Environmental Health and Safety Topics Review

Presented to BFAS Campus Facility Supervisors

February 2016
Environmental Health & Safety Services
A Division of Campus Safety and Emergency Services
Hazard Communication

The University’s Hazard Communication Program covering Chemical Inventories, Safety Data Sheets, Container Labeling and Training

Applies to:

- “affected employees” being those who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies (includes full-time, part-time, temporary employees, etc.)
- supervisory personnel of those “affected employees”

Does not apply to:

- employees who may encounter hazardous chemicals only in non-routine, isolated instances (non-foreseeable circumstances)
Hazard Communication

Training Requirements

“Basic” and “Workplace Specific” Training

- **“Basic” Haz Com**
  - Provided by EHSS
  - Frequency: “one-time” at the time of hire.
  - An “affected” employee must have taken Basic Haz Com after January 1, 2013 to be in compliance

- Checking your employee’s “Basic” Haz Com training status
  - EHSS website
### Hazard Communication

#### Training Requirements
- **Status Check - Basic Haz Com**

#### Basic Hazard Communication Training

<table>
<thead>
<tr>
<th>Employee</th>
<th>Training Event</th>
<th>Most Recent Training Date</th>
<th>Who Needs This?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moll, Garrett J.</td>
<td>Basic Hazard Communication Training</td>
<td>9/24/2013</td>
<td>This employee has completed the most up to date version of Basic Hazard Communication Training.</td>
</tr>
<tr>
<td>Baldwin, John E</td>
<td>Basic Hazard Communication Training (HazCom)</td>
<td>9/25/2000</td>
<td>An &quot;affected&quot; employee must have taken HazCom training after January 1, 2013 to be in compliance. An &quot;affected&quot; employee is a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. For a more detailed explanation, refer to the Hazard Communication Program.</td>
</tr>
</tbody>
</table>
Hazard Communication

Training Requirements

If my employee(s) needs Basic Haz Com training, how does she/he get it?

• Classroom training - EHSS training room Lyman Hall
  ▪ Sessions typically held 1x per week
  ▪ Sign-up online
  ▪ If needed we will include Asbestos awareness

• On-line via Blackboard@syr.edu
Hazard Communication

Training Requirements

“Workplace Specific” Haz Com

- Provided by department supervisors
- Frequency:
  - When a new employee is hired
  - When a hazardous chemical is being introduced into a work area
  - When a manufacturer updates a Safety Data Sheet which indicates an increase in hazard risk
  - When a job process/task changes using same chemical but the risk of exposure has increased
Hazard Communication

Training Requirements

“Workplace Specific” Haz Com

- Is this new?
- As a supervisor:
  - how do I provide this training?
  - how do I prepare for this training?
  - what must be in the training?
  - do I need to document the training?
  - what resources are available to help?
Hazard Communication

Training Requirements

“Workplace Specific” Haz Com

- Finalizing a web-based tutorial that will assist the supervisor in all of the above

Tutorial: Workplace-Specific Hazard Training
### Chemical Hazard Assessment Form (not for laboratory use)

#### Product / Chemical Name: ____________________________

#### Manufacturer: ____________________________

#### Assigned SDS ID#: ____________________________

### 1 - Product Evaluation - Physical Hazards (Sec 2 SDS)
- Explosives
- Organic Peroxides
- Self-Reactive materials
- Flammable Liquids/Solids/Gases/Aerosols
- Pyrophoric Liquids
- Pyrophoric Solids
- Self-Heating Substances
- Substances Which in Contact with Water Emit Flammable Gases
- Oxidizing Gases
- Oxidizing Liquids
- Oxidizing Solids
- Gases Under Pressure
- Substances Corrosive to Metal

### 2 - Product Evaluation - Health Hazards (Sec 2 SDS)
- Acute Toxicity (fatal or toxic, category 1, 2 or 3)
- Acute Toxicity (category 4)
- Skin / Eye Irritation
- Skin Sensitization
- Respiratory Tract Irritation
- Narcotic Effects
- Specific Target Organ Toxicity Following Single Exposure (category 3)
- Skin Corrosion (severe)
- Eye Damage (serious)
- Germ Cell Mutagenicity
- Carcinogenicity
- Reproductive Toxicity
- Target Organ Systemic
- Specific Target Organ Toxicity: Single Exposure & Repeated Exposure (category 1 and 2)

### 3 - Product Evaluation (Sec 9 SDS)

<table>
<thead>
<tr>
<th>Field</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product as found in container before use</td>
<td>Solid (powder, granule, etc.)</td>
</tr>
<tr>
<td>Product when used</td>
<td>Solid (powder, granule, etc.)</td>
</tr>
<tr>
<td>Does the product have an odor</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### 4 - Product Evaluation (Sec 7, 8, 9 SDS)

- Read Sec 8 of SDS. Does product or constituents have airborne regulatory concentrations (PELs / RELs / TLVs)?
- Yes | No
- Read Sec 7 of SDS. Does manufacturer have handling / storage recommendations?
- Yes | No
- Read Sec 8 of SDS. Does manufacturer provide appropriate exposure controls such as Engineering and/or Personal Protective Equipment?
- Yes | No
- Read Sec 10 of SDS. Stability/reactivity/compatibility of product?
- Yes | No

### 5 - Use Evaluation

<table>
<thead>
<tr>
<th>Field</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>How will product be dispensed / used / applied</td>
<td>Pouring</td>
</tr>
<tr>
<td>Application of the product may create airborne vapors, dusts, fumes, mists, aerosols</td>
<td>Yes</td>
</tr>
<tr>
<td>Application of the product may create a splash hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Duration of use per day</td>
<td>min or hours (circle one)</td>
</tr>
<tr>
<td>Are there other chemicals in use that may increase the hazard level or not be compatible with product</td>
<td>Yes</td>
</tr>
<tr>
<td>Can the use of the product result in exposures to others during or after the use of the product</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### 6 - Use Evaluation

<table>
<thead>
<tr>
<th>Field</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where will product be used/applied</td>
<td>Indoors</td>
</tr>
<tr>
<td>If outdoors, check if near active air intake</td>
<td></td>
</tr>
<tr>
<td>If product is to be used in an interior location, describe space</td>
<td>Office</td>
</tr>
<tr>
<td>Lecture Hall</td>
<td>Lab</td>
</tr>
<tr>
<td>Copy Rm</td>
<td>Hallway</td>
</tr>
<tr>
<td>Locker Rm</td>
<td>Gym</td>
</tr>
<tr>
<td>If product is to be used in an interior location, describe exhaust ventilation</td>
<td>None present</td>
</tr>
<tr>
<td>Exhaust is not recirculated but 100% exhausted to outdoors (typical of labs)</td>
<td>Local exhaust specifically designed for exposure control (e.g. fume hood, spray booth, local point of use exhaust)</td>
</tr>
</tbody>
</table>
Hazard Communication

Safety Data Sheets & Binder Locations

- Your employees must know the location of the binders
- Binders must be up-to-date reflecting your chemical inventory with the appropriate SDS in the binder
  - Keeping it accurate throughout the year will make the annual update process much easier
- Working with your department right now in reviewing and possibly “reorganizing” inventories and binder locations.
Hazard Communication

- Questions on the Hazard Communication Program?
Polychlorinated Biphenyls (PCBs)

The University’s PCB Management Program covering buildings/structures that could be impacted by PCB contaminated products and training requirements

- Applies to (building/structures):
  - Pre-1981
  - Suspect products such as caulks, mastics/adhesives, oil based “industrial” paints and/or the building substrates that could be contaminated by such products

- Applies to (employees):
  - Any employee who as part of their job/tasks may need to “disturb” suspect products
  - Supervisors
Polychlorinated Biphenyls (PCBs)

Training Requirements

PCB Awareness training

- Provided by: EHSS
- Frequency: “one-time” at the time of hire.
- Checking your employee’s “PCB Awareness” training status
  - same EHSS website as used for Basic Haz Com

If my employee needs PCB Awareness training, how does she/he get it?

