



# ES&H Newsletter

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Spring 2015

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## Voluntary Use of Dust Masks Has Special Requirements

By Neil Gerrish

N95 respirators, commonly referred to as “dust masks,” are air-purifying respirators that provide limited protection against dusts, fumes, and aerosolized particulates only. It is important to understand that these masks are respirators. The Occupational Safety and Health Administration (OSHA) has incorporated these “air filtering face-piece respirators” into the Respiratory Protection Standard, which means that both DOE and PPPL require employees to wear them.

If you are using any type of respirator (including an N95), then you must comply with [ESHD 5008, Section 8, Chapter 7.5.5](#). There is, however, a provision that allows workers to use N95s on a voluntary basis when particulates are expected to be below OSHA limits and the wearer wants to avoid nuisance dust. If this is the case, you must first review and sign a form in Human Resources covering OSHA’s Appendix D. This is a one-time review.

You should also understand the limitations of the N95 mask, described above. Like all respirators, N95s will

not provide any protection if the user has a beard or other facial hair. Even a mustache can affect the seal. These are single-use, disposable masks. Users should not save or try to clean them. After one use, the masks MUST be discarded. As with all personal protective equipment, always inspect the mask prior to use and follow all manufacturers’ instructions. Improper use will reduce the mask’s overall effectiveness.

There will be several changes made to PPPL’s respiratory protection program in the coming months. The Job Hazard Analysis (JHA) form will be modified to reflect the voluntary use of N95s. A new training course on the proper use of dust masks will be incorporated into the program as well and will be mandatory for anyone who wishes to wear N95 respirators voluntarily. Questions can be directed to Neil Gerrish, ext. 2531. ■

# Following Personnel Safety Interlocked (PSI) Systems Requirements Helps Keep PPPL Safe

By Glenn Anderson

**P**ersonnel Safety Interlocked (PSI) Systems are designed to protect us by restricting access to areas in which hazards are present, shutting down equipment when someone enters an area, and allowing personnel to stop equipment if necessary.

PSI systems in use at PPPL can include the following:

- Kirk Key Interlocks, which are multi-keyed systems that, through a set sequence, safely isolate multiple power sources, resulting in an orderly shutdown or start-up. (For example, the NSTX system isolates electric power, radio frequency (RF), cooling water, lasers, etc.)
- Hardwired Interlock Systems, which isolate power sources when doors are opened or covers removed, and
- Emergency Stop Buttons (E-Stop), which cut power to equipment when pressed.

“These interlock systems are a key ingredient for ensuring safety around potentially energized equipment,” notes Michael Williams, associate director for Engineering and Infrastructure.

Having these systems in place is only part of the equation when it comes to keeping workers safe. Testing the systems to ensure they work is critical. Our safety manual stipulates that tests must be performed annually for operable PSIs in a simulated running configuration and/or mock-up mode and must verify:

- Correct electrical and mechanical operation of warning systems (audible and visual)
- Access-control systems (doors and key interlocks) work when required, and

- Emergency shutdown systems function as intended.

Requirements are slightly different for PSIs that control access areas or equipment that protects personnel from ionizing radiation. In these cases, testing intervals must not exceed six months. An exception may be granted by the head of Health Physics if the protected area is declared a general-access (non-radiation) area during the system’s regularly scheduled six-month test, in which case its PSIs must be tested prior to start-up.

Once the “cognizant engineer” has completed testing, a “run copy” must be filed in two places:

- EITHER in the project files OR central files in the Operation Center
- AND with Electrical Safety Specialist Glenn Anderson

The electrical safety specialist will verify the safety of the initial installation and any modifications and will review the tests of every new PSI at PPPL, as well as review interval testing results.

“It is important that all groups that are responsible for personnel interlock systems perform the required maintenance, testing, and filing as required,” says Williams.

