

May 12, 2022

Paul Kasper
Director of Enforcement
Department of Energy's Enforcement Division
21 S. Fruit Street
Concord, NH 03301-2429

RE: Docket No. DW 21-090
Verified Joint Petition for Approval of the Acquisition of Abenaki Water Company by
Aquarion Company

Dear Director Kasper,

Aquarion Company ("Aquarion" or the "Company") provides this compliance report on Aquarion's progress regarding the commitments made in accordance with sections 8.1 and 9.1 of the Settlement Agreement dated November 9, 2021 and approved in Order No. 26,549, issued by the New Hampshire Public Utilities Commission (the "Commission") in Docket No. DW 21-090 on November 12, 2021 (the "Settlement Agreement").

Aquarion's commitments are specified in Appendix 1 and 2 to the Settlement Agreement; these commitments were based upon language in the Safety Staff Recommendations to address the issues identified in the Department of Energy ("DOE"), Division of Enforcement's "Investigation Report of Water Pressure Reduction Matter in Rosebrook Water System" in Docket No. IR 21-024 dated August 31, 2021. Each commitment in Appendix 1 of the Settlement Agreement is identified by the corresponding Safety Staff Recommendation, but is not identical to that recommendation. For reference to the Company commitments, please refer to the appropriate page of Appendix 1 of the Settlement Agreement.

Managerial and Technical Oversight (Safety Staff Recommendation 1, Settlement Agreement, Appendix 1, page 14)

Prior to acquiring Abenaki on December 1, 2021, Aquarion put significant effort into understanding the operations, water quality, customer concerns, and capital projects/needs of the Abenaki systems. Immediately upon closing, Aquarion was thus ready to take responsibility for improving safety, water quality, and customer service. This includes:

- Aquarion's Manager-Operations for New Hampshire, Carl McMorran has taken on responsibility for the Abenaki water systems, providing day-to-day direction to the operations staff, implementing Aquarion's processes and systems (e.g. GIS and SAP maintenance management), and setting direction to ensure that the aforementioned commitments are met.
- Aquarion's Water Quality department works closely with Mr. McMorran and the operators to ensure compliance with federal and state water quality regulations. Since completing the acquisition, Aquarion has resolved compliance deficiencies related to copper in the Rosebrook system and arsenic in the White Rock system.

- Aquarion's Engineering & Planning department has taken the lead on addressing the pressure concerns in the Rosebrook system, working collaboratively with Mr. McMorran and the operations staff. This topic is discussed in more detail below.
- Aquarion's Customer Service and Billing departments have taken responsibility for addressing customer calls and concerns, and providing accurate, timely billing.
- Aquarion's SCADA group and contractor have begun installing remote monitoring equipment in the Abenaki facilities to record and monitor operational data, and enhance alarming capability.
- Aquarion's GIS team has added the Abenaki systems to Aquarion's GIS, and created the system maps described below.

Emergency Response Resources and Plan (Safety Staff Recommendation 2, Settlement Agreement, Appendix 1, page 14)

Aquarion has signed a Service Agreement with FX Lyons, Inc. to assist Aquarion's staff with both planned services (e.g. valve maintenance) and emergency services (e.g. main breaks) for the Rosebrook system. FX Lyons, Inc. has a team of licensed operators who operate and maintain water systems in northern New Hampshire. Importantly, FX Lyons, Inc. has experience with the Rosebrook water system.

Aquarion has prepared an Emergency Response Plan ("ERP") for the Rosebrook system, and is preparing ERP's for the four other Abenaki systems.¹

Aquarion staff including John Walsh as Vice President, Operations & Utility Innovation, Mr. McMorran as Manager of Operations for New Hampshire, and operations staff in other groups within Aquarion are available to respond to emergencies in the Abenaki systems.

Safety Program (Safety Staff Recommendations 3 and 6, Settlement Agreement, Appendix 1, page 14)

Aquarion is committed to employee safety, and has a comprehensive safety program described in the attached Safety Handbook, included as Attachment A to this report. Aquarion's safety activities for Abenaki include the following:

- Provided Personal Protective Equipment (PPE)
- Provided Confined Space equipment
- Provided Confined Space training
- Provided Hazard Communication training
- Reviewed Safety Policies and Procedures with operators, including Vehicle Safety and Use Policy and Accident-Injury Reporting
- Integrated Abenaki into Aquarion's HR Department's Safety information and training schedule.

¹ For security reasons, ERPs are available for viewing at Aquarion's offices at 7 Scott Rd, Hampton, NH 03842.

System Maps and Pipe Inventory (Safety Staff Recommendations 7 and 10, Settlement Agreement, Appendix 1, pages 14-15)

Aquarion has prepared system maps for the Abenaki systems, provided on a confidential basis as Attachment B.² These maps show the water mains, hydrants, valves, wells, treatment / pumping facilities, and tanks as shown in our GIS. These maps were prepared using available maps and records, ongoing field investigations, and GPS surveys (particularly for valves and hydrants in the Rosebrook system). Aquarion's GIS team and the Abenaki operations staff will continue to work on improving the accuracy of these maps, including obtaining and incorporating GPS coordinates of all valves in the Abenaki systems.

Puc 600 Rules (Safety Staff Recommendation 8, Settlement Agreement, Appendix 1, page 14)

Aquarion has implemented its standard systems and processes to ensure compliance with N.H. Code of Administrative Rules Puc 600, as described below, with a focus on the sections of the rules discussed in the DOE's August 31, 2021 report in Docket No. IR 21-024. Note that Aquarion's Enterprise Resource Planning software is an SAP system, which the Company uses for a variety of functions including maintenance planning and documentation.