- Classroom training - EHSS training room Lyman Hall
  - Sessions typically held 1x per week
  - Sign-up online
Polychlorinated Biphenyls (PCBs)

Applicability: Your repair or work includes/impacts:

- Doors, windows and/or frames (caulk)
- Sinks/Toilets (caulk)
- Flooring such as tile, carpet, linoleum, stair treads, etc. (mastic/adhesive)
- Baseboards, chalkboards, whiteboards, mirrors (mastic/adhesive)
- Ceiling tiles (mastic/adhesive)
- Penetrations in floors, walls, ceiling (leaching concern)

If any of the work disturbs a suspect product and/or the substrate within 6” of a suspect product, think PCB Program requirements!
Polychlorinated Biphenyls (PCBs)

Work Flow / Management Strategy

- Submit a PCB “Request To Sample” (RTS) on-line
- EHSS reviews results and provides basic direction
- If result is 1 ppm or greater, PCB Program applies
  - If area will continue to be occupied, need occupational testing to ensure area is safe for continued occupancy
  - Area defined in your RTS will be abated under direction of PP-Environmental Shop
- Following abatement, occupational testing will be done before area can be reopened
- Depending on PCBs results of the original samples, Restrictions to the building substrates may apply
Polychlorinated Biphenyls (PCBs)

Work Flow / Management Strategy

- Can I back out of a project if the test results are between 1-49 ppm ?????
  - YES, but would need to perform some testing to ensure area is safe to occupy

- Can I back out of a project if the test results are 50 ppm or greater ?????
  - NO, the identified PCBs would have to be abated
Polychlorinated Biphenyls (PCBs)

The repair or work does not disturb suspect products are there other things I should consider??

- Yes - Review the SU “PCB Task Specific Assessments and PPE Assignments” chart on-line.
Polychlorinated Biphenyls (PCBs)

EHSS Web Resources:

- Syracuse University PCB Guidance Document (2011)
- SU PCB Project Flow Diagram
- SU PCB Technical Bulletin for PCB Remediation Waste (contaminated substrate)
- SU PCB Restricted Areas
Polychlorinated Biphenyls (PCBs)

- Questions on the PCB Management Program?
Asbestos

- Naturally occurring mineral mined from the earth
- Asbestos mineral is comprised of microscopic, uniquely fibers.
- Asbestos is heat, chemical and water resistant – virtually indestructible
- Used in many building materials

- Asbestos in good condition does not present a hazard
- Asbestos hazard exists when microscopic asbestos fibers become airborne and are inhaled
- Inhaled/ingested asbestos fibers can cause in health effects (asbestosis, cancer, mesothelioma)
- Most asbestos health effects are dose dependent
Asbestos

Common Types of Asbestos Containing Materials:

- Pipe insulation
- Boiler/Tank Insulation
- Floor Tile
- Ceiling Tile
- Mastics
- Glues/Adhesives
- Caulks
- Glazes
- Sprayed on Insulation
- Fireproofing
- Plaster
- Wall board
- Drywall
- Joint Compound
- Paint on concrete/cinderblock

Estimates indicate >3,000 different types of commercial products contain asbestos.
Asbestos

- State and Federal regulations to control asbestos and protect asbestos workers and building occupants
- Since 1980’s Asbestos is banned from products made in the USA. However, asbestos may still be present in materials purchased in the USA that are made in other countries.
- Law requires all suspected asbestos containing material (ACM), regardless of age, be surveyed prior to disturbance.

Asbestos-Containing Material (ACM):
- Any material containing more than 1% Asbestos
- Regulated by NYS DOL CR56, OSHA, and Federal NESHAPs
- Can only be handled by Certified Asbestos Workers

Material Containing Trace Asbestos:
- Asbestos present but <1%
- Regulated by OSHA (negative exposure assessment)
- Trace Asbestos Guidance Document on EHSS website
Asbestos

Asbestos Survey Requirements:

- All materials to be disturbed as part of the project must be identified prior to the start of the project.
- Materials suspected to ACM must be assumed ACM until proven otherwise by laboratory analysis.
- Survey must include identification and assessment of all suspect asbestos present in area(s) affected by project.
- ACM survey must be available or performed prior to any invasive work including demolition, repair, renovation or remodeling.
- Survey must be performed by NYS DOL certified asbestos inspector.
- Any activity likely to disturb ACM must be performed by NYS DOL certified Asbestos Handler in accordance with all applicable asbestos regulations.
Asbestos

Asbestos-Containing Material (ACM):
• Any material containing more than 1% Asbestos
• Regulated by NYS DOL CR56, OSHA, and Federal NESHAPs
• Can only be handled by Certified Asbestos Workers

Material Containing Trace Asbestos:
• Asbestos present but <1%
• Regulated by OSHA (negative exposure assessment)
• Trace Asbestos Guidance Document on EHSS website
## Asbestos Survey Results

<table>
<thead>
<tr>
<th>Sample Description</th>
<th>Asbestos Type</th>
<th>Percent</th>
<th>Total Asbestos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corridor 097C North Wall Paint on Cinderblock</td>
<td>Anthophyllite</td>
<td>Trace</td>
<td>Trace</td>
</tr>
<tr>
<td>Corridor 097C South Wall Paint on Cinderblock</td>
<td>Anthophyllite</td>
<td>Trace</td>
<td>Trace</td>
</tr>
<tr>
<td>Corridor 098C West Wall Paint on Concrete</td>
<td>Anthophyllite</td>
<td>1.7%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Corridor 098C West Wall Paint on Concrete</td>
<td>SAFP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incinerator Middle Door Room 005 Door Insulation</td>
<td>Amosite Chrysotile</td>
<td>17.39%</td>
<td>19.66%</td>
</tr>
<tr>
<td>Incinerator Middle Door Room 005 Door Insulation</td>
<td>SAFP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incinerator Middle Door Room 005 Door Insulation</td>
<td>SAFP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incinerator Top Access Panel Firebrick</td>
<td>NAD</td>
<td>NAD</td>
<td>NAD</td>
</tr>
<tr>
<td>Incinerator Top Access Panel Firebrick</td>
<td>NAD</td>
<td>NAD</td>
<td>NAD</td>
</tr>
<tr>
<td>Along Seam at Top of Incinerator Room 005 Incinerator Cement</td>
<td>NAD</td>
<td>NAD</td>
<td>NAD</td>
</tr>
</tbody>
</table>
Asbestos Abatement (Removal) at SU

- Abatement contractors must be approved by SU and possess a NYS Asbestos License
- Abatement work must be done by NYS DOL Certified Asbestos Handlers
- Abatement must be performed in accordance with all applicable federal and state regulations
- Abatement area must be established and labeled in accordance with NYS DOL regulations – only NYS Certified Asbestos Workers may access abatement area.
- NYS DOL/EPA Notification
- Building Occupant Notification
- Air Monitoring
- Proper Waste Disposal
NYS Asbestos Disturbance: Any activity that disrupts the matrix of ACM or PACM, or generate debris, visible emissions or airborne asbestos fibers from AM or PACM. This includes moving of friable asbestos containing material from one place to another.

Responsibility for Cleanup of Distrubed Asbestos: Per NYS DOL, if there is an disturbance of suspected ACM that is not part of a controlled asbestos project, upon discovery of the disturbance, the property owner shall be responsible for ensuring the area is isolated and cleaned up by NYS certified asbestos workers in accordance with applicable laws.