Systems and testing expiration dates can be found [here](#). For more detail, see [ESHD 5008, Section 2, Chapter 5](#) - Personnel Safety Interlock Procedures. Questions can be directed to [Glenn Anderson](#), electrical safety specialist, ext. 3740. ■

## 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](mailto:Safety@pppl.gov)

[Director’s Suggestion Box](#)

## FOR ENVIRONMENTAL OR WASTE MANAGEMENT CONCERNS, PLEASE CONTACT:

**Spills should be reported to ESU at x3333**

**Spill Prevention:** Maria Pueyo (x2213)

**Hazardous/Chemical Waste:** Maria Pueyo (x2213)

**Radioactive Waste:** Keith Rule (x2329)

**Recycling:** Margaret King (x3652) (Scrap metal and electronics are processed by Material Services.)

**Environmental Permits:** Virginia Finley (x2746)

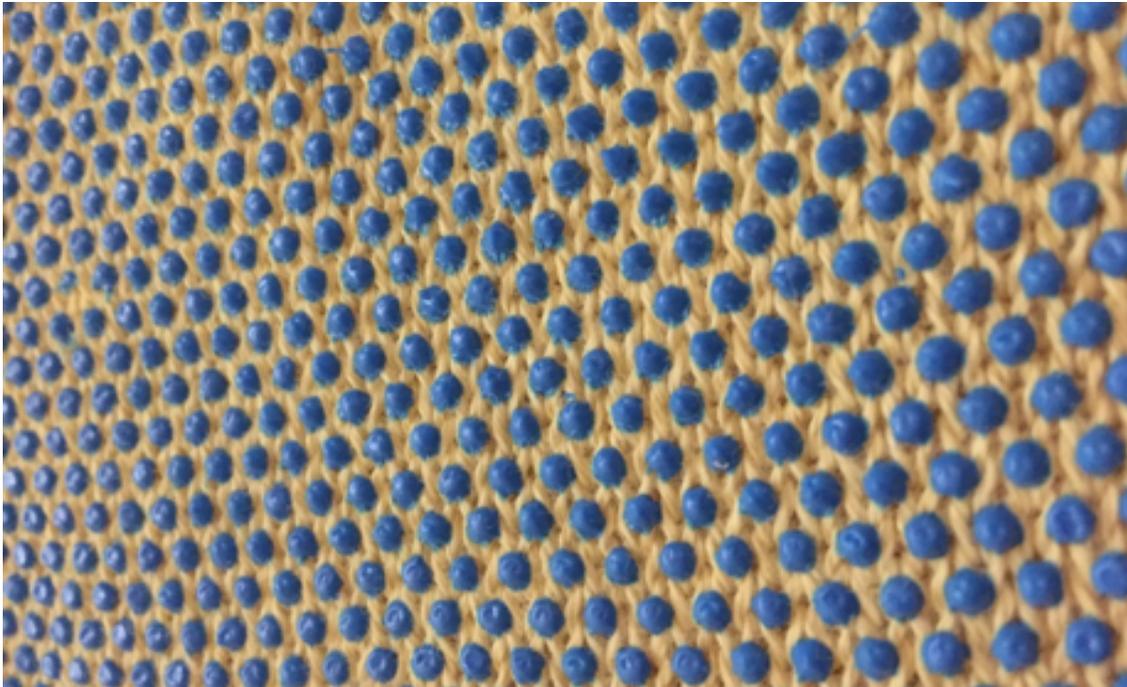
**Green Purchasing:** Leanna Meyer (x2599)

## Safety Contest

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Identify the safety-related item in the close-up photo below. The names of all entrants who correctly identify the item will be entered into a drawing for a \$20

gift certificate to the PPPL Plasma Hutch. Submit your entry to [dstrauss@pppl.gov](mailto:dstrauss@pppl.gov) by Friday, May 29. Safety Division members are not eligible. ■



**Congratulations to Lewis Morris, who won the Winter 2015 ES&H Newsletter safety contest!**

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## Simple Actions Can Prevent Slips, Trips, & Falls

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By Neil Gerrish

According to the Bureau of Labor Statistics, approximately 296,000 workers were injured in 2013 due to slips, trips, and falls. These injuries caused a median average of 10 days away from work. Our own STOP Program data found that slips, trips, and falls were the most likely source of injury in February and March of this year, and hazards were found in both office and field locations.

