Ardaman & Associates, Inc.

Ardaman & Associates, Inc.
A Tetra Tech Company
Newsletter
March 7, 2019

Personal Protective Equipment

Personal protective equipment (**PPE**) refers to protective clothing, helmets, goggles, or other garments or equipment designed to protect the employee's body from injury or infection. The hazards addressed by protective equipment include physical, electrical, heat, chemicals, biohazards, and airborne particulate matter.

General Eye Protection for Ardaman Work

Examples of potential eye or face injuries include:

- Dust, dirt, metal or wood chips, and foreign materials entering the eye from activities such as drilling, sampling, chipping, grinding, sawing, hammering, the use of power tools or even strong wind forces.
- Chemical splashes from corrosive substances, hot liquids, solvents or other hazardous solutions.
- Objects hitting the eye or face, such as tree limbs, chains, tools, ropes, or wires.
- Radiant energy from welding, harmful rays from the use of lasers or other radiant light (as well as heat, glare, sparks, splash and flying particles).

Types of Eye Protection

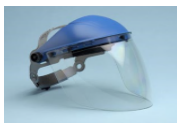
Selecting the most suitable eye and face protection for employees should take into consideration the following elements:

- Ability to protect against specific workplace hazards.
- Should fit properly and be reasonably comfortable to wear.
- Should provide unrestricted vision and movement.
- Should be durable and cleanable.
- Should allow unrestricted functioning of any other required PPE.

Some of the most common types of eye and face protection for our work include the following:

- **Safety glasses.** These protective eyeglasses have safety frames constructed of metal or plastic and impact-resistant lenses. Side shields are available on some models.
- **Goggles.** These are tight-fitting eye protection with rubber linings for a tight fit that completely cover the eyes, eye sockets and the facial area immediately surrounding the eyes and provide protection from impact, dust and splashes. Some goggles will fit over corrective lenses.
- **Welding shields.** Constructed of vulcanized fiber or fiberglass and fitted with a filtered lens, welding shields protect eyes from burns caused by infrared or intense radiant light; they also protect both the eyes and face from flying sparks, metal spatter and slag chips produced during welding, brazing, soldering and cutting operations. OSHA requires filter lenses to have a shade number appropriate to protect against the specific hazards of the work being performed in order to protect against harmful light radiation.
- **Face shields.** These transparent sheets of plastic extend from the eyebrows to below the chin and across the entire width of the employee's head. Some are polarized for glare protection. Face shields protect against nuisance dusts, potential splashes or sprays of hazardous liquids and embers from grinding but will not provide adequate protection against impact hazards. Face shields used in combination with goggles or safety glasses will provide additional protection against impact hazards.





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Safety Question:

How many years are Ardaman Hard Hats good for?

A. 3 years
B. 5 years
C. 2 years
D. None of the above

Answer on page 6

PPE Continued

Types of Hard Hats for Ardaman Work

There are many types of hard hats available in the marketplace today. In addition to selecting protective headgear that meets ANSI standard requirements, employees should wear hard hats that provide appropriate protection against potential workplace hazards.

Hard hats are divided into three industrial classes:

- **Class G hard hats** provide impact and penetration resistance along with limited voltage protection (up to 2,200 volts).
- **Class E hard hats** provide the highest level of protection against electrical hazards, with high-voltage shock and burn protection (up to 20,000 volts). They also provide protection from impact and penetration hazards by flying/falling objects.
- **Class C hard hats** provide lightweight comfort and impact protection but offer no protection from electrical hazards.
    - **All Ardaman hard hats are rated Class E. In addition, our hard hats are a full brim design and provide protection from the sun. They are to be worn on all job sites, per client requirements, and when overhead hazards are present.**

Periodic cleaning and inspection will extend the useful life of protective headgear. A daily inspection of the hard hat shell, suspension system and other accessories for holes, cracks, tears or other damage that might compromise the protective value of the hat is essential. Paints, paint thinners and some cleaning agents can weaken the shells of hard hats and may eliminate electrical resistance. Never drill holes in, or paint protective headgear as this may reduce the integrity of the protection. Do not store protective headgear in direct sunlight, such as on the rear window shelf of a car, since sunlight and extreme heat can cause damage.