Building Owner Must:
- Isolate area
- Contact asbestos contractor for clean up
Asbestos Emergency Disturbance Response Protocol

If ACM is accidentally damaged or disturbed:

1. **STOP** all work
2. **Notify** all persons in immediate vicinity of disturbance to vacate area
3. **Identify** persons who may have been exposed or involved. Individuals potentially contaminated with debris should be detained for evaluation
4. **Restrict** access 25’ from outmost limits of disturbance
5. **Notify** Physical Plant Environmental Shop or your Supervisor
6. Shut off air moving devices to prevent spread of asbestos fibers
Asbestos

- Questions on the Asbestos Management Program?
Lead Hazards??
Lead Paint

**Regulations**

- **Residential/Child Care** *(pre-1978)*
  - Residence Hall Apartments
  - Slocum Heights (Exterior – 2\(^{nd}\) Floor Support beams)
  - Work requires EPA Certified Workers, specific work practice and compliance with EPA clearance criteria.

- **Non-Residential** *(pre-1980)*
  - OSHA driven worker protection – Keep exposure below Action Level (30ug/m\(^3\)) exposures to building occupants/SU employees.
  - compliance with University’s Lead Program

- **Waste**
  - Lead waste is regulated by EPA and DEC.
  - Must test waste materials.
Is It A Lead Project? Sample.

**Bulk Sample**
- Paint collected from surface
- Sample each component that will be disturbed
- $15-$20 a sample (1 week)
- Results in percent by weight or PPM
- Laboratory Certification Required

**XRF**
- Spectrometry with Radio-isotope source
- Non-destructive
- Reading available within 30 seconds
- EPA Certified operator required
- $100-200/hr. for operation
- Source of good information, but not accepted by OSHA as a negative assessment.
Lead Paint

Must Ensure:

- Work is performed in compliance with the University Lead Program
- Work Practice Controls are in place and appropriate for the tasks to be conducted.
- SU employees are not exposed to lead levels above the OSHA PEL of 50 ug/m³, or Action Level of 30ug/m³ for 30 days/year.
- Controls are in place to prevent lead dust/debris from contaminating SU property (computers, desks, chairs, carpet, floors, wall, etc.)
- Lead dust is contained in work area (i.e. enclosures and containment).
- SU clearance criteria is met after work-site clean-up has taken place.
- SU clearance criteria is met for any area outside the work-site if airborne dust is observed leaving the containment.
- All debris and PPE is collected. Debris and PPE must be assumed to be hazardous waste until laboratory analysis determines otherwise.
Lead Regulations

OSHA PEL

A microgram (µg) is one millionth of a gram. Imagine dividing a penny into two million pieces. The weight of one piece equals a µg.

Grind up 50 pieces and release the dust inside a box approximately 3’ by 3’ by 3’ box. This amount of dust equals the PEL of 50 µg/m³.
Medical Monitoring

Anyone who is exposed to lead above the “action level” may request a blood test.

Blood tests will be routinely done if you are exposed to lead above the “action level” for 30 or more days per year.

If the amount of lead in your blood is more than 40 ug/dl, we will send you for a medical exam.
Lead Paint

Work Practice Controls

**Level 0** - Tasks conducted with lead containing material that are not anticipated to create dust or debris

- Minimize the production of dust and debris
- Remove any dust debris created by work with HEPA vacuum
- Contents of HEPA vacuum must be treated as hazardous waste

**Level 1** - Tasks involving manual scraping/sanding of lead containing materials/coatings.

- Contain work-site with 6 mil plastic in occupied areas and remove or cover furniture in the work area as necessary.
- Limit access to work area
- Place 6 mil plastic a minimum of 6 feet horizontally in all directions from the work area

**Level 2 and 3** - Tasks involving Abrasive Blasting, Welding, Cutting, Torch burning and Uncontrolled Large Scale Demolition

- Same as Level 1 Plus:
- Post warning sign at entrance to work site
- Cover air vents in the work area
- Daily clean-up of work site
- Workers must remove PPE before leaving the work site
Lead Paint

Monitoring - Airborne Lead Dust

- The Action Level for Airborne Lead = 30ug/m3

  ✓ Monitoring Inside Containment: Airborne lead levels must be assessed inside the containment if any SU employee will be present in the containment during the lead work.

  ✓ Monitoring Outside Containment: Airborne lead levels must be assessed outside the containment if:
    - abrasive blasting of lead containing material is performed
    - uncontrolled demo of lead containing material is performed
    - torch cutting/welding of lead containing material is performed
    - ineffective containment is identified
Lead Paint

Monitoring - Surface Dust Wipe

Clearance Criteria (Non-Residential)
- Access to the area must be restricted and be re-cleaned until the following clearance criteria is reached
  - Interior Surface < 250 ug/ft²
  - Exterior Surfaces < 400 ug/ft²

Clearance Criteria (Residential/Child Care)
- Access to the area must be restricted and be re-cleaned until the following clearance criteria is reached.
  - Floors < 40 ug/ft²
  - Window Sills < 100 ug/ft²
Lead Paint

- Questions on the Lead Management Program?
Respiratory Protection

- Identify Respiratory Hazards (PELs)
- Respirator Selection (Types)
- Use and Limitations of Respirators
- Respirator Use (What is appropriate)
- Respirator Maintenance
- Medical Evaluations (Frequency)
- Fit Testing
## Respirator Assignments

<table>
<thead>
<tr>
<th>Steam Station</th>
<th>Carpenters</th>
<th>Electricians</th>
<th>Masons</th>
<th>Roofers</th>
<th>Plumbers</th>
<th>Sheetmetal</th>
<th>Machinists</th>
<th>Painters</th>
<th>Steamfitters</th>
<th>Grounds</th>
<th>Night Crew</th>
<th>Env. Shop</th>
<th>HVAC</th>
</tr>
</thead>
</table>

### Shop: 51 Plumbers

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Job-Task Description</th>
<th>Respiratory Protection</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS Plastic pipe cement-Methyl ethyl ketone</td>
<td>Adhesive for plastic pipes</td>
<td>Disp. Mask</td>
<td>None Recommended</td>
</tr>
<tr>
<td>Swim Pure-Sodium Hypochlorite (13% clorox)</td>
<td>Water treatment-pools, dump 5 gal into lg drum then dilute w/15 gal water</td>
<td>½-Face</td>
<td>None Recommended</td>
</tr>
<tr>
<td>Dyno-drain liquid drain opener-sulfuric acid</td>
<td>Drain cleaner</td>
<td>Full-Face</td>
<td>None Recommended</td>
</tr>
<tr>
<td>Plastic fumes</td>
<td>Heat Bonding of Polypropylene pipes</td>
<td>Other</td>
<td>APR with Organic Vapor / Acid Gas Cartridge</td>
</tr>
<tr>
<td>374-5 Antifreeze-ethyleneglycol</td>
<td>Antifreeze for winterizing pipes</td>
<td></td>
<td>None Recommended</td>
</tr>
<tr>
<td>Swif 95-See MSDS</td>
<td>Paste flux for soldering pipes</td>
<td>Disp. Mask</td>
<td>APR w/Dust, Mist and Fume cartridges$^1$</td>
</tr>
<tr>
<td>Nokorode Soldering Paste-inorganic salt hydrocarbon mix</td>
<td>Paste flux for soldering pipes</td>
<td>½-Face</td>
<td>None Recommended$^2$</td>
</tr>
<tr>
<td>Fumes</td>
<td>Cleaning sediment traps</td>
<td>Disp. Mask</td>
<td>APR w/Organic Vapor and Acid Gas cartridges$^3$</td>
</tr>
</tbody>
</table>
Respiratory Contaminants

How much is too Much??
- OSHA - PEL
- NIOSH - REL
- ACGIH – OEL

Warning Properties
- Odors
- Visible Dust
- Acute Health Effects

Duration (5 minutes vs 8 hours)

Ventilation

Air Monitoring!!
Types of Cartridges

**Particulate** cartridges filter out dusts, mists and fumes only.

**Chemical** cartridges trap different types of chemicals, but not dust, mists or fumes.

Cartridges are color-coded for the type of chemical or dust.

