

GRAVITY

SECTION 4

CHAPTER 9

PERFORMING HOT WORK OPERATIONS

Purpose

This chapter outlines the safety regulations for hot work.

Scope

This chapter applies to all Company employees and Contractors involved in hot work operations on Company property and equipment wherever it is located. These regulations do **not** replace or supersede:

- industry standards
 - applicable governmental laws and regulations
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Restrictions on Hot Work Operations

Purpose This section describes the restrictions that apply to hot work operations.

Identifying hot work “Hot work” includes any activity that may spark a fire in potentially flammable materials or in a hazardous location. Hot work operations subject to the restrictions in this chapter, include but are not limited to, the following:

- chipping and sandblasting operations
- cutting
- grinding
- heating
- hot tapping
- opening electrical junction boxes
- soldering
- steam cleaning
- welding

These restrictions also affect the use of:

- cutting or brazing torches
 - generators, internal combustion engines and vehicles
 - hot oil or vacuum trucks
 - spark-producing power tools and electrical hand tools
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Restricted areas Hot work operations are restricted in all locations that may contain flammable materials, combustible materials or hazardous atmospheres. Areas of potential danger are routinely encountered by employees while conducting company business. These areas, which can be on company property as well as that of its customers, include but are not limited to, the following:

- production, water injection, and chemical storage facilities
- areas determined to be hazardous by any employee
- areas within the plant or facility boundaries
- areas containing:
 - dry vegetation
 - tank batteries
 - compressors
 - pipeline connections, valves, or well heads
 - portable flammable liquid storage containers



Restrictions on hot work operations

Relocate work and equipment outside of restricted areas whenever possible. If hot work operations, such as welding and cutting, cannot be conducted safely, then the hot work shall not be performed.

IF hot work must be performed within restricted areas, **THEN** supervisors must:

- ensure a hot work permit is obtained and completed
- verify that all safety requirements in this chapter and set by the hot work permit have been met including atmospheric testing
- hold a safety meeting (JSA) prior to beginning work
- verify that the crew has received the proper training and is using the required equipment
- approve the commencement of hot work operations after all preparations are complete

Avoid performing hot work on vessels, tanks, or other sealed structures whenever possible. **IF** there is no other way to accomplish the work **THEN NEVER** commence work before discussing the situation with your supervisor so that proper procedures and safeguards can be developed. Confined Space requirements must also be met when entering sealed structures. Refer to *Entering a Confined Space*-for more information.

IF hot work is to be performed on company equipment located on property of a customer, **THEN** be sure that a customer representative is aware of this plan. It may be necessary to comply with additional hot work regulations of the customer.



Preparing for Hot Work Operations

Purpose No hot work operations may begin without the supervisor's approval. Before supervisors approve hot work operations, they will fulfill the requirements set by this document for:

- hot work permits
- training
- equipment
- safety meetings (JSA)

Using hot work permits **IF** the work being done requires a hot work permit for a specific operation, **THEN:**

- complete the top portion of the permit
- complete all safety checklist preparations listed on the permit
- complete the atmospheric testing required (0% LEL is required before starting the work)
- complete the re-test section of atmospheric testing
- sign the permit
- review the requirements of the hot work permit during the pre-job safety meeting (JSA)
- post the permit (valid for 12 hours) near the job site until all work is completed

Required training The following table outlines the specific training requirements for all personnel involved in hot work operations.

Personnel	Required Training
Supervisor	<ul style="list-style-type: none">• Hot work requirements in this document• Specific operation being performed
Fire watch person	Use of fire extinguishers, familiarity with the facilities for sounding the alarm in the event of fire
Welder/Cutter	Appropriate certification, safe operation of their equipment, and training for the task to be performed. If welding or cutting has to be performed and all fire hazards cannot be removed, then guards shall be used to confine heat, sparks, slag, and to protect the immovable fire hazards.
Other personnel performing any hot	Appropriate certification and or training for the



work task	task to be performed
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Required equipment

Hot Work operations require the use or presence of the following safety equipment:

- fire extinguishers
- gas detector
- water hose (if no fire extinguisher is available) A water hose is not acceptable for electrical work!

Do **not** pressure up the fire extinguisher or break its seal unless a fire actually occurs.