Hard hats with any of the following defects should be removed from service and replaced:

- Perforation, cracking, or deformity of the brim or shell;
- Indication of exposure of the brim or shell to heat, chemicals or ultraviolet light and other radiation (in addition to a loss of surface gloss, such signs include chalking or flaking).
- Always replace a hard hat if it sustains an impact, even if damage is not noticeable. Suspension systems are offered as replacement parts and should be replaced when damaged or when excessive wear is noticed. It is not necessary to replace the entire hard hat when deterioration or tears of the suspension systems are noticed.
- **Ardaman Bullard Hard Hats expire after 5 years from the date inside the hard hat. Remember to inspect your hard hat annually for expiration. Look for the born on date inside using the sundial. (see photo above)**

Hearing Protection for Ardaman Work

Determining the need to provide hearing protection for employees can be challenging. Employee exposure to excessive noise depends upon a number of factors, including:

- The loudness of the noise as measured in decibels (dB).
- The duration of each employee's exposure to the noise.
- Whether employees move between work areas with different noise levels.
- Whether noise is generated from one or multiple sources.

Ardaman Hearing Protection Guide:

- Employees working around drill rigs or on an air boat while the machinery is “on” or when within 25 feet of the drill rig, must wear hearing protection (e.g. ear plugs or ear muffs)
- Ear muffs must be worn while operating an airboat at all times (ear plugs may be needed in addition to ear muffs when working for longer durations on the airboat).
- Employees must comply if signs are posted for hearing protection in the work area. (e.g. areas of CMT Lab)
- **General rule of thumb for hearing protection:** If a employee must yell for another co-worker to hear them nearby, hearing protection must be worn as decibel levels in that area may be high enough to cause hearing loss.

Some types of Ardaman hearing protection include:

- **Single-use earplugs** are made of waxed cotton, foam, silicone rubber or fiberglass wool. They are self-forming and, when properly inserted, they work as well as most molded earplugs.
- **Earmuffs** require a perfect seal around the ear. Glasses, facial hair, long hair or facial movements such as chewing may reduce the protective value of earmuffs.

PPE Continued

Types of Protective Gloves for Ardaman Work

There are many types of gloves available today to protect against a wide variety of hazards. The nature of the hazard and the operation involved will affect the selection of gloves. The variety of potential occupational hand injuries makes selecting the right pair of gloves important. It is essential that employees use gloves specifically designed for the hazards and tasks found in their workplace because gloves designed for one function may not protect against a different function even though they may appear to be an appropriate protective device.

The following are examples of some factors that may influence the selection of protective gloves for a workplace.

- Type of chemicals handled.
- Nature of contact (total immersion, splash, etc.).
- Duration of contact.
- Area requiring protection (hand only, forearm, arm).
- Grip requirements (dry, wet, oily).
- Thermal protection.
- Size and comfort.
- Abrasion/resistance requirements.

Leather, Canvas or Metal Mesh Gloves

Sturdy gloves made from metal mesh, leather or canvas provide protection against cuts and burns. Leather or canvass gloves also protect against sustained heat.

- **Leather gloves** protect against sparks, moderate heat, blows, chips and rough objects.
- **Aluminized gloves** provide reflective and insulating protection against heat and require an insert made of synthetic materials to protect against heat and cold.
- **Aramid fiber gloves** protect against heat and cold, are cut - and abrasive - resistant and wear well.
- **Synthetic gloves** of various materials offer protection against heat and cold, are cut - and abrasive - resistant and may withstand some diluted acids. These materials do not stand up against alkalis and solvents.

Fabric and Coated Fabric Gloves

Fabric and coated fabric gloves are made of cotton or other fabric to provide varying degrees of protection.

- **Fabric gloves** protect against dirt, slivers, chafing and abrasions. They do not provide sufficient protection for use with rough, sharp or heavy materials. Adding a plastic coating will strengthen some fabric gloves.
- **Coated fabric gloves** are normally made from cotton flannel with napping on one side. By coating the unnapped side with plastic, fabric gloves are transformed into general-purpose hand protection offering slip-resistant qualities. These gloves are used for tasks ranging from handling bricks and wire to laboratory chemical containers. When selecting gloves to protect against chemical exposure hazards, always check with the manufacturer or review the manufacturer's product literature to determine the gloves' effectiveness against specific workplace chemicals and conditions.