*Cartridges do not provide oxygen!!!*
Medical Evaluation

- **Industrial Medical Associates** – 926 Canal St.
- EHSS must obtain a *written* recommendation from a health care professional on whether the employee is medically able to use a respirator.

**Medical Evaluation:**

- Tobacco use
- Pulmonary or lung problems
- Cardiovascular or heart problems
- Medications
- Vision problems
- Hearing
- Back problems
- Prior chemical exposures
- Working conditions

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>&lt;35 yrs. of age</th>
<th>35-45 yrs of age</th>
<th>&gt;45 yrs. of age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Exams Required</td>
<td>every 5 yrs.</td>
<td>every 3 yrs.</td>
<td>every 1-2 yrs.</td>
</tr>
</tbody>
</table>
## Respirator - Compliance

### View Respirator Compliance Status

To view the respirator compliance status of you and your subordinates, enter the first 9 digits of your SU ID# (no dashes):

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Culligan, Michael S. (Mike)</td>
<td>Stach, Richard W.</td>
<td>Successful Respirator Fit-Test (half-face / 3M / 6200 / Medium)</td>
<td>3/11/2015 (OK - next due 3/11/2016)</td>
</tr>
<tr>
<td>Johns, Edward A</td>
<td>Culligan, Michael S. (Mike)</td>
<td>Successful Respirator Medical - --------------------------</td>
<td>NEVER COMPLETED</td>
</tr>
<tr>
<td>Kenyon, Andrew D. (Andy)</td>
<td>Culligan, Michael S. (Mike)</td>
<td>Successful Respirator Medical - No Restrictions</td>
<td>6/1/2015 (OK - next due 6/2/2017)</td>
</tr>
<tr>
<td>Kenyon, Brandon A</td>
<td>Culligan, Michael S. (Mike)</td>
<td>Successful Respirator Fit-Test (half-face / 3M / 7503 / Large)</td>
<td>3/11/2015 (OK - next due 3/11/2016)</td>
</tr>
</tbody>
</table>
Respirator - Compliance

- Questions on the Respirator Management Program?
Regulated Waste

Typical Regulated Wastes

- Fluorescent Lamps (metal halide, high pressure sodium)
- Mercury Containing Items
- Batteries
- Contaminated Concrete/Dirt
- Aerosol Cans
- Lead Paint (paint strippers)
- Paint (Latex vs. Solvent Based)
- Filters (paint and oil), rags
- Refrigerant Oil
- Transformer Oil
- Speedi-Dry (used during cleanups)
- LED Lamps
- Lighting Ballasts (PCB, Leaking PCB, Non-PCB/Electronic)
- PCBs
- Construction Debris (C&D)
- Solvents/cleaners
- Parts Washers
- Ethylene/Propylene Glycol – Dynalene
- WheelWeights
- Scrap metal/Electronic Waste
- Sink Traps
- Building Components (doors, windows, door stops, etc.)
Hazardous Waste

Hazardous Waste Determination

- The hazardous waste identification (HWID) process is the crucial first step in the hazardous waste management system.

- Correctly determining whether a waste meets the RCRA definition of hazardous waste is essential to determining how the waste must be managed.

- The **Waste Generator** is responsible for determining if a waste is a RCRA hazardous waste.

- A Hazardous Waste Determination must be made on all materials prior to disposal by the Generator **not** by the Contractor.

**Tools and references to help the Generator make this determination:**

- Generator knowledge
- Lab Analysis
- Material Safety Data Sheet (MSDS)/Product Spec Sheets
- Building Plans
- Hazardous Waste Management Manual
- EHSS Hazardous Waste Staff
Hazardous Waste

Hazardous Waste Label

Complete and affix one label per container

- Waste Generator ____________ Telephone_____________________
- PI/Supervisor__________________________________________

- Chemical Name(s) List all chemicals and the concentration or volume %. Use full chemical names, not formulas or abbreviations.

- Chemical Name % Volume

________________________________________________________

I certify that I have successfully completed the Hazardous Waste Training Course provided by the Environmental Health Office. I further certify that the above listed chemical(s) items presented for disposal are accurately described to the best of my knowledge and are labeled and packaged in accordance with the waste handling protocols established by the Environmental Health Office (EHO).

Signature: ____________________________________________ Date: ___________________________

Call S.U. EHO for Waste Pickup ext-4132
Hazardous Waste
Satellite Accumulation Areas (SAAs)

EPA regulations allow generators to accumulate hazardous waste at or near the point where it is initially generated. These accumulation points are called Satellite Accumulation Areas.

- SAAs must be under the control of the generator.
- Containers must be in good condition, compatible with the material that they are storing and labeled with the words “Hazardous Waste” and the identity of their contents.
- Containers must be kept closed except when adding waste.
- No more than 55 gallons can be stored at an SAA.
- Once the 55 gallon limit is reached the material must be moved to a Waste Accumulation Area within 3 days.
- EHSS will coordinate all disposal of hazardous waste.
- Containers must be stored in a manner to prevent spilling.
- Containers must be in a secured, locked location.
- Containers must be easily accessible for pickup.
Hazardous Waste

Physical Plant, Steam Station, FIXIT & Carrier Dome SAA Locations

<table>
<thead>
<tr>
<th>Hazardous Waste</th>
<th>Universal Waste (Lamps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st floor Schine, NH I 110 Mech Rm</td>
<td>Newhouse</td>
</tr>
<tr>
<td>Lyman Rm 006</td>
<td>CST (cage)</td>
</tr>
<tr>
<td>Archbold (mech rm)</td>
<td>Archbold (mech rm)</td>
</tr>
<tr>
<td>621 Skytop</td>
<td>621 Skytop</td>
</tr>
<tr>
<td>285 Ainsley (7 throughout bldg. update new locations)</td>
<td>Auto garage Cage</td>
</tr>
<tr>
<td>Residence Halls/Sky Barn</td>
<td>Haven</td>
</tr>
<tr>
<td>Steam Station (6 scattered throughout the bldgs.)</td>
<td>Alco</td>
</tr>
<tr>
<td>Carrier Dome (Mech Rm 018, 2 x med waste locations)</td>
<td>Mech Rm 018</td>
</tr>
</tbody>
</table>
Universal Waste

Universal Waste Management

**Universal waste**: waste materials designated as “hazardous waste” but containing common materials. Universal Waste includes:

- Batteries
- Pesticides
- Mercury containing equipment (i.e. thermostats)
- Mercury containing lamp (i.e. fluorescent lamps and compact fluorescent lamps)

Generators of University waste are required to provide for their proper disposal:

- Items must be stored in a manner to prevent spillage or breakage
- Item must be placed in a labeled container
- Container must be compatible with waste
- Container must be labeled as “Universal Waste” and the name of the waste
- Container must be labeled with the beginning date of accumulation and must be stored less than one year from beginning date of accumulation
- Must be stored in a limited access area
C&D Waste

Construction and Demolition Debris (6 NYCRR 360)

Construction and Demolition Debris (C&D): uncontaminated solid waste resulting from the construction, remodeling, repair and demolition of utilities, structures and roads; and uncontaminated land clearing. Such waste includes but is not limited to:

- Rocks
- Soil
- Land Clearing Debris
- Plaster Dry Wall
- Plumbing Fixtures
- Roof Coverings
- Glass
- Plastic
- Masonry
- Concrete
- Bricks
- Wood
- Wall Coverings
- Non-Asbestos Insulation
- Roofing Shingles
- Electrical Wiring
C&D Waste

Waste that is NOT C&D

Solid waste that is not construction and demolition debris (even if resulting from the construction, remodeling, repair and demolition of utilities, structures, roads and land clearing) includes, but is not limited to:

- Asbestos waste
- Garbage
- Corrugated container board
- Transformers
- Fluorescent lights
- Carpeting, furniture
- Appliances

- Tires
- Drums
- Electrical fixtures containing hazardous liquids such as fluorescent light ballasts or
- Containers greater than ten gallons in size, any containers having more than one inch of residue remaining on the bottom and fuel tanks
Hazardous Waste
Supervisor Responsibilities

- **Training** - Attend all appropriate training and refreshers, as deemed prudent, to maintain compliance with applicable laws and SOPs. Ensure all appropriate personnel have attended the proper trainings and require refresher training when appropriate. Ensure that training is attended in a timely fashion.

- **Waste Generation** - Ensure all regulated and suspected regulated waste directly generated is managed per all University, state and federal regulations and policies. Immediately report any improper or suspected improper regulated waste management.

- **Preliminary Waste Characterization** - Ensure all potential waste material has been evaluated and a preliminary hazardous waste determination has been made prior to beginning work. Work with EHSS and/or an approved laboratory to sample and analyze materials suspected of being hazardous waste.

- **SAA Management** – Know the location of all department SAAs. Ensure all SAAs under direct supervision are within regulations via regular inspection.

- **Cleanouts** – Perform periodic cleanouts of your area(s)

- **Waste Minimization** - Ensure waste minimization
  - Purchase to minimize, limit orders, don’t stockpile, avoid duplication, beware of shelf life
  - Source Reduction, substitute less hazardous chemicals
Hazardous Waste

Supervisor Responsibilities

Projects

• Ensure that EHSS is notified in advance of any project in which hazardous waste may be generated, for which the University may be responsible. Sampling for waste characterization, obtaining an EPA ID # arranging containers/transportation/ waste profiles may all need to be performed. This would include, but not be limited to:
  • Lead based paint (debris, dust, contaminated equipment, plastic, etc.),
  • Contaminated Debris (ductwork, flooring, pipes, lab material, etc.),
  • Contaminated Wash water (Wash water used in decontaminating University owned materials or materials or equipment contaminated with University generated waste),
  • Old or expired chemical product owned or purchased by the University for a specific project,
  • Fluorescent lamps, mercury thermostats, brass and lead pipes, and mercury from laboratory sink traps,
  • PCB materials of concern, etc.
  • Contaminated C&D Materials

• Ensure that all hazardous materials utilized by contractors are used in accordance with labels and SDS information and in a manner to minimize potential exposure to the members of the University Community.

• Ensure that all chemicals brought in, owned or purchased by the contractor are removed by the contractor prior to completion of any job. Syracuse University is not responsible for hazardous waste which is owned by a contractor and should not incur the costs associated with management and disposal of these items.
Hazardous Waste

- Questions on the Regulated Waste Management Program?
Biosafety

- Bloodborne Pathogens
- Septic Overflows
- Laboratories/Vivarium
- Mold
- Cooling Towers – Legionella
- Wild Animals - Rabies
Who Needs BBP Training?

- The Occupational Safety and Health Administration (OSHA) requires all employees who can reasonably anticipate facing contact with blood and/or other potentially infectious materials as part of their job duties, receive training.
Roles of SU Employees

- At Syracuse University, only designated, trained individuals are advised to provide First Aid, or to clean up large infectious body fluid spills.
- These specially trained individuals include:
  1. SU Ambulance
  2. Public Safety
  3. Custodial / Housekeeper Infectious Body Fluids Responder
  4. Health Center Custodians
When is Training Needed?

- **INITIAL TRAINING** must be completed at the time your are assigned to perform tasks where bloodborne pathogens exposure may occur.

- **REFRESHER TRAINING** is needed at least every year and if your job duties change to alter your exposure to bloodborne pathogens or other infectious materials.
What are Bloodborne Pathogens?

- Microscopic organisms, such as viruses, bacteria, and parasites that may be found in human blood, and Other Potentially Infectious Materials.

Malaria  Syphilis  Brucellosis
CMV      WNV      Ebola
Babesiosis  Viral Hepatitis B and C
Human Immunodeficiency Virus
HBV Vaccination

- All Bloodborne Pathogen Program Participants are offered the vaccine.
- Health Services will provide inoculation at cost and bill Departments.
- It is given as 3 doses over a six-month time period.
- Nine out of ten people who complete the series develop immunity to HBV.
Protecting against BBPs

- Vaccination
- Standard Precautions
- Personnel Protective Equipment
- Hygiene Practices
- Proper Spill Cleanup
- Post Exposure Follow-up
Personal Protective Equipment

- To protect yourself, it is essential to have a barrier between you and the potentially infectious material.

- Select the correct Personal Protective Equipment:
  - Gloves
  - Disposable Coveralls
  - Face Shields
  - Foot Coverings
Non-Acid Bowl & Bathroom Disinfectant Cleaner

Cleans, disinfects and deodorizes hard non-porous restroom surfaces.

Kills HIV-1 on Pre-Cleaned Environmental Surfaces/Objects Previously Soiled with Blood/Body fluids
Effective in health care settings or other settings where there is an expected likelihood of soiling inanimate surface/objects with blood or body fluids and in which the surfaces/objects likely to be soiled with blood or body fluids can be associated with the potential for transmission of HBV and HIV-1 (associated with AIDS).

Versatile
Daily use, non-acid product designed for toilet bowls, urinals, and other hard, non-porous bathroom surfaces.

Provides Broad Spectrum Efficacy
EPA registered cleaner/disinfector providing broad-spectrum efficacy against gram positive and gram-negative microorganisms and viruses including HBV, HIV-1, E. Coli 0167:H7, VRE, MRSA, PRSP.

Easy-to-Use
Procedures are simplified with convenient, ready-to-use flip top bottles. Formulation is also approved for trigger spray applications.

Johnson wax PROFESSIONAL
Exposures

✓ Flush and wash affected areas
✓ Report incident to Risk Management
✓ Employee should be provided Post-Exposure Exam. **Upstate Medical University** is preferred choice.
Other Biosafety Hazards...
Research Facilities
Regulated Medical Waste
Septic/Sewage Clean-Up

Sewage overflows may contain:

- Hepatitis A
- Norovirus
- Cysts
- Bacteria
Extractors and Shop Vacs

Must add disinfectant to solution tank AND recovery tank!!
General Infection Control
Bats and Rabies Response
Physical Plant’s/Housing’s Role

- Public Safety Dispatch will notify Physical Plant or housing as to the location of bat.
- Only Custodians that are aware of the hazards associated with bats and equipped with proper PPE may respond.
- If there has been an exposure, the bat must be secured and stored at Booth Hall (Room G16) until notified by Health Services.
- If there has not been reported bat contact the bat may be released outdoors in a wooded area.
Captured Bat - G16 Booth Hall
Dead Animals

- Small animal carcasses may be place in a garbage bag and outside dumpster.
- Protect yourself with gloves or by using a shovel to move animal.
- Large carcasses - NYS DOT controlled pit at the median of Rt. 481 near Rock Cut Road Exit.
- If large groups of dead animals are found, leave area and call Public Safety and EHSS immediately.
Mold

NYS Article 32

• January 1, 2016 – Any contractor engaging in mold remediation (>10sf) must be licensed by the NYS DOL.
• Sets requirements for assessments, work plans post-assessments and notifications.
• The University is exempt from maintaining a license and licensed employees.
• University Guidance developed to assist Physical Plant and Fix-It meet the Standard of Care provided in Article 32.
Mold

Syracuse University Standard of Care

• Physical Plant and Fix-It to maintain select group of employees trained in mold abatement work practices.