Many accidents can be avoided simply by having a clean and clear work area. Slipping on wet floors or tripping over cords is a real possibility regardless of your job within our organization. Protect yourself by selecting proper footwear and walking at an appropriate pace. Constant awareness of your surroundings is crucial, even when you are busy. Always try to limit distractions while walking through areas with which you are unfamiliar (see the Lessons Learned article in this issue). Understand that conditions can change quickly.

Texting, surfing the web, or reviewing emails while you are trying to walk is never a good idea.

If you find wet floors, obstacles or clutter in walkways, or inadequate lighting, take a few moments to correct the situation. You could spare someone a painful injury! If you are unable to do this, mark the area to warn others of the potential hazard and notify the Safety Division or Facilities. Anyone can submit a work order or send a message to the Safety or Suggestions (SOS) Box. Remember that safety starts with you. Slips, trips, and falls can be prevented through your attention and action. ■

# One Size Doesn't Fit All: Customizing PPE & Ensuring Fit

By Julia Toth

In recent years, there have been many upgrades and updates to personal protective equipment (PPE), thereby making workers more likely to wear PPE and to wear it comfortably. PPE that does not fit properly will not function properly. The Occupational Safety and Health Administration (OSHA) states, "If PPE does not fit properly, it can make the difference between being safely covered or dangerously exposed. It may not provide the level of protection desired and may discourage employee use." Here at PPPL, we provide a wide variety of PPE styles and sizes at the stockroom, but sometimes even the stock sizes just don't fit. What can you do when this happens?

Some PPE companies are willing to create custom items for their customers, thereby ensuring a proper fit. You can find out if a specific company can customize PPE by either emailing or calling that company and asking about their customizing abilities. I was recently able to work with a glove company (BSX Gear) to create a customized glove for one of our employees here at PPPL. The process was simple. After we supplied the company with specific information such as hand size and finger length, the company was able to create a glove that, well, actually fit like a glove! For future orders, a new item number and price was determined so further purchases of this glove could be quickly attained through our distributor. If anyone encounters PPE that does not fit correctly, do not hesitate to contact the company/distributor or someone from the ES&H Department to determine if a customized option is available.

PPE includes protective equipment for your eyes, face, head, extremities, and respiratory system as well as protective clothing. Become familiar with the PPE you need to wear and understand why it is an essential protection method for your job. Ask yourself, "Am I safely covered or dangerously exposed?"

**Below is a quick reference to determine how some common PPE should fit properly:**

## HARD HATS

- A hard hat should fit securely on your head with an adjustable headband.
- Adjust the suspension to a snug fit.

- Ensure there is sufficient clearance between the shell and headband for ventilation and distribution of impact.
- Hard hats should not bind, slip, or fall off.
- Hard hats should not irritate your skin.
- The brim should fit over your forehead and be parallel to the ground.
- Inspect the hard hat prior to each use to make sure there are no visual defects.
- Ensure the hard hat is the correct type/class for your task.
- Remember: Do not store items between the shell and suspension.

## SAFETY GLASSES

- Safety glasses should not fall off when performing your task.
- Make sure the safety glasses do not restrict your vision or movement.
- Wear safety glasses so that the temples fit comfortably over the ears.
  - Closing gaps between the temples and face will prohibit debris from entering the eye area.
- The frame should be as close to the face as possible and adequately supported by the bridge of the nose.
  - Eye size, bridge size and temple length all vary so find a pair that fits you the best.
  - If the nosepiece is flexible, conform it your nasal profile.
- Find a style that works best for you so that you will be more inclined to wear them.

