet.

Please contact Dorothy Strauss if:

- A cabinet has been moved from one location to another
- A cabinet is being replaced or excessed
- Ownership of a cabinet is being transferred to someone new
- You need a new label or a storage requirements posting for a cabinet

For a full listing of cabinet locations and owners, please see the ES&H Department website.
PPPL’s Safety Division Assists Plainsboro PD with Respirator Fit Tests

By Dorothy Strauss

Nearly 40 officers from the Plainsboro Police Department rotated through Module VI during the winter for their annual respirator fit check. PPPL’s Neil Gerrish, senior industrial hygienist, is familiar with respirators both in theory and in practice thanks to his military experience with the U.S. Army. He recently completed his certification for respirator care and use through MSA Safety Inc., a company that develops, manufactures, and supplies safety products for various industries and the military.

Gerrish briefs each officer on proper fit, care, storage, and chemical cartridge limitations as well as on the use of accessories such as the carrying case. Since the respirators would most likely be worn in the event of a chemical incident, assuring a proper fit is critical. Once the respirator is donned, the officer performs positive and negative pressure tests to check for leaks. The respirator is connected to a TSI Portacount that measures particulates in the air and compares it to the particulates inside the mask. The officer is then put through a series of short exercises such as turning the head, bending from the waist, reading a passage, and making faces, in an attempt to break the mask’s seal. Results are measured for each section and a final pass/fail report is provided to Plainsboro’s training officer. In the event of a failed test, the officer’s mask is readjusted or a mask of a different size can be tried.

The Plainsboro Police Department has expressed its appreciation for having this service performed at PPPL. There is currently only one device similar to PPPL’s Portacount for use by all of Mercer County’s local departments, which must then schedule around each other. PPPL’s willingness to offer assistance allows the entire Plainsboro department to meet its fit check requirements expeditiously.

Neil Gerrish assists an officer with his respirator fit check. (Photo by D. Strauss)
Housekeeping Initiative Making Progress

By Dorothy Strauss

The Laboratory’s FY 2017 Performance Evaluation and Measurement Plan (PEMP), which is part of our contract with the U.S. Department of Energy (DOE), includes a notable outcome (a key aspect of performance that deserves special attention) requiring PPPL to improve workspace utilization by eliminating the storage of materials and equipment in offices and laboratories. This has resulted in a significant Lab-wide effort to maximize usable space, reduce clutter, and better organize the items that are kept. The DOE’s Princeton Site Office (DOE PSO) has identified areas in need of improvement. PPPL’s ES&H Department is working with responsible parties to communicate expectations and track progress and to dispose of equipment and material. Improvements have been made in several areas of the Laboratory and efforts are ongoing. Identified areas will be visited periodically to gauge progress with completion expected by the end of the fiscal year.

CS basement storage area before and after the cleanup. (Photos by E. Perry)

RF Building 4th Floor before and after cleanup. (Before photo by DOE PSO, After photo by D. Strauss)

D-Site greenhouse before and after cleanup (Photo by E. Bush)
Choose the Right Pathway for Disposal

By Environmental Services Division

The Lab is making good progress in cleaning up areas of material and equipment storage and our multitude of storage trailers. However, materials and equipment coming from those areas are not always getting into the proper disposition pathway. In April 2017, there was a significant increase in waste sent to the landfill and a parallel drop in materials sent off-site for recycling. It is important that materials are sorted properly for excess, reuse, recycling, and disposal. Do not mix trash, recyclables, or scrap metal. If dumpsters are full, make the appropriate contact for dumpsters to be emptied and/or to obtain additional dumpsters.

HERE ARE A FEW GUIDELINES TO HELP YOU CHOOSE THE RIGHT PATHWAY.

PROPERTY: Remember, all government property items (computers, electronics, furniture, office/shop tools, and unopened supply containers) must be processed by Material Services as excess property. A Property Transfer and Excess Form, available from the Material Services web page, must accompany items identified for excess or transferred to another custodian. Contact Material Services (x2567, x3396, or x2724) if you have questions.

