

Safe Work Practices for Contractors Working at Retail Petroleum/ Convenience Facilities

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Introduction

The purpose of this document is to provide the user with a general awareness of safety issues associated with maintenance and construction work at retail petroleum/convenience facilities. There is an Annex at the end of this document that provides example forms.

Safe Work Practices for Contractors Working at Retail Petroleum/Convenience Facilities

1 Scope

1.1 General

This Recommended Practice (RP) highlights some of the federal Occupational Safety and Health Administration (OSHA) requirements that may apply to maintenance and construction work in the retail petroleum/convenience business, but there is much more in the regulations than can be covered here. It is the sole responsibility of the contractor or employee performing the work to abide by any and all additional Federal, State, or local laws and regulations, as well as any manufacturer's requirements that apply to the specific work being done. It is also the responsibility of contractors to ensure that subcontractors abide by all applicable safety requirements. Construction activities are covered by OSHA 29 *CFR* 1926 regulations while most maintenance and other operations are covered by OSHA 29 *CFR* 1910 (General Industry) regulations.

1.2 Applicability

This RP provides recommended minimum safety procedures applicable to working at a retail petroleum/convenience facility. In addition, this RP details how to develop a task specific Job Safety Analysis that should be completed before any work may begin.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ANSI 4950 ¹, *Standard for Welding Pads, Welding Blankets and Welding Curtains for Hot Work Operations*

ANSI Z87.1, *American National Standard for Occupational and Educational Personal Eye and Face Protection Devices*

ANSI Z89.1, *American National Standard for Industrial Head Protection*

ASTM F2413 ², *Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear*

NFPA 51B ³, *Standard for Fire Prevention During Welding, Cutting, and Other Hot Work*

OSHA 29 *CFR* ⁴, Parts

1910, *Occupational Safety and Health Standards by OSHA*

1926, *Safety and Health Regulations for Construction*

1926.450, *Scaffolds*

1926.453, *Aerial Lifts*

¹ American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, New York 10036, www.ansi.org.

² ASTM International, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428, www.astm.org.

³ National Fire Protection Association, 1 Batterymarch Park, Quincy, Massachusetts, 02169-7471, www.nfpa.org.

⁴ The Code of Federal Regulations is available from the U.S. Government Printing Office, Washington, DC 20402, www.gpo.gov.

1926.502(a), *Fall Protection Systems Criteria and Practices, General*

1926.502(c), *Fall Protection Systems Criteria and Practices, Safety Net Systems*

1926.652, *Excavations, Requirements for Protective Systems*

3 Terms and Definitions

Definitions in this section reflect the common usage among Contractors working at retail petroleum/convenience facilities. For the purposes of this document, the following definitions apply.

3.1

ANSI hand signals

The American National Standards Institute (ANSI) standard hand signals that are used for communicating with a crane operator. The person using the hand signals must be fully competent, qualified and experienced in the signals and with crane and lifting operations.

3.2

ASTM International

Formerly ASTM (American Society for Testing and Materials). The organization that establishes testing standard methods to help comply with OSHA safety requirements. ASTM F2413 refers to Standard Specification for Performance Requirements for Protective Footwear.

3.3

biohazard

The biological substances that can pose a threat to humans. Examples include plants, insects, bacteria, and viruses.

3.4

bump test

A qualitative function check of a LEL meter in which a known challenge gas is passed over the sensors at a concentration and exposure time sufficient to activate all alarm settings. This test verifies the performance of the LEL meter and ensures the sensors are responding to their target gases.

3.5

Code of Federal Regulations

CFR

The laws/rules published in the Federal Register by the departments and agencies of the Federal Government.

3.6

competent person

One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them (29 *CFR* 1926.32(f)). By way of training and/or experience, a competent person is knowledgeable of applicable standards, is capable of identifying workplace hazards relating to the specific operation, and has the authority to correct them. Some standards add additional specific requirements which shall also be met by the competent person.

3.7

confined space

A space that is large enough for a person to enter, has limited or restricted means for entry/exit, and is not designed for continuous occupancy. A confined space with certain types of life-threatening hazards is required to be classified as a permit-required confined space (PRCS).

3.8**excavation**

Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

3.9**forecourt**

The area of a petroleum/convenience facility that is not occupied by a retail store building. The forecourt is typically considered the fueling area of such a facility. Small retail buildings under the canopy or in the midst of the fueling area may also be considered to be on the forecourt.

3.10**hazardous atmosphere**

An atmosphere with any of the following conditions present:

- a combustible or flammable gas,
- low oxygen concentrations,
- hazardous levels of toxic substances exceeding permissible exposure levels.

3.11**permit-required confined space****PRCS**

A confined space is one where a permit is required to work and that has one or more of the following characteristics: contains or has the potential to contain a hazardous atmosphere; contains a material that has the potential to engulf an entrant; has walls that converge inward or floors that slope downward and taper into a smaller area which could trap or asphyxiate an entrant; or contains any other recognized safety or health hazard such as unguarded machinery, exposed live wires, or heat stress.

3.12**job safety analysis****JSA**

A pre-task analytical method to quickly identify hazards and precautions for specific tasks. A JSA is an effective way to decide on PPE and other safety requirements and can be used for employee training.

3.13**Kilovolts****kV**

The measure of electrical voltage (1 kV = 1000 volts), and is the basis for determining the proximity in which overhead work or working at heights can be performed.