- **604.05 Pressure Surveys and Records** - Aquarion continuously measures pressure at the Rosebrook wellhouse, and this data is transmitted to and documented continuously on a remote server. The current system for transmitting and documenting this pressure data is being replaced with Aquarion's standard SCADA systems (i.e. hardware, software, communications). Aquarion representatives have discussed with Omni representatives the idea of installing similar equipment (i.e. pressure transducer and communication equipment) at the Omni Hotel to enable remote monitoring and documentation of pressure at the hotel. Regarding pressure complaints from customers, when an Aquarion customer service representative receives a pressure complaint, the representative reports this information to the operations staff and records the complaint in our Customer Relationship Management ("CRM") software; this data will be reported to the Commission on a monthly basis on Form E-14.
- **604.06 Interruptions of Service** - Incidents of service interruptions are recorded in our SAP system, and reported to the Commission on a monthly basis on Form E-18.
- **605.04 Test Schedules for Meters** - SAP notifications are created for meters that are due for replacement based on test schedules described in Puc 605.04. Meter replacement information is then recorded when the notification is closed. Aquarion will submit Form E-15 to the Commission each year.
- **605.07 Underground Utility Damage Prevention Program** - All Abenaki systems are enrolled in the Dig Safe program. Dig Safe tickets are received by email into our SAP system, which automatically creates notifications, which are then assigned to Aquarion staff each day for field work (location and marking).
- **606.02 Distribution System and Mains (Flushing)** - Flushing activities will be recorded using SAP maintenance notifications.
- **606.03 Fire Protection and Hydrants** - Equipment records and maintenance plans have been created in SAP for every Company-owned hydrant in the Rosebrook system. The Company

² Aquarion has a good faith reason for seeking confidential treatment of these maps under Puc 203.08, and has filed a motion for confidential treatment along with this report for the Commission's review and approval.

recently met with Omni representatives to review hydrants on the hotel property to confirm who owns each hydrant on the property. SAP notifications for routine annual maintenance on every hydrant in the Rosebrook system have been created. Maintenance activities will be recorded in SAP, and will be reported to the Commission annually on Form E-17.

- **606.04 Valves** – Refer to the summary below regarding valve inspection and maintenance. Also, for each valve in the Rosebrook system, an SAP equipment record has been created, along with an annual maintenance notification.
- **607.01 System maps** - Refer to the discussion above about System Maps.
- **608.01 Safety** - Refer to the discussion above about the Company's Safety Program.

Valve Maintenance, Repair, and Replacement (Safety Staff Recommendation 9, Settlement Agreement, Appendix 1, page 15)

According to available records, Aquarion has initially identified 80 valves in the Rosebrook system. These valves have been added to our GIS (see System Maps in Attachment B) and input into our SAP software for maintenance management planning and documentation purposes.

The current valve inventory for the Rosebrook system is shown in Attachment C.

Seventy valves have been located and inspected in the Rosebrook system. Of these 70 valves, all were found to be operable with the exception of six that had either rounded operating nuts, a box/riser issue, or had been paved over. These issues will be addressed by June 15, 2022 during our spring maintenance activities; Aquarion has a contract with a contractor to fix the valves with rounded operating nuts.

For the remaining ten valves in the Rosebrook system, Aquarion is in the process of confirming that these valves exist, and will inspect them as they are located. Valves found to be inoperable but that can be repaired will be repaired by September 30, 2022. For valves found to be inoperable and need to be replaced, a plan and schedule for replacements will be developed by September 30, 2022.

Regarding the other Abenaki water systems referenced in the fourth bullet point of Appendix 2 of the Settlement Agreement, Aquarion has identified the valves in these systems through the process of developing the System Maps (see Attachment B), has added these valves to GIS, and will inspect these valves during 2022.

Timeline for addressing inoperable valves, inspecting and maintaining hydrants, and separating chemicals (Safety Staff Recommendations 11 and 16, Settlement Agreement, Appendix 1, pages 15-16)

- **Valves** - Please see the previous section for the timeline for valves work.
- **Hydrants** - There are 61 company-owned hydrants in the Rosebrook system. These hydrants have been added to our GIS (see System Maps in Attachment B) and input into our SAP software for maintenance management planning and documentation purposes. The current hydrant inventory is shown in Attachment D. All of these hydrants were properly inspected and maintained in 2021, including a pressure and flow test. Three hydrants failed the pressure test and require new bonnet seals. These seals will be replaced by June 15, 2022. Note that the system map and inventory also show four hydrants that are owned by Omni in front of the

hotel; they are noted on the map (see Attachment B) and in the hydrant inventory list (see Attachment D). Although Abenaki has performed maintenance on these hydrants in the past, now that ownership has been clarified, it is the responsibility of Omni to inspect and maintain these four hydrants.

- **Chemical Storage and Feed** - Regarding separating the two chemicals (sodium carbonate and sodium hypochlorite) that are currently combined in one chemical storage tank in the Rosebrook wellhouse, Aquarion plans to construct a new pump station/treatment building at the wellfield, and these two chemicals will have separate storage and feed systems in that new facility. The pump stations/treatment facility is currently being designed. Aquarion expects to put this project out to bid by March 2023, and expects the facility to be online by June 2024.

Pressure Reduction Project (Safety Staff Recommendations 13, 14, 15, 17, 18, 19, 20, 21, Settlement Agreement, Appendix 1, pages 15-17)

New Hampshire Department of Environmental Services (“DES”) issued a Letter of Deficiency (“LOD”) on December 1, 2020 (amended on October 20, 2021) listing several Significant Deficiencies in the Rosebrook water system, one of which was that the water system pressures exceed regulatory limits.

Prior to Aquarion acquiring the system on December 1, 2021, the prior owner retained Horizons Engineering Inc. to identify possible solutions to address this deficiency. Horizons’ work was summarized in a report (last updated June 22, 2021) that included seven alternative solutions.

Since Aquarion acquired the Rosebrook water system, Aquarion has identified an additional six alternative solutions. Aquarion is finalizing the analysis of these alternative solutions, and plans to begin presenting the alternative solutions including the preferred solution to stakeholders starting in early June 2022. This work is being done in accordance with the commitments described in summary below.

- **re: Safety Staff Recommendations 13, 14, 15** – Aquarion committed to making best efforts to identify a cost-effective solution that meets compliance with applicable regulatory requirements, but that also seeks exemption from those requirements where options are available that don’t meet regulatory requirements but nonetheless satisfy regulatory agencies’ safety and reliability concerns. If a sufficient option is not available that will allow Aquarion to obtain a full exemption from the applicable pressure regulations, Aquarion has committed to making a good faith effort to investigate and propose possible request(s) for partial exemption, where appropriate. Consistent with its commitment, Aquarion will continue to confer with Omni, Bretton Woods Property Owners Association, and other interested stakeholders, including the DES’s Enforcement Safety Bureau, in a good faith effort to obtain stakeholder assent prior to presenting the preferred option to respective regulatory agencies (specifically DES). Aquarion shall make best efforts to explore all reasonable funding sources in order to reduce or eliminate project costs and customer impact.
- **re: Safety Staff Recommendations 17, 18, 20, 21** – Aquarion committed to providing a matrix when presenting alternative solutions that compares alternatives including pros and cons; capital cost (using formal cost estimating classification process); projected annual O&M costs; easement requirements, costs, and risks; and replacement cost for end-of-life equipment.

