

## 1.1 PURPOSE

- 1.1.1 The purpose of this policy is to prevent the loss of life and property related to performing hot work activities on TERRY R PITT CONSTRUCTION or customer property. All hot work activities covered by this policy will be implemented and monitored by a TERRY R PITT CONSTRUCTION authorized hot work representative (AHWR-usually the senior employee involved in hot work).

## 1.2 RESPONSIBILITIES

### 1.2.1 AHWR

- 1.2.1.1 Assist in inspection of the work area to identify and remove fire and explosion hazards.
- 1.2.1.2 Acquire permit for hot work activity prior to hot work start-up from the customer.
- 1.2.1.3 Provide a TERRY R PITT CONSTRUCTION *Hot Work Permit* which serves to address jobsite evaluation prior to the start of work activities.
- 1.2.1.4 Coordinate all hot work activities with the safety department and operations manager.
- 1.2.1.5 Act as or designate a trained individual to serve as fire watch.
- 1.2.1.6 Monitor ongoing hot work activities to indicate changes in conditions or environment.
- 1.2.1.7 Provide for atmospheric monitoring when hot work activities are performed in confined areas or other hazardous locations.
- 1.2.1.8 Cancel hot work operations and retain the existing permit until conditions have improved or a new permit has been issued.
- 1.2.1.9 Correct improper work behavior and provide remedial training onsite when needed.
- 1.2.1.10 Maintain first aid kits and ensure that they remain stocked and available for use at all times during welding and cutting operations.
- 1.2.1.11 Ensure that hot work is performed in designated and well-ventilated areas.
- 1.2.1.12 Cutters, welders, and their supervisors must be suitably trained in the safe operation of their equipment and the safe use of the process.

- 1.2.2 A fire watch is required when welding, cutting, or soldering is performed near combustible materials and/or in locations where fire may develop. Fire watch duties include:

- 1.2.2.1 Remain available during all hot work activities where a major fire may develop due to the environment or presence of appreciable combustible materials or in building construction where flammable or combustible materials are closer than 35 feet (10.7 m) to the point of operation; where appreciable combustibles are more than 35 feet (10.7 m) away but are easily ignited by sparks; where wall or floor openings within a 35-foot (10.7 m) radius may expose combustible material in adjacent areas including concealed spaces in walls or floors; or when 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.

- 1.2.2.2 Understand the proper use of fire extinguishers and have one readily available for use during hot work activities. Assigned fire watch must be trained in the use of fire extinguisher equipment to extinguish incipient fires created by the work activity if they arise and must be familiar with sounding an alarm in the event of a fire.
- 1.2.2.3 Maintain visual monitoring of hot materials such as soldering wire, slag, or other hot or melted metals falling to the ground.
- 1.2.2.4 Assist in pre-startup inspections in order to identify and remove fire and explosion hazards from the immediate work area.
- 1.2.2.5 Prohibit unauthorized activities near and around sources of ignition and ensure that they are performed in designated areas.
- 1.2.2.6 Remain (a minimum of 30 minutes) after the conclusion of hot work activities to ensure that no fire hazard remains.

## 1.3 HAZARD IDENTIFICATION AND PREVENTION

- 1.3.1 Before cutting or welding is permitted the area will be inspected by position responsible for inspection and granting authorized welding and cutting operations. Precautions that are to be taken will be in the form of a written permit.
- 1.3.2 Employees who maintain or operate welding or cutting equipment will be familiar with 29 CFR 1910.254 and 29 CFR 1910.252(a-c).
- 1.3.3 The principal hazard associated with portable hot work equipment (soldering iron) is that of an ignition source in and around the immediate work area, as well heat generated during this activity and dropped hot soldering material. Employees may have occasion to use other portable equipment during work activities that generate friction and/or heat. Such equipment, when used in areas where flammable substances are present on decks and floors or in areas where housekeeping is improperly maintained, may create fire and ignition hazards and include grinders and sanding tools, soldering iron and related equipment, *hot coating* equipment, oxygen and acetylene cylinders improperly capped and/or stored.
- 1.3.4 If object to be welded or cut cannot readily be moved, all moveable fire hazards in the vicinity should be removed and taken to a safe place. If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards will be used to confine the heat sparks and slag and to protect the immovable fire hazards.
- 1.3.5 For the purpose of this policy, hot work is defined as any temporary maintenance, renovation, or construction by operation of a gas or electrically powered tool or equipment, which produces flames, sparks, or heat that is sufficient to start a fire or ignite combustible materials. Some examples of ignition sources include, but may not necessarily be limited to:
  - 1.3.5.1 Open flame or torch
  - 1.3.5.2 Brazing or soldering

