

# *TerranearPMC Safety Share*

## **Week of March 26, 2012 – Hot Work**

**Hot work** is any process that has the potential of being a source of ignition. This potential becomes an even greater concern when flammable or combustible materials are present within the immediate area of such ignition sources. Common hot work processes are welding, soldering, torch cutting and brazing (this is a metal-joining process where a filler metal is heated above its melting point and distributed between two or more close-fitting parts). When flammable materials are present during such processes as grinding and drilling, they too are considered to be hot work processes.

In the United States, OSHA maintains regulations within a number of various workplace settings. This includes general industry, construction, marine terminals and shipyards. Below is a list of OSHA regulations as they pertain to hot work in these settings:

- 29 CFR 1915.14 *Hot Work*. - Occupational S&H Standards for Shipyard Employment
- 29 CFR 1915.503 *Precautions for hot work*. - Occupational S&H Standards for Shipyard Employment
- 29 CFR 1917.152 *Welding, cutting and heating (hot work)* - Occupational S&H Standard for Marine Terminals
- 29 CFR 1910.252 *Fire Prevention and Protection* – Occupational S&H Standards for General Industry
- 29 CFR 1926.352 *Fire Protection* (for welding and cutting) – Construction

In addition to OSHA regulations, there are a number of established practices that have been published by organizations that are very involved with fire protection within specific industries and are frequently cited by OSHA (as well as other organizations). These include:

- *Safe Welding, Cutting, and Hot Work Practices in the Petroleum and Petrochemical Industries* – American petroleum Institute (API) Recommended Practices (RP) 2009
- *Standard for Fire Prevention in Use of Cutting and Welding Processes*, National Fire Protection Association (NFPA), Standard 51B,1962,

A primary document used by organizations to ensure the safety of personnel during hot work operations is the Hot Work Permit. This is a record that may be used as a one-time event or can even be a standing document used over an extended period of time. Standing hot work permits must be an accepted company practice that is based on work at a specific location while performing the same process over a period of time. Such standing Hot Work Permits may be good for a week, month, or quarter, but should never last over a year. Should any of the conditions change, such as modified equipment, a different location or modified practice, then a new permit needs to be issued.

While there is not a specific regulation that mandates certain items to be listed in a hot work permit, there are a number of items that have traditionally been included. These are:

- Location of work
- Specific Operation (using welding rod, wire feed, tack welding, etc)
- Person/persons performing the specific tasks

- Fire suppression measures (fire extinguishers, building sprinkler system, water deluge system, etc)
- Fire Watch (person/persons)
- Responsibility to have flammables and combustibles at least 35 feet away from the hot work
- Pre-inspection of the area by an authorized/qualified person
- Document needs to be reviewed and approved (with signature and date) by first line supervisor and organization Safety and Health Professional
- List of the PPE to be worn by the person performing the Hot Work (eye /face protection/coveralls, gloves, head/neck, etc.)
- Special conditions (working in a confined space, use of lockout/tagout, etc)

One of the most important requirements to maintain during hot work is the presence of a *Fire Watch*.

According to OSHA, fire watch personnel are required whenever welding or cutting is performed in locations where other than a minor fire might develop, or any of the following conditions exist:

- Appreciable combustible material, in building construction or contents, closer than 35 feet (10.7 m) to the point of operation.
- Appreciable combustibles are more than 35 feet (10.7 m) away but are easily ignited by sparks.
- Wall or floor openings within a 35-foot (10.7 m) radius expose combustible material in adjacent areas including concealed spaces in walls or floors.
- Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.

It should be mentioned that while the above conditions mandate a fire watch per OSHA requirements, many companies have insisted to use a fire watch even when these conditions are not present. Just the fact that hot work is being performed is enough to trigger the use of a fire watch. Fire watchers shall have fire extinguishing equipment readily available and be trained in its use. They shall be familiar with facilities for sounding an alarm in the event of a fire. They shall watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm. A fire watch shall be maintained for at least a half hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires.

Fire watch personnel must be trained with this training documented. They need to understand their responsibility which includes maintaining their post, watching the hot work process for which they have been assigned, ensuring that the above conditions (combustibles/flammables are removed from the hot work area) are met ALL the time. Because a fire watch must maintain his/her position for a minimum period of 30 minutes after the hot work has been finished (to watch for smoldering materials as well as other potential indication of fire initiation/propagation), appropriate scheduling is important as hot work cannot commence near the end of the day or shift as the fire watch must remain past that time (overtime can be a sticky point to contend with for many projects).

Besides having qualified people assigned to the hot work task, before cutting or welding is permitted, the area needs to be inspected by the individual responsible for authorizing cutting and welding operations. He/she shall designate precautions to be followed in granting authorization to proceed which should be designated on the hot work permit.

**It wasn't raining when Noah built the ark**

Howard Ruff (American Author and Economist)