

CITY OF APPLETON POLICY	TITLE: Hot Work Management Policy OSHA 1910.252	
ISSUE DATE: November 2001	LAST UPDATE: September 2008 March 2009 May 2014 July 2020	SECTION: Safety
POLICY SOURCE: Human Resources Department	AUDIENCE: Any employee who does hot work for the City	TOTAL PAGES: 6
Reviewed by Legal Services Date: October 19, 2001 September 16, 2008 June 2, 2014 April 7, 2020	Committee Approval Date: February 12, 2002 December 10, 2008 October 20, 2014 June 10, 2020	Council Approval Date: February 20, 2002 December 17, 2008 November 5, 2014 June 2020 (informationally)

I. PURPOSE:

To protect City of Appleton employees, the general public and City assets from fire, atmospheric contaminants, and other associated hazards that may occur.

II. POLICY:

The policy is written to ensure that the City is in compliance with the Occupational Safety Health Administration (OSHA) and the Department of Safety and Professional Services (DSPS). Violations of this policy will be subject to disciplinary action, up to and including discharge.

III. DISCUSSION:

The policy outlines the regulations and training requirements mandated by law and how the City will administer the policy.

IV. DEFINITIONS:

1. OSHA – Occupational Safety and Health Administration.
2. DSPS – Department of Safety and Professional Services.
3. Combustible – capable of igniting and burning easily such as paper, wood, carpeting.
4. Fire Watcher – An additional person and not the individual performing the welding.
5. Authorized Individual – Individual who is well versed and trained relating to welding practices and is responsible for signing the Hot Work Permit.
6. Shall – is interpreted to mean required.
7. Should – is interpreted to mean recommended but not required.
8. PPE – Personal Protective Equipment.
9. Designated hot work zone – An area within a City-owned or leased facility that meets the City’s hot work flammability and ventilation criteria. City designated hot work zones will be marked as such.

V. PROCEDURES:

- A. Basic Precautions for Fire Prevention

1. The object to be welded should be moved to a designated hot work zone whenever possible. While working outdoors, hot work should be moved to a safe location, clear of flammable materials whenever possible.
 2. If the object cannot be readily moved, all movable fire hazards in the vicinity shall be moved to a safe location away from slag and spark castings.
 3. If the object cannot be readily moved and all fire hazards cannot be removed, guards shall be used to confine the heat, sparks, and slag, and protect immovable fire hazards. Welding curtains and drapes should be used to screen local areas where welding or similar operations are to take place. Materials and equipment that are at risk from fire damage shall be covered.
 4. When working around guards: if there are floor openings, penetrations in walls, open doorways or access to a tunnel is present, take precautions to ensure that readily combustible materials on the floor below will not be exposed to sparks that may drop through the voids or openings. It is the welder's responsibility to take appropriate action whenever the welder feels that curtains and drapes are required as they pertain to the rules of this standard, and must ensure that "special precautions" are observed.
 5. If precautions 1-4 above cannot be satisfied, the welder shall seek a solution through the appropriate supervisor.
- B. Transporting, Moving, and Storing Compressed Gas Cylinders
1. When cylinders are transported by vehicle, they shall be secured in an upright position, unless cylinders are secured on a special truck.
 2. Regulators shall be removed and valve protection caps put in place before cylinders are moved.
 3. Oil shall not be used to lubricate protection caps.
- C. Fire watch – A fire watch is required when any of the following is observed prior to hot work:
1. Combustible or explosive material, in building construction or contents, is closer than 35 feet to the point of operation.
 2. Combustible or explosive materials are more than 35 feet away, but could easily be ignited by sparks.
 3. Wall or floor openings are within a 35-foot radius and exposed combustible material in adjacent areas including concealed spaces in walls or floors.
 4. Combustible materials are adjacent to the opposite side of metal partitions; walls, ceilings or roofs are likely to be ignited by conduction or radiation or heat.
 - Fire Watcher –The fire watcher will have fire-extinguishing equipment immediately available and shall be trained in its use. The fire watch shall be maintained for at least 30 minutes after welding operations have stopped.
- D. Hot Work Permits
1. A Hot Work Permit is required whenever an employee is inside a structure and away from a designated hot work zone. (See Exhibit I)
 2. The permit must be kept at the work site while work is being performed.
 3. The departmental Safety Coordinator or Supervisor shall maintain copies of completed permits for a period of one year.
- E. Welding or Cutting Containers
1. Used containers – No welding, cutting or other hot work shall be performed on used drums, barrels, tanks or other containers until they have been cleaned so thoroughly as to make absolutely certain that there are no flammable materials present or any substances such as greases, tars, acids, or other materials which when subjected to heat, might produce flammable or toxic vapors.