- **re: Safety Staff Recommendation 19** – Fire protection system design demands from customers were obtained by Abenaki prior to acquisition.

Regarding efforts to explore funding sources, on March 22, 2021, Abenaki filed a “Petition to Approve NH DWGTF Financing for Rosebrook Pressure Reduction Project” in Docket No. DW 21-061. In the Petition, the Company indicated that “[t]he DWG Trust Fund Administrator confirmed on 2/9/21 that funding of up to \$2,520,000 in loan funds and \$280,000 in grant funds would be available for the project.” With respect to the application and loan approval by the DES, the application has been approved by the Trust Fund Counsel. As noted above, Aquarion is finalizing the analysis of the alternative solutions. Once a solution has been selected, the Company will update its financing schedules submitted with the Abenaki financing petition to include a calculation of the rate impact of the borrowing. In addition, Aquarion plans to file an application for State Revolving Funds (SRF) for the pressure reduction project.

The Company thanks the DOE for its consideration of this matter. Please do not hesitate to contact me (781-413-6175, jwalsh@aquarionwater.com) should there be any questions in regards to this report.

Regards,



John Walsh
Vice President, Operations & Utility Innovation
Aquarion Water Company

Attachments

cc: DW 21-090 service list
IR 21-024 service list

ATTACHMENT A
AQUARION SAFETY HANDBOOK



Stewards of the Environment™

2022

Aquarion Water Company

Safety Handbook

Safety is No Accident

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FORWARD

AQUARION Company is sincerely concerned with the safety and welfare of its employees and the public it serves. Safety is the core value at Aquarion. Whether your work in the field, in an office, or on the road, safety is everyone's responsibility. It acknowledges an obligation as an employer to provide the safest possible working conditions for employees and a safe environment for the public that uses our services.

The primary purpose of this Safety Handbook is to acquaint you with the general safety rules and policies. It reflects the efforts of many people to establish reasonable, practical, safe work practices to prevent accidents. However, no manual can be expected to cover all conditions that may arise when work is in progress. Our approach to accident prevention cannot be simple or basic; it is complicated by the wide differences in tasks performed and the differences in work environments. Rules and policies concerned with specific department operations will be explained to you by your supervisor.

Our Goal is to perform the tasks of utility operations and public services without accidents. It is the responsibility of all AQUARION employees to contribute to that goal. The attitude which shall guide our efforts is as follows:

1. Compliance with safety rules (such as the use of safety equipment) is a condition of employment.
2. Accidents are caused and can be prevented.
3. Safety is a mark of skill and good sense.
4. AQUARION is sincerely interested in safety and is willing to put forth the effort to prevent accidents.
5. Safety is a personal responsibility.
6. No job is so important, and no service is so urgent that we cannot take time to perform our work safely.
7. We owe a moral obligation to each other to do everything possible to prevent accidents.
8. Management interest in preventing accidents is sincere. Neither the employer nor the employee can afford the losses that accompany an accident.
9. The work areas and equipment will be kept as safe as possible. As new hazards are discovered, corrective measures will be taken.
10. Each employee should report all unsafe conditions encountered in his work.
11. No employee is expected to undertake a job until he has learned to do it and is authorized to do so by his supervisor.
12. All injuries must be reported immediately.

We will achieve a good, mediocre, or poor occupational safety record in direct proportion to the amount of effort we are willing to put into it. Wishful thinking or talking about it will not produce the results we must achieve. The safe worker benefits him/herself, his/her family, his/her fellow workers, AQUARION and the rest of society in which he/she lives. Make safety your way of life.

INTRODUCTION

This manual is issued to inform AQUARION employees about the management policies that are the basis for our occupational safety program, and to establish uniform safety procedures for tasks that are performed in more than one AQUARION division. Safety procedures for specialized tasks performed solely by one unit should be prepared by the Department Head concerned and, after approval, issued only to employees performing those tasks. It should be emphasized that all employees should comply with these specialized rules whether they are included here or not.

The manual is divided into sections, each concerned with a particular type of task, equipment, operation, or hazard so that they will be easy to read, understand and follow. As new sections or amendments are published, they shall be distributed to you for addition to your manual. All supervisors should be required to study this manual. Supervisors should also be responsible for conveying the information contained herein to all personnel under their direct supervision.

Department Heads should be directed to make safety a matter of continuing concern, equal in importance to all other operational considerations. They should also be directed to develop and administer an active department safety program. The program sets standards every employee must accept if it is to be successful. All employees are charged with responsibility for cooperating with, and supporting, the safety program objectives. Every employee is expected, as a condition of employment to concern him/herself with their own safety, the safety of his fellow workers, and the safety of the public affected by AQUARION functions. This means willing acceptance and active support of approved safety rules or safety procedures. It is important that employees be constantly on the alert for potential hazards which are not referred to in any written practices, but which may result in injuries or property damage. Where potential hazards are thought to exist, employees shall use all known precautionary measures, and when in doubt as to the procedure to follow, shall consult their supervisor before proceeding with the work.

Safety is a way of life. Most people endorse it and many talk of it frequently, but failures in accident prevention occur when we overlook safety to concentrate on a mechanical skill or problem; or when we fail to recognize a hazard; or when we just get in too big of a hurry to get the job done and take unnecessary risks.

Experienced professionals in any occupation recognize that you cannot afford to ignore safety. Accidents are too costly. They cost employee's physical pain, possible disability, and potential loss of income of future earning power. Workers' Compensation, no matter how liberal, will never equal the cost of injuries to employees. It is certainly small consolation to the spouse and children of an employee who suffers fatal or severely crippling injuries. Accidents cost employer's money and lost time for Workers' Compensation, medical treatment, repair of damaged equipment and many hidden costs that are not so easily measured. Accident prevention is just plain common-sense self-insurance. Safe operating procedures are a demonstration of a job skill. Safe performance is efficient performance.