3.14**lower explosive limit****LEL**

The lowest concentration (percentage) of a gas or vapor in air capable of producing a flash of fire in presence of an ignition source (arc, flame, heat).

3.15**LEL meter**

The LEL meter (also referred to as a “combustible gas detector”, “gas monitor”, or “explosimeter”) is used to detect and measure the amount of combustible gases present. When a percentage of the lower explosive limit (LEL) is exceeded, an alarm signal is activated.

3.16**management of change
MOC**

The broad concept of MOC is to anticipate and prevent incidents that may be created due to changes in all aspects of an operation, from personnel and contractor selection to equipment replacement and repair to site conditions and chemical exposures.

3.17**Occupational Safety and Health Administration
OSHA**

A federal government agency charged with assuring safe and healthful working conditions by setting and enforcing standards and by providing training and education.

3.18**permit loads**

Any load carried by a vehicle that requires a permit from any regulatory agency.

3.19**person in charge**

The individual (person) that is responsible for a specific site or operation.

3.20**personal protective equipment
PPE**

Equipment worn to minimize exposure to serious workplace injuries or illnesses. Examples include gloves, safety glasses and safety shoes.

3.21**remote fill**

A separate connection and corresponding piping that is required to allow a petroleum delivery truck to make a delivery to the underground storage tank. Remote fills are needed when the petroleum delivery truck cannot connect to the direct fill piping of the underground storage tank.

3.22**spotter**

The person positioned outside of a vehicle to direct a driver where the driver has no clear view of the area.

3.23**trench**

A narrow excavation (in relation to length) made below the surface of the ground. Typically the depth is greater than the width, with the width (measured at the bottom) being not greater than 15 ft (4.6 m).

3.24**underground storage tank
UST**

The storage vessel below the service station for the storage of petroleum products prior to being dispensed to customers.

4 General Knowledge**4.1 General**

RP 1646 is intended to provide the user with a general awareness of safety issues associated with maintenance and construction work at retail petroleum/convenience facilities. The information contained in this document represents

the minimum required knowledge needed to perform work, and while this document does recommend a baseline of safety considerations, it should in no way be a substitute for Owner/Operator guidelines, sound engineering judgment, protocols, procedures or other contractual obligations.

4.2 Personal Safety

Performing maintenance and construction work at retail petroleum and convenience stores (service stations) can create some unique and challenging safety conditions. To be able to identify, address, and react to these specific safety challenges, contractors working at the service stations must have a good general and basic understanding of safety.

Safety is more than a priority. Priorities can change based on different factors and circumstances. Safety is a core value and fundamental requirement. Safety must always be the first consideration, no matter what the circumstances are. The core value of safety revolves around two general guidelines we all should follow.

- Nobody should get hurt.
- If the work cannot be done safely, then it should not be performed.

4.2.1 Understand that Life Threatening Activities Exist

There are situations and conditions that can exist when performing maintenance and construction work at service stations which could put one or others in a life threatening condition. Contractor workers should recognize these conditions. Workers should develop specific procedures, including the use of appropriate permits, and implement the actions when these conditions exist. Examples of conditions that could create a life threatening situation include:

- working on or around live electricity,
- working at heights,
- working in an open forecourt/driveway with moving vehicles,
- working in an explosive/flammable environment,
- working in a trench or excavation,
- working with heavy machinery (cranes, excavators, etc.).

4.2.2 Behavior-based Safety Expectations

To properly and adequately manage the safety risks that can be present at service stations, the Contractor worker must recognize that personal behavior and actions have the greatest influence. Developing a specific Job Safety Analysis (JSA) well before the beginning of the work activities, reviewing the JSA prior to beginning the activity, and applying a simple last minute “stop and think” prior to initiating the work can significantly reduce the risks of a safety incident.

4.2.3 Job Safety Analysis Basics

The following are the basics of the Job Safety Analysis (JSA):

- Purpose: The JSA is a methodical process that is designed to help identify work hazards and preventive measures before starting any task. The written JSA should be developed using the experience of the entire work

team and should be completed well before the work is scheduled. The JSA should be reviewed prior to starting work, adjusted as necessary to accommodate site-specific information, and referred to during the course of work.

- Who should use the JSA: Individuals, teams doing the same task, and/or groups of workers or teams doing different tasks in the same general area.
- When to use the JSA: Before starting work and reviewed when work conditions change such as changes in weather, job scope, team members, or equipment. When a different group of people (contractor, trade, craft or consultant) or a different activity (task or project) is beginning work in the area, then another review of the JSA is appropriate. When multiple activities or operations are being coordinated in the same location at the same time, it is important to have all of the relevant parties come together to develop an appropriate hazard and risk mitigation plan. This group activity can be referred to as Simultaneous Operations (SIMOPS) risk identification and management plan.
- Who participates in developing or amending a JSA: All stakeholders, including site employees or contractors.
- How to perform work using a JSA.
 - 1) Identify what work/tasks are to be performed. What is about to be performed and what are the steps?
 - 2) Evaluate these two questions for the work to be performed.
 - What may go wrong?
 - What is the worst thing that may happen if something does go wrong?
 - 3) Identify/Analyze risks and ways to reduce them. Ask yourself, "How do I prevent the risk(s)/hazard(s) from happening?"
 - Use a standardized JSA form.
 - Identify potential hazards specific to the project, such as hazardous materials present or communication requirements.
 - Identify potential hazards specific to the site, such as vehicular traffic or flammable vapors present.
 - Identify potential hazards specific to the task to be performed.
 - Ensure that workers performing the work are properly trained to do so.
 - List ways to eliminate or mitigate the hazard so the task can be done safely. The hazard controls should follow a hierarchy in mitigating risks, which are in decreasing order: elimination of the hazard; substitution; engineering controls; administrative controls; personal protective equipment.
 - Review and/or prepare appropriate safety materials for the tasks and hazards.
 - 4) Communication of the above to those who need to know. Communicate the safety plan to the site manager, project supervisor and others, as appropriate.
- Amending the JSA as needed: The purpose of amending the JSA is to anticipate and prevent incidents that may be created because of changes to organizations, personnel, systems, processes, procedures, equipment, site