SCRAP METALS: Scrap metals such as steel, aluminum, stainless steel, copper, and wire/cable are sold by the Laboratory for recycling. Revenue from these sales supports the Lab’s operation. Scrap metal should not be placed in the waste or regular recycling containers or dumpster. Contact Material Services (x3326, x3396, or x2724) if you have questions.

RECYCLABLES: Recyclable materials such as cardboard, paper, plastics, etc. must be placed into the containers or dumpsters marked “Single Stream Recycling.” Blue containers for recyclables are located indoors throughout the Lab. Dumpsters are placed at strategic outdoor locations and are marked as “Single Stream.” Cardboard must be flattened before being placed in the dumpster; bulky boxes must be cut up and flattened prior to placing them in the dumpsters.

30-cubic-yard construction dumpsters are available for concrete, clean untreated wood, fill dirt, and asphalt. The concrete, dirt, and asphalt dumpsters are located by the Hazmat building, and a clean wood dumpster is located by the CAS/RESA building. Contact Margaret King (x3652) if you have questions about recycling.

COMPOSTABLES: Food items and food are collected in the cafeteria and paper towels are collected in restrooms for composting. The cafeteria has reusable silverware that should be returned to the café after use. Do not place silverware in food boxes or deposit in waste bins. Silverware that is trashed has to be replaced and silverware in the compost bins creates problems for our vendor.

CHEMICALS & OILS: Oils and other chemicals cannot be disposed in the regular or construction trash. They require special handling as hazardous waste. This includes items with mercury switches and/or capacitors. Contact Environmental Services (x2213 or x3380) if you have questions.

SOLID WASTE: Non-recyclable items may be disposed as regular municipal solid waste in the small office trash dumpsters and as construction and demolition (C&D) waste in the 30-cubic-yard construction trash dumpster (from shops and construction cleanup). 30-cubic-yard C&D waste dumpsters are located at the Mockup Building by the D-Site gate, Facility Cooling Tower area, and the Warehouse. Contact Margaret King (x3652) if you have questions about waste disposal.

STORAGE: Items that have special value or will be needed for future projects may be identified for storage as “Equipment and Materials Held for Future Projects” (Procedure MC-006). These items must be accompanied by a completed Storage Request Form when delivered to the Warehouse. The Storage Request Form can be downloaded from the Material Services web page. Contact Material Services (x2328 or x2724) to coordinate storage of equipment and materials.
Minimize Tick-Borne Diseases

By Julia Toth

Ticks are ectoparasites, which mean they live on the outside of a host and feed on blood. Ticks detect hosts by their breath, heat, moisture, or odor. Ticks do not fly or drop down onto you; they crawl and search for an area on your body that has thin skin and is inconspicuous. They are so small that you probably would never notice one crawling on you and, since they have anesthetic in their saliva, you certainly never notice when they bite. Ticks are a variety of sizes and species, and can be found anywhere around the world. They flourish in warm, humid climates yet are active all winter. Unfortunately for us, we live in a populated tick area (due to climate, deer population, and wooded areas) and therefore we must be cautious of tick-borne diseases. Lyme’s Disease is notorious, but there are many other tick-borne diseases such as anaplasmosis, babesiosis, and even encephalitis-causing viruses.

Luckily, there are ways to minimize and prevent tick-borne diseases. First, reduce the tick population in yards by mowing tall grasses and trimming back wooded areas. Also create tick-safe zones by removing leaf litter and clearing brush. Second, wear tick repellent spray on your clothing at entry areas such as around your ankles and wrists. Wear tick-repellent clothing, or tuck your pants into your socks and apply tape around your wrists. This prevents ticks from crawling on your body and finding a place to bite. Wearing light-colored, long-sleeved shirts and pants will help you spot ticks easily if one does find its way onto you. Third, shower soon after being outdoors and scan your body (under arms, around ears, inside belly button, backs of knees, around hair, between legs, and around your waist) for ticks. This will minimize bites or the amount of time a tick has been biting. If you discover that you were bitten or have a tick on you at work, go to the OMO to have the tick removed and examined. Ticks are very common and have the potential to transmit diseases so please be vigilant and take safety precautions to mitigate and control their hazards.

