

CENTRAL ARIZONA PROJECT



CAP

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PERSONAL PROTECTIVE EQUIPMENT PROGRAM

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TABLE OF CONTENTS

1.0 Purpose.....	1
2.0 Scope	1
3.0 Roles and Responsibilities	1
4.0 Selection and Approval.....	1
4.1 Hazard Assessment	1
4.2 Minimum Standards	2
4.3 Approval.....	2
4.4 Employee Owned Equipment	2
5.0 Use, Care and Maintenance of PPE	2
6.0 Requirements for Specific Types of PPE.....	3
6.1 Hearing protection	3
6.2 Protective chaps.....	3
6.3 Gloves.....	3
6.4 Hard hats.....	4
6.5 Eye and face protection	5
6.6 Protective footwear	6
6.7 Face shields	6
6.8 Respiratory protection.....	6
6.9 Protective vests.....	6
6.10 Electrical protective equipment	7
6.11 Minimum apparel	7
7.0 Training.....	7
8.0 Outside Contractors	8
APPENDIX "A" - FILTER LENS TABLE.....	9

1.0 PURPOSE

This program provides general guidance for the proper selection, use and care of personal protective equipment (PPE), as well as information on employee training. Its purpose is to ensure appropriate use of PPE throughout CAP facilities in order to prevent employee injury and illness.

2.0 SCOPE

This policy applies to all CAP employees and all work operations. Contractors working on CAP property are also expected to adhere to these requirements.

PPE includes but is not limited to protective equipment for the eyes, face, head, and extremities including protective clothing, respiratory devices, and protective shields and barriers.

3.0 ROLES AND RESPONSIBILITIES

Employees: Employees are responsible for following applicable program requirements and communicating with their supervisor when there are safety issues not specifically addressed by the hazard assessment. They are also responsible for wearing appropriate PPE when required and for maintaining that equipment in a clean and useable condition.

Supervisors and Managers: Supervisors and managers are responsible for ensuring employees have the PPE required to perform their jobs safely. They also ensure employees have the training to use the PPE appropriately.

EH&S Department: The Environmental, Health and Safety Department is responsible for reviewing the various OSHA and other PPE requirements, conducting hazard assessments to determine what PPE is necessary for a given task, and approving the various items of PPE that will be made available for employee use. Where necessary, the department can help support supervisors and managers in training employees.

4.0 SELECTION AND APPROVAL

In the control of occupational hazards, PPE devices alone should not be relied upon to provide protection, but should be used in conjunction with guards, engineering controls, and sound work practices. PPE is always considered the last resort.

4.1 Hazard Assessment: To ensure appropriate PPE is selected, a hazard assessment of the work area or of the specific job task must be performed. That assessment will identify the various potential exposures. The following should be taken into consideration:

- Motion such as machines or processes where movement may exist that could result in an impact between personnel and equipment.
- High temperatures that could result in burns, eye injuries or fire.
- Chemicals.
- Electrical exposures.
- Harmful dusts and other airborne contaminants.
- Light radiation, such as welding, brazing, cutting, furnaces, heat treating, high intensity lights, etc.
- The potential for falling or dropping objects.
- Sharp objects that could poke, cut, stab or puncture.
- Biologic hazards such as blood or other potentially infectious materials.

For most work performed at CAP, a hazard assessment has already been performed and required PPE can be found within the PM procedure or the JHA for the job. For some jobs, a pre-job briefing is required and any necessary PPE should be reviewed and discussed as a part of that briefing.

Where a PM or JHA is not already provided, or a pre-job briefing not required, the work should be reviewed and potential exposures requiring PPE should be identified.

4.2 Minimum PPE Standards: All PPE must meet the various requirements of OSHA, ANSI and any other applicable standards.

4.3 Approval: CAP has a large number of approved PPE items available in warehouse stock, or available through special order. A list of those items can be found [here](#). There may be times, however, when a different or specialized piece of protective equipment is needed. The EH&S Manager or his/her designee must approve the purchase and use of any new PPE.

4.4 Employee-owned PPE: CAP does not require or recommend the use of employee-owned PPE. However, if an employee wishes to use his/her own PPE, approval must first be obtained from the supervisor, manager and the EH&S manager.

5.0 USE, CARE, and MAINTENANCE of PPE:

5.1 For PPE to be effective, it must fit properly. Most PPE is generally available in a variety of sizes and care should be taken to ensure the right size is selected. Adjustments should be made on an individual basis for a comfortable fit that will maintain the protective device in the proper position. Employees must not alter

or used altered PPE. When manufacturer instructions are available, they should be followed carefully.

- 5.2 Each employee shall inspect, clean, and maintain PPE at regular intervals to ensure that the PPE provides the required protection. Defective or damaged PPE shall not be used and must be replaced.
- 5.3 Contaminated PPE which cannot be decontaminated must be disposed of in a manner that protects employees from exposure to hazards. If needed, contact the Environmental Department for assistance.

6.0 REQUIREMENTS for SPECIFIC TYPES of PPE

The following sections provide information and guidance on specific types of personal protective equipment. It is not an all-inclusive list, nor is it meant to specify all factors that should be considered with respect to the types of PPE listed. Questions not addressed here should be directed to your supervisor or the EH&S department.