conditions, products, materials, substances, or laws and regulations. The pre-task JSA procedure shall include changes by way of answering the following question:

- What is specifically different about this task than other tasks like this that have been performed before?

For all changes that are identified, work plans shall clearly specify the timeliness for the change and any control measures implemented for:

- equipment, facilities, and process;
- operations, maintenance, or inspection procedures;
- training, personnel, and communication;
- documentation.

The amended JSA shall be authorized by the person(s) responsible for the project.

4.2.4 Stop and Think Prior to Starting Any Task

The average person will have hundreds of thoughts throughout a workday—some specific to the task at hand and some not. Multitasking is a common activity for everyone and can be valuable in certain situations. However, when a work activity is about to begin, it is critical that the thoughts and focus of the work activity be front and center in the minds of all workers involved. This can easily be done by dedicating the last minute prior to starting the task to remind yourself and all involved of the risks that exist. This last minute activity can help align the focus and priorities.

4.2.5 Actively Caring for Others

Many maintenance and construction activities involve multiple workers, including workers from other companies. There may also be site personnel, equipment suppliers, inspectors, and members of the public in and around the work area. Since the actions of anyone may have a direct safety impact on you and others, it is important to be aware of others, and actively approach others when unsafe actions or behaviors are noticed. If the approach is positively focused on preventing that person from potentially being injured, or injuring others, it is typically appreciated and well received.

Also, if someone approaches you in a manner to protect you or others from a potential injury, then hopefully you too will appreciate that someone is actively caring for you.

4.2.6 Awareness of Negative Confrontations

Performing service work at service stations can sometimes be perceived as an inconvenience to the site personnel and the public. There are cases when site personnel or members of the public engage their frustration directly towards the contractor worker. Also, by working in a public environment, workers should be aware of the potential for criminal intent.

Each worker should recognize that the work activities, or the mere location of being in the public eye, could lead to a confrontation. Contractor workers should have a plan to handle confrontations and maintaining a personal safety barrier, which should include the following.

- Remain calm and professional—do not engage in an argument.
- Stay a safe distance away from the other party—use barriers (vehicle, etc.) to maintain that space.
- Get support from others—there is safety in numbers.

- Leave the situation if necessary.
- Contact site management, contractor management, and/or authorities, as appropriate.

4.2.7 Review of Proper Manual Lifting Techniques

Manual lifting is one of the most common activities performed by all individuals multiple times per day. Lifting can involve large heavy loads, or involve repetitive lifts. Lifts can involve more than one person, or can involve going up stairs or down into excavations. Below are some key reminders on proper lifting techniques.

- Plan the lift and get help if needed.
- Prepare your travel path by opening doors and ensuring the walkway is clear of obstructions.
- Position your body close to the load so that you can get a secure grip. Keep elbows as close to the body as possible.
- Be certain of secure footing and balance.
- Keep your back straight and flex your knees.
- Keep your head up, look forward, with load close to the body and leg muscles doing the lifting.
- Avoid twisting or turning your body while lifting. Point your toes in the direction you want to go and then step.
- To safely put the load down, follow the lifting procedure in reverse order.

4.3 Work Site Safety and Practices

4.3.1 Basic Prohibitions at the Work Site

For maintenance and construction workers at petroleum/convenience sites, the following prohibitions should apply.

- No gambling or fighting.
- No smoking on site. This includes the use of electronic smoking devices.
- No smoking anywhere within 15 m (50 ft) of a fuel tanker truck. This includes the use of electronic smoking devices.
- No alcohol or drugs.
- No weapons, except as permitted by their employer and/or state law.

NOTE Many state laws permit employees to have weapons in certain circumstances; for example, keeping firearms in locked personal vehicles. Employers can consult their local laws prior to implementing rules prohibiting weapons.

- Obey all posted warnings.

4.3.2 Work Site Check-in/Work Clearance

Working at an operating petroleum/convenience site presents challenges for the safety of workers, site employees, and the general public. Workers shall follow the proper check-in/clearance procedures to minimize these risks.

