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Safety Tips for Hot Work Operations Permit in India

Overview

It is critical to have a 'Hot Work Permit' in an organisation, as according to the 'National Fire Protection Association', Hot Work is one of the leading causes of fires at industrial facilities. Hot work operations introduce potential ignition sources that require strict supervision and control to minimise hot work losses. Unsupervised hot work fire results in large property damage and business interruption every year. Hot work permit system allows work to start only after safe procedures have been defined and provides a clear record that all foreseeable hazards have been considered.

We at Liberty Videocon General Insurance value the importance of having a 'hot work permit' at your industrial facility and intend to suggest some useful measures to augment the same. We sincerely hope that the measures suggested in this document will help follow better practices when it comes to implementing a proper 'hot work permit' system.



Hot Work

Hot work is any operation involving open flames or producing heat and/or sparks, including but not limited to welding, oxygen and arc cutting, open flame soldering, brazing, hot riveting, grinding, pipe thawing, etc. Hot work in India done by unskilled labour on site is a major contributor to accidents. However, all hot work losses are preventable!

Hot Work Permit

The 'Hot Work Permit' is issued by the Fire Safety Manager and authorises hot work operations to be conducted in a specific area, on a specific date, by a specific individual or group.

Evaluation




The first step in evaluating a hot work permit is to determine if the work is truly necessary. Can the work be completed by an alternate safer technique? Can the work be moved to a designated area where a hot work permit is not required such as the maintenance shop / area?




Prior to issuing the permit for hot work operations in a non-designated area, the Fire Safety Manager is responsible for

verifying that all the following safeguards and controls are in place:

- Ensure fire protection, detection and alarm systems are in service, where provided. If the systems are not in service, postpone all hot work operations until the fire protection has been restored.
- Schedule hot work operations during planned shutdowns of hazardous operations.
- Determine the length of the period for which the hot work permit is valid, based on local conditions. Limit each permit to a maximum of 24 hours.





- Inspect the area at least once per day during the hot work project to ensure that it is a fire-safe area.
- Provide a fire watch during hot work operations to ensure safe conditions. Maintain the fire watch for a minimum of 30 minutes after the completion of the hot work operations to detect and extinguish possible smoldering fires.
- Monitor the hot work area for an additional three hours after the completion of work using production personnel, watchman, the Fire Safety Manager or other appropriate methods based on local conditions. 
- Verify that hot work equipment is in satisfactory operating condition and appropriate for the job.
- Allow only experienced, reliable individuals to operate equipment.
- Sweep up all combustible materials such as paper clippings, wood shavings or textile fibers, for a radius of 35 ft.
- Relocate combustibles at least 35 ft. horizontally from the work site or protect with metal shields or fire-retardant covers, guards or curtains. Edges of covers at the floor should be tight to prevent sparks from going under them. 
- Cover combustible floors with damp sand or protect with noncombustible materials or fire-retardant shields.
- Cover or seal openings or cracks in walls, floors, or ducts within 35 ft. of the site with fire-retardant or noncombustible material to prevent the passage of sparks to adjacent areas. 

- Prohibit hot work on pipes or other metal that is in contact with combustible walls, partitions, ceilings, roofs or other combustibles that are close enough to hot work operations to cause ignition by conduction. 
- Provide fully charged and operable fire extinguishers of the appropriate type and size in the immediate work area. 
- Ensure hose stations within the hot work area are ready for service. Hoses are permitted to remain on the reel or rack and not charged until needed.
- Cover automatic sprinklers with a wet rag when hot work is done in close proximity. Remove the rag upon completion of the hot work. 
- Take special precautions to avoid accidental operation of automatic fire detection or suppression systems (for example, special extinguishing systems or sprinklers).
- Move hot work operations to a location free from combustibles.

The key criteria for a Hot Work permit are:


- Permits should be issued for a specific task in a specific location.
- Permits should be issued to a named individual and only to that individual for carrying out the hot work.
- Permits should not be issued for more than one day or shift (8 hours).


Permit Procedures

- A hot work permit should be issued to those employees or contractor employees conducting the work only after proper precautions are taken. 
- The hot work permits should only be issued by qualified (trained) managers or supervisors at the plant.
- Fill out the date, location, purpose, work to be done by and precautions taken on the hot work permit. 

- Examine work site to ensure that all hot work precautions are taken.
- Sign and date the permit and issue to the person responsible for conducting the work.
- Check the work site periodically for changes in conditions and ensure the work is being done safely.
- Re-examine the work area upon completion of the work, prior to releasing the permit holder.
- Make follow-up visits to the work site for up to three hours after the completion of the work.
- Maintain the hot work permit on file.

Hot Work Operator Responsibilities

- Examine all equipment to ensure they are in safe operating condition. 
- Obtain approval by the Fire Safety Manager before starting hot work operations.

- Monitor work site and cease hot work operations if unsafe conditions develop and notify management, the area supervisor, or the Fire Safety Manager for reassessment of the situation. 

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Fire Watch Responsibilities

- Thoroughly understand the inherent hazards of the work site and how hot work affects them.
- Ensure that safe conditions are maintained during hot work operations.
- Stop the hot work operations if unsafe conditions develop.
- Watch for fires in all exposed areas and attempt to extinguish them only when the fires are obviously within the capacity of the equipment available.



- Maintain fire extinguishing equipment, make sure it is readily available and be trained in its use.
- Know the procedures for sounding an alarm in the event of a fire.
- Maintain the fire watch for at least 30 minutes after completion of hot work operations in order to detect and extinguish smoldering fires.
- Provide an additional fire watch for up to three hours after completion of the hot work operations where the ignition of combustibles cannot be directly observed.



Case Study

A manufacturer of health care suffered a fire loss at their plant, resulting from hot work being undertaken by their own maintenance team. Welding work was being carried out on a pipe line passing over a part of the building. An alarm was raised. People were evacuated from that place and firefighting with CO₂ type extinguishers was started. The fire spread quickly through AC ducts and cable to other areas.

Probable Cause:

Fire might have originated from falling sparks during the cutting and welding operations which were being carried out inside the block over the AC duct. The AC ducts were insulated with

thermocool and bitumen coated papers only, hence they ignited immediately due to high combustibility. The fire spread over to other areas through AC ducts and cable insulation.

Learning:

- Look for the alternate process. For example, using pipe cutters or hydraulic shears to separate materials, threaded or bolted joints may be suitable alternatives to welding.
- Never undertake any hot work where flammable atmospheres or combustibles are located nearby.
- Uses of protective equipment for example welding screens should be used to shield materials from any sparks given off by the welding process.
- During the hot work, ensure that adequate fire protection facility is accessible to fight against uncontrollable fire.



Source: <https://ohsinsider.com/wp-content/uploads/2013/09/91600538.jpg>

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