## GLOVES

- Determine your proper size by relating your measured size to the numerical size listed by the manufacturer:
  - Extend your hand out flat.
  - Measure around the hand with tailor's tape just below the knuckles and fingers, but above the thumb.
  - Measure your dominant hand, as it is generally a bit larger.
  - Choose the correct length of glove to protect not only the hands, but also the wrist and forearm.
- Remember to choose the correct glove material for your task.
- Inspect the gloves prior to use for rips, punctures, or change in color. ■

# STOP Observations Raise & Answer Safety Questions

By Dorothy Strauss

The STOP Program is not merely a reporting mechanism, a one-way flow of information. Rather, it is an ongoing safety conversation between workers, observers, ES&H staff, and Lab denizens, visitors, contractors, and collaborators. You don't need to be a safety expert to conduct a STOP observation but what do you do when you're not sure about a process or practice? Include your concern on your STOP card! (Of course, urgent matters should be reported right away and a stop-work order should be issued if danger is imminent.) Responses to questions and concerns noted during STOP observations are provided to the individual(s) and included in the monthly STOP Updates, thereby increasing our collective knowledge bank and allowing us to learn from one another.

**Below is a sample of the safety questions that have been raised and answered through the STOP program:**

**Are high visibility vests required when working along a roadway?** No, but it is recommended. The Safety Manual (section 8, chapter 6) indicates, "Employees working in or near roadways should wear high visibility or reflective clothing." This is a good practice when a worker cannot provide full, undivided attention to oncoming traffic, a separation between the worker and traffic is not sufficient to prevent an accident, or inclement weather or darkness obscures the vision of drivers.

**Are Job Hazard Analyses (JHAs) required for Facilities work orders?** Yes. To facilitate this process, the JHA is printed on the back of the work orders.

**Should JHAs for seldom-used shops (or other areas) be renewed after a certain period of time?** Yes. ESH-004 states that "JHA forms written for routine or ongoing activities shall be reviewed annually for correctness," and "Reviews shall be documented with a dated, signed form. An existing JHA may be annotated with a new date and signature or initials." The purpose of the JHA is to alert workers to hazards associated with a specific job. If a JHA has not been reviewed in several years, workers could forget all the hazards, and changes in the area or work procedure may have occurred. JHAs should be removed from areas in which active work is not taking place and a new JHA should be completed when activities in the area resume.

**Can combustibles (such as oil) and flammables (such as acetone) be stored together in the same flammable storage cabinet?** Yes, since the hazard for both (burning) is the same.

**Can contractors work without their PPPL liaison being present?** Yes. Contractors must have a liaison to be on

site but the requirement for the liaison to be present is dependent upon the stipulations of the Statement of Work (SOW) or may be specifically required by the responsible line manager (RLM). The designated Princeton technical representative (PTR) is responsible for overseeing contractor activities to ensure compliance with safety and other requirements.

**Are gloves required whenever a worker is using their hands?** A hazard analysis will dictate when gloves are needed. (Are there sharp edges, nails, staples, splinters, etc.? Is good grip required? Are chemicals in use?) Gloves should not be worn around moving/rotating machinery (except for portable tools).

**Is foot protection required when moving gas cylinders?** Protection is required when injury could occur due to falling or rolling objects, among other hazards.

**Is there a procedure requiring a structural review before interconnected pieces, such as pipes, are removed?** No. There is not such a procedure but a structural review should be conducted. Note that Engineering Standard ES-MECH-009 has inspection requirements (including structural integrity) for wooden stairs and platforms.