2. Venting and purging – All hollow spaces, piping, or containers shall be vented to permit the escape of air or gases before preheating, cutting or welding. Purging with inert gas (nitrogen) or filling with water to displace the gas atmosphere is recommended.

F. Protective Equipment

1. Employees shall follow the Personal Protective Equipment (PPE) policy in conjunction with following the hot work specific PPE requirements.
2. Helmets or hand shields shall be used during all arc welding/cutting operations.
3. Goggles or other suitable eye protection shall be used during all gas welding or oxygen cutting operations.
4. Spectacles with side shields and suitable filter lenses are required during gas welding operations on light work, torch brazing and for inspections. Specific shade numbers for filter spectacles are listed in the following table.

Welding Operation	Shade No.
Shielded metal-arc welding – 1/16-, 3/32-, 1/8-, 5/32-inch electrodes	10
Gas-shielded arc welding (nonferrous) – 1/16, 3/32-, 1/8-, 5/32 inch electrodes	11
Gas-shielded arc welding (ferrous) – 1/16-, 3/32-, 1/8, 5/32 inch electrodes	12
Shielded metal-arc welding: 3/16-, 7/32-, 1/4-inch electrodes, 5/16-, 3/8 inch electrodes.	12 14
Atomic hydrogen welding	10-14
Carbon arc welding	14
Torch brazing	3 or 4
Light cutting, up to 1 inch	3 or 4
Medium cutting, 1 inch to 6 inches	4 or 5
Heavy cutting, 6 inches and over	5 or 6
Gas Welding (light) up to 1/8 inch	4 or 5
Gas Welding (medium) 1/8 inch to 1/2 inch	5 or 6
Gas Welding (heavy) 1/2 inch and over	6 or 8

NOTE: In gas welding or oxygen cutting where the torch produces a high yellow light, it is desirable to use a filter or lens that absorbs the yellow or sodium line in the visible light of the operation.

5. Specifications for face and eye protection:

- Helmets and hand shields shall be made of material which is an insulator for heat and electricity.
- Helmets, shields and goggles shall not be readily flammable.
- Helmets and hand shields shall be arranged to protect face, neck and ears from direct radiant energy from the arc.
- Helmets shall be provided with filter plates designed for easy removal. Parts shall be constructed of material, which will not readily corrode or discolor the skin.
- Goggles shall be ventilated to prevent fogging of lens as much as possible.
- All glass lenses shall be tempered and free from flaws. The front and rear surfaces of lenses shall be smooth and parallel, except prescription lenses for optical correction. Lenses shall bear permanent distinctive markings, which denote source and shade for easy identification.

- All filter lenses and plates must meet the test for transmission of radiant energy set forth in ANSI Z87.1 – 1968, American National Standard Practice for Occupational & Educational Eye and Face Protection.
6. Special protection for arc welding rays shall be used. Where the work permits, the welder should be enclosed in a welding booth constructed of non-combustible, non-reflective material. All booths shall allow for either natural or mechanical ventilation to protect against the build-up of hazardous atmospheres.
 7. Protective clothing shall be worn in accordance with 29 CFR 1910.132. The degree of protective clothing will vary with size, nature and location of work to be performed. It is recommended that shirts and pants be made of materials other than man-made fabrics such as rayon, polyester, and nylon. Pants and shirtsleeves should not have cuffs, and bare skin should be avoided to preclude radiation burns. Additionally, low quarter shoes are susceptible to collection of hot slag during welding operations.
 8. Additional details on personal protective equipment can be found in the Personal Protective Equipment Policy.

G. Confined spaces

1. When performing welding or cutting in any confined space:
 - a. Ventilation is a prerequisite to work in any confined space.
 - b. Gas cylinders and welding machines shall be left outside.
 - c. Heavy portable equipment that is mounted on wheels shall be securely blocked.
 - d. An attendant shall be stationed outside to observe the welder at all times. The individual must be confined space entry, attendant, trained.
 - e. When arc welding is suspended for any substantial length of time, all electrodes shall be removed from the holders. The holders are to be located so that accidental contact cannot occur. The machine shall be disconnected from the power source.
 - f. To prevent accidental gas leakage, torch valves shall be closed and the fuel-gas and oxygen supply to the torch shut off outside the confined area whenever the torch is not to be used for a substantial period of time. Where practical, the torch and hose shall also be removed from the confined space.
2. All entries into confined spaces for any purpose, including welding and cutting, must be in compliance with the City of Appleton's Confined Space Entry Policy.

