Fire Safety & Hot Work Permits

Oakland University

Office of EH&S

Topics of Discussion

- Why do we Need a Hot Work Permit
- “Real-life” Cutting/Welding Accidents
- When is a Hot Work Permit Required
- Hot Work Precautions
- Hot Work Responsibilities
- Outside Contractors Performing Hot Work
- Notifying EH&S of Hot Work Which Could Set off CFAR Alarm
- What to do if There is a Fire

Why Do We Need a Hot Work Permit?

- **OSHA 1910 Subpart Q Welding, Cutting, Brazing**
  - **1910.252 (a)(2)(iv) *Authorization***
- **NFPA 51 B Standard for Fire Prevention in Use of Cutting and Welding Processes**
- **6% of fire are caused by cutting and welding processes**

Cutting/Welding Accidents [Excerpts from the NFPA]

- **Kaukauna, WI Warehouse**
  - **While an arc welder was being used on the 2nd floor, sparks dropped through an opening in the floor and landed on some cardboard boxes below (on the 1st floor). There was no fire watch on the 1st floor. 15 minutes passed before workers realized what had happened. Firefighters were too late to save the building. Loss: $1.6 million.**

Cutting/Welding Accidents NFPA Excerpts (cont.)…

- **Austin, TX University Library**
  - **Contractors were using an acetylene torch to remove heating ducts in an upper story utility shaft. Sparks fell through a vent onto the floor below, and ignited a stack of papers. The fire burned for more than 20 minutes before firefighters were contacted. There were no fire suppression systems on the upper stories of the building; it took firefighters 2 ½ hours to control the fire.**

Cutting/Welding Accidents NFPA Excerpts (cont.)…

- **Dearborn, MI Steel Complex**
  - **A metal drum partially filled with kerosene was being used as a workbench for torch cutting. The torch penetrated the drum and caused it to explode. Worker had burns over 75% of his body.**

When Is a Hot Work Permit Required

- **The Hot Work Permit is required for any temporary operation which involves open flames, or produces heat or sparks.**
- **This includes, but is not limited to…**
  - **Brazing**
  - **Cutting**
  - **Grinding**
  - **Soldering**
  - **Thawing pipe**
  - **Torch-applied Roofing and Welding**

Hot Work Precautions

- There are a number of precautions that must be considered before any Hot Work should begin.
- These precautions are listed on the following slides
- These precautions are also provided as a “Checklist” on OU’s Hot Work Permit

Hot Work Precautions

- **General Precautions:**
  - **Available sprinklers, hose streams and extinguishers were tagged "in service/operable" sometime in the past year**
  - **"Fire Watcher" is aware of nearest fire-pull**
  - **Hot Work equipment is in good repair**
  - **EH&S was notified of the hot work to be performed, and has deactivated any smoke/fire detectors in close proximity**

Hot Work Precautions (cont.)

- **Precautions within 35 feet of Work:**
  - **Flammable liquids, dust, lint and oily deposits have been removed.**
  - **Combustibles were removed where possible, or otherwise protected with fire-resistive tarps or metal shields.**
  - **All wall and floor openings are covered.**

Hot Work Precautions (cont.)

- **Precautions for Working on Walls or Ceilings:**
  - **Structures, their coverings, and their insulation, are all non-combustible**
  - **Any/all combustibles on the other side of the wall or ceiling have been moved at least 10 feet away**

Hot Work Precautions (cont.)

- **Precautions for Work on Enclosed Equipment:**
  - **Combustible material was moved from within enclosed equipment**
  - **Containers were purged of flammable/combustible liquids/vapors**

Hot Work Precautions (cont.)

- **“Fire Watch” Precautions**
  - **Fire-Watcher was trained in the use of fire extinguishers**
  - **Fire Watcher understands how to contact OU emergency personnel**
  - **Fire Watcher is aware of whether EH&S has deactivated nearby smoke detectors, and (if necessary) that he/she must notify EH&S once Hot Work is completed to reactivate the sensors.**
  - **Fire Watcher is committed to monitoring entire Hot Work operation, and then the area for 30 consecutive minutes thereafter**

Hot Work Responsibilities

- **Supervisor (Foremen) Responsibilities:**
  - ***Prior to Hot Work***
    - **Examine Hot Work location**
    - **(In conjunction with "Hot Worker"), complete hot work Precautions Checklist (found on permit), and verify that the associated precautions are in place**
    - **Sign in "Supervisor Verification" box**
  - ***After Hot Work***
    - **Retain white copy of permit**
    - **Send yellow copy of permit to EH&S**

Hot Work Responsibilities (cont.)

- **Hot Worker Responsibilities**
  - ***Prior to Hot Work***
    - **Examine Hot Work location**
    - **(In conjunction with Supervisor), complete hot work Precautions Checklist (found on permit), and verify that the associated precautions are in place**
    - **Ensure that Supervisor/Foreman has signed in "Supervisor Verification" box**
    - **Sign and indicate time work started in "Hot Worker Verification" box**
    - **Post Hot Work Permit at the Hot Work location.**
  - ***After Hot Work***
    - **Indicate time wk ended in "Hot Worker Verification" box**
    - **Leave Permit posted** during 30-minute Fire Watch

Hot Work Responsibilities (cont.)

- **Fire Watcher Responsibilities:**
  - ***Prior to Hot Work***
    - **Examine Hot Work location**
    - **Ensure that the Precautions Checklist is complete and verify that the associated precautions are in place**
    - **Ensure that the Supervisor/Foreman AND Hot Worker have both signed in their respective "Supervisor Verification" boxes**
    - **Sign in the "Fire Watch Verification" box**
    - **Watch the entire hot work procedure (from beginning to end) and continue to monitor the area for at least 30 minutes following completion of the hot work.**
  - ***30 Minutes after Hot Work***
    - **Verify the area to be "fire safe"**
    - **Sign in the "Fire Watch – Final Inspection" Box**

Outside Contractors

- **Outside contractors present the greatest risk when it comes to Hot Work, because they a) often work "unsupervised", b) are often under pressure to work quickly, and c) have not always received adequate hot work training.**
- **If, at any time, an OU employee observes Hot Work being performed improperly, or in the absence of a posted/completed hot work permit, he/she must contact the Office of EH&S immediately, so that the work is terminated and proper Hot Work procedures implemented.**
- **Contractors may use OU's Hot Work Permits OR their own Hot Work Permits, as long as their Permits include…**
  - **verification of the same hot work precautions; and**
  - **At least 30 minutes of "fire-watch"**

Notifying EH&S of Hot Work Which could Set off CFAR

- **VERY IMPORTANT - ANYTIME an OU employee (or an outside contractor) is preparing to perform hot work near campus smoke/fire detectors, he/she is required to contact the Office of Fire Safety (ext. 4196), so that EH&S can deactivate the CFAR (Campus Fire and Response) smoke/fire detection sensor(s) in that work area.**
- **The "Fire Watcher" is further required to notify EH&S following completion of the Hot Work to re-activate the smoke/fire detectors.**

What To Do if There's a Fire

- **Fire Watch personnel should be trained in the use of Fire Extinguishers**
- **If extinguishing fails, get far away from area**
- **Activate fire-pull**
- **Call 911 from the campus phone and remain on telephone until dispatcher terminates call**
- **Try to keep others from entering area**