Accidents don't just happen. They are caused. They are caused because of possible Organizational Weaknesses, poor Job Site Conditions and/or Behaviors. Human failures can be controlled. By exercising self-control, every employee has an opportunity to demonstrate job skill. By passing on this knowledge to others, an employee demonstrates teamwork. By demanding safe performance and enforcing approved safety procedures, a supervisor demonstrates concern for his employees'

welfare. Accident prevention can be the most important employment benefit any of us have. What does all this add up to? Here is a positive side of Safety:

1. Safety is a matter of COMMON-SENSE acceptance of procedures developed through experience for your self-protection.
2. The SAFE WAY to do a job is the most efficient way to do it.
3. SAFE performance - a good safety record is a mark of JOB SKILL.
4. Shortcuts that ignore safety usually take more time than they save.

TRAINING AND JOB INSTRUCTION

All supervisors should be expected to study the application of safety principles to supervision techniques. Supervisors should conduct on-the-job training to help their employees learn how to adapt their present skills to some of the unique requirements of AQUARION employment. Supervisors should conduct training sessions; plan and layout daily work assignments, and make frequent individual contacts emphasizing potential hazards and safety procedures to avoid them. Supervisors should observe employee's performance and take corrective action where necessary to ensure that safe job procedures are followed.

When accidents occur, supervisors with the Safety Manager should investigate them. While an employee may have to accept responsibility for deliberate, wanton acts, the main purpose for the early investigation is fact finding, not fault finding. The objective, of course, is to determine how and why the accident happened so that we can prevent it from happening again. There should be a constant program of job safety analysis to identify hazards and eliminate them before accidents happen. You may be called upon to help make such analysis.

Responsibility for Safety

1. The Department Head may and usually does delegate authority and assign responsibilities for most areas in his/her control. The Department Head cannot delegate or sign away his/her responsibilities for accident prevention, however. The results from this program are expected to be in direct proportion to the interest and guidance provided by the Department Head.
2. Supervisors should assume the responsibility of thoroughly instructing their personnel in the safe practices to be observed in their work situations. They will consistently enforce safety standards and requirements to the utmost of their ability and authority. Supervisors will act positively to eliminate any potential hazards within the activities under their jurisdiction, and they will set the example of good safety practice in all spheres of their endeavors. Safety records shall be measured along with other phases of supervisor performance. Therefore, it is essential that such records are complete and accurate and that all accidents be fully reported.
3. All employees should be responsible for compliance with safety procedures, standards, and

rules established by management or other applicable directives that are established to prevent injury to themselves, other persons or damage to equipment and property. They should also be responsible for promptly reporting to their supervisor any hazardous conditions or procedures that affects them, their fellow workers, or the public.

4. In addition to this manual, the Company also has a Safety Program/Policies found on The Source which includes our *Hazard Communication, Confined Space Entry, Personal Protective Equipment Program, Control of Hazardous Energy (Lockout/Tagout), and Circle of Safety Programs*. Employees shall be instructed in these areas by their supervisor when necessary by virtue of their assigned duties with formal training within one month of their hire date. Employees should refer to those written programs, in addition to this manual, for guidance in working safely.
5. The Safety Manager along with the Safety Committee is responsible for the organization, coordination, and implementation of programs and safety education, hazard inspections/elimination and accidents/ injury reporting. The Safety Manager should advise the Human Resources Department, Department Heads, and Supervisory personnel on problem areas. However, the Safety Manager is not expected to exceed their staff administrative responsibility to perform line functions that are properly a responsibility of management and supervisors. The Safety Manger does not relieve Department Heads and intermediate supervisors of a basic responsibility; that of expanding their management and supervisory practices to incorporate safety engineering principles in all supervisory efforts.

Section A: GENERAL SAFETY INSTRUCTIONS FOR ALL EMPLOYEES

RESPONSIBILITY OF INDIVIDUALS

It is your responsibility to ensure:

1. Safety to yourself
2. Safety to your fellow employees
3. Safety to the public
4. Protection of the environment
5. Protection of AQUARION property
6. Employees are expected to study the safety manual, familiarize themselves with its contents and apply it to their everyday work.
7. Employees are expected to take an active part in the Company's safety program and apply it to their everyday work.
8. Before attempting any work under conditions which you believe are unsafe, you shall call these conditions to the attention of the employee designated in charge (supervisor, general foreman, and foreman) and get their advice.
9. Employees shall report promptly to the employee in charge (supervisor, general foreman, and foreman) any dangerous or improper condition of AQUARION apparatus or surroundings which come to their attention.

PERSONAL CONDUCT

1. Employees are expected to be alert and professional in their work, courteous and considerate in all their contacts.
2. Use of intoxicating beverages or drugs while on the job is strictly prohibited.
3. No employees shall report to work while under the influence of intoxicating beverages or drugs.
4. Practical joking or horseplay while on the job is strictly prohibited.
5. No employee shall distract the attention of other workers from their job.
6. Whenever the work of employees brings them in contact with hazardous conditions or equipment with which they are not familiar, they will not proceed with the work until they are properly instructed and authorized. The supervisor, foreman or individual designated in charge will determine the safe method and the proper way of performing the work and their instructions will then be followed (in accordance with the *Safety Manual*).

PHYSICAL FITNESS

1. Before employment or reemployment, applicants shall undergo a physical examination and must be certified by the physician designated by the Company as being physically qualified for the work they will be expected to perform.

2. After absence from work due to an on-the-job injury, employees may be required to pass a physical examination with respect to that injury to determine their fitness for duty.
3. All injuries shall receive prompt first-aid attention.

