OSHA and Spray Foam

Creating and Maintaining a Safe Job
Pre – SPF Job

- Inspect the job site
- Understand
  - Size of job
  - Exposures
    - Internal – personal property
    - External – personal property/people pet exposure
- Provide the Customer/Contractor SPF Information
  - Safety Data Sheet for SPF Chemicals
  - Re-occupancy requirements
  - Obtain customer/contractor signatures on “Scope of Work”
Job Site Assessment - Job Plan

- Create a job plan
  - Work Zone Definition
  - Containment Zone Definition
  - Identify and remove safety hazards
    - Limited access areas
    - Working at height
    - Fall Hazards
      - Floor/Wall openings
        - Guard rails
        - Hand rails
    - PPE and Safety Equipment Required
      - Inspected and Fit for Use
Job Plan Communication

- Communicate the job plan to all assigned to the job as well as ensure the General Contractor communicates to all who could working in the vicinity of the job.
  - Safety Data Sheets
  - Copy of the job plan
**Build Safety Into the Job**

- Ensure everyone in the containment and work zones are competent in SPF application safety
  - Some available sources of training:
    - American Chemistry Council SPF training
    - Spray Polyurethane Foam Association Training and Accreditation

- Consider pre-job (3 to 5 minute) Tool Box Safety Talks
  - Review the job plan
  - Discuss specific safety hazards and controls for this specific job

- Ensure a pre-job safety hazard evaluation is conducted and do not start work until all hazards identified have a control in place to eliminate and/or reduce the risk of the hazard.
Securing the Job Site

- Using Yellow Caution Tape Establish the Containment Zone
  - Tape off the area where SPF hoses and other equipment are being utilized

- Using Red Caution Tape Establish the Work Zone
  - Tape off the area where SPF is being sprayed
    - This is the area that regardless of ventilation rate could exceed the Personal Exposure Limits for SPF in the first few minutes after spraying.

- Recommend using SPFA signage to identify SPF operations and re-occupancy time.
Several organizations follow OSHA regulations to be in compliance. These organizations fail to recognize that OSHA has done a very good job of identifying safety hazards that can have health and safety consequences. The regulations we are required to follow represent proven ways to control these safety hazards.

OSHA thought of as a risk management partner puts the relationship in a different light.
Know the Job Safety Hazards

- Identify all the hazards of the job.
- Identify Hazard Controls using:
  - Manufacturers
    - Published information
    - Consultation
- Utilize the Safety Manager’s Hierarchy of Controls
  1. Substitution or elimination of hazard cause
  2. Engineering Controls (i.e. Guarding)
  3. Administrative Controls (i.e. Job Rotation)
  4. Personal Protective Equipment – PPE (always the last line of defense)
Respiratory Requirements

- Ensure all who will be working in the containment and work zones who are required to wear a respirator have been medically qualified by a Licensed Health Care Provider (LHCP) to do so.
  - Medical Questionnaire OSHA 1910.134 append C
    - Using Medical Questionnaire the LHCP may not have enough information to determine if the worker is fit to use a respirator and may ask for more medical testing.

- After medical clearance each person required to wear a tight fitting respirator must be fit tested for each brand and type of respirator to be used.
  - Fit Test Procedure – OSHA 1910.134 Appendix A
Respiratory Equipment

- Supplied Air Respirator (SAR)
  - Air Supplied from external source (compressor, ambient air pump, tank)
  - Must be Grade D breathing air
  - OSHA 1910.134 (i)

- Air Purifying Respirator (APR)
  - Cannot be worn in oxygen deficient environments
  - Cartridges must be effective in filtering toxins in the work area - use SDS and Cartridge Manufacturer information to determine the right cartridge for the job

- “Hose to Nose”- all air lines, fittings and mask must be of the same manufacturer. From the point of manifold discharge (output side of filtration) to the mask.
Maintenance of Respiratory Equipment

- Keep Respiratory Clean
  - OSHA 1910.134 Append B.2

- Maintain a log of cartridge exposure time for APR – replace cartridges when projected life span has been reached
  - Know the source of cartridge life determination and have it documented in your company Respiratory Protection Policy

- SAR compressor systems –
  - Inspect and change contaminated filters – minimum change out per manufacturer’s recommended change schedule.
  - Calibrate Carbon Monoxide Meters per the manufacturer’s change out schedule.

- Inspect and change ambient air pump filters and worn components periodically.
Non Impervious Protection

- Documentation suggests that MDI can be absorbed through the skin being a precursor to development of chemically induced Asthma.
- Follow manufacturer’s guidance in choosing PPE that protects employees.
  - Most recommend non-impervious material tested for MDI for suits, hoods and gloves.
  - ACC has published a list of materials, that have been tested and found to comply.
Establishing Job Containment

- Know which direction the prevailing wind is blowing.
  - Place all operations with the wind to prevent exposure.
    - Operating equipment
    - Ventilation

- Using Yellow and Red tape as mentioned earlier mark off the Exterior Containment Zones that will protect all not associated with the job from exposure to SPF vapors.
Know the SPF Chemical Supplier’s Ventilation and Re-Occupancy Requirements

- Each SPF Chemical Manufacturer has published requirements addressing required ventilation rates and time before re-occupancy is allowed.
  - Know what they are
  - Communicate these expectations to your customers
  - Post the job site accordingly at all points of entry to the work zone
    - SPFA has designed as has available signs for this purpose
Ventilation

- Manufacturers require ventilation of SPF jobs.
- These requirements are specified in Air Changes per Hour (ACH).
- Example
  - Job Size 50' long x 10' high x 40' wide = 20,000 cubic feet
  - If the manufacturer specifies 30 air changes per hour – (20,000 cu. Ft. x 30 ACH) = 600,000 Cu. Ft. air moved per hour
    - 600,000 Cu. Ft. per Hr. / 60 min per Hr. = 10,000 cu ft. min
    - Helpful to convert to min. because most fans are sold in air moved per min.
SPF Job Safety Concerns

- Housekeeping – Slips/Trips/Falls

- Manage hoses and air lines – OSHA has commented that when performing Isocyanate NEP inspections they have noticed these being tripping hazards.

- Fire extinguisher on site. SPF is an exothermic reaction that generates heat.

- Eye wash full, within expiration date and eye wash capability near the worksite.
Post Job Activities

- Remove and discard all debris and properly store remaining chemical.
- Clean all tools in an environmentally safe manner.
- Remove warning tape marking containment zone.
- Ensure signs warning of SPF work and re-occupancy time are in place.
Empty Drum Management

- Where do your empty drums go?

- Are you sure they will not be used for some other purpose? Is that purpose safe? What is your liability?

- RCRA empty
  - Some interpret RCRA empty to mean having less than 1” of residue.
  - This definition applies more to hard and sludge like substances. A more useable definition of RCRA empty is “Drip Dried”.