Report Safety Concerns, Questions, Ideas

Notify your supervisor (or HR if chain-of-command is a concern)

SOS Box – can be anonymous if you prefer.
If you include your name, we will respond to you directly as well as on the website.

Safety@pppl.gov
Director’s Suggestion Box

SAFETY DIVISION CONTACTS:

Industrial Hygiene, Lessons Learned, Confined Space
Permits: Neil Gerrish (x2531)
Industrial Safety, Ergonomic Evaluations, Fall Protection,
Noise: Julia Toth (x2832)

Construction Safety: Ify Iwuoha (x3383)
Laser Safety, Scaffolding, Chemical and Safety Purchase
Approvals: Bill Slavin (x2533)
Electrical Safety: Glenn Anderson (x3740)
Employee Observation Leads to Review of PPPL Policy

By Dorothy Strauss

A sharp-eyed PPPL’er saw two individuals moving a large cylinder on a handcart to the elevator near the stockroom. The employee did not see if a chain or strap secured the cylinder to the cart and wondered if one was required. In the interest of safety, the employee contacted the ES&H Department and suggested a follow-up be performed if, in fact, policy dictates that cylinders are secured during transport.

At the time of the report, PPPL did not have a requirement that cylinders must be strapped or chained to a cart while being used because the relevant OSHA standard does not require it. However, the employee’s observation stimulated a discussion regarding the fact that securing cylinders is a good practice. Further, some recent guidelines from the Compressed Gas Association do advise using restraints in these kinds of situations. The ES&H Department is changing the Safety Manual to require securing cylinders during transport.

Kudos to the employee for voicing this concern and making PPPL a safer place to work!

Equipment, Material, and Furniture Lists Available from Material Services

By Rick Rainey

The Material Services Division has an updated Equipment and Material Held for Future Projects (EMHFFP) spreadsheet posted on its web page. From the Employee Services home page, go to the Material Services link and then scroll down to the Warehouse - Property in Storage section (or go to http://material-control.pppl.gov/StorageReport.xlsx). It is DOE policy that when practicable and consistent with program needs, EMHFFP be considered as a source of supply to avoid or postpone acquisition.

A current view of available chairs, tables, desks, and more is available at the surplus furniture site. Go to PPPL’s Google Sites – furniture (or https://sites.google.com/a/pppl.gov/furniture-surplus/) for the listing of no-cost items in the warehouse for Lab use. Just contact any of the Material Services staff to reserve an item.
Management Safety Walk-Through Database Now Available

By Dorothy Strauss

The database containing management safety walk-through data is now available to the PPPL community. Four reports may be run; two on which personnel participated in the MSW and the individual's action items and two on area findings, including action items by area and trends by safety category (electrical, housekeeping, etc.).

To access the database, go to https://fmp-srv.pppl.gov/fmi/webd/QA_Database
- Click Sign in as a Guest.
- Click the button that says Management Safety Walk-Throughs
- Click the button that says Safety Item Reports

At the bottom you will see two boxes: one for reports for individuals, the other for reports for areas. If you choose to search a range of dates that includes more than one MSW for action items by area, you will need to use the Next Walk Through button at the top of the page to view all findings.

Quarterly SOS Box Contest

Everyone who submits a valid actionable safety post (specific enough to fix, with the submitter's name included) between April and June 2017 (and July-Sept., and Oct.-Dec.) to ES&H via the SOS Box will be entered into a drawing for a chance to win a $20 gift certificate to the Plasma Hutch!

Congratulations to John Wertenbaker, who won the SOS Box contest last quarter!