FUNDAMENTALS OF SAFETY

1. Prevention of accidents requires the wholehearted cooperation of all members of the Company. Neither the Company, the Safety Committee, nor the safety manual can prevent accidents without the help of each employee. Ability, mental alertness, and situational awareness will help avoid most accidents.
2. Unsafe workers are not wanted in the Company. They are a danger to themselves, their fellow workers, the public and AQUARION and are always inefficient.
3. Accidents do not "just happen" - accidents are the result of unsafe acts, or unsafe conditions or a combination of both.
4. Unsafe conditions which may result in accidents include, but are not limited to the following:
 - a. Unguarded-unshielded moving parts of machines, pumps, etc.; unbarricaded excavations.
 - b. Unenclosed high voltage equipment, and equipment lacking protective devices.
 - c. Inadequately guarded moving parts of machines, pumps, excavations, etc. - insufficient warning signs, barricades, safety cones, inadequate guards for the job, etc.
 - d. Defective material or equipment - such as mushroomed flaring tools, chisels, split handles.
 - e. Hazardous arrangements - such as poor housekeeping, unsafe planning, inadequate working Space.
 - f. Unsafe clothing - such as loose clothing when worn near machinery, and failure to use goggles, safety glasses, hard hats, shields, proper shoes, etc.
 - g. Improper illumination - such as insufficient light or unsuitable location, glare, or objectionable
 - h. shadows.
 - i. Unsafe design and construction.
 - j. Improper ventilation - such as insufficient change of air or presence of harmful vapor, drugs, or gas.
5. Unsafe acts which may cause accidents include the following:
 - a. Opening or closing valves without authority, operating hoist and trucks without warning, failure to place warning signs or signal men when needed, failure to block or guard materials or equipment against unexpected movement.
 - b. Operating or working unsafely - such as driving too fast, throwing material or tools to another worker, jumping into deep trenches, running or unnecessary haste, or operating a motor vehicle without proper license.
 - c. Making safety devices inoperative - such as removing guards from machines, using oversized

- d. fuses, etc.
- e. Using unsafe equipment or using equipment improperly - such as using dull cutting tools or mushroom head flaring tools, pipe extensions on wrenches not designed for them, wrong tools for the job, or using hands instead of hand tools.
- f. Unsafe loading, placing, or mixing - such as overloading winches, carrying too heavy a load,
- g. leaving objects where they are likely to fall, improper loading, and mixing chemicals improperly.
- h. Taking unsafe position or posture - such as walking under suspended loads or too close to
- i. openings, lifting while in an awkward position, entering areas where there are dangerous gases or fumes, passing on curves or hills, riding in unsafe places in vehicles.
- j. Working on dangerous equipment - such as cleaning, oiling, or adjusting moving machinery or working on live electric equipment that could be deenergized.
- k. Distracting, teasing, startling co-workers - such as practical joking, horseplay, quarreling or
- l. annoying.
- m. Failure to use safe clothing or protective equipment - such as failure to use goggles, safety shoes, hard hats, gloves, apron, or shields when necessary.

SUPERVISOR'S RESPONSIBILITY FOR SAFETY

1. The supervisor is the person directly in charge of employees and/or the job, regardless of the supervisor's customary title.
2. The supervisor is required to access, observe, and enforce all rules and instructions pertaining to the department as well as the general rules.
3. The supervisor shall perform regular safety observation.
4. Upon discovery of any unsafe conditions or practice, the supervisor shall take immediate action.
5. The supervisor shall establish the competence of his/her subordinates and satisfy that workers assigned to tasks are qualified, capable, and trained to perform such tasks in a safe and efficient manner.
6. The supervisor shall report every incident with adequate written documentation and required reports per company policy.
7. The supervisor shall thoroughly analyze all personal injury and motor vehicle incidents, damage to company or private property, and near-miss events to determine cause(s) and steps necessary to prevent reoccurrence.
8. As required, the supervisor along with Safety Manager and/or HR Safety Specialist shall conduct an incident analysis to determine the cause and steps necessary to prevent reoccurrence.
9. The supervisor shall ensure that department safety meetings are conducted on a regular basis.

10. The supervisor shall ensure that a supply of protective equipment sufficient to meet the requirements of these rules and reinforce the use of such equipment.
11. The supervisor shall ensure that all tools and equipment are properly maintained and safe for use.
12. Defective tools and equipment shall be removed from service for repair or replaced regardless of ownership.
13. The supervisor shall ensure that defects of equipment or apparatus reported to him/her by employees are corrected as soon as possible.
14. The supervisor shall take all reasonable measures to protect the public from danger in connection with the work being performed

EMPLOYEE'S RESPONSIBILITY FOR SAFETY

1. All employees shall perform their duties with the highest regard for their own safety and the safety of their fellow workers and the public.
2. All employees shall promptly report to their supervisor:
 - Any hazardous condition or situation that they cannot safely control.
 - Any incident or unsafe condition, tool, equipment, or material.
3. Before work of any kind is begun, each employee shall understand thoroughly the job to be performed, the possible hazards to be guarded against, and the safe procedures to be followed.
4. Each employee is responsible for participating in all applicable job briefings. If an employee is part of a crew and the employee fails to receive a job briefing, the employee shall request a job briefing from the person in charge of the job.

GENERAL RULES FOR ALL EMPLOYEES

1. All employees shall know and comply with federal, state, and company rules and procedures as they apply to their job assignments. These rules and procedures shall be strictly enforced to ensure employee and public safety and the protection of company and public property.
2. Employees shall not proceed with work unless they are familiar with the materials and equipment to be used and/or they have a clear understanding of work to be performed.
3. Employees shall request instructions from the Person in Charge if in doubt as to the proper procedures for assigned work. It is the employee's responsibility to let their supervisor know if they do not feel they are adequately trained.
4. Employees shall attend regularly scheduled safety meetings and training sessions as scheduled or arranged by their supervisor.
5. Employees shall not use electronic devices (e.g., cell phones, pagers, music players) that interfere with the safe performance of work.

Batteries (Lead-Acid/Corrosive)

Electric storage batteries emit hydrogen and oxygen, particularly while on charge. This forms a highly explosive mixture, and every precaution shall be taken against creating sparks and flames.

1. Storage of batteries shall be in enclosures with outside ventilation.
2. When handling batteries, employees shall don the minimum Personal Protective Equipment (PPE); chemical goggles or face shield with safety glasses, acid proof gloves, aprons, and fire-resistant clothing.
3. Tools & other metallic objects shall not be stored near or in proximity to uncovered batteries.
4. When employees install or maintain batteries, they shall use non-conductive tools.
5. Open flames shall be kept at a minimum of 25 feet away from battery rooms or installations.
6. Acid burns shall be flushed immediately with water or a neutralizing solution, and if severe, treatment shall be obtained by a medical facility.
7. Where the eyes or body of any employee/person may be exposed to corrosive materials, suitable facilities for drenching or flushing the eyes & body shall be provided w/in the work area (normally w/in 25 feet).
8. Access to emergency eye wash & shower stations shall be always kept clear.
9. When mixing electrolyte solution for storage batteries, the acid shall be poured into the water as the reverse may cause a violent reaction.
10. Electrolyte solutions shall not be placed in metal containers or stirred with metal objects.