Equipment defects must be reported and use discontinued until the equipment has been repaired or replaced.

Defective hot work equipment must be removed from service and not use

Required personal protection

General information regarding required personal protective equipment may be found in *Personal Protective Equipment* in this manual.

Safety meetings

Supervisors will conduct a pre-job safety meeting (JSA) to plan the job and discuss all relevant safety aspects.



Preventing Fires

Purpose

The primary hazard during hot work operations is the threat of fire. To prevent fires, crews will:

- isolate all sources of fuel or ignition
- remove combustible materials 35 ft. from intended hot work area
- designate a fire watch person
- use gas detectors during hot work operations
- observe restrictions on cutting operations

Isolating sources of ignition

Isolate all fuel and ignition sources as described in the table below.

Source	Isolation method
dry vegetation	<ul style="list-style-type: none">● soak the vegetation with water
production, water injection, and chemical storage facilities	<ul style="list-style-type: none">● check for leaks● clear the area of any spilled flammable or combustible materials● lockout/tagout all sources of energy
portable flammable storage containers or equipment	<ul style="list-style-type: none">● check for leaks● clear the area of any spilled flammable or combustible materials
valves, well heads, and pipeline connections	<ul style="list-style-type: none">● shielding or covering with a fire blanket● blind the lines● tighten valve stem packing
other equipment	<ul style="list-style-type: none">● lockout/tagout all sources of energy
If combustible materials cannot be separated from the hot work area, then guards or shields (i.e., welding curtain/blanket) must be used to separate the hot work area from the combustible material.	



Fire watch personnel

Fire watch personnel shall be required whenever welding or cutting is performed in locations where other than a minor fire might develop, or any of the following conditions exist:

- combustible or flammable material, in building construction or contents, closer than 35 feet to the point of operation
- combustibles are more than 35 feet away but are easily ignited by sparks
- wall of floor openings within a 35-foot 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, ceiling, or roofs and are likely to be ignited by conduction or radiation
- they shall watch for fires in all exposed areas, try to extinguish them only in their incipient stages, within the capacity of the equipment available, or otherwise sound the alarm
- Fire watch personnel shall remain on site in observance of the hot work area for at least 30 minutes after the hot work task has been completed

During this time, the fire watch will:

- inspect the grounds for fires
- verify that no sparks or heat have ignited fires on the property
- verify that the facility is ready to return to normal operations

IF a fire does occur, **THEN** put it out using the procedures found in *Fire Protection* in this manual.

Using gas detectors

[Delete 10%

Periodically monitor the atmosphere while performing hot work operations. Document all results. **IF** the combustible/flammable gas exceeds 0% LEL, **THEN** stop the job immediately until the cause for the increased LEL is determined and corrected.

Restricting cutting operations

Never burn the head out of a drum. Use a drum-cutting tool to open the drum with a cold cut.



Health Protection and Ventilation

Purpose To identify the procedures required and when the evolution of hazardous fumes, gases, or dust is generated in a hot work environment

Maximum allowable concentration Local exhaust or general ventilating systems shall be provided and arranged to keep the amount of toxic fumes, gases, or dust below the maximum allowable concentration. These concentrations are specified in 29 CFR 1910.1000. Refer to the MSDS of the particular material being used prior to beginning work.

Precautionary labels A number of potentially hazardous materials are contained in fluxes, coatings, coverings, and filler metals used in welding and cutting. Before the use of any materials used in welding and cutting, refer the MSDS for warnings or cautions.

Personal protective equipment In circumstances for which it is impossible to provide proper ventilation, airline, cartridge, or PAPR (Personal Air Purifying Respirator) shall be used and all will be approved for this purpose by the National Institute for Occupational Safety and Health (NIOSH) under 42 CFR part 84.

In areas immediately hazardous to life and health, a full-face piece, pressure demand, self-contained breathing apparatus or a combination full-face piece, pressure demand supplied-air respirator with an auxiliary, self-contained air supply approve by NIOSH under 42 CFR part 84 must be used.

Refer to *Respiratory Protection*-for more information

First aid First aid equipment shall be available at all times, including an OSHA certified First Aid Kit on every jobsite. All injuries shall be reported immediately. Reports shall be submitted with 24 hours.