Safety Contest

Solve the puzzle below. The names of all entrants who correctly identify the quote will be entered into a drawing for a $20 gift certificate to the PPPL Plasma Hutch. Submit your entry to dstrauss@pppl.gov by Friday, July 21. Safety Division members are not eligible.

VO YBTNTIC WQ DJADBJA,
OQK BJA DJADBJTIC
WQ YBTN.

- VAI YJBIXNTI

Congratulations to Tom Czeizinger, who won the spring 2017 ES&H Newsletter contest!

O = Y
Enhanced Pre-Job Briefings Increase Safety

By Neil Gerrish

Conducting a pre-job briefing prior to the commencement of work is a crucial step that can be overlooked or considered just a formality. PPPL Procedure ESH-004 states that a Job Hazard Analysis must be completed prior to the start of work. This JHA is a tool that is used to identify potential hazards at the task level. It is considered a living document that should be updated as new hazards are identified. Reviewing a JHA during a pre-job briefing helps make sure that all workers involved in an activity are aware of the hazards they may encounter.

Human performance tools can improve the overall effectiveness of a pre-job briefing by heightening and improving the anticipation of hazards assessment before work begins. These tools include:

**Encouraging situational awareness** — Make sure all workers involved in the work are familiar with the job requirements and conditions that may affect the activity.

**Performing a job site review** — Take the time to conduct a site review and physically walk the area if workers are not familiar with the location.

**Promoting a questioning attitude** — Questions and doubts often arise during the course of complex work activities. Encourage workers not to make assumptions. Always make sure that instructions and information are accurate and expressed in a clear, concise manner. If doubt exists, that doubt creates a potential hazard.

Remind workers to stop if doubt exists or conditions change! If questions develop, workers have the responsibility to stop and seek clarification before proceeding.

Practice effective communication - Instructions are often understood better with a face-to-face conversation. Have instructions repeated back and correct any misunderstandings.

**When outlining tasks use the SAFER Method:**

1. **Summarize the critical steps.** Ask “What are the actions that, if performed improperly, will cause irreversible harm to equipment or people?”
2. **Anticipate errors.** Ask “What could go wrong?”
3. **Foresee probable and worst-case consequences of errors.** Ask “What is the worst that could happen?”
4. **Evaluate controls at each step.** Ask “How do we prevent those errors or consequences from happening?”
5. **Review previous work or lessons learned from the past.** Ask “Have we done anything like this before?”

By incorporating these steps into your next pre-job briefing, workers will have a better understanding of the work and any potential obstacles that may be encountered. In addition to reducing the risk of injuries, this will help prevent delays and costly mistakes that could arise if the tasks are not clear or the critical steps are not understood.

Additional information can be found in Appendix 3 of the Job Hazard Analysis procedure (ESH-004): [http://bp.pppl.gov/procedures/esh004.pdf](http://bp.pppl.gov/procedures/esh004.pdf)

Internal Lessons Learned: Cut Cable Reinforces Need to Control Power Sources

By Neil Gerrish

During construction activities associated with PPPL’s Infrastructure Operations Improvement project (IOI), an energized 120V electrical line was damaged during roof penetration work. Using a battery-operated reciprocating saw, a roofing subcontractor cut holes at a predetermined location to install fall protection anchor points, known as “davits.” During the installation of one of these davits, the subcontractor cut through the roof decking and damaged the metal-clad cable that was installed on top of a steel beam directly below. This cable was part of a temporary lighting system that had been installed a week prior.
Additional concerns were identified during the repair process. PPPL’s Control of Hazardous Energy (Lock-out/Tag-out (LOTO)) procedure ESH-016 allows for authorized workers to not apply a lock or tag during repair work only if the authorized worker has exclusive control of the cord or plug and the cord or plug is within the worker’s sight while performing the servicing or maintenance. This did not occur. Subcontractors identified the appropriate power source and unplugged the cable but could not see the power source while conducting the repair work. As a result, someone could have noticed the temporary lights were out and plugged the power cable back in not knowing that repair work was in progress.