**Are elevator shafts confined spaces?** No. Per OSHA, elevator shafts are not considered confined spaces because, unlike elevator pits, they are designed for human occupancy. Certain work, like maintenance, has been approved by Safety as long as the worker maintains contact with someone outside of the shaft to avoid a working-alone situation. ■



## Outdoor Equipment Needs Extra Attention in Spring

By Julia Toth

Recently, an outdoor chemical cabinet needed to be accessed. When a side door to the cabinet was opened, the bottom hinge broke loose. The hinge pins were rusted so badly that they had deteriorated and caused the door to fail. The door was temporarily fixed and danger tape was placed on it to prohibit use. A work order was also created to have the issue permanently fixed. This incident serves as a reminder to pay special attention to equipment and tools that have remained outside. Inspect tools and equipment for damage, ensure they operate safely, and have them repaired or replaced as needed. ■



## DOE Identifies Overhead Door Hazard, PPPL Takes Action

By Julia Toth

This past August, the DOE Office of Environment, Health, Safety, and Security published a safety concern regarding roll-up doors. There were six events at four separate DOE facilities during which a mechanical failure caused a roll-up door to fall unexpectedly. A contributing cause was lack of regular maintenance. No injuries were recorded, but these near misses resulted in various recommendations that were communicated to all DOE facilities.



Regular maintenance. No injuries were recorded, but these near misses resulted in various recommendations that were communicated to all DOE facilities.

Here at PPPL, the roll-up door concern was forwarded to the Facilities Division, which determined it could apply to PPPL. Facilities personnel instituted a quarterly preventive maintenance schedule for each roll-up door. Notices regarding operating and safety procedures are displayed upon each roll-up door to alert workers to the potential hazard.

Thanks to the communication of these lessons learned and our commitment to Integrated Safety Management principles, we were able to reduce the risk potential, enhance our operations, and facilitate continuous improvement here at PPPL. ■

## Distracted Driving Kills

By Julia Toth

According to the National Safety Council, 100 people die in car crashes every day and 26 percent of those deaths involve cell phone use (including hands-free devices). Talking or texting on the phone while driving is multitasking that will decrease cognitive processing by 33 percent. Always drive cell phone-free and remember to keep your eyes on the road, your hands on the wheel, and your mind on driving. Use the links below to discover additional information or contact ES&H for a briefing.

How well do you drive while sending and receiving text messages? Test your skills [here](#).

[General information on distracted driving from the National Safety Council](#)

[Hands-free is not risk-free](#)

[Additional information, PDFs, and printable material](#) ■

## Lessons Learned – Staff Member at Another Lab Slips on Chicken Bone, Falls and Breaks Foot

By Jerry Levine (Based on DOE Lessons Learned Database)

### LESSONS LEARNED STATEMENT:

When walking through an unfamiliar location, be aware of where you step, especially if carrying on a conversation. If you spot a potential hazard, correct it before someone encounters it.

### DISCUSSION:

A staff member from a DOE Laboratory was asked to walk through a warehouse at another DOE location and examine the amount of unauthorized individual protective equipment at this location. Engaging in conversation with two others as they walked, she did not notice a chicken bone lying on the floor and stepped on it, falling, and rolling her left foot. At the emergency room near her home the following day, she was diagnosed with a broken fifth metatarsal bone in her left foot and a contusion on her right knee.

### ANALYSIS:

The staff member wears aluminum-toed shoes and a hard hat when working in warehouses at her normal work location. The day of the incident, she planned to meet only in offices and therefore wore street shoes. She and her client entered the warehouse because they knew personal protective equipment was not required and no forklifts or other heavy equipment were in use.

A nearby staff member likely dropped the bone. While walking and conversing, the visitor didn't watch the floor or see the bone. She reported the incident and a "sore foot and knee" that day, flew home the following day, and went directly to an emergency room. Her left foot and leg were splinted, her right knee was wrapped, and she received crutches. She also learned her right big toe was broken.



### RECOMMENDATIONS:

Injuries like this can happen to anyone who is in unfamiliar surroundings. Taking the following precautions, even when performing mundane tasks, can help you (and others) avoid accidents:

- Be alert. Even when in a low-risk environment, stay focused and be aware of your surroundings. Watch for slip, trip or fall hazards.
- Avoid distractions. Texting or phone calls while walking or driving can divert your focus. Keep your eyes on the path ahead when carrying on a conversation with colleagues as you walk.
- Protect others. Practice good housekeeping habits and correct potential hazards when you see them to help others avoid accidents.