H. Ventilation

1. Requirements when mechanical ventilation is required:
 - a. The space is less than 10,000 cubic feet per welder.
 - b. The ceiling height in structures such as rooms, hallways, tunnels, etc. is less than sixteen feet.
 - c. Confined spaces or where welding space contains partitions or other structural barriers that may obstruct cross ventilation.
 - d. Mechanical ventilation is at a minimum rate of 2,000 cubic feet per minute per welder, except where local exhaust hoods, booths, or airline respirators are provided. Natural ventilation is considered sufficient for welding or cutting where restrictions 1a, 1b, and 1c are not present.

I. Designated hot work zones

The following are designated hot work zones

- Maintenance Shop at Water Treatment Facility
- Golf Maintenance Shop
- Parks Recreation and Facilities Management Maintenance Shop
- Police Maintenance Shop

- Fire Station 1 Maintenance Shop
- Municipal Services Building Maintenance Shop
- Waste Water Maintenance Shop
- Valley Transit Welding Booth
- Valley Transit Mechanic Shop

VI. RESPONSIBILITIES:

A. Employee Responsibilities

1. Employee shall follow all rules as outlined in this policy.
2. Employee shall follow all rules related to the City's Confined Space Policy.
3. Employee shall follow all rules related to the City's Respirator Policy.
4. Employee shall follow all rules related to wearing proper PPE.
5. Employee shall attend annual training provided by the department.

B. Authorized Individual Responsibilities

1. Responsible for the safe handling of cutting or welding equipment and the safe use of this equipment during the hot work process.
2. Determines the combustible materials and hazardous areas present or likely to be present in the work location.
3. Ensures combustible materials are protected from ignition by having the work moved to a designated hot work zone or a location free from dangerous combustibles. If the work cannot be moved, he/she will have the combustibles moved to a safe distance from the work or have the combustibles properly shielded against ignition.
4. Ascertains that the cutter or welder have followed all precautions and has determined that conditions are safe before proceeding.
5. If fire watchers are required, sees that they are present at the site and trained/equipped with proper extinguishers.

C. Supervisor Responsibilities

1. Verifies that hot work permits are completed as required and that copies are maintained in the proper location.
2. Ensures that workers are qualified to perform the proposed hot work.
3. Ensures that training is conducted annually by the department safety coordinator or other competent individual. The class will be documented and the sign in sheet sent to the Human Resource Department.

Hot Work Permit

This permit is to be used for any indoor and outdoor temporary operations away from a designated hot work area.

Date:	Time Issued:	Permit Expires: AM/PM
Name of Person Authorizing Hot Work Permit:		
Company/Contractor Name Performing Hot Work (if applicable):		
Person(s) Performing Hot Work:		
Location of Hot Work:		
Description of Work Being Performed:		

Required Precautions Checklist (Completed by Person Performing Hot Work)						
1. Sprinklers and fire extinguishers are in serviceable / operable condition.	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A
2. Smoke detectors operable on the premises.	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A
3. For fire systems/smoke detectors that may be affected by the hot work operation, fire system has been placed in test or fire detectors temporarily deactivated.	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A
4. Hot work equipment in proper working condition?	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A
5. Flammables/combustibles within 35 feet of the hot work area have been identified.	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A
6. Identified flammables/combustibles in the hot work area have been removed or covered.	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A
7. Floor and wall openings have been covered where needed.	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A
8. Floors are swept clean within the hot work area.	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A
9. If work is being done in a confined space; confined space permit has been completed as needed. See CS policy.	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A
10. Ventilation in place that adequately removes smoke, vapor and dusts from the work zone.	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A
11. Any ducts and conveyors shut down and/or shielded to prevent the transport of sparks to distant combustibles.	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A
12. Required lockout/tagout procedures completed as needed.	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A
13. Containers purged of flammable liquids and tested for flammable vapors (if hot work will be performed on/in them). List the initial atmospheric reading here:	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A
14. Fire watch [equipped with proper fire extinguisher(s)] provided for adjacent spaces and equipment (next to, below, and above as needed) for 30 minutes after hot work activity has stopped.	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A

<i>Signature of Person Authorizing Hot Work Permit</i>	<i>Date Signed</i>
--	--------------------