It is imperative that you have exclusive control when you are performing service or maintenance on corded equipment to prevent unexpected energization or start-up of equipment. If the energy source is not visible from your work location, you must use some means of controlling this hazard. Applying a device and a lock with a tag then becomes necessary. If you have any questions concerning LOTO please contact the Electrical Safety Specialist, Glenn Anderson at x3740.

As seen from above, a temporary lighting cable was damaged during roof penetration work. (Photo credit: T. Smith)

**External Lessons Learned - Check Cords Before Disconnecting and Connecting**

By Jerry Levine (Based on DOE Lessons Learned Database)

**SUMMARY:**
Damaged electrical cords are cited as contributors to multiple electric shock and fire incidents in the DOE complex every year. Taking a minute to inspect electrical cords before disconnecting them from the outlet (when practical), and before connecting them to a power source, is an easy way to prevent these incidents. Making sure electrical cords are properly configured, routed, and protected when connecting them to a power source will help prevent cord damage and potential shock and fire incidents.

**DISCUSSION:**
At another DOE site, Information Technology (IT) employees moved a printer and other computer equipment to an office in another building. All cables were disconnected, placed in a cardboard box, and hand-carried to the new office. The IT staff then set up the equipment and verified its operability.

![Photo of damaged cable](Photo credit: T. Smith)

The next day, a telecommunications technician connecting the phone service reached behind the printer to locate the ethernet phone jack. When he did this, he felt an electrical shock. Inspection revealed that the printer power cord was damaged and a conductor was exposed near the printer end of the cord. All appropriate notifications were made and the damaged cord was removed from service.

**ANALYSIS:**
It is believed the telecommunication technician’s left forearm contacted the exposed conductor and some refrigerator component, most likely a heat exchanger coil, at the same time. Current traveled from the power cord, through his forearm, and to the grounded refrigerator when this contact was made.

There had been opportunities to identify the damaged cord. The damage to the power cord could have...
been ignored or not detected when the cord was disconnected from the printer. Or, it is possible that the damage was detected at that time and, contrary to requirements, the cord was not marked “Do Not Use” and segregated at the time the damage was detected.

It is also possible that the damage was ignored or not detected at the time the power cord was reconnected to the printer. The routine practice of connecting the power cord to the device first and the receptacle second possibly prevented a previous electrical shock.

RECOMMENDATIONS:
Always inspect any cord containing an electrical conductor when disconnecting it from equipment or a power receptacle and before placing the cord into service. Verify that:

- The cord is in good condition (e.g., insulation is intact, no kinks or sharp bends)
- The connector hardware at each end is in good condition. For power cords, this means that all pins are present (the shape of the plug will indicate whether two or three pins should be present), straight, secure, and not damaged or altered. Alterations could include the larger flat prong in a polarized plug having been reduced in size to match the other flat prong, the round ground prong having been removed, or a round or U-shaped prong having a bend or crimp in it).

When connecting a device to a power source, refer to the owner’s manual. If the manual is not available or specific directions are not provided, verify that:

- The device is marked as having been certified by a Nationally Recognized Testing Laboratory (NRTL) such as Underwriters Laboratories or CSA.
- The device appears to be physically intact - there are no damaged, loose, dislocated, or missing parts, especially where any cord connects to it.
- There is slack in the cord after it is connected.
- The cord is not in contact with anything that may damage it.
- There is nothing resting on the cord (exception: items designed to protect power cords).
- Carts, chairs, or other equipment cannot be rolled over the cord except where properly protected.
- The cord is routed where it will not be disturbed and will not create an obstacle in the work environment or a hazard.
- Equipment powered by the cord is restrained from subsequent movement that could pinch or strain the cord (particularly important for equipment with motors, fans, pumps, or compressors that can vibrate or shimmy).
- The cord is ‘dressed’ so there are no sharp bends in it:
  - NEVER initiate any bend at the plug-to-cord or equipment-to-cord transition, even if the transition is reinforced. If necessary, support the cord using a Kellems-style support grip or other strain relief product listed by a Nationally Recognized Testing Laboratory.
  - If the manufacturer’s sharpest bend is not specified, use this approach for visually determining the sharpest safe 90-degree bend radius to allow in a power cord: (1) hold the cord at two locations approximately 24 inches apart; (2) bend the cord until the segments in your hands are approximately 90 degrees to each other; use the radius of the naturally-formed bend as the smallest safe 90-degree bend radius for that cord.
  - For the sharpest safe 180-degree bend, double the radius determined for the 90-degree bend.
  - All recommended actions listed above also apply to low-profile plugs designed to allow a minimal clearance between the plug and the nearest object.