Ergonomics

Prior to beginning work, employees shall plan to consider the person, work environment, work procedures, tools and equipment, body positioning and behavior. Planning helps to minimize any the risk of an ergonomic injury.

1. Conduct job-specific ergonomic assessments:

a. Behavior

- Warm up prior to performing strenuous job tasks.
- Get assistance with heavy loads.
- Utilize the correct tools for the job.

b. Body Positioning

- Utilize the position of strength when possible.

c. Tools & equipment

- Select the right tool for the job.

Lifting

The following observations shall be made prior to lifting, carrying, pushing, or pulling:

- a. Determine the weight of the load.
- b. Know your own limits.
- c. Do not lift manually if the weight is excessive or too bulky.
- d. Do not travel blind; be sure you can see around and over the material to be handled.
- e. Check for rough, sharp edges, protruding nails, pinch point & slippery surfaces.
- f. Check for open or weak bottoms on packages.
- g. Plan out your travel route.

Lifting and Lowering Techniques

The following techniques shall be practiced:

- a. For optimal balance, separate legs, placing one foot alongside & one foot being the load to be lifted.
- b. Grip the material firmly with your whole hand, not just your fingers. Use gloves when needed.
- c. Keep elbows close to the body for more power.
- d. Position your feet facing the direction you will be moving the object to.
- e. Squat down closed to the object, keeping spine & neck straight, core tight & chest up.
- f. Use your leg muscles when bending at the knees and not your hips to lift.
- g. Exhale on exertion.

Lowering the load:

- a. Descend the load by bending the knees & keeping the spine straight.
- b. Set one corner of the load down first, then slide hands out & clear.
- c. Use assistance if needed.

Carrying heavy objects:

- a. Do not change position or your grip while in motion.
- b. Never bend, lift, twist at the same time.
- c. Stop & rest the material while making the change.
- d. Use assistance if needed.

Employees working on a computer at home or in the office shall follow these basic guidelines:

- a. Adjust height of the chair so legs & hips form 90-degree angles.
- b. Center yourself to line up with the middle of the keyboard & monitor.
- c. Keep both feet flat on the floor.
- d. Lift wrist when using the mouse & maneuver mouse from the elbow & not wrist.
- e. Position keyboard & mouse at the same height.
- f. Wrists should be neutral when keying & mousing. Keep keyboard feet down.
- g. Position the monitor at arms distance away from your body & at a height that allows you to focus w/in 1 to 2 inches from top of the screen.

Employees should be proactive to prevent discomfort by making appropriate adjustments with their seats at home & work vehicles.

Excavations (Trenching)

1. Banks more than 5 feet high shall be shored, laid back to a stable slope, or some other equivalent means of protection shall be provided where employees may be exposed to moving ground or cave-ins. Trenches less than 5 feet in depth shall also be effectively protected when examination of the ground indicates hazardous ground movement may be expected.
2. Sides of trenches in unstable or soft material, 5 feet or more in depth, shall be shore, sheeted, braced, sloped, or otherwise supported by means of sufficient strength to protect the employees working within them.
3. Sides of trenches in hard or compact soil, including embankments, shall be shored, or otherwise

supported when the trench is more than 5 feet in depth. In lieu of shoring, the sides of the trench above the 5-foot level may be sloped to preclude collapse but shall not be steeper than a 1-foot rise to each 1/2-foot of horizontal.

4. Materials used for sheeting and sheet piling, bracing, shoring, and underpinning, shall be in good serviceable condition, and timbers used shall be sound and free from large or loose knots, and shall be designed and installed so as to be effective to the bottom of the excavation.
5. Additional precautions by way of shoring and bracing shall be taken to prevent slides or cave-ins when excavations or trenches are made in locations adjacent to backfilled excavations, or where excavations are subject to vibrations from railroad or highway traffic, the operation of machinery, or any other source.
6. When employees are required to be in trenches 4 feet deep or more, an adequate means of exit, such as a ladder or steps, shall be provided and located so as to require no more than 25 feet of lateral travel. Ladder shall extend 3 feet above ground level. (ADD?) Test for hazardous conditions, fumes & toxic gases when soil conditions require testing.
7. Bracing or shoring of trenches shall be carried along with the excavation
8. Cross braces or trench jacks shall be placed in true horizontal position, be spaced vertically, and be secured to prevent sliding, falling or kick outs.
9. Portable trench boxes or sliding trench shields may be used for the protection of personnel in lieu of a shoring system or sloping. Where such trench boxes or shields are used, they shall be designed, constructed, and maintained in a manner which will provide protection equal to or greater than the sheeting or shoring required for the trench.
10. Backfilling and removal of trench supports shall progress together from the bottom of the trench. Jacks or braces shall be released slowly, and, in unstable soil, ropes shall be used to pull out the jacks or braces from above after employees have cleared the trench.
11. Where using compressed air in excavating under streets or sidewalks, goggles or spectacle type safety glasses shall be worn by all personnel in the trench.
12. Excavated material and other superimposed loads shall be placed at least 24 inches (2 feet) back from the edges of any open excavation and trenches and shall be so piled or retained so that no part thereof can fall into the excavation. All dirt removed from trenches and other excavations should be piled, when possible, on the side next to the oncoming traffic.
13. Trench bracing or shoring shall not be used as a ladder.
14. Long bars, long handled shovels and similar items shall not be stored upright in a trench or excavation.
15. The sides of the trench should be carefully trimmed so that there are no jagged projections into the trench.
16. Compressed air tools, while under pressure, shall not be left unattended.
17. Operators of paving breakers and similar items shall be required to wear gloves and safety glasses.
18. Air tools shall not be turned on until the tool is solidly against the work.
19. Trenches shall be inspected daily by competent person.

Eyewash and Shower Facilities

1. Where the eyes or body of any employee/person may be exposed to corrosive materials, suitable facilities for drenching or flushing the eyes & body shall be provided w/in the work area (normally w/in 25 feet).
2. Access to emergency eye wash & shower stations shall be always kept clear.
3. Plumbed eyewash & shower stations shall be flushed & inspected weekly.
4. Non-plumbed eyewash & shower stations shall be inspected & maintained monthly and/or accordingly to the manufacturer's specifications.