- All workers who may be required to work on operational petroleum/convenience sites shall be in possession of identification certified by their employer.
- The Contractor shall consult with the site manager regarding the regular facility work hours.
- Contractors shall confine their workers and work to the designated site or job site areas.
- Work of any kind shall not start until all workers have reported to the person in charge of the site at the time. In addition, all workers are required to identify themselves and sign-in using the site's sign-in process (if applicable). If required by the customer, workers may have to present their work certification card (i.e. API Safety Qualification card or equivalent).
- Workers shall understand the Job Safety Analysis (JSA) of performing the activity before arriving at the work site. Consult with the person in charge of the site to identify site specific risks not covered in the JSA and document accordingly per guidelines below.
- A representative of the site shall give clearance for work to begin. This will be according to the individual customer's requirements and may require that a specialized form be completed (see Annex A.4 for an example Job Clearance Form) or work authorized in an electronic manner.
- For jobs that will take longer than a day, or for construction work, workers shall identify themselves each day to the site manager or the attendant in charge before any work starts. This will be according to the individual customer's requirements and may require that a specialized form be completed (see Daily Site Safety Record, Annex A.5). Before beginning any work at a construction site, workers and visitors shall receive a safety briefing from the person in charge of the site or his/her designated person. The minimum requirements for a briefing include the following:
 - description of work being performed that day (JSA);
 - hazards involved in that day's work (for example, weather, job site conditions or other items not covered in the JSA);
 - where to find emergency notification numbers;
 - evacuation procedures and muster location in case of evacuation;
 - location of emergency response equipment (first aid, fire extinguishers, etc.);
 - location of emergency shut-off button (if at an active service station);
 - minimum PPE requirements.

In addition, the following requirements apply.

- Workers shall not obstruct site operation without prior notification to the person in charge of the site.
- Workers shall not block off or otherwise make any portion of the facility impassable or hazardous without prior notification. Contractor shall provide barricades, traffic cones, fencing, etc. (Section 9) to make the job site safe and secure.

- The contractor shall not cut, dig or alter in any way, any existing facilities, pipes, etc., without prior authorization or a task specific work order.
- It should be understood that damage to existing equipment may disrupt operations, may cause fires, may initiate environmental problems, and may endanger lives.
- Simultaneous operations (SIMOPS) with potentially other contractors on site should be discussed (work scope, time to be on site, etc.).

4.3.3 Good Housekeeping Practices

Good housekeeping practices are an important component to preventing slip, trip, and fall injuries. Good housekeeping will also help prevent damage to tools and equipment, which could subsequently lead to a hazard. Workers shall observe good housekeeping practices. Buildings, materials and properties shall be kept clean and orderly to the extent possible. Workers shall maintain work areas in a reasonably clean, safe and orderly condition. The following requirements apply.

- Extension cords, air hoses and other cord type tripping hazards shall be stowed when not in use.
- Extension cords shall not be placed in walking paths without proper protection against trip hazards. This can include barricading the area where the extension cord is crossing a walking path or covering the extension cord with an approved cable positioning device or ramp.
- Materials may not be stored in walking paths or obstruct any emergency exits.
- Materials may not be stored in front of doorways.
- Materials may not be stacked within 914 mm (36 in.) of an electrical panel.
- Work operations should be conducted out of walking pathways, whenever possible.
- Debris should not be allowed to accumulate in walkways.
- Debris from work operations (used equipment, saw cut-offs, and junk equipment) should be regularly removed to a designated waste storage area. In addition, walking/working surfaces should be well maintained and well lit. Adequate lighting shall be provided to enable safe entry into and exit from every place on a site where persons are reasonably expected to work. This is in addition to task lighting.

4.3.4 Toolbox Discussions

Before the beginning of every workday and at the beginning of a potential higher risk activity where there will be more than one worker at a site, the workers shall conduct a daily toolbox discussion (tailgate meeting) that includes at least the following:

- work to be performed,
- hazards of the job,
- conditions that may have changed overnight or since the last time work was performed at the site,
- any potential SIMOPS with other contractors or workers.

If there is only one worker at the site, then it is recommended that this worker call a designated person to conduct the toolbox meeting by phone, or have the discussion with the site personnel.

4.3.5 Evacuation Procedures

Workers shall be familiar with both site evacuation procedures and their employer's evacuation procedures. A primary reason for the above check-in requirements is so personnel can be accounted for in case of an emergency. Upon check-in, workers should verify the location of the site's meeting point in the event of an evacuation.

4.3.6 Hazards of Fuel Deliveries

Delivery of petroleum products can pose specific risks to maintenance and construction personnel at a service station. The following precautions shall be taken during fuel deliveries.

- All work on fueling systems should be stopped.
- All work within 15 m (50 ft) of a vent stack should be stopped.
- All work within 6 m (20 ft) of a dispenser should be stopped.
- All work within 4.5 m (15 ft) of a fill pipe should be stopped.
- All work within 15 m (50 ft) of a tanker truck should be stopped.
- All Hot Work being performed should be stopped.
- Workers shall evacuate all confined spaces.
- Workers may not smoke within 15 m (50 ft) of a delivery transport truck, even if the worker is off of the site.

For any part of the storage tank system that is being repaired or altered that may cause fuel deliveries to be hazardous, dangerous to the underground environment, or cause a release of vapors to the atmosphere, the contractor doing the work is responsible to ensure that deliveries do not take place. Ideally, work would be performed at times when fuel trucks would not be making deliveries. If this is not possible, then during the delivery of petroleum products, personnel may have to rearrange various barricades in order for the fuel truck to get to the delivery location. Personnel will coordinate with both the site manager and the petroleum truck driver to clear the work zone of tools/equipment and close any open manhole lids before removing barricades. After the truck has left the site, workers can then replace or restage all barricades before resuming work. Depending on the type of work to be done, the following activities may be appropriate.