When unplugging equipment, make sure to always pull just the plug and not the cord.

Excessive Vehicle Idling Increases Air Pollution and Climate Change

By Robert Sheneman

What is idling? Technically, idling refers to running a vehicle’s engine without actually moving the vehicle. Drivers are sometimes forced to idle in traffic or while waiting for a traffic light to change. What we are interested in here is running the engine when it is not necessary. Drivers often idle a vehicle out of habit without realizing how much fuel is wasted or how damaging it can be to both the vehicle’s engine and the environment.

THE COST OF IDLING

A study by DOE’s Office of Energy Efficiency and Renewable Energy documented that in the U.S. trucking industry, engine idling uses more than 6 billion gallons of fuel per year. Even by conservative estimates, the annual price tag for truck idling is about $20 billion. Research from Argonne National Lab (ANL), Oak Ridge National Lab (ORNL) and the National Renewable Energy Lab (NREL) shows a wide range in fuel consumption for idling vehicles. Smaller compact cars use about 0.2 gallons per hour while larger gasoline vehicles can use nearly one gallon of fuel per hour. A similar pattern is also shown in diesel engine vehicles. These estimates do not include energy used for accessories or equipment like air conditioning, generators, radios, or other electronics.

ADDITIONAL MAINTENANCE

In addition to wasting fuel, unnecessary engine idling can cause excessive engine wear and premature failure of the pollution control systems. In diesel engines, idling can lead to the buildup of fuel residue on engine components, inefficient fuel consumption, and mechanical degradation. The American Trucking

Graph source: Argonne National Laboratory
Association estimates that excessive idling causes approximately $2,500 annually per truck in extra maintenance and accelerated engine wear – on top of the cost of wasted fuel. In fact, most modern automotive engines do not need to idle to warm up. Electronic ignition and combustion controls mean that a car does not need more than 10 to 15 seconds to reach proper fuel ignition. Despite what we may have been taught in the past, turning your vehicle off and on does not cause engine damage, drain the battery, or waste gas. Batteries now use less power per engine start, have greater power reserves, and recharge faster. Starters are stronger and more reliable. The amount of wear and tear caused by restarting a car is now negligible.

ENVIRONMENTAL IMPACTS

Because idling vehicle engines are not operating at optimal temperatures, the air pollution emitted at idle is significantly greater than when the vehicle is in use. Carbon dioxide (CO2), carbon monoxide (CO), nitrous oxides (NOX), volatile organic chemicals (VOCs), and fine particulate matter are all released to the atmosphere from vehicle engines. These pollutants are emitted at a higher rate per gallon of fuel when idling than when the vehicle is operational. CO2 is the main greenhouse gas concerned with climate change; fine particulates and other air pollutants can aggravate asthma and other health conditions; VOCs, NOX and other air pollutants cause smog and degrade the regional air quality.

Countries around the world are concerned with the impact of transportation on the environment and human health. Messages to reduce unnecessary idling are therefore a key component of many national climate change programs. In Europe, the recommended guidelines for turning engines off are 10 seconds in Italy and France, 20 seconds in Austria, 40 seconds in Germany and 60 seconds in the Netherlands. In the United States, the Environmental Protection Agency’s “Smartway” and “Drive Wise” programs both recommend turning the engine off if you’re stopped for more than 30 seconds.