Additional information on avoiding slips/trips/falls hazards can be found on our Safety Wiki at <http://safety-wiki.pppl.wikispaces.net/Slips%2C+Trips+%26+Falls>. ■

## 'Supervisor's Response to Injury' Training Available Online

If you are a supervisor, knowing how to respond appropriately if one of your employees is injured is critical. Your reaction could have a real and significant impact on employee morale, investigation efforts,

and the successful implementation of corrective measures. This brief training is available here: <http://hr.pppl.gov/OnlineTrainingList.html>. ■

# Awareness Limits the Potential Damage from Suspect/Counterfeit Parts

By Barry Jedic

As long as there is money to be made, counterfeit parts will always be found in the marketplace. High strength fasteners (nuts & bolts) continue to be the most common suspect/counterfeit items found at the Laboratory. Below are a few unique suspect/counterfeit parts found at other DOE sites:

- A computer network switch was marked with model and serial numbers that did not match those used by the supposed manufacturer.
- A temperature sensor device overheated, leading members of a work group to review their inventory and find a similar counterfeit device
- Specialty semiconductors had their original markings sanded off and military-grade markings added to cheaper items.

Although this was not identified at a DOE site, here is an example of counterfeiting that you likely would not even consider:

Suspect/counterfeit fire extinguishers have been found to be filled with compressed air or baking soda. Unfortunately, if one of these gets onto the site, someone's life could be put at risk.

Knowing the items you purchase and what they should look like goes a long way in keeping counterfeit items off our site.

While having a history with trusted suppliers is always important, part of procuring items is to continue to identify new and better suppliers. When using a new supplier, always be diligent in reviewing the items purchased to be sure everything is as it was represented.



Suspect/counterfeit parts can delay work, cause damage to property, and put personnel in harm's way. Please remain aware and vigilant, and report any questionable items to your supervisor and/or Quality Assurance immediately upon discovering them.

PPPL has systems and [restrictions](#) in place to help combat counterfeiting but awareness is PPPL's most important defense.

Both initial and periodic renewal training is required for all personnel specifying, ordering, receiving, inspecting, or installing hardware or electrical items. We encourage everyone to take a look at the training even if it is not required for your position. It is available online at: <http://hr.pppl.gov/SuspectCounterTraining.htm>. Further information on S/CI can be found at: <http://www-local.pppl.gov/qa/SCI/SCI.shtml>. ■

## Reminder!

**Do not run in the hallways, even after hours.**  
Serious injury could result!

Keep our corridors collision-free.

LEAVE EARLIER.

KEEP TRACK OF TIME.

DON'T TEXT WHILE WALKING. PAY ATTENTION TO YOUR SURROUNDINGS.

USE THE CONVEX SAFETY MIRRORS AT INTERSECTIONS AND CORNERS.

# Beware! Harmful Plants are Everywhere . . .

By Virginia Finley

Well, almost.

If you don't know these flowers, you may want to start by checking the Rutgers Co-Op Extension web page [www.njaes.rutgers.edu/harmfulplants](http://www.njaes.rutgers.edu/harmfulplants).

Here you will find plants that are irritants like prickly pear, poisonous nightshades like black or deadly nightshade, poisonous ornamentals like lily of the valley, and miscellaneous weeds like poison ivy and ragweed.

Below are some common poisonous flowers and plants that you may have growing in your garden, your home landscape, or even in a bouquet of cut flowers in your home.

- Angel's trumpet
- Anthurium
- Castor bean
- Doll's eye
- Ficus
- Foxglove
- Hemlock
- Hydrangea
- Monkshood
- Narcissus or daffodil
- Oleander
- Rhododendron
- Stinging nettle
- White snakewood
- Wisteria
- Yews

Also, don't eat apple seeds. They contain cyanogenic glycosides, which, if enough seeds are consumed, can be fatal.

A word to the wise, - LOOK, don't touch or eat. If you do handle the flower and other parts of the plant, be sure to wash your hands well. ■

Can you identify these hazardous plants?