- Upon check-in with the site operator, verify the schedule for fuel deliveries so as to best coordinate work.
- Disable the tank fill connections by locking them with padlocks.
- Any tank systems that are to be left unattended in an unfit condition shall have the fills padlocked and the customer's authorized representative shall be notified. Whenever fuel shall be transferred to gas cans or storage tanks, all equipment shall be properly grounded to prevent buildup of static electricity.

4.3.7 Ground Disturbance Activities

Prior to any activities that are to disturb the ground (i.e. excavating, trenching, digging, drilling, etc.), due diligence is required to be completed to help ensure there is nothing below ground that could create an unsafe situation. Most urban areas have a "call before you dig" process that must be followed. If a public service that identifies underground utilities is not available, a private utility location service should be considered.

Information regarding potential below ground structures and equipment should be obtained. Care should be taken on the initial ground disturbing activities to confirm the area below is clear of any potential risks.

Additional guidance on ground disturbance activities can be found in Section 11, Ground Disturbance/Excavation.

4.3.8 Non-regulatory Reporting and Notification Procedures

Reporting procedures may vary widely between customers. It is the contractor's responsibility to understand and implement the proper reporting/notification processes for each of their customers.

4.3.9 Customer's Permit-to-work Requirements (Where Applicable)

Permits to work are required by these Safe Work Practices for confined space, Hot Work, excavations, and hoisting/rigging operations. Individual customers or contractors may have their own permit-to-work system, however a standardized, multi-permit form is provided in Annex A.6. All permits written for work shall remain at the job site for inspection by the customer's representative or regulatory authorities until the work is completed. Contractors and workers shall be aware of the permit-to-work requirements of all customers to ensure compliance.

4.4 Safety Equipment

Contractor workers may be required to equip the service vehicle or work area with specific safety equipment. Also, active service stations and sites under construction may have different safety equipment positioned on site. It is important that all workers are aware of the safety equipment that is on site, and if necessary, know how to engage or operate.

4.4.1 Examples of Safety Equipment

Safety, or critical, equipment is equipment that may prevent a safety or environmental event from occurring, provide a response to mitigate a safety or environmental incident, or alert personnel to a potential or actual event. Examples of safety/critical equipment include:

- monitoring devices,
- leak detectors,
- sensors,
- emergency systems and controls,
- fire extinguishers,
- shear valves,
- hose breakaways.

When installing or maintaining critical equipment special care shall be taken to ensure that the equipment is operating safely and properly protecting the environment. Some common actions regarding safety or critical equipment include the following.

- When a problem is found in a piece of safety or critical equipment, it should be repaired on the spot, if possible.
- If a problem would make the equipment operate outside its safe operating limits, the equipment shall be immediately shut down and not operated until it is repaired.
- If the equipment is leaking it shall be immediately shut down and not operated until it is repaired.

- All leaks shall be reported to the site operator, maintenance dispatch authority, and site operating company immediately.

Overriding critical equipment shall not be done in violation of any federal, state, or local regulation and without the express approval of the customer's authorized representative.

4.4.2 Fire Extinguishers

The most common type of safety equipment is the fire extinguisher. Fire extinguishers may be required to be on board service vehicles; inside construction trailers and around construction projects; on service station islands; and inside service bays, convenience stores, car washes, and other building structures.

4.4.3 Fire Extinguisher Classifications

- Class A fire extinguishers will put out fires in ordinary combustibles such as wood and paper.
- Class B extinguishers should be used on fires involving flammable liquids such as grease, gasoline, oil, etc.
- Class C extinguishers are suitable for use on electrically energized fires.
- Class D extinguishers are designed for use on flammable metals and are often specific for the type of metal in question.

The use of a class ABC multipurpose dry chemical fire extinguisher is required for Hot Work operations at retail petroleum/convenience locations. See Section 15, Hot Work, for more information on Hot Work and associated Fire Watches.

4.4.4 Fire Extinguisher Use

Any worker who may be required to use a fire extinguisher shall be provided with fire extinguisher training by his/her employer. As a reminder to those workers already trained, the method employed for using a fire extinguisher can be remembered by the acronym PASS. This stands for "Pull, Aim, Squeeze, and Sweep". A more detailed description includes "Pull pin out, aim nozzle at the base of the fire, squeeze discharge trigger, and sweep nozzle quickly back and forth to extinguish fire."

4.4.5 Fire Extinguisher Inspection

Fire extinguishers shall be inspected at least monthly by performing the following.

- Ensuring that the seal and pin (if so equipped) are in place.
- Making sure the annual maintenance tag is intact and is current for the calendar year (some fire extinguishers are not designed to have this tag and should be replaced annually).
- Making sure the hose is not severely cracked, broken, damaged, or clogged.
- Checking the gauge pressure. Make sure the indicator dial is in the green zone and indicates that the extinguisher is still properly charged.
- Checking for exterior damage, rust, or corrosion.
- Making sure the instruction label is in place and is readable.
- Ensuring the protective covering (if provided) is in place.

Following the inspection, the inspection tag should be marked to show that the monthly inspection has been done.

If an inspection shows any problems, the extinguisher shall be serviced by a fire extinguisher service company to ensure proper operation.

Fire extinguishers shall be serviced annually by a licensed fire extinguisher service contractor. This includes replacing fire extinguishers that are designed to be replaced annually.

4.5 Health and Safety

The impacts of a safety incident to your health can vary based on many different factors. Timely treatment is needed to minimize the seriousness and reduce the chances of longer-term issues. Care management also includes understanding the risks to your health that may exist at a work site, and how those factors could impact people differently.