- 6.1 **Hearing Protection:** Hearing protection is required in areas where posted or when operating equipment that is designated as requiring hearing protection. Additional information on hearing protection can be found in CAP's Hearing Conservation Program.
- 6.2 **Protective Chaps:** Employees who operate chain saws and other similar power tools must wear protective chaps that meet current U.S. Forest Service requirements.
- 6.3 **Gloves:** Selection of appropriate hand protection is based on an evaluation of the performance characteristics of the PPE relative to the task(s) to be performed, conditions present, duration of use, and the hazards or potential hazards identified. In general, hand protection should be used when hands are exposed to:
 - skin absorption of harmful substances.
 - cuts, lacerations or abrasions
 - punctures
 - thermal burns
 - temperature extremes

Employees who use gloves for protection against chemical hazards must be made aware of appropriate storage and replacement requirements. See the EH&S dept. for additional information.

6.4 Hard Hats: All employees who have potential exposure to head injury as a result of their assigned work or working environment will be issued a company-approved hard hat meeting the requirements of ANSI Z89.1. Where an employee must perform rope access work, or work inside of a siphon, a climbing helmet meeting ANSI Z89.1 requirements is an appropriate substitute.

6.4.1 Except as noted below, hard hats are required to be worn at all times and in all areas in and around pumping plants. This includes switchyards, intake decks, outlet works, and other equipment associated with the plant. All visitors are required to comply.

Exceptions: Hard hats are not required in the following areas at pumping plants:

- Offices, control rooms, bathrooms, break areas, and designated walkways between these areas.
- At the start or end of the work shift as long as there is no work activity occurring.
- When the supervisor has determined that wearing a hard hat inhibits the performance of the task.

6.4.2 In addition to pumping plants, employees must wear a hard hat in any location where there is a potential exposure to overhead hazards or a danger of flying or falling objects.

6.4.3 Baseball or similar type caps must not be worn under hard hats. Only headwear that does not interfere with fit and function of the hard hat can be worn. (Example: Smooth welding caps or soft skull caps free of buttons, bills and protruding seams.)

6.4.4 Altering hard hats or hardhat suspensions is prohibited.

6.4.5 Wearing hard hats backwards is not recommended but is permitted provided the suspension is worn in the manner approved by the manufacturer. The adjusting mechanism for the suspension must not be worn to the front.

6.4.6 Bump caps do not offer protection against falling objects and therefore are not permitted as a substitute for hard hats.

6.4.7 Regardless of the location, all employees must have their hard hat on site and readily available at all times. An employee who has not been issued a hard hat, but who visits a pumping plant or other location where a hard hat may be required, should obtain one prior to the visit (see Material

Control & Distribution) or check with the location supervisor for a visitor's hard hat.

6.4.8 Employees must wear protective helmets designed to reduce electrical shock hazard when near exposed electrical conductors that could contact the head.

6.5 Eye and Face Protection: Employees must use eye and/or face protection meeting the requirements of ANSI Z-87.1 when exposed to hazards from:

- Flying particles
- Molten metal
- Accumulated dusts
- Liquid chemicals
- Acid or caustic liquids
- Chemical gases or vapors
- Potential injurious light radiation

6.5.1 Employees must wear sufficient protective eyewear (i.e. foam lined safety glasses, glasses with side shields, goggles) when working in areas where wind, dust, and other foreign matter may constitute a hazard or where chemicals may cause a splash, mist or vapor hazard.

6.5.2 Employees must not wear dark lenses in conditions of normal indoor lighting, or insufficient outdoor lighting except when warranted by an operation requiring darkened lenses (i.e., welding).

6.5.3 Electricians, Electrical Technicians, Relay Technicians, and Electrical Engineers including Electrical Maintenance Engineers may not wear wire (conductive) metal glass frames when within a touch boundary (NFPA 70E). However, non-conductive glasses or goggles may be worn over prescription wire frames.

6.5.4 Employees working in an environment requiring protection from light radiation must use equipment with filtered lenses that have a shade number appropriate for the work being performed. Appendix C provides a listing of appropriate shade numbers for various operations.

6.5.5 Employees who wear prescription lenses while engaged in operations that involve eye hazards must wear eye protection that:

1. Incorporates the prescription in its design, or

2. Can be worn over prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.

CAP provides up to \$125 towards the purchase of prescription safety eyewear. Information on this benefit can be found [here](#).

6.6 Protective Footwear: Employees must wear protective footwear meeting the requirements of ASTM F2412 and 2413 (formerly ANSI Z-41) when working in areas where there is a danger of foot injuries due to falling or rolling objects, objects piercing the sole, or exposure to electrical hazards. This includes all employees working in CAP facilities such as pumping plants, check structures, vehicle maintenance shops, machine shops, the weld shop and out along the canal.

6.6.1 For employees that routinely travel to the field or work on the canal in areas of uneven terrain the footwear must be of a boot style that provides ankle support and has a rugged tread on the sole.