RECOMMENDATIONS AND REGULATIONS FOR VEHICLE IDLING:

Recommendation: If you’re going to be stopped for more than 60 seconds – except in traffic – turn the engine off.

Regulations: New Jersey’s vehicle idling regulations prohibit idling of vehicle engines in excess of three (3) minutes, except as provided below. The operator of the vehicle is to turn off the vehicle and remove the key from the ignition. Exceptions include:
1. When stopped in traffic.
2. To provide for the safety of vehicle occupants, such as severe weather conditions.
3. To use powered mechanical equipment such as lift equipment, power take-off (PTO), refrigeration, and other accessories necessary to accomplish the mission or assignment.
4. When actively performing emergency services such as fire, security, medical services, and snow removal.
5. When necessary to bring the engine up to operating temperature, especially for diesel engines. Diesel engines may idle for up to 15 minutes when the vehicle has been stopped for more than three hours and the temperature is below 25°F.
Hazard Awareness Refresher

By Bill Slavin

Below is a refresher on three more hazards, continuing our review of the various sections of the JHA Checklist.

IONIZING RADIATION
Ionizing radiation is tightly controlled by PPPL Health Physics (HP) through the use of Radiation Work Permits (RWPs), training, signs and barriers. If working with any ionizing source, such as tritium, x-ray emitters, or other sources of alpha, beta, gamma or neutron radiation, be sure that HP is consulted in planning the activity, and that HP has provided a RWP (where required by Health Physics) and is monitoring the work as required. Remember that high-voltage equipment can produce x-rays and may need to be tested by HP (contact HP at x2513 for details).

NON-IONIZING RADIATION
Non-ionizing radiation arrives from four main sources at PPPL: lasers, magnetic fields, radio frequency (RF) equipment, and microwave equipment.

- Most common are lasers that can be found in experimental areas, as laser pointers, or in laser levels. Pay attention to signs when working around existing laser sources. If beginning a project involving the use of a higher-powered laser (classified as 3b or 4), consult with the Safety Division Laser Safety Officer (Bill Slavin).

- Magnetic fields occur around high-voltage sources and magnets used in experiments. Most of these will only have an effect on pacemaker wearers, so signs should be posted appropriately. There are a few magnets at PPPL that are considered high field. Staff working on or around those high-field magnets should take the “High Static Magnetic Field” training.

- Radio frequency sources primarily exist as part of experimental projects at PPPL. All users of RF must leak test the systems to ensure that personnel exposure is within limits. Others must pay attention to posted warning signs.

- Microwaves are used for transmitting data (such as in cell phone towers) and for heating food. All microwave sources other than ovens require periodic testing.

ENVIRONMENTAL IMPACTS
PPPL is concerned with protecting the environment. As such, any work that could have an effect on the environment needs to be evaluated for potential effects. Environmental impacts of work must be evaluated through the National Environmental Policy Act (NEPA) process (see Procedure ESH-014). Activities that can adversely affect the environment include: performing work using chemicals, allowing material to flow to a floor drain, using sinks for chemicals, releasing gases to the atmosphere, and leaving containers unprotected. Questions about how this type of work could affect the environment should be directed to the PPPL Environmental Services Division (ESD), Head of Environmental Compliance (Virginia Finley, x2746). The other aspect of environmental protection is proper disposal of waste products. All hazardous materials (chemicals) or radioactive materials that are to be disposed must be handled through the ESD Head of Waste Management (Maria Pueyo, x2213) for chemicals, or Rad Waste Manager (Keith Rule, x2329). Pre-planning for the collection and disposal of these wastes is essential to avoid safety and environmental concerns, so contact the ESD prior to generating the waste products to arrange for proper collection and disposal.

High-powered lasers, such as those pictured here for the NSTX-U Multi-Pulse Thomson Scattering system, require safety procedures, personal protective equipment, and a laser operating permit issued by the Safety Division Laser Safety Officer. (Photo credit: W. Slavin)