4.5.1 Basic First-aid and Medical Treatment

All service trucks shall be equipped with a first-aid kit intended for at least the number of workers transported in the vehicle. All service trucks for workers who may be exposed to eye hazards shall be equipped with a portable eye wash kit.

Medical treatment, including CPR, shall only be performed by persons trained to do so. CPR training shall be at least equivalent to the standard Red Cross course. For non-emergency medical treatment, workers should contact their employers and notify the site operator and customer. If there is a contractor foreman or lead person, they shall perform the following.

- Ensure that his or her employees receive prompt medical attention.
- Transport injured contractor personnel who are not seriously injured to the nearest medical facility or to a facility of their choice.

For emergency medical treatment, workers shall immediately report to their job foreman, if applicable, or the site operator. Local emergency services should be contacted (using 911 where available).

Workers are not required to provide first aid or CPR. However, should a worker decide to provide assistance, he or she shall perform the following actions appearing in Table 1, as appropriate.

4.5.2 Care Management beyond First Aid

Workers can only be expected to perform medical activities for which they are properly trained and competent. It is important for workers to also understand when a situation has reached a point where they can no longer handle it. At this point, the situation shall be escalated using the notification procedures appropriate to the situation and the customer.

When a serious incident occurs, work shall stop, notifications shall be made, and the incident scene preserved until an investigation is conducted. All accidents which require medical treatment shall be verbally reported as soon as possible. A follow-up written report shall be made within 24 hours. All OSHA recordable injuries shall be properly recorded in the contractor's OSHA 300 log as soon as possible. For all injuries, the appropriate medical care should be given.

Injury cases should be managed with physicians to ensure reasonable medical care is given. Proper case management can have an impact on the classification of an injury. When possible, light duty or restricted duty assignments should be made available as an alternative to days away from work. The limitations created by an injury should be evaluated and suitable work provided to accommodate those limitations.

Table 1—Basic First-aid and Medical Treatment Requirements

If...	Then...
A medical emergency occurs...	Request emergency service immediately. Dial 911.
The victim(s) is in immediate danger...	Rescue the victim, providing it is safe to do so and proper training has been received. NOTE Do not move a victim if he or she is not in immediate danger.
The victim is not breathing and has no heartbeat...	Begin CPR at once if properly trained. Use a CPR mouthpiece, pocket mask, or resuscitation bag whenever possible.
The victim is bleeding...	Wear liquid-resistant gloves to avoid contact with the blood and other body fluids while controlling a bleeding injury.
The victim is burned (chemical or thermal)...	Remove contaminated clothing, as necessary. Use water or ice to cool the burned area or put the person under a nearby shower. Do not remove clothing that is stuck to the body.
The victim has been splashed in the face with gasoline or a chemical...	Have victim flush his or her face and eyes for at least 15 minutes with fresh water, then get medical help as needed.
The victim is in shock...	Keep him or her warm and comfortable. Make him or her lie down. Wait for the paramedics.

4.5.3 Blood-borne Pathogens

Blood-borne pathogens are disease-causing microorganisms that may be present in human blood and other body fluids. OSHA Standards cover blood-borne pathogens and define blood-borne pathogens to include several pathogens; Common examples include HIV, HBV, and Hepatitis C. For a complete list, refer to the OSHA Standard.

Blood-borne pathogens are transmitted when open skin and/or mucus membrane such as eyes, nose, and mouth come in contact with contaminated blood and/or other body fluids.

Care should be taken when performing work in areas where these pathogens may exist. Examples include emergency responders (safety and/or health emergencies/security events) and workers in convenience store restrooms.

Refer to OSHA Standard for blood-borne pathogens for in-depth precautions, exposure prevention, and proper handling of contaminated material.

4.5.4 Biohazards

Biological hazards, called “biohazards”, refer to biological substances that may pose a threat if exposed or contact is made. While most of the more common biohazard risks at service stations are typically minor in nature, there is a need to be aware of the potential exposure areas, and develop an appropriate action plan as necessary. The more common examples for the typical service station contractor worker include the following.

- Plants (poison oak, poison ivy, etc.)—If work is to be performed in areas where this exposure could exist, workers should have some knowledge on how to identify these types of plants and the appropriate precautions to use when working with these plants (i.e. proper clothing, possible herbicides, etc.). Workers should also have an understanding of basic first aid actions to implement if exposure occurs.
- Insects/Small Animals (mosquitoes, ticks, chiggers, spiders, bees, wasps, rats)—Insects and small animals can exist in many different areas, including inside electrical boxes, landscaping areas, infrequently used storage rooms, building and canopy eaves, and well vaults and covers. Precaution is needed to identify and eliminate these types of animals prior to beginning work. Issues to exposure can occur immediately (skin rash or irritation)

and/or over time (e.g. Lyme disease from ticks). Proper clothing, tools, and appropriate biocides should be used to minimize risk of exposure.

- Microbes/Pathogens (bacteria, viruses, etc.)—Typical work at service stations should not present a higher exposure than normal interactions in commercial environments. However, exposure could increase when performing certain activities such as canopy gutter cleaning to remove bird excrement or trash removal with the potential of containing hypodermic needles. Also, if medical first aid or CPR on another individual is required, this could create an exposure potential. Since these bacteria and viruses are not visible, appropriate precautions are the best defense for exposure. The use of nitrile gloves and appropriate eye protection are examples of ways to prevent an exposure during these activities.