• Work practices include:
  ▫ Use of Respiratory protection
  ▫ Wet methods
  ▫ Poly sheeting
  ▫ Restricted work area
  ▫ HEPA vacuuming
  ▫ Full containment with negative air (>100 sf)

• All mold remediation must be documented with written assessment, work plan, and post-remediation assessment.

• Documentation of NYS DOL Licensing must be maintained for all non-SU employees retained for mold remediation.

• Requirements for assessments reports, works plans, work-site signage, post assessments reports.
Biological

- Questions on the Biological Management Programs?
Water Quality - Cooling Towers

• **Emergency Rule Making** to control Legionella outbreaks in NYS. NYS DOH requires all SU Cooling Towers to be:
  ▫ registered
  ▫ inspected
  ▫ biologically tested
  ▫ annually certified
  ▫ reported on every 90 days.

• Third party contractors provide service and testing. Results are populated into on-line database and EHSS submits data to NYS.

• **Building Supervisors** - Report emergency shut downs that last more than 5 days, disinfection system failures and seasonal shutdown and start-up to EHSS.
Water Quality - Lead

- Elevated levels of lead in domestic water discovered at service and fixtures at Daycare facilities and Chancellor’s residence.
- Lead specific filters installed adjacent to meter.
- Lead analysis of water should not be conducted without prior approval from EHSS.
Water Quality - Residual Chlorine

- Residual chlorine used as a general indicator of water quality. NYSDOH references 0.2ppm “free chlorine” as adequate to limit biological growth/contamination.

- South Campus water distribution system has difficulty achieving 0.2ppm in period of low flow (Summer). 500k Gal tank is contributing factor.

- South Campus residence units are “flushed” prior to August occupancy.
Water Quality - Breaks and Repairs

- Post “Do Not Drink Water” at all entrances, bathrooms and drinking fountains.

- SOP verifying water quality must be completed prior to releasing water for drinking following a water main break or temporary by-pass/hydrant hook-up.

- Flush the building until water is free of discoloration, odors, particulates and 0.2ppm “free chlorine” is measurable at farthest fixture.
Water Quality - Breaks and Repairs

- Questions on Water Quality Management Programs?
Laboratory Safety Considerations

• All labs have chemical SDS Binders in the lab. The binder location may also be noted on the door entrance sign

• Be aware of other hazard postings on entrance doors

Training is required to work or enter areas with this sign

Do not enter space when sign is lit or if some other form of a sign is posted on door indicating laser in use
Laboratory Safety Considerations

• This symbol communicates a potential biological hazard
• Entrance is allowed unless stated otherwise (Bowne 4th )
• No additional training unless stated otherwise (Bowne 4th )

• EHSS removes the above lab waste. Not PP Custodians
• PP Custodians do remove broken glass waste bags as regular trash
Laboratory Safety Considerations

- This sign simply communicates a potential chemical hazard(s)
- Entrance is allowed unless stated otherwise
- No additional training unless stated otherwise

- This sign simply communicates a unique condition - a hazard may not even be present
- Example Heroy Hall - clean rooms/labs
Laboratory Safety Considerations

Unique Areas Requiring Specialized Training

- 411 Link Hall - Iodine Experimentation
  - Anyone who may need to work in the lab on equipment/facility, should receive specialized training from EHSS
  - Training is focused on
    - engineering controls in place
    - alarm protocols (who can go in / who can’t)
Laboratory Safety Considerations

Anything special need to be worn/not worn while in a lab?
- No shorts or open toed shoes
- Protective eyewear in a chemical / biological use lab
- Recommend protective gloves for custodians handling trash
- Additional PPE as necessary
  - Hazard review!

Be mindful of activities.
- Example: If you need to work on interior of hood, lab should have it cleaned out. Additional PPE would be required.
- No eating/drinking. When leaving lab, remove PPE and wash hands
Laboratory Renovation Considerations

Did the previous occupant “decommission” the lab of hazards?

- SU policy for departing lab personnel. There should be a record of the decommissioning on file with the department or our office. This should be asked for before work begins. [Decommissioning to be performed by the lab/department] is specific to working surfaces

Are the fume hoods being modified/replaced?

- If so, there is a fume hood decommissioning that must be performed first - Guidance document available from EHSS

Depending on what is being done to the space, many of today’s topics may apply
Radiation use and storage areas are present in science buildings

Radioactive Materials and X-ray Producing Equipment

Outside doors are labeled to indicate hazard

Actual use/storage areas and use equipment labeled in the laboratory
Radiation Use Areas

- Be aware of the radiation hazard
- Enter when lab staff is present
- Don’t loiter
- Don’t touch radiation use areas or equipment
- Don’t handle radioactive waste containers
- No food or drink in area
- Avoid radiation disposal sinks
- Contact EHSS prior to radiation sink or fume hood repairs
- Contact EHSS regarding any unusual situation in a radiation laboratory
Laboratories

- Questions on Laboratory Topics
Tanks - Petroleum Bulk Storage (PBS)

NYS DEC’s PBS Tank Regulations (6 NYCRR Part 613) - Revised October 2015

- Specific Design standards for new tank and piping *(piping is considered new if 50% of existing piping is replaced)*
- Required secondary containment for entire tank system if within 500’ of an “environmental receptor” *(i.e. body of water, storm/floor drain, etc.)*
- Labeling
- Overfill prevention *(i.e. shutoff valves)*
- Leak monitoring
- Monthly Inspections
- Training for UST operators
- NYS DEC’s Tagging System for Major Infractions
Tanks - Petroleum Bulk Storage (PBS)

Tank Procurement: EHSS must be notified prior to procurement of a new tank or modification of an existing tank or associated piping to ensure all applicable state, federal and local requirements are met.

Tank Closure: The discovery of any previously unidentified tank must be reported to EHSS immediately. No tank may be moved from its location without consulting EHSS. Tank closures must be conducted in accordance with federal, State and local requirements.

Tank Alarms, Malfunctions, Releases, Etc.: EHSS must be advised if tank alarms occur or any leaks or problems with the tank are suspected and response actions to remediate the problem and/or alarm must be immediately taken.
Oil Spill Prevention, Control and Countermeasures (SPCC)

SPCC is an EPA Clean Water Act Regulation (40 CFR Part 112)

**Goal:** Prevent “oil” discharges from reaching navigable waters. Oil = any and all oils including petroleum, non-petroleum, food oils, etc.

Regulation applicable to facilities which have:
- “Facility” Oil storage capacity > 1320 gallons aboveground
  - Tanks, drums, transformers, elevators, etc.
- Potential to discharge to navigable water
  - Storm drains at S. Campus and Manley Complex
  - City sewer during heavy rainfalls (overflow conditions)

Applicable SPCC Facilities Must Develop SPCC Plans:
- SPCC Plan details steps taken to prevent, control and respond to oil spills.
- Plans must be stamped by a P.E.
- Plans must be updated every 5 years AND with any change in the design, construction, operation, or maintenance of the container/equipment that affects its potential for a discharge
Oil Spill Prevention, Control and Countermeasures (SPCC)

SPCC Regulation Requires Facilities:

- **Inventory**: Maintain an inventory of all oil storage containers/equipment
  - *Drums*  *Tanks*  *Transformers*  *Hydraulic Reservoirs*
  - EHSS Must be Notified of any planned addition, removal or modification of an oil storage container or oil filled equipment (including food oils)
  - Once notified, EHSS will review planned equipment and location for SPCC compliance and coordinate the SPCC Plan update.