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- 1.3.5.3 Metals being welded, cut, or coated
- 1.3.5.4 Molten slag or metal from work
- 1.3.5.5 Sparks generated from the work activity
- 1.3.6 The project manager or site supervisor will grant permit issuing authority to TERRY R PITT CONSTRUCTION's authorized hot work representative (AHWR), within the facility client property. Cutting or welding is not permitted in unauthorized areas, in sprinkled buildings while such protection is impaired, in the presence of explosive atmospheres, or areas near the storage of large quantities of exposed, readily ignitable materials. Only approved apparatus such as torches, regulators or pressure-reducing valves, acetylene generators, and manifolds will be used.
- 1.3.7 The safety department, in conjunction with TERRY R PITT CONSTRUCTION's management personnel, will provide training to the AHWR, who will have the additional responsibility of understanding the use of permits and the responsibility of the fire watch.
- 1.3.8 If welding cannot be conducted safely and requirement of welding in cutting described in this section cannot be followed, then welding and cutting will not be performed. Additionally, operators of equipment should report any equipment defect or safety hazards and discontinue use of equipment until its safety has been assured. Repairs will be made only by qualified personnel.
- 1.3.9 Workers must use proper ventilation or respiratory protection when any welding, cutting, or burning of lead-based metals, zinc, cadmium, mercury, beryllium, or exotic metals or paints is being performed. When hazardous fumes, gases, or dust from welding or cutting on material are possible in a confined space, special ventilation or respirators will be used. Local exhaust or general ventilating systems will be provided and arranged to keep the amount of toxic fumes, gases, or dusts below the maximum allowable concentration.
- 1.3.10 Wherever there are floor openings or cracks in the flooring that cannot be closed, precautions will be taken so that no readily combustible materials on the floor below will be exposed to sparks which might drop through the floor. The same precautions will be observed with regard to cracks or holes in walls, open doorways, and open or broken windows.
- 1.3.11 Personnel left in charge (AHWR) will be properly instructed. Workers in charge of oxygen or fuel gas supply equipment (including distribution piping systems and generators) must be instructed and judged competent for such work.
- 1.3.12 The frame or case of the welding machine, except engine-driven machines, must be grounded. Before starting operations, all connections to the machine will be checked.
- 1.3.13 Where practicable, all combustibles will be relocated at least 35 feet from the worksite. Where relocation is impracticable, combustibles will be protected with flameproof covers or otherwise shielded with metal or asbestos guards or curtains.

## 1.4 PERSONAL PROTECTIVE EQUIPMENT

- 1.4.1 Workers exposed to the hazards created by welding, cutting, or brazing operations will be protected by appropriate personal protective equipment.

- 1.4.2 All helpers and attendants will be provided with proper eye protection.
- 1.4.3 When conducting welding and cutting operations, appropriate eye and face protection is important to protect against flying debris, sparks, heat, and optical radiation hazards. Because the optical radiation varies with the type and characteristics of the welding operation, the shade rating must be matched to the operation.
- 1.4.4 Helmets or hand shields will be used during all arc welding or arc cutting operations.
- 1.4.5 Goggles or other suitable eye protection will be used during all gas welding or oxygen cutting operations.
- 1.4.6 Spectacles with side shields and suitable filter lenses are required during gas welding operations on light work, torch brazing, and for inspections.
- 1.4.7 Operators and attendants of resistance welding or brazing will use transparent face shields or goggles, depending on the particular job.
- 1.4.8 Helmets and hand shields will be made of material that is an insulator for heat and electricity.
- 1.4.9 Helmets, shields, and goggles will not be readily flammable and will be capable of withstanding sterilization.
- 1.4.10 Helmets and hand shields will be arranged to protect face, neck, and ears from direct radiant energy from the arc.
- 1.4.11 Helmets will be provided with filter plates designed for easy removal.
- 1.4.12 Goggles will be ventilated to prevent fogging of lens as much as possible.
- 1.4.13 Lenses will bear permanent distinctive markings that denote source and shade for easy identification and must meet ANSI standards for transmission of radiant energy.
- 1.4.14 Use leather gauntlet welders' gloves.
- 1.4.15 Wear flame-resistant pants and long-sleeved shirts or coveralls made of treated (flame resistant) heavy cotton or wool. Do not wear synthetic blend materials. Keep sleeves and collars buttoned on clothing. In some cases, leather chaps, sleeves, aprons, and/or chaps may be appropriate.
- 1.4.16 Do not tuck pants into boots, wear cuffed pants, or other garments/features (ex. shirt pockets, rolled sleeves, etc.) that provide a *trap zone* for sparks or slag.
- 1.4.17 Respiratory protection equipment or specialized ventilation may be necessary when working in areas that do not have adequate ventilation or when using toxic materials.
- 1.4.18 Protective clothing will be worn in accordance with 1910.132. The degree of protective clothing will vary with size, nature, and location of work to be performed.