Workers should make known to others in the work group any known severe reactions they may have to any biohazard (e.g. severe reaction to bee stings). Workers that experience severe reactions should attempt to avoid areas where the exposure could exist and/or should be prepared to take appropriate actions if the exposure does occur.

4.6 Environmental

While the primary focus on this document concerns safety, there are a few key environmental processes and practices that are worth referencing. Additional documents and resources are available to further define the environmental requirements and regulations.

4.6.1 Environmental Considerations

Maintenance and construction activities can have an impact on the environment at retail petroleum/convenience sites. Proper precautions shall be taken to prevent leaks and spills in order to best protect the environment. Prevention is the key to environmental protection. Any repair that is made to a fueling system component shall be tested at a minimum of normal operating pressure to ensure that there are no leaks before placing the system back into operation. There may also be regulations in your area that require specific testing of equipment and repairs. Workers are required to know and follow the legal requirements for the areas in which they work.

4.6.2 Reporting and Notification Procedures for Environmental Incidents

Regulatory requirements for reporting spills, leaks, or other emergencies vary between Federal, State, and local jurisdictions. All contractors are required to know the regulatory requirements for notification to authorities. All workers shall know the required contacts for all major types of emergencies such as:

- fires,
- spills,
- leaks,
- vehicular accidents,
- security incidents,
- all other non-specified emergencies.

All workers shall also know when they are required to call 911 for emergency assistance. Workers shall report any and all emergencies to the site operator and the customer's authorized representative.

4.6.3 Waste Generation and Disposal

There are waste generation regulations at the Federal, State, and local levels. It is the responsibility of the contractor to train workers to know and follow all of the waste generation regulations that apply to the work being done. In general, contractors and workers shall evaluate the impact their work will have on the environment through waste disposal and take necessary steps in agreement with customers to minimize normal and hazardous waste generation. Materials should be recycled whenever practical. Hazardous wastes shall never be placed in the normal trash or dumpsters and shall be disposed of according to the applicable regulations.

4.7 References

OSHA (The reference below may be obtained at OSHA's website: <http://www.osha.gov/index.html>.)

29 *CFR* 1926 Subpart C.

5 Personal Protective Equipment (PPE)

5.1 PPE Summary

Table 2 conveys the basic Personal Protective Equipment requirements for maintenance or construction work at retail service stations.

Table 2—Basic Personal Protective Equipment Requirements

PPE	Best Practices Construction Projects or Maintenance Work
Brightly colored clothing	Always —High visibility (“HiVis”) to maximize visibility to others
*Reflective vest	Always —At night or during low-visibility conditions
Head protection	Always —Hardhat
Eye protection	Always —Safety glasses w/appropriate side protection
Hearing protection	As needed—Based on noise levels
Hand protection	Always —appropriate gloves worn based on the task
Foot protection	Always
Body protection	Always —Long pants and shirts with sleeves
NOTE Some customers may allow reflective clothing to be used instead of a reflective vest.	

Contractors are required to provide personal protective equipment and training in its proper use. In addition to the above requirements, there may be additional PPE needs based on the specific hazards of the job. The best way to determine job specific PPE requirements is to perform a Job Safety Analysis before beginning work. See Section 4 for more information on the Job Safety Analysis.

In many circumstances the use of PPE is required by government regulation. Not wearing proper PPE can result in violations and fines. However, the most important reason for wearing PPE is because it prevents injuries and saves lives. Where PPE is required, all workers shall follow the requirements.

More details and descriptions of the PPE are provided below.

5.1.1 Brightly Colored and Reflective Vests

Being visible to other workers, site personnel, and the general public is an important step towards being safe. By wearing a highly visible vest (or other highly visible clothing if allowed by the Customer), not only do you increase your chances of being seen prior to an unsafe situation, it can also be a signal to others that some work activity is occurring. This can increase awareness of all people in and around the work area.

The vest (or other endorsed clothing) must be reflective when worn at night (after dusk and before dawn). This improves visibility in working in darkened areas. Consideration should be given to wearing reflective clothing when conditions change (dark skies during thunder storms, etc.).

Vest colors and reflective material can fade over time. It is recommended that new vests or approved clothing be replaced periodically to ensure maximum visibility and reflectiveness.

5.1.2 Head Protection

OSHA (29 *CFR* 1910.135 and 1926.100) requires the use of safety helmets (hardhats) to protect against injury to the head from falling objects or electrical hazards. All hardhats shall meet the requirements of ANSI Z89.1. Hardhats should be worn at all times.

While hardhats are the preferred best practice, bump caps can also protect against injury in areas with restricted clearance. When there are no risks of falling objects or electrical hazards, bump caps may be worn. Workers should check with their company and their customer's expectations, as some do not allow bump caps and require the use of hardhats.

5.1.3 Eye Protection

OSHA (29 *CFR* 1910.133, 1926.102) requires workers to wear eye protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation. In addition to the basic eye protection, workers shall also use side shields when there is a hazard from flying objects. Wrap around style safety glasses are satisfactory to meet this requirement. All eye protection shall meet ANSI Z87.1.

It is recommended that eye protection with side shields be worn at all times when on a construction site and when performing maintenance work.

In some situations eye protection that is tinted in order to also allow for sun/glare protection may also be warranted. This tinting can add additional protection when the sun is rising/setting, or when working on or around highly reflective surfaces (some asphalts, concrete, when snow is present, etc.).