Chemical - and Liquid - Resistant Gloves

- **Nitrile gloves** are made of a copolymer and provide protection from chlorinated solvents such as trichloroethylene and perchloroethylene. Although intended for jobs requiring dexterity and sensitivity, nitrile gloves stand up to heavy use even after prolonged exposure to substances that cause other gloves to deteriorate. They offer protection when working with oils, greases, concrete, acids, caustics and alcohols but are generally not recommended for use with strong oxidizing agents, aromatic solvents, ketones and acetates.
- **Natural (latex) rubber gloves** are comfortable to wear, which makes them a popular glove. These gloves protect workers' hands from most water solutions of acids, alkalis, salts and ketones. Latex gloves have caused allergic reactions in some individuals and may not be appropriate for all employees. <u>They should only be used if required for specific testing per standards, otherwise; nitrile gloves should be worn.</u>
- **Neoprene gloves** are made of synthetic rubber and offer good pliability, finger dexterity, high density and tear resistance. They protect against hydraulic fluids, gasoline, alcohols, organic acids and alkalis. They generally have chemical and wear resistance properties superior to those made of natural rubber.
- **Butyl gloves** are made of a synthetic rubber and protect against a wide variety of chemicals, such as peroxide, rocket fuels, highly corrosive acids (nitric acid, sulfuric acid, hydrofluoric acid and red-fuming nitric acid), strong bases, alcohols, aldehydes, ketones, esters and nitro compounds. Butyl gloves also resist oxidation, ozone corrosion and abrasion, and remain flexible at low temperatures. Butyl rubber does not perform well with aliphatic and aromatic hydrocarbons and halogenated solvents.

"IF IT'S NOT SAFE, STOP….DO IT THE SAFE WAY."

PPE Continued

Some Common Sense Rules for Glove Use

- Select gloves which are resistant to the chemicals you may be exposed to. Consult the relevant Safety Data Sheet (SDS) which may recommend a particular glove material;
- Select gloves of the correct size and fitting
- Before use, check gloves (even new ones) for physical damage such as tears or pin holes and for previous chemical damage. This is especially important when dealing with dangerous materials such as acids or corrosives;
- When removing gloves, do so in a way that avoids the contaminated exterior contacting the skin. Grab the collar of the glove and pull them off inside out;
- Wash hands after removing gloves;
- Dispose of contaminated gloves properly;
- Do not attempt to re-use disposable gloves;
- Avoid the use of latex gloves when possible because of possible allergic reactions. Also, latex gloves will melt when exposed to petroleum products and cement. Always wear nitrile gloves when working with these products. Latex should only be used if required for specific environmental sampling according to an established method.

High Visibility Safety Vests and Shirts at Ardaman

- High visibility safety vests or shirts (Class 2) are required on all construction sites, DOT projects, when working or surveying within 15 feet of a roadway, when acting as a spotter, and according to client requirements.
- Class 3 high visibility safety vests or shirts must be worn at all times when performing DOT work at night on roadways.

Class 2 Vest and Shirt

Class 3 Vest and Shirt with sleeves

6” lace up safety toed boots

Rubber slip on safety toed boots

Safety Boots for Ardaman Work

- All employees engaged in testing such as concrete, soil, and steel, or performing field monitoring/observation services, must wear safety toed boots. Safety toed boots are also required on all construction sites and in areas where crush hazards are present. Safety toed boots should be a minimum of 6” lace up style. Alternative boots (e.g. rubber slip on, waders) may be required depending on work site conditions and should have a safety toe incorporated in them.
- Safety Toed footwear is required at all times when working in all CMT areas. (Field and Lab)
- All employees performing or observing drilling operations must wear safety toed boots on all project sites and at rig maintenance sites.
- Safety toe footwear must meet the requirements of ANSI Z-41-1999/ASTM F2412-13.
- Sneakers, loafers, deck shoes, sandals and other types of leisure wear are not appropriate footwear on jobsites or in Company laboratories. No open toed shoes are allowed in the lab, testing or yard areas; closed toe shoes only in these areas.
- Leisure footwear may only be worn at Company offices in areas where there is no potential exposure to chemicals or objects that may injure unprotected feet.
- Ardaman will pay the full price of the safety boots up to $50.00. In addition, Ardaman will reimburse 50% of the boots’ cost above the initial $50.00 covered by the Company. The reimbursement program is for one pair of safety-toed work boots per year.