## 1.5 CYLINDERS

- 1.5.1 Cylinders will be kept away from radiators and other sources of heat. Inside of buildings, cylinders will be stored in a well-protected, well-ventilated, and dry location.
- 1.5.2 Cylinders should be stored in away from elevators, stairs, or gangways. Assigned storage spaces will be located where cylinders will not be knocked over or damaged by passing or falling objects or subject to tampering by unauthorized persons.
- 1.5.3 Cylinders are not to be kept in unventilated enclosures.
- 1.5.4 Oxygen and compressed gas cylinders will be stored in an upright secured position 20 feet from any flammable gases or petroleum products.
- 1.5.5 Compressed gas cylinders will be legibly marked, for the purpose of identifying the gas content, with either the chemical or the trade name of the gas.
  - 1.5.5.1 Marking will be by means of stenciling, stamping, or labeling, and not readily removable.
  - 1.5.5.2 Whenever practical, the marking will be located on the shoulder of the cylinder.
- 1.5.6 The purpose of a regulator is to reduce cylinder pressure to a safe working pressure. An oxygen regulator is unique to oxygen. Oxygen regulators have right hand threads and regulators for acetylene and other fuel gases have left hand threads. Acetylene regulators have gauge scales marked in red starting at 15 psig, as a reminder not to exceed the safe working pressure for acetylene.
- 1.5.7 Do not use a regulator for more than one type of gas.
- 1.5.8 A regulator should be in the closed position to prevent unregulated gas flow before attaching it to a cylinder. Stand to the side of a regulator, not in front of it when opening cylinder valves.
- 1.5.9 Do not leave regulators attached to the cylinders when not in use.
- 1.5.10 Empty cylinders will have their valves closed. Valve protection caps, where cylinder is designed to accept a cap, will always be in place except when cylinders are in use or connected for use.

## 1.6 HOT WORK PERMITS

- 1.6.1 No hot work activity is performed by any employee until a hot work permit has been issued. Hot work permits are routinely issued by the client. TERRY R PITT CONSTRUCTION does have a hot work permit in the event the customer requests that TERRY R PITT CONSTRUCTION provides its own.
- 1.6.2 Hot work permits are valid only for the time period stated. Hot work permit periods may only be extended upon the approval of the customer. Canceled permits will accompany job-related documentation back to the office and must be signed off by the AHWR. Completed and canceled permits will be turned in to the operations manager for review.

- 1.6.3 Hot work permits will be reviewed by all employees involved in the hot work activity prior to job start.
- 1.6.4 Hot work permits will be Issued (when applicable) by the customer prior to and at the conclusion of the activity.
- 1.6.5 Hot work permits will remain filed for a period of not less than one year from the effective date.

## 1.7 CONFINED SPACE WELDING

- 1.7.1 Workers welding in a confined space will take precautions and follow operational procedures as outlined in 1910.252.
- 1.7.2 Confined space welding operations will have proper signs and barricades to identify the work area.
- 1.7.3 General mechanical or local exhaust ventilation will be provided whenever welding, cutting, or heating is performed in a confined space.
- 1.7.4 When sufficient ventilation cannot be obtained without blocking the means of access, employees in the confined space will be protected by airline respirators and an employee outside of the space will be assigned to maintain communication and provide assistance in an emergency.
- 1.7.5 Gas cylinders will be properly secured outside of the confined space and have shutoff valves.
- 1.7.6 Before operations are started, heavy portable equipment mounted on wheels will be securely blocked to prevent accidental movement.
- 1.7.7 Workers in a confined space will wear lifelines secured to a point outside of the confined space.
- 1.7.8 Welding electrodes will be removed from the confined space.
- 1.7.9 Where a company welder must enter a confined space through a manhole or other small opening, means shall be provided for quick removal in case of emergency. When safety belts and lifelines are used for this purpose, they shall be so attached to the welder's body that his body cannot be jammed in a small exit opening. An attendant with a preplanned rescue procedure will be stationed outside to observe the welder at all times and be capable of putting rescue operations into effect.
- 1.7.10 When arc welding is to be suspended for any substantial period of time, such as during lunch or overnight, all electrodes will be removed from the holders and the holders carefully located so that accidental contact cannot occur and the machine will be disconnected from the power source.
- 1.7.11 In order to eliminate the possibility of gas escaping through leaks of improperly closed valves, when gas welding or cutting, the torch valves will be closed and the fuel-gas and oxygen supply to the torch positively shut off at some point outside the confined area whenever the torch is not to be used for a substantial period of time, such as during lunch hour or overnight. Where practicable, the torch and hose must also be removed from the confined space.

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1.7.12 After welding operations are completed, the welder will mark the hot metal or provide some other means of warning other workers.

## 1.8 TRAINING

1.8.1 TERRY R PITT CONSTRUCTION employees performing hot work, fire watches, and supervisors are required to be trained in the safe operation of the equipment used.

1.8.2 Arc welders and cutters must be properly instructed and qualified to operate such equipment.

1.8.3 Contractors and service personnel are expected to be trained and follow all OSHA requirements, including obtaining a hot work permit if applicable to the work being conducted.

1.8.4 Training should include the hot work permit, job-specific responsibilities, respirator usage requirements, and fire extinguisher training.

1.8.5 Upon completion of hot work training, employees will be certified in writing that they have received and understand training requirements. Certification must include the employee's name, name of trainer, date of training, and subject of certification.

