



ALABAMA MUNICIPAL INSURANCE CORPORATION MUNICIPAL WORKERS COMPENSATION FUND, INC.



Loss Control Division

WELDING AND CUTTING SAFETY

Date: _____ Time: _____ Department: _____ Person Conducting: _____

Meeting Objective: To provide a basic review of the hazards associated with welding and cutting, and discuss rules and procedures that will reduce the potential for worker injury.

Welding and cutting are serious tasks with many associated hazards. Special care, skill, and knowledge must be used by anyone performing welding or cutting jobs. Some of the hazards associated with welding and cutting are; electrical shocks, hot sparks, contaminated air, arc radiation, fire, and explosion. The Bureau of Labor Statistics (1996) reported that during 1994 30,500 welders and cutters suffered injuries related to their work. Are you doomed to be injured if you are a welder? The job can be safe if you take the proper precautions and follow safe work practices. The following is some basic information that you should already know, but need to always keep in mind when you are welding and cutting:

To reduce the potential for electric shock when welding, you should always remember the following:

1. Always use a ground wire from the machine frame to a suitable ground.
2. Be certain all electrical connections are tight
3. Never open a welding machine cabinet when the machine is operating.
4. Never change electrodes with bare hands, wet gloves, or when standing on wet or grounded surfaces.
5. Inspect the power and ground cables for signs of fraying, excessive wear, or damage. Always replace cables when necessary.
6. Keep welding cables dry and free of grease and oil to prevent breakdown of the insulation.
7. Take special care to keep welding cables away from power supply cables.
8. Never loop welding cables around your body.
9. Keep the welding power supply dry.
10. Keep the power cable, ground cable, and torch dry.
11. Make sure the ground clamp is securely attached to the power supply and work piece.

The primary danger for oxygen-fuel gas welding operations stems from welding with compressed gas cylinders. To reduce the potential for being injured while using gas cylinders, you should remember the following:

1. Store all cylinders in a vertical position and secure cylinders with a safety chain, cables, or strap.
2. Oxygen cylinders should not be stored within 20 feet of highly combustible materials or cylinders containing flammable gases. If closer than 20 feet, cylinders should be separated by a fire-resistive partition at least 5 feet high with a fire-resistance rating of at least 30 minutes.
3. Identify a gas and its dangers before you use it. You can find this information on labels, MSDSs and cylinder markings. If you do not know what is in a cylinder, do not use it.
4. Do not store or move a cylinder without the protective cap in place. Move cylinders using a cart with the protective chain securely fastened.
5. Make sure valves, hoses, connectors, and regulators are in good condition. Do not use cylinders without

them or if they are not in good working order.

- 6. Never tamper with a leaky valve. The cylinder should be returned to the supplier.
- 7. Never open valves until regulators are drained of gas and pressure-adjusting devices are released. When opening cylinders, point outlets away from people and sources of ignition, such as sparks or flames. Open valves slowly. On valves without hand wheels, use only supplier-recommended wrenches. On valves with hand wheels, never use wrenches. Never hammer a hand wheel to open or close a valve.
- 8. Never put a torch down until the gases have been completely shut off. If the flame has not been completely extinguished or if a leaking torch ignites, it may heat or even burn a hole through the cylinder.

The following information regarding fire safety is important and should be kept in mind when welding:

- 1. Keep the welding area clean. Be especially careful to keep combustibles out of the welding area.
- 2. Always maintain proper ventilation in the welding area.
- 3. Never use oxygen in place of compressed air.
- 4. Always know where the closest fire extinguisher is located.

It is important for welders to wear flame-retardant clothing and protective equipment for the eyes, ears, head, and lungs. Necessary protective gear may include the following, depending on the job:

- 1. Aprons - flame resistant (leather or other material that protects against radiated heat and sparks).
- 2. Leggings - high boots or similar protection when doing heavy work.
- 3. Safety shoes - ankle length (low cut shoes may catch slag).
- 4. Protection during overhead work - shoulder cape or cover, skull cap made of leather or other protective material, other flame resistant cap worn under helmet.
- 5. Ear protection - ear plugs, and, on very noisy jobs like when using high velocity plasma torches, ear muffs.
- 6. Head protection - safety helmet or other head gear to protect against sharp or falling objects.
- 7. Eye protection - Operators, welders, or helpers should always wear goggles, a helmet, and shield to provide maximum protection for the particular welding or cutting process used. All filter lenses and plates must meet the test for transmission of radiant energy prescribed in ANSI Standard 287.1, *Practice for Occupational and Educational eye and Face Protection*.

At this time, discuss the types of welding used in your workplace and your procedures for dealing with compressed gas cylinders. Ask employees to discuss any welding or cutting accidents that they know of. Decide what could have been done to prevent these accidents from occurring.

SIGNATURES OF ALL THOSE IN ATTENDANCE