A.



B.



C.



D.



E.



F.



A) Lily of the valley, B) Angel's trumpet, C) Narcissus, D) Chrysanthemum, E) Anthurium, F) Black nightshade



# Sustainable



## Proper Management of Chemical Wastes

**W**almart, Home Depot, and other retailers as well as a number of colleges and universities have made headlines recently when they faced fines from state and federal environmental agencies for improper storage and disposal of hazardous chemical wastes. At various sites across the DOE complex, chemicals have been mishandled and/or improperly disposed of on occasion, resulting in hazardous material response to recover and properly dispose of the materials. Here at PPPL, there have been past incidents of partially-full chemical containers being inappropriately placed in garbage dumpsters. Fortunately, PPPL's alert custodial staff identified the items, which were recovered for proper disposal.

The recycling and disposal of chemical wastes is governed by federal and state regulations as well as DOE and Laboratory requirements. Improper disposal of hazardous chemical waste is a violation of state and federal law. Laboratory Procedure [EWM-001](#), Hazardous Waste Management, describes the requirements and responsibilities for the proper handling of chemical wastes at PPPL. Examples of hazardous and chemical wastes requiring special handling are:

- Spent solvents
- Solvent-soaked rags
- Used oils
- Acids
- Caustic chemicals, and
- Waste lithium

Significant chemical use should be identified during the National Environmental Policy Act (NEPA) review process if at all possible. All chemicals used at PPPL must have a Chemical Safety Review and be approved by the Safety Division. Each Job Hazard Analysis

(JHA) that involves the use of chemicals should identify the proper management of all chemical wastes. The Environmental Services Division is designated to collect, characterize, package, and dispose of chemical and other hazardous/toxic wastes at PPPL. Employees with used chemicals, unused chemicals that are no longer needed, or other waste chemicals are required to complete a Hazardous Waste ID Tag (see below), attach the bottom copy to the chemical container, and forward the complete tag to the Environmental Services Division (ESD) at MS01 or fax it to x3366. ESD staff members will pick up the chemicals and arrange for proper disposal. HWID tags are available at the C-Site stockroom and by contacting the ESD at x3380. There is no direct cost to the project or operation for chemical waste disposal.

Certain work groups that regularly generate hazardous wastes may be granted permission to collect wastes close to their work area in specially-designated satellite accumulation areas (SAAs). SAAs are only permitted under specific conditions. The establishment and management of SAAs at PPPL are controlled under Laboratory Procedure [EWM-004](#), Satellite Accumulation Areas. If you have questions about the proper management and disposal of any chemicals, please contact the Environmental Services Division at x3380 or Maria Pueyo at x2213. ■

		
<b>Hazardous Waste ID Tag</b>		
<b>HW20000</b>		
		
<small>HW20000</small>		
<small>Directions: 1) Fill out HWID Tag completely. 2) Send the top copy with MSDS to EROWM - MOD 6. 3) Affix bottom copy to container.</small>		
<small>Generator Name</small>	<small>Division</small>	<small>Telephone Ext.</small>
<small>Building</small>	<small>Location of the Waste</small>	<small>Room #</small>
<small>Description of the Waste</small> <small>Chemical Name and/or Product Name</small>		
<small>Attach a copy of the MSDS to the top copy this tag</small>		
<small>Total Number of Containers</small> _____ <small>(circle type of container)</small>		
<small>Glass Bottle</small>	<small>Plastic Bottle</small>	<small>Drum</small> <small>Box</small> <small>Plastic Bag</small> <small>Pail</small>
<small>Other (specify)</small> _____		
<small>Total Amount of Waste</small> _____ <small>gals</small> <small>lbs</small> <small>(circle one)</small>		
<small>Please provide a brief description of the process that generated this waste</small>		
<small>Generator Signature</small>		<small>Date</small>
<small>For EROWM use - Do Not Write in this Section</small>		
<small>Waste Codes</small>	<small>PU</small>	

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