Fall Protection

1. Fall protection equipment includes, but is not limited to fall arrest, work position and travel restricting equipment.
2. All employees shall use fall equipment when working at heights, entering confine spaces.
3. Safety straps, lanyards, lifelines & full body harnesses shall be inspected prior to each use.
4. Defective equipment or equipment subjected to shock loading shall be removed from service immediately.
5. Fall arrest systems shall be secured as high as possible above the point of operation to an anchorage or structural member capable of supporting 5,000 pounds.
6. Work positioning systems designed to stop the descent of a worker not more than 2 feet shall be capable of supporting 3,000 pounds.
7. Lanyards shall be rated at a minimum of 5,000 pounds break strength.
8. The system setup should prevent free-falls of more than 6 feet or contacts to a lower platform.
9. No more than one employee shall be attached to any one vertical lifeline.
10. Employees working on roofs, the leading edge of the roof must be protected by a rigid rail, guards, or parapets at least 42 inches height on the exposed side.
11. Otherwise, employees shall maintain at least 6 feet of clearance between the employee & the edge of the roof or use a personal fall arrest system.
12. Snap hooks shall not be connected to loops made in webbing type lanyards or to each other.

Fire Evacuations

1. Employees shall familiarize themselves with the location of fire alarm pull stations, first aid kits, automated external defibrillators (AEDs) if available, and exits in their immediate work area.
2. Fire doors shall be kept clear and in working order.
3. Each employee shall be familiar and comply with the plan for evacuation of

4. the company facility in which the employee works.
5. Fire evacuation plans shall identify routes of egress in the event of fire and designated rally points.
6. Exits and the way of approach and travel from exits shall be maintained so that they are unobstructed and are always accessible.
7. Elevators shall never to be used as a means of a fire exit.
8. Fire drills shall be conducted according to local operating procedures.

Fire Extinguishers

1. Portable fire extinguishers shall:
 2. Be visually inspected monthly by assigned personnel.
 3. Are subject to an annual maintenance check.
 4. Have records maintained showing the annual maintenance date.
 5. Ensure that the records are retained for one (1) year after the last entry or until the next yearly maintenance check.
 6. Fire extinguisher locations shall be clearly always marked and kept unobstructed.
 7. Fire extinguishers shall be clearly marked according to their use.
 8. Employees shall be familiar with the location of firefighting equipment in their department and/or at their work location.
 9. Employees shall not fight a fire unless properly trained and shall fight only fires that are in the incipient (initial) stage.
 10. Discharged fire extinguishers shall be reported at once to the appropriate supervisor for recharging.
 11. Under no circumstance shall a discharged or partially discharged fire extinguisher be returned to service.

Fire Protection and Prevention

1. Employees shall promptly report any fire hazard and to dispose of all smoking, rubbish, and waste materials in a proper manner.
2. Employees shall practice good housekeeping which is one of the most effective aids to fire prevention.
3. Waste containers shall be emptied at regular intervals and the contents shall be disposed of in such a manner that they do not become a fire hazard.
4. Open flames and smoking are not allowed on customers' property or on company property.

First Aid, CPR & Bloodborne Pathogens

FIRST AID AND CARDIOPULMONARY RESUSCITATION (CPR)

1. When two (2) or more employees are performing work on or are exposed to lines or equipment energized at (fifty) 50 volts or more, at least two (2) employees shall be trained in first aid and CPR.
2. Electricians and First Aid Responders shall be trained in first aid and CPR.
3. The location of first aid kits shall be clearly marked and accessible.
4. First aid kits shall be maintained, readily available for use, and inspected
5. periodically to ensure that expended/expired items are replaced.

BLOODBORNE PATHOGENS

1. Employees who are reasonably anticipated to have exposure to blood or other potentially infectious materials shall be knowledgeable of the health risk follow "universal precautions," and wear the appropriate personal protective equipment.
2. Any employee with an exposure to blood or other potentially infectious materials shall notify their supervisor.
3. Cleanup of bio-hazardous material shall be performed in accordance with M2-SH-20 Exposure Control Plan for Bloodborne Pathogens and only trained employees shall perform cleanup activities.

PURPOSE AND SCOPE

This program has been developed to minimize our employees' exposure to infectious disease and to ensure compliance with federal safety and health regulations. This policy was designed specifically for any employee whose job function may require them to become exposed to bloodborne pathogens. No employee is designated as a first aid responder but are not restricted from providing first aid in the role of good Samaritans. When emergency care is required, employees should call the nearest emergency facility. This policy applies to all AQUARION employees.

DETERMINATION of EXPOSURE

METHODS of COMPLIANCE

1. Where applicable, Management should determine the exposure, ensure use of universal precautions; provide lab coats and laundry; ensure employees are properly trained; provide personal protective equipment; provide for disposal of exposure incidents; provide HBV vaccinations; hold all medical information confidential; and enforce the policy contained herein.
2. Employees must follow universal precautions: wear personal protective equipment provided; attend required training program; properly dispose of all contaminated material; report all exposure incidents to a supervisor; and comply with this policy.

3. The exposure determination has been made for the company using the exposure evaluation form. Each step in the performance of a job was evaluated for exposure to bloodborne pathogens regardless of the use of protective equipment. An evaluation form can be found in the applicable department and with the Safety Coordinator and is made part of the plan. The plan shall be implemented following the OSHA schedule.

WORK PRACTICES

1. Universal precautions will be followed whenever there is the potential for contact with anybody fluid. For the purposes of this plan, universal precautions include wearing protective gloves. All body fluids shall be considered potentially infectious.
2. Where applicable, all non-reusable contaminated gloves will be disposed of in a biohazardous waste container.
3. Hands will be washed immediately after removal of gloves, other protective equipment, or after contact with suspect fluid. The employee shall use soap and at least tepid water during washing the hands or any other part of the body that has been exposed to potentially infectious fluid. In the case of first aid being provided when hand-washing facilities are not available, antiseptic towelettes shall be used. The hands should be washed as soon as possible, however.
4. Instruments that may be contaminated will be disinfected with an EPA-approved disinfectant and be cleaned in such a manner as to minimize manual contact. Heavy-duty gloves and goggles will be worn while cleaning instruments. These instruments will be transported to the sink area in closed, leak-proof containers that have been labeled. This container will allow the instruments to be washed and drained without being handled while still contaminated.
5. Liquid-resistant lab coats will be worn. When these coats become contaminated, they will be placed in the appropriately labeled bags for laundering.
6. All contaminated materials will be disposed of in a container designated for contaminated materials. These bags will be placed in containers that have closable lids. The containers will be properly labeled.
7. All specimens will be labeled as a biohazard and be double packaged in a leak proof container.
8. There shall be no eating, drinking, smoking, applying cosmetics, storage of food, drinks, or cosmetics, or handling contact lenses in areas potentially contaminated.

