

# CHAPTER 4

## PROTECTIVE EQUIPMENT & CLOTHING

### I. INTRODUCTION

Personal protective equipment is vital to the safety and well being of our personnel and to general safety at all work locations, including the district shop. The equipment should be properly cleaned, inspected after use and stored properly. Any equipment that no longer provides adequate protection should be repaired or replaced immediately. If the equipment becomes unusable, it is to be destroyed to prevent someone else from inadvertently using it.

### II. HEARING PROTECTION

Hearing protection must be utilized in high noise areas where exposure may equal or exceed an 8-hour time-weighted average of 85 decibels, or where posted. While many of the work locations that we operate in do not require the use of hearing protection, the noise levels around drilling and stimulation equipment can exceed 85 decibels and would necessitate the use of hearing protection. Cardinal Surveys Company provides all required hearing protection (PPE) at no cost to the employee.

Cardinal Surveys Company has had no action level exposure to date. However, If information indicates that any employee's exposure may equal/exceed the 8 hr time-weighted avg. of 85 decibels, Cardinal Surveys Company will implement a monitoring program to identify employees to be included in a hearing conservation program. (OSHA 1910.95 (d) (1)) Any such training will be updated to be consistent to changes in PPE and work processes.

#### Additional Information on Hearing Protection:

Within 6 months of an employees first exposure at or above the action level, Cardinal Surveys Company will establish a valid baseline audiogram (OSHA 19.10. 95 (g)(5)(iii)). Testing to establish the baseline audiogram will be preceded by at least 14 hours without exposure to work site noise. (OSHA 1910.95 (g)(5)(iii)).

At least annually after obtaining the baseline audiogram, a new audiogram will be provided for each employee exposed at or above an 8-hour time-weighted average of 85 decibels. Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift, the employee shall be informed of this fact in writing, within 21 days of the determination. In this instance, the affected employee's hearing protection will be reevaluated and/or refitted. If necessary a medical evaluation may be required at no cost to the employee.

For employees who have experienced a significant threshold shift, hearing protector attenuation must be sufficient to reduce employee exposure to a TWA of 85 dB. In that event, Cardinal Surveys Company will elect one of the following methods by which to estimate the adequacy of hearing protector attenuation as required by OSHA 1910.95, Appendix B:

A. Noise Reduction Rating (NRR) developed by the Environmental Protection Agency (EPA). According to EPA regulation, the NRR must be shown on the hearing protector package. The NRR is then related to an individual worker's noise environment in order to assess the adequacy of the attenuation of a given hearing protector.

B. The National Institute for Occupational Safety and Health (NIOSH Methods 1, 2 or 3) As in the case of the NRR method, the selected method must be applied to an individual's noise environment to assess the adequacy of the attenuation

Cardinal Surveys Company will maintain an accurate record of all employee exposure measurements as required by the regulation. (OSHA 1910.95(d), OSHA 1910.95(m), OSHA 1910.95 (m)(5)).

### III. EYE PROTECTION

Eye protection must be worn on all work locations as well as wherever and whenever there is obvious danger to the eyes. The following is a list of activities where the use of safety glasses, goggles or face shields is required:

- A. Chipping or chiseling iron, steel or other metals.
- B. Machining brass, steel, aluminum or plastic substances.
- C. Using diagonal cutters on all types of wire and metal.
- D. Using power or hand saws on any material.
- E. Grinding on or dressing an emery wheel even though it may have a shield to reduce flying particles.
- F. Buffing or cleaning with motorized wire brush.
- G. Splicing wire rope and cable.
- H. Cutting or drilling concrete, brick or stone.
- I. Pouring or handling molten metal.
- J. Handling or pouring acids, any caustic powders or fluids, or liquid radioactive materials.
- K. Soldering.
- L. Cleaning parts, benches and machines with air hose.
- M. Working under vehicles.
- N. Oxyacetylene or electric welding or cutting (use hood or safety goggles of proper shade and thickness) - Stay clear of areas where electric arc or acetylene welding is being done unless the approved type of eye protection is worn. Exposure to arc light will damage the delicate nerves of the eye and can result in intense pain and often temporary or permanent partial blindness. In cases of such exposure, a physician must be contacted immediately, even though the pain may not manifest itself until several hours later. If medical attention is not available, Argylol drops should be placed in the eye. Flash screens to protect other persons are to be properly placed in the welding area.
- O. Contact Lenses - Do not provide eye protection but increase the need for eye protection and, consequently, are discouraged. When contact lenses are worn, goggles or special safety glasses with safety shields on the sides must be worn. Wearers of contact lenses must let their supervisors and co-workers know that they are wearing contact lenses so that proper emergency treatment can be given if necessary.