- **Contain**: Provide 110% secondary containment tanks/drums
  - Includes temporary and contractor drums/tanks
  - diversionary structures in lieu of containment can be use for operational equipment
Oil Spill Prevention, Control and Countermeasures (SPCC)

SPCC Regulation Requires Facilities:

- **Train**: Provide training to all oil handling personnel
- **Inspect**: Perform inspections of all oil storage containers/devices
- **Respond**: Perform appropriate spill response and reporting

**Oil Spill Response Protocol**

1. Evaluate situation for ignition source or fire/explosion potential
2. Identify source of release and terminate flow if possible
3. Prevent spill from entering floor/storm drains or contacting soil
4. Contain leak or spill (use PPE if warranted)
5. Contact EHSS (DPS afterhours). EHSS must be notified of all oil spills that contact soil or water (including drains)
6. Collect contaminated debris for disposal by EHSS
Oil Spill Prevention, Control and Countermeasures (SPCC)

Notification of oil Spills to a regulatory agency is required if:

- Spill contacts soils or water
- Spill is larger than 5 gallons
- Spill can not be cleaned up within 2 hours

EHSS will make any necessary notification to regulatory agency

After normal working hours
SU Safety and DPS are trained to respond and evaluate need to contact EHSS.

The spiller is ultimately responsibility for proper clean up of the spill!
Air Emissions

EPA/NYSDEC Air Emission Regulations

(NYSDEC 6 NYCRR Part 201 was revised January 2013)

Regulations arose from EPA’s Clean Air Act and require permitting of facilities with certain emission levels and/or regulated emission sources:

**Title V Permits, State Permits, State Registrations**

- Criteria Pollution Triggers (Potential and Actual Emission Triggers)

<table>
<thead>
<tr>
<th>Criteria Pollutants</th>
<th>Threshold Value Tons/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx or SOx</td>
<td>100</td>
</tr>
<tr>
<td>VOC</td>
<td>50</td>
</tr>
<tr>
<td>HAPs</td>
<td>25</td>
</tr>
<tr>
<td>PM-10</td>
<td>100</td>
</tr>
<tr>
<td>Greenhouse Gases (mass basis)</td>
<td>100</td>
</tr>
</tbody>
</table>

- Regulated emission sources - do not meet the criteria to be exempt or trivial sources
Air Emissions

Examples of Exempt or Trivial Emission Source

- Boilers and heaters < 20 million BTU input
- Emergency generators operating < 500 hours/year
- Diesel generator < 400 hp, Gasoline generator < 50 hP
- Graphic arts facility w/ total actual emissions <3 tons per year
- Paint booths using <25 gallons/month or those which the paint is manually applied (i.e. no use of spray guns)
- Ventilation & exhaust systems from lab operations
- Laundry dryers with lint traps
- Ventilation systems for temperature & humidity control
- Ventilation systems for food preparation or cooking
- Emissions that are the result or teaching or training at educational institutions
Syracuse University Emissions

- NYSDEC agreed to allow the University to be considered 6 separate “Facilities” under the Air Permit regulations
  - South Campus
  - Ainsley Drive Facilities
  - Warehouse
  - Syracuse Stage Area
  - Center of Excellence

These 5 are:
- “Natural minors” - actual and PTE emissions below thresholds without emission control devices
- All Exempt/Trivial Sources

- Main Campus (including Steam Station)

Title V Permit due to Steam Station Emissions
Air Emissions

SU Main Campus Title V Permit Consists of 40 Permit Conditions

✓ Some conditions only apply to SUSS Boilers

Emissions of NOx from Boilers must be <0.15 lb/MMbtu

✓ Some conditions establish a general duty clause

“No person shall cause or allow air contaminants to the outdoor atmosphere of such quantity, characteristic or duration which is injurious to human, plant or animal life or to property”

“Permittee shall comply with all applicable provisions of 40 CFR Part 82, Subpart F (US EPA’s Refrigeration Regulations)”

✓ Some of the conditions require supporting documentation

“Must use diesel and fuel oil with Sulfur Content of <1.5 % and maintain documentation to certify content”

Exempt sources operated in a manner which meets exemption criteria i.e. Emergency generators operated < 500 hours
Annual Title V Permit Certification

University must certify compliance with each of the 40 permit conditions

- Submitted to NYS DEC and US EPA
- Significant penalties can be imposed for failure to submit certification in a timely manner

University Departments are required to certify compliance with each permit condition applicable to their Department

- Must list method(s) used to ensure compliance.

University must update NYS DEC annually of all changes to the emission source inventory
Air Emissions

Emission Source Inventory

EHSS maintains an inventory of all SU Emission Sources

- Currently have >1000 sources listed on the Main Campus source inventory and >500 for the other SU facilities

<table>
<thead>
<tr>
<th>Boilers</th>
<th>Fume hoods</th>
<th>Dust Collectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heaters</td>
<td>Spray booths</td>
<td>Shop areas</td>
</tr>
<tr>
<td>Hot water tanks</td>
<td>Cooling towers</td>
<td>Dryers</td>
</tr>
<tr>
<td>Generators</td>
<td>Parts washers</td>
<td>Kitchen Exhausts, etc.</td>
</tr>
</tbody>
</table>

Emission Sources at Syracuse University

<table>
<thead>
<tr>
<th>Building</th>
<th>Room</th>
<th>Classification</th>
<th>Source</th>
<th>Responsible Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility-wide</td>
<td>Facility-wide</td>
<td>architectural coating</td>
<td>Architectural Surface Coating</td>
<td>Academic Achievement, Center for</td>
</tr>
<tr>
<td>Facility-wide</td>
<td>Facility-wide</td>
<td>Chillers</td>
<td>Chillers</td>
<td>EHSS</td>
</tr>
<tr>
<td>Facility-wide</td>
<td>Facility-wide</td>
<td>generator</td>
<td>Emergency generator Portable (Unit #431)</td>
<td>Physical Plant</td>
</tr>
<tr>
<td>Facility-wide</td>
<td>Facility-wide</td>
<td>generator</td>
<td>Emergency generator Portable (Unit #466)</td>
<td>Physical Plant</td>
</tr>
<tr>
<td>Facility-wide</td>
<td>Facility-wide</td>
<td>generator</td>
<td>Emergency generator Portable (Unit #467)</td>
<td>Physical Plant</td>
</tr>
<tr>
<td>Facility-wide</td>
<td>Facility-wide</td>
<td>generator</td>
<td>Generator Portable (Unit #459)</td>
<td>Physical Plant</td>
</tr>
<tr>
<td>Facility-wide</td>
<td>Facility-wide</td>
<td>generator</td>
<td>portable generator - small exempt gasoline</td>
<td>Physical Plant</td>
</tr>
</tbody>
</table>
Air Emissions

Emission Source Inventory

- EHSS must be notified PRIOR to any change in emission source including any source addition, modification, deletion or relocation. EHSS will:
  - Review source to evaluate permit requirements and/or exempt status
  - Add source to facility’s source inventory

Link to form from EHSS Website:

http://eho.syr.edu/EHO/display.cfm?content_ID=%23%2BX%3D.%0A

- This includes permanent and temporary emission sources, even sources used on campus temporarily by a contractor (in support of SU operations)
Air Emissions
Electrical Generators

There are very strict State and Federal regulations for power generators. EHSS must review and approve all new generators prior to procurement including:

- New stationary generators (emergency or non-emergency)
- Rentals/temporary generators
- Contractor generators used on campus

Refer to EHSS Website: “Generator Use and Procurement Guidance Document” and the Generator Use Approval Form.
Air Emissions

Electrical Generators

Emergency generators shall only be operated for Emergency Purposes ("when the usual supply of power is not available") and shall not be operated for more than:

- 500 hours per year for true emergency purposes
- 50 hours per year for planned emergency situations
- 100 hours per year for testing (including 50 hrs for “planned” emergency use)

Use hours for generators must be tracked and reported to EHSS Monthly using monthly generator use tracking forms.