Other eye and face protection may be required based on the hazards present and the tasks to be done. These include the following.

- a) Chemical Goggles—Chemical goggles protect against exposure to materials capable of causing irreversible damage to the eyes, like gasoline and corrosives. Goggles also protect eyes against splash, flying chips, and dust.
- b) Face Shields—Face shields cover a larger part of the face than goggles, but do not provide tight seals around the edges. Some face shields provide better protection for the face than others for certain hazards. Contractors shall be aware of the hazards their workers face and provide them with the appropriate eye protection suited to the hazards they face.

5.1.4 Hearing Protection

It is recommended that hearing protection should be worn when sound levels reach 85 dB (decibels). This sound level threshold is typically reached when workers are using or are around most construction and maintenance power equipment. Table 3, below, provides typical sound level ranges.

Table 3—Typical Sound Level Ranges of Various Activities

Activity	dB	Activity	dB	Activity	dB
Quiet office	40	Factory machine	80 to 100	Jackhammer	115 to 130
Convenience store	50 to 60	Gas-powered blower	90 to 105	Ambulance siren	120
Power saw	100 to 110	Power lawnmower	65 to 95	Rocket launch	180
Truck	75 to 85	Chainsaw	110 to 120	Jet engine	150
Electric drill	85 to 95	Pneumatic drill	115 to 120	Subway/train	90 to 115

One rule of thumb for determining if the noise level is above 85 dB is if two workers cannot talk without raising their voice at an arm's length distance [0.6 m to 0.9 m (2 ft to 3 ft)], then it can be assumed the sound level is at or above 85 dB.

Every piece of hearing PPE shall have a Noise Reduction Rating (NRR) expressed in decibels of reduction. It is recommended to follow OSHA's guidance on determining if the NRR rating is sufficient to reduce noise to a satisfactory level (while the NRR is measured in decibels, the hearing protector does not reduce the surrounding noise by the exact number of the NRR rating).

When sound levels are equal to or above 95 dB, double hearing protection is recommended. Double, or dual, hearing protection will typically take the form of ear plugging devices, as well as ear muffs.

OSHA requires a yearly hearing test for workers exposed to an average of 85 dB over an 8-hour day. OSHA 29 *CFR* 1926.52 and 1910.95 apply to noise exposures.

5.1.5 Hand Protection

OSHA (29 *CFR* 1910.138) requires workers to wear gloves when their hands are exposed to hazards such as those from skin absorption of harmful substances, severe cuts or lacerations, severe abrasions, punctures, chemical burns, thermal burns, and harmful temperature extremes. The appropriate glove for a task depends upon the hazards that have been identified for that task.

Some of the more common types of gloves include the following:

- impervious (i.e. nitrile)—for use with chemicals,
- leather—for use with handling general equipment and materials,
- cut resistant—for use with sharp materials,
- impact-resistant—for use with materials that may potentially puncture the hand,
- thermal protection—for use during cold temperatures.

Multiple gloves can be worn at the same time under certain circumstances. Impervious gloves, specifically designed to protect against chemicals, should be worn as the outermost layer if used in conjunction with another glove. For

example, if it is cold, a worker can wear a thermal protection glove underneath a nitrile glove while performing a task, as long as finger dexterity is not compromised.

5.1.6 Foot Protection

OSHA (29 *CFR* 1910.136 and 1926.96) requires workers to wear protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where an employee's feet are exposed to electrical hazards. All footwear shall meet the requirements of ASTM F2413.

Some work locations and customers may require non-steel, composite toe footwear to be worn, potentially in cases where electrical conductivity is an issue.

Some contractors and/or customers may require that protective footwear fully cover the ankle. An advantage of footwear that completely covers the ankle is that it minimizes scrapes/cuts to the ankle and can add additional stability when walking over uneven surfaces.

Workers should check with their contractor, customers, and other site specifications to determine what type of protective footwear is most appropriate.

5.1.7 Body Protection

Wear body protection to keep corrosive, oily, dirty, or dusty materials off of the body. Pants that cover the legs must be worn at all times. Pants should be made of appropriate material to protect the legs based on the work being performed. Shorts are never allowed.

Shirts shall be short sleeve at a minimum. Sleeveless shirts are prohibited. Some body protection, such as longer-sleeved shirts, can also provide UV protection.

A hazard assessment should be conducted to determine the protection appropriate to the hazard.

5.2 Additional PPE When Required

5.2.1 Respiratory Protection

Wear appropriate respiratory protection when effective engineering and administrative controls cannot be used. Do not enter areas with a hazardous atmosphere. Avoid working environments that require workers to wear respiratory protection. OSHA 1910.134 addresses respiratory protection requirements.

Any worker who wears a respirator shall receive medical clearance before use. If the worker will only be wearing a single-use disposable mask to provide comfort for dust, the medical clearance is not required. The worker shall complete respirator training and pass a respirator-fit test before wearing a respirator. A qualitative fit test determines whether an employee is able to get a respirator face piece-to-face seal.

The single-use disposable mask protects against low levels of "nuisance" dust. Use and discard masks at end of each task or workday. Do not use a single-use disposable mask:

- as protection against gases or vapors or oxygen deficiency,
- if respiratory protection is required.

5.2.2 Fall Protection

Refer to Section 10 for details regarding fall protection PPE.