6.6.2 For employees whose work includes potential electrical exposures, electrical hazard-rated boots and shoes are required to protect them from accidental contact with electrically energized objects containing circuits of 600 volts or less under dry conditions. These shoes are secondary protection on surfaces that are substantially insulated.

6.6.3 CAWCD provides up to \$200.00 dollars towards the purchase of approved safety footwear. Information on this benefit can be found [here](#).

6.7 Face Shields: ANSI Z-87.1 approved face shields must be used during operations that create a hazard to the face.

6.8 Respiratory Protection: Appropriate respiratory protection is required in areas with airborne contaminants where engineering and/or administrative controls are not feasible, are insufficient to reduce contaminants to a safe level, or are being designed but are not functional. Refer to CAP's Respiratory Protection Program for more information.

6.9 Protective Vests: Employees working on or adjacent to public roadways, on CAP roadways and property within 100 feet of operating mobile equipment must wear a bright orange/green T-shirt or a reflective vest that complies with the ANSI/SEA 107 Standard.

Vests will need to be maintained in a manner that ensures that the quality of the retro reflective trim and brightness of the vest is achieved to enhance visibility.

Reflective clothing that outlines the chest, arms, and legs is most effective for drivers and operators to recognize and respond quickly to a human figure.

- 6.10 Electrical Protective Equipment:** Employees working in areas where there are potential electrical hazards must use electrical protective equipment that protects the specific parts of the body to be exposed by the work being performed. For further explanations and requirements refer to the CAP Electrical Safety Program.
- 6.11 Minimum Apparel:** All employees who work outdoors must wear, as minimum protection, pants long enough to protect from environmental and physical hazards, and sleeved shirts with a minimum 4-inch sleeve. Cutoffs, tank tops, or modified shirts are not acceptable. Apparel must protect where irritants or toxic substances may come into contact with skin or clothing. CAP personnel may wear shorts if their job description is associated with Protective Services.

7.0 TRAINING

Employees who use personal protective equipment must receive training in at least the following topics:

- When PPE is necessary for their job duties.
 - What PPE is necessary.
 - How to properly don, doff, adjust, and wear PPE.
 - The limitations of the PPE.
 - The proper care, maintenance, useful life, and disposal of the PPE.
- 7.1 All employees who must wear PPE receive basic information and training on CAP's Personal Protective Equipment program during their New Employee Orientation. This training includes an overview of basic PPE (i.e., hard hats, eye protection, hearing protection) and how to properly wear and care for that equipment.
- 7.2 Where necessary, supervisors and managers are responsible for ensuring employees receive more detailed PPE training. This may include training on equipment used for chemical exposures, fall protection equipment, etc. If needed, the EH&S department can assist with that training.
- 7.3 Employees who have already been trained must be retrained if:
- Changes in the work assignment occur that require the use of different PPE.
 - Changes in the work place occur which require additional or different PPE.
 - New PPE is required by statute and/or company rules.

- Observation of the trained employee indicates a lack of knowledge regarding the proper use, care, and maintenance of the PPE.

7.4 The certification of employee training and retraining is accomplished by completing a Training Retention Sheet (#250/9-98). The sheet is forwarded to the Centralized Learning and Development department for entry and record retention.

8.0 OUTSIDE CONTRACTORS

Contractors engaged in work for CAP or on CAP property must comply with the requirements of this program.

APPENDIX "A"- FILTER LENS TABLE

Filter Lenses for Protection Against Radiant Energy

Operations	Electrode 1/32 In.	Arc Current	Minimum* Protection Shade
Shielded metal arc welding	Less than 3.....	Less than 60.....	7
	3-5.....	60-160.....	8
	5-8.....	160-250.....	10
	More than 8.....	250-550.....	11
Gas metal arc welding and flux cored arc welding		Less than 60.....	7
		60-160.....	10
		160-250.....	10
		250-550.....	10
Gas Tungsten arc welding		Less than 50.....	8
		50-150.....	8
		150-500.....	10
Air carbon Arc cutting	(Light).....	Less than 500.....	10
	(Heavy).....	500-1000.....	11
Plasma arc welding		Less than 20.....	6
		20-100.....	8
		100-400.....	10
		400-800.....	11
Plasma arc cutting	(Light)**	Less than 300.....	8
	(Medium)**	300-400.....	9
	(Heavy)**	400-800.....	10
Torch brazing			3
Torch soldering			2
Carbon arc welding			14

Filter Lenses for Protection Against Radiant Energy

Operations	Plate thickness --in	Plate thickness --mm	Minimum* Protection Shade
Gas Welding:			
Light	Under 1/8.....	Under 3.2.....	4
Medium	1/8 to 1/2.....	3.2 to 12.7.....	5
Heavy	Over 1/2.....	Over 12.7.....	6
Oxygen cutting:			
Light	Under 1.....	Under 25.....	3
Medium	1 to 6.....	25 to 150.....	4
Heavy	Over 6.....	Over 150.....	5

*As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade that gives sufficient view of the weld zone without going below the minimum. In oxy-fuel gas welding or cutting where the torch produces a high yellow light, it is best to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.

**These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the work piece.