NYS DEC’s New Distributed Generation Regulations - Part 222
Expected Spring 2016

Applicable to all Stationary Generators >400 hP:

- Emission Limits for Non-Emergency, Stationary Generators >400 HP
- Tuning (Annual) Requirements and Tracking for All Generators
- Use Records (Time, Use and Electrical Output) Required for All Generators
- No Generator Maintenance/Testing between 1 PM and 8 PM May 1–Sept 30
- EHSS to provide guidance when regulation is finalized
Wastewater

- All discharges to County sewer system must comply with OC’s “Rules and Regulations for Use of the Public Sewer System”

- OC Wastewater Discharge Permit required for “Industrial” type discharges (i.e. Steam Station, CWP, planned Biofuels Facility)

- Atypical discharges may require special permission from the County prior to performing discharge (i.e. ice rink, pools, HVAC systems)

- Contact EHSS to review atypical discharges prior to performance
Emergency Planning and Community Right to Know

- The Federal Emergency Planning and Community Right-to-Know Act (EPCRA) requires annual filing of Tier II reports by facilities that store:
  - A hazardous substance (i.e. any substance with an SDS) on-site in a quantity >10,000 pounds; or
  - An extremely hazardous substance (EHS) above its Threshold Planning Quantity (TPQ).

*Note: Hazardous substances present in research laboratories are exempt from this requirement.*

- If a hazardous substance(s) is present at SU in a quantity meeting the above criteria, EHSS must be notified and the information included on the Tier II report. Currently EHSS includes the following on the Tier II report:
  - Fuel Oil, Diesel Fuel and Gasoline
  - Road Salt, Rock Salt and Sand
  - Hydraulic Oil and Transformer Fluids
  - Sulfuric Acid (SUSS and Acid Batteries)
  - Refrigerant from CWP
  - Mineral Oil
  - Propylene Glycol
  - Brine (calcium chloride)
  - Dynalene Heat Transfer Fluid
Pesticide Use at SU

- SU is a NYSDEC registered Pesticide Agency
- Pesticides at SU (including bee spray, “round up”, etc.) can only be applied by a licensed pesticide applicator.
- EHSS tracks all pesticide applications made at SU including applications made by an outside contractor.
- EHSS must be informed 72 hours prior to a pesticide application and be provided with an SDS and label for the product(s) to be used.
- Special requirements for lawn applications and applications within 150’ of a childcare facility – minimum 72 Hour notification to Day Care parents.

SU’s Pesticide Program Info.: information, forms, DEC link, http://eho.syr.edu/EHO/display.cfm?content_ID=%23%28%0A
### Site Management Plans

- **Center of Excellence Building**
  - Site Environmental Cap = Orange mirafi and at least 12” of cover
  - Notification to EHSS required prior to any ground intrusive activities
  - Notification to NYSDEC if Cap is penetrated

- **The Cantor Warehouse and Adj. Lot**
  - Site Environmental Cap = Asphalt pavement
  - Notification to EHSS required prior to any activity that penetrates asphalt or ground

- **Syracuse Stage Parking Lot**
  - Areas of contaminated soil from historic operations at the site
  - Notification to EHSS required prior to any ground intrusive activities
QUESTIONS?

Some scenarios
You need to remove this door in a building and install a new, wider door....

What sampling is required?

- Asbestos – caulk, block paint, fire door
- PCBs (if pre-1981 building) – caulk and adjacent block wall
- Lead paint (if pre-1980 building) - can assume

Sample results: Non-ACM, No PCBs, assumed or confirmed lead paint. Who can do the work?

- Non-residential building: Any contractor or employee following SU’s Lead Management Program
You need to remove this door and install a new, wider door....

**What do you do with the generated waste?**

Worked with SU EHSS to make a waste determination and appropriate disposal method.

Getting EHSS involved early in the process will save time and money.

**What if the sampling results were positive for ACM or PCBs?**

Work must be performed by appropriately certified and trained personnel or contractors under the direction of Physical Environmental Shop.
The carpet in the room needs to be replaced....

Do you need to do any sampling prior to removal?

Yes - asbestos and PCBs if there is carpet mastic, or tile and mastic below the carpet.

What is the sampling results were negative for PCBs but “Trace” asbestos.

Work can technically be performed by anyone as long as OSHA’s asbestos requirements are followed including:

• Asbestos Exposure Assessment specific to the work to be performed.
• Wet removal methods
• Disposal in leak tight containers

Preferred method would be to have work performed by NYS Certified Asbestos Abatement workers.
Laboratory to undergo complete renovation. What are the considerations?
Considerations before renovation can begin

Decommissioning
• Lab decommissioning by lab/department.
• Fume hood/ductwork decommissioning by contractor.
• Biological Safety cabinets decommissioning by contractor.

Other equipment
• Refrigerators/freezers evacuated of Freon.
• Sink traps/accumulated liquid collected and submitted to EHSS.
• Notify EHSS when removing a fume hood or adding additional – Need to update Emission Source Inventory.

Building contaminants
• asbestos, PCB and lead pre-renovation survey will need to be performed. Abate as necessary.
• Make sure generated waste (C&D, hazardous, etc.) has been properly disposed.
You come across a transformer that appears to be leaking.

Do you have to advise EHSS?

Yes! This is an Oil Spill.

- EHSS must notify NYS of the spill and report on the clean up performed.
- The oil may contain PCBs and must be tested prior to removal of the transformer. If confirmed PCBs additional actions will be required.
You are called to respond to a report of water flooding a classroom.

Are there any health and safety concerns to think about?

- Is it clean water, sewer water, etc.

- Is the water contaminated/impacted by chemicals. Did it originate or flow through a laboratory space.

- Have potentially hazardous building materials (i.e. asbestos or PCB containing) been disturbed or impacted. Ceilings below may not fair well.

If any potential hazards exist what should you do?

- Terminate/control the leak if safe to do so
- Contact PP Environmental Shop and/or EHSS for guidance and/or response.
A roof leak occurs in a building over night and your arrive in the morning and find this. What should you do?

- The leak has impacted building materials that may contain PCBs and ACM.

- Close off the area and contact PP Environmental Shop.

- No clean up in the area may occur until impacted materials are confirmed to be non-ACM and non-PCBs. No one should be allowed to enter the area until confirmation is received.

- If ACM or PCBs are present – clean up must be performed by PP Environmental Shop.
What if the roof leak impacts a student room?

- Fixit and Housing have protocols to follow for student relocation.
- Nothing can be removed from the room and no clean up or repair work may commence until impacted materials have been confirmed to be non-asbestos and non-PCBs.
You walk into a mechanical room and find a container of ABC Heating Fluid spilled onto the floor. What should you do?

Determine if the chemical spill is an emergency or non-emergency spill per the University’s Chemical Spill SOP

- **Emergency**: Call Public Safety 711, #SU, 443-2224
Non-Emergency

Review the SDS for the material to determine recommended PPE and any special clean up requirements.

Contact EHSS:
• For clean up guidance and/or assistance
• If the released material entered a drain or impacted the environment.
• If the released material or associated odors impact other areas of the building.
• For guidance on proper waste containerization and disposal