## **IV. FOOT PROTECTION**

A. Protective Footwear - Shoes meeting the ANSI Z41 standard for protection must be worn when working around the shop and on ALL work locations. Neoprene or non-slip soles are recommended. The wear of "Tennis Shoes" or similar footwear is not allowed.

B. Foot Guards - There are available guards that fit over shoes to give added protection to the top of the foot. These items are recommended for use when the lifting and / or moving of heavy objects on a regular basis occurs.

## **V. HAND PROTECTION**

A. Rough Objects - The wearing of gloves prevents many minor injuries resulting from the handling of rough materials. Leather or leather-palmed gloves should be worn when wire rope is being handled. Cloth gloves only provide protection when the material will not penetrate the glove.

B. Hazardous Materials - Whenever acids, caustic soda and soda ash are to be handled the proper gloves must be worn. These gloves are made of materials that will not be broken down by the chemical.

C. Electricity - Whenever work will involve electrical current the proper high voltage gloves must be worn.

## **VI. HEAD AND FACE PROTECTION**

A. Hard hats must be worn by employees at any location where head injury hazards exist. Safety hats are selected for their protective qualities, and no others are to be worn. Safety hats must fit properly to provide maximum protection and they must be maintained to ensure their protective qualities do not deteriorate. These hats are not to be painted or modified in any way (exception is safety award decals presented to the employee by the Company). Many customers prohibit the wearing of metal hard hats on their locations. Therefore the wear of these type hard hats is prohibited.

B. Hair long enough to constitute a hazard while a person is working near moving machinery or rotating tools and equipment must be secured by a net or tied back. Hair styles that do not permit the proper wear of hard hats are not permitted.

## **VII. RESPIRATORY PROTECTION**

Cardinal Surveys Company does not allow work in IDLH (Immediately Dangerous to Life and Health) atmospheres. However, we will frequently be required to work in wells that produce hydrogen sulfide gas in quantities that might be injurious to the health of personnel. (See also: Job Site Hazardous Material Section 2, Page 9.2).

Affected employees will be trained in the use of the Self Contained Breathing Apparatus (SCBA) during Hydrogen Sulfide (H<sub>2</sub>S) Safety Training. The H<sub>2</sub>S and respiratory training program is conducted by Donaldson Fire & Safety, Inc.; West Texas Safety Training Center (Texas) and Southwest Safety Specialists (New Mexico). Training and evaluation is provided at hire and on a yearly basis thereafter at no cost to the employee. The training/evaluation covers:

- A. Respiratory hazards to which our employees are potentially exposed.
- B. Proper use of respirators, including putting on and removing them, any limitations on their use.
- C. Face Seal Requirements (Note: Facial hair or glasses that interfere with respirators is prohibited)
- D. Proper maintenance and Inspection.
- E. Special Considerations with SAR's
- F. Types of Respirators

Additional Information on Respiratory Protection:

1. Cardinal Surveys Company will ensure that our employees leave any area where a respirator is in use:

- A. To wash their faces and respirator face pieces as necessary to prevent eye or skin irritation associated with respirator use
  - B. If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece
  - C. To replace the respirator or the filter, cartridge, or canister elements

2. Should a medical evaluation prior to fit-testing respirators other than the SCBA be necessary, it will be provided to the employee at no cost. Such medical evaluations will be confidential, during normal working hours, convenient, understandable, and the employee will given a chance to discuss the results with the Physician or Other Licensed Health Care Provider. Cardinal Surveys Company will establish and retain, a make available any written information regarding medical evaluations or fit testing that is required under the respirator program in accordance with (29 CFR 1910.1020).

3. Cardinal Surveys Company understands, and will ensure, that the proper grade of air (grade d or better) will be used in all SCBA.

Other Protective Masks:

The use of protective masks will most often occur when handling radioactive oil & gas tracer materials, and then only the approved type masks and filters with pre-filters will be used. Protective masks will also be used when utilizing spray type industrial pesticides and when painting equipment, especially when the painting is being done in an enclosed room or bay. Large painting jobs are not allowed indoors.