Flammable and Combustible Liquid/Materials, Use of And Storage

1. Combustible materials, such as oil-soaked or paint-covered cloths, rags, waste, or shavings shall be kept in approved covered and labeled metal containers.
2. Containers shall be emptied daily in accordance with local operating procedures.
3. Adequate precautions shall be taken to prevent the ignition of flammable vapors.

NOTE: Sources of ignition include, but are not limited to, open flames, lightning, smoking, cutting, welding hot surfaces, frictional heat, static, electrical, and mechanical sparks, spontaneous ignition (including heat producing chemical reactions), and radiant heat.

4. When flammable liquids are transferred from one tank or container to another, vessels, and equipment, including electrical windings, shall be bonded, and grounded to avoid static buildup during fluid transfer operations.
5. Employees shall not fight chemical fires or fires on oil-filled equipment.
6. Employees shall maintain required explosion-proof electrical equipment and replace it only with explosion-proof equipment.
7. Adequate ventilation shall be maintained when using flammable, combustible, and toxic materials.

Hazardous and/or Toxic Materials

1. Supervisors shall ensure that employees are made aware of the hazards and control measures to follow while using chemical products. *NOTE: The required information is contained on the chemical Safety Data Sheets (SDS) and includes, among other information, chemical characteristics, symptoms of exposure, routes of exposure, ventilation, PPE requirements and labeling.*
2. The SDS shall be available to all employees.
3. All employees working with chemicals shall be aware of physical and health hazards, proper handling, and emergency procedures for the chemicals being used.
4. Only company-approved chemicals shall be used.
5. When using flammable products, a suitable approved fire extinguisher shall be readily available.
6. Smoking or ingesting any food or beverage is prohibited while chemicals are being used.
7. Hazardous materials shall be stored in approved containers or tanks and properly labeled.
8. Information on the label shall, at a minimum, contain the identity and hazard warnings associated with the contents.
9. Rooms and areas used for the storage of hazardous materials shall be approved for that use. No such storage shall be permitted in confined spaces, under stairs, or within any exit routes/doors.
10. Ingestion, skin absorption, or contact with a hazardous material or substance shall be avoided.
11. When potential overexposure is suspected, approved personal protective equipment shall be used.
12. When working with or around hazardous materials, provisions shall be taken to ensure overexposure to airborne hazardous concentrations is controlled, so as not to present a hazard to the surrounding area or personnel.
13. When working with caustics or acids, the manufacturer-recommended neutralizer should be on hand at the worksite before work begins

Housekeeping

1. Good housekeeping shall be maintained in all company buildings, yards, work locations, and

mobile equipment.

2. Tools, pieces of equipment, scraps, and refuse shall be removed from floors, walks, balconies, yards, and work areas or stacked in a safe and secure position upon completion or suspension of work.
3. All refuse shall be disposed of in the proper receptacles and in accordance with all federal, state, and local regulations.
4. Tools that are not being used shall be kept in chests or convenient racks or otherwise stored where they will not create hazards.
5. Walkways, aisles, and stairways shall be kept clear.
6. In storerooms, aisles shall be properly delineated and maintained.
7. Truck beds shall be kept neat and in a safe condition. The operator shall see that materials are loaded and secured on trucks to prevent injury to employees or damage to materials and equipment.
8. Nails shall never be left projecting from boards or walls where they may cause personal injury. When removing materials from packing cases, employees shall remove all projecting nails.

Illumination

1. Sufficient illumination (spotlights, portable lights, etc.) shall be obtained and used as needed to perform the work safely.
2. Intrinsically safe lighting shall be used in hazardous (e.g., gaseous, coal dust) environments.

Office – General

1. The weight of filing cabinets shall be evenly distributed and/or filing cabinets shall be anchored. (Where there are several adjacent filing cabinets, it is recommended they be bolted together.)
2. Employees shall open only one drawer of a filing cabinet at a time to prevent the possibility of the cabinet tipping.
3. File drawers or cabinet doors shall not be left open. Heavy materials shall not be placed on top of filing cabinets.
4. Employees shall use approved ladders or step stools to reach material at higher elevations. Employees shall not stand on chairs and/or desks.
5. Employees shall not place office supplies, cartons, or other tripping hazards in walkways.
6. Employees shall not leave mail carts, dollies, hand trucks, or similar pieces of equipment in front of elevators, doors, or at blind corners or hallways where they create a hazard.
7. To avoid impeding emergency access, equipment or material shall not be placed within three (3) feet of an electrical panel.
8. Employees shall not use electrical cords and wires across walkways or workstations unless the cords and wires are adequately protected from causing a tripping hazard.

9. Employees shall clean up accidental spills immediately or place a barrier and report the spill to Facilities/Site Management or a supervisor.
10. Employees shall not stack materials within eighteen (18) inches of the fire sprinkler heads in the ceiling.
11. Portable heaters shall not be used unless approved by Facilities /Site Management.
12. Portable heaters shall be equipped with an anti-tip over feature and kept away from flammable and combustible materials.
13. Employees shall turn off heaters before leaving the work area.
14. Office machinery shall be operated only by authorized and trained personnel.
15. Operators shall not attempt to adjust any machine while it is in operation and shall not attempt to clear a jammed machine unless it is disconnected from all sources of energy.
16. All guards or protective devices shall be used when operating any office machinery.
17. Toners, developers, and other machine fluids shall be used and disposed of according to the manufacturer's instructions.

Working Over or Near Water

1. Employees working on, over, or near water where the danger of drowning exists shall wear a U.S. Coast Guard and company-approved life jacket or buoyant work vest. This includes when working on ice.
2. Each personal flotation device shall be U.S. Coast Guard-approved, maintained in safe condition and shall be inspected before and after use to ensure that it does not have rot, mildew, water saturation, and/or any other condition that could render the device unsuitable for use.
3. If employees are working on, over, or near water where the danger of drowning exists, ring buoys with at least ninety (90) feet of line shall be readily available within a distance of two hundred (200) feet. An employee may cross streams or