Ardaman Update

Injury Incidents:

- Drilling crew was performing SPT sampling at a depth of approximately 30 feet. The driller's helper attached the anvil to the drill stem in order to drive a sample with the auto hammer. As the hammer was lowered onto the anvil, the helper had placed his hand back on the anvil (in the line of fire). As the hammer lowered over the rod onto the striking lip, the tip of his thumb covered with a cut resistant glove was pinched between the hammer slide and anvil lip. This resulted in the thumbnail being detached as he pulled his hand away. First Aid Only. **SEE SAFETY ALERT**.
- Employee was walking back up the gypsum slope to his truck after observing s contractor installing a panel drain. When he came to the top of the slope, the contractor had left loose material and our technician stepped over the loose material to get back to the top of the road. As he stepped over the loose material, his weight shifted backwards and caused his left foot to slip. He did not fall, however, the shift in his weight on his back left leg/thigh area caused some discomfort to develop a couple of hours after the event. Remember to walk slowly on uneven ground and pick your path carefully. Use small steps and walk slowly when going up or down steep slopes, especially when wet and slick, or dry and loose conditions prevail. Walk diagonally (especially on steeper slopes) to avoid losing your balance. Make sure your feet are firmly planted on each step you take. First Aid Only.

Vehicle/Equipment Incidents:

- Drill crew had left the water truck parked overnight on top of a Phosphogypsum stack. In the early morning hours of the following day, a severe thunderstorm came through the area preventing work activities on the stack. When personnel returned to the site, the truck had a flat front driver side tire, would not start, steering column was locked, and gear shifter inoperative. Further investigation revealed that the vehicle had been struck by lightning.
- Employee was surveying a site for a monitoring well and pulled into a muddy wooded area. While backing out of the area, our driver had to increase his speed to avoid getting stuck in the mud. While backing the vehicle, it began to slide and the passenger side mirror struck a tree branch and was ripped off of the vehicle. When entering site locations that my have questionable terrain, stop and get out of the vehicle and assess the site conditions prior to proceeding. In many cases, the safer method for access may be by walking.
- Employee was turning around in a parking lot. While waiting to exit the parking area, a vehicle in front of our driver was waiting to turn out onto the roadway. The other vehicle began to move forward to turn but suddenly stopped. Our driver rear-ended the other vehicle. When stopping on roadways or near vehicles always maintain a one car buffer zone. Do not proceed forward until you have visually confirmed that the other vehicle has cleared the area in front of your vehicle.

Safety Audits:

Identified Hazards from 20 Safety audits conducted in the month of February

Ergonomics: Employee was at their workstation using poor sitting posture and monitor location. Remember to always sit with your back against the backrest, feet flat on the floor, monitor no further than arms length away, eyes should be within 2 inches below the top of the screen, and arms at a 90 degree angle for keyboard and mouse use.

Congratulations to our West Palm Beach Branch !

The West Palm Beach branch has completed 365 days without an at-fault incident.

They celebrated the achievement with a group photo at the office and a party. Ardaman continues developing a safety culture to ensure our workforce has a safe experience each day and we appreciate their efforts that has promoted such a safety culture.

Ardaman Update Continued

Near Miss Miss/ Hazard Identification:

Highlighted Near Misses from 23 reports received for the Month of February.

- An employee was on site to perform hand augers. She reviewed the 811 ticket prior to starting work which showed the area as clear. When she began to auger, she felt resistance and encountered a hard material; it was an unmarked private utility. She stopped work immediately and contacted the project manager. A discussion was held regarding the potential for additional unknown utilities and actions were taken for locating any additional utilities before proceeding forward.
- Employee was on an undeveloped property to perform hand auger borings. Upon arriving on site, he noticed what appeared to be a homeless camp on the property. Our employee contacted the project manger and informed him of the safety concern. Additional personnel were sent out to completed the job. When sending workers out to remote locations where they may be a lone worker or when working in a crime ridden section of town, notify local law enforcement and let them know that we will be working in the area. Develop a check-in/check-out procedure with the worker and validate their location daily using geotab/gps system.
- Employee was monitoring pile installation on site. He observed the industrial compressor on site with attached air hoses. The air hoses had the quick fit connection fittings, but, they did not have whip checks at each connection. Whip Checks are a hose safety retention system designed to stop hoses which have become disconnected from a piece of equipment or through catastrophic failure. An out-of-control pressurized hose can be hazardous and potentially deadly. A properly secured hose will remain in place after failure, allowing for a quick and safe recovery. Reduce the risk of injury, widespread spills, downtime, and equipment damage by restraining all pressurized hose assemblies, large or small. These should be use on pressurized hoses on our equipment and drill rigs where failure could cause injury.
- Employee encountered a rattlesnake on the Phosphogypsum stack. The employee notified all personnel in the area and the client had it removed from the work area. When working in areas with heavy vegetation, near ponds, or other undeveloped areas where snakes may be present, snake gaiters should be used to reduce the potential for a snake bite.
- Employee heard a squealing sound from the rear of the vehicle. He immediately stopped the vehicle in a safe area and went to inspect the area of concern. He noticed that several of the lugs nuts on the passenger side rear tire were loose. The vehicle recently had the brakes serviced the prior week. The employee tightened the lug nuts and then verified they were properly torqued upon return to the drilling storage yard. When service is completed on a vehicle, always request the technician/mechanic to verify that the lug nuts have been torqued to the manufacturer's specifications. The average person is able to hand tighten a lug nut using a lug nut wrench to a torque rating of 100 lbs. In many cases this may be greater than the specification from the manufacturer.
- Employee was surveying the location to stake the borings prior to the CPT rig arriving on site. While walking the site, he observed a below ground concrete tank that was hidden by vegetation. He documented the hazard with photos, GPS coordinates, and flagged the location. He then sent the information to the technician and called him to discuss the hazard. Great example of how to proactively identify and avoid a hazard.