## **VIII. OTHER PROTECTIVE EQUIPMENT**

A. Clothing - Proper clothing suitable to the work, the weather and the environment in which the employees will work will be worn. Persons working around moving machinery must not wear neckties or neck chains, gauntlet gloves or gloves that fasten around the wrist, loose, baggy or ragged clothing. Never tie or otherwise attach a rag or handkerchief to your person in such a manner that it cannot be removed with one quick, easy pull.

If clothing becomes saturated with oil, gasoline or chemicals, the employee should immediately wash the exposed skin area with soap and water and remove the clothing to prevent skin irritation. A doctor must be consulted if a skin rash develops.

B. Jewelry - Items such as rings, watches or neck chains should be worn with care because these type of items can contribute to the severity of an injury or even cause an injury. It is recommended that these type items not be worn due to the danger they represent.

C. Seat Belts - It is the policy of the Company that seat belts are to be worn at all times and by all occupants of Company vehicles. The various states in which we work have seat belt laws of various types as does the Department of Transportation. When driving any non-Company owned vehicle on Company business this policy is in effect and will be enforced. Drivers are expected to see to it that all passengers comply with policy.

## **IX. FALL PREVENTION/PROTECTION**

Fall protection must be used when an employee is potentially exposed to falls from heights of six feet or greater to lower levels. Training and certification will be provided to employees who might be exposed to fall hazards. Re-training/re-certification will be given on an as needed basis (i.e. noted deficiencies in use, work place changes, equipment changes).

When a fall hazard cannot be removed by eliminating the hazard, by altering a work procedure (i.e. working from the ground), or through the use of a guardrail system, personal fall arrest systems shall be used. All fall arrest systems/Fall prevention systems will meet the requirements of all applicable ANSI and ASTM requirements.

A trained and certified job site supervisor will prepare and implement a fall protection plan when a fall protection plan is required and will document the plan on a JSA form.

Fall Arrest Systems:

- A. The arresting system shall consist of anchorage, connectors (lanyard, lifeline or suitable combinations) and a full body harness.
- B. A full body harness with lanyard and a shock-absorbing device or deceleration device must be worn by each person working more than six (6) feet above ground, deck or water level or where fall is likely to result in death or serious harm.
- C. Personal fall arrest components shall be rigged so workers can neither free fall more than six (6) feet, nor contact any lower level.
- D. Extra precautions shall be in place to prevent fall protection equipment from exposure to mechanical equipment.
- E. Personal fall arrest systems and components shall be inspected before each use. A lanyard that arrested a fall shall be taken out of service.
- F. Controlled access zones are not utilized
- G. The employer shall provide for prompt rescue of employees in the event of a fall or shall assure that employees are able to rescue themselves

## **X. PERSONAL PROTECTIVE EQUIPMENT TRAINING**

While OSHA's Personal Protective Equipment regulation, found at 29 CFR 1910.132-.140(Subpart I), does not explicitly require a written Personal Protective Equipment (PPE) Program, Cardinal Surveys Co has developed a written PPE program to document and specify all information relative to our PPE needs.

The Safety Manager and/or Field Supervisor provides training for each employee who is required to use personal protective equipment. Training includes:

- A. When PPE is necessary
- B. What PPE is necessary
- C. How to wear assigned PPE
- D. Limitations of PPE
- E. The proper care, maintenance, useful life, and disposal of assigned PPE

Employees must demonstrate an understanding of the training and the ability to use the PPE properly before they are allowed to perform work requiring the use of the equipment.

Employees are prohibited from performing work without donning appropriate PPE to protect them from the hazards they will encounter in the course of that work.

If the Safety Manager has reason to believe an employee does not have the understanding or skill required, the employer must retrain. Since an employee's supervisor is in the best position to observe any problems with PPE use by individual employees, the Safety Manager will seek this person's input when making this determination. Circumstances where retraining may be required include changes in the workplace or changes in the types of PPE to be used, which would render previous training obsolete.

Also, inadequacies in an affected employee's knowledge or use of the assigned PPE, which indicates that the employee has not retained the necessary understanding or skills, would require retraining.

The Safety Manager certifies in writing that the employee has received and understands the PPE training