Ardaman Health and Safety Recognition Awards

A safety sticker was awarded to the following individuals:

- **Josh Rakestraw** for recognition and actions regarding a potential struck by hazard on site. Our employee identified an industrial air compressor that was missing whip checks at each hose connection point. If the connections failed the hoses will flail around potentially striking a worker. The contractor was notified and the whip checks were installed. The employee received a gift card for his actions. (Tallahassee)
- **Doerthe Koenig** for recognition of an individual in distress on the sidewalk. She notified the branch manager for assistance to check on the individual and then notified 911. (Cocoa)
- **Maria Chess** for recognition and actions of a potential unmarked utility underground. Employee had reviewed 811 ticket which was clear and then hand augered the location. During augering she felt resistance and contacted the project manager for instructions. (Tampa)

Safety Question Answer: B All Ardaman hard hats are made by Bullard. These hard hats have a 5 year expiration date per the manufacturer. Inspect your hard hat annually to make sure that the date inside the hard hat is not older than 5 years from our current date. Hard hats must also be replaced anytime they take an impact, start chalking or have cracks.

March 2019 Safety Quiz

Please circle the letter of the answer that fits best. Some answers can be found in the newsletter

1. The hard hat's outer shell is designed to protect the head from:

A. Impacts and penetrations from above B. Dust C. Noise D. All the above

2. A hard hat should be replaced when it:

A. Gets too dirty B. Takes a heavy blow, cracked, broken, or punctured C. Never D. All the above

3. Safety glasses are required at all times on active work/construction sites and any other time an eye hazard may be present.

A. True B. False

4. You should select protective eyewear that protects you against:

A. The minimum level of a potential hazard B. The maximum level of a potential hazard C. The mid level of a potential hazard D. All the above

5. What class of high visibility safety vest / shirt must be worn when working on DOT roadways at night?

A. Class I B. Class 2 C. Class 3 D. All the above

6. To protect eyes from impacts, dust, splashes, and mists, you need:

A. Safety spectacles made of metal B. Welding goggles with filtered lenses C. Tight-fitting chemical goggles or industrial safety glasses under a face shield. D. All the above

7. 6" lace up safety toed work boots or taller are to be worn when working in the field and within the CMT Labs

A. False B. True

8. Hearing protection should be worn when?

A. Within 25 feet of a drill rig in operation B. Operating the air boat C. When posted or if you have to yell for the person near by to hear you D. All the above

9. Nitrile gloves should always be worn when handling contaminated soil with petroleum in it and wet concrete.

A. True B. False

10. When you are unsure of the distance to an object when backing or parking a vehicle you should stop the vehicle and get out an look, or ask for a spotter.

A. False B. True

11. When snakes may be present in an area, what additional PPE should be worn?

A, Long Pants and Safety Boots B. Work Gloves C. Snake Gaiters D. All the above

All Ardaman employees must complete the quiz and turn it in by the end of each month. For those individuals who cannot attend the monthly safety meeting please complete the quiz and submit it to your supervisor for approval. These will be sent to HR/H&S. <u>All others must submit the quiz at the designated location at your office.</u> The supervisor only needs to sign the quiz if you are unable to attend the meeting, you must explain the reason in the box below:

Print Name Here _____ Sign Name Here _____ Date _____

Supervisor Print Name Here _____ Supervisor Sign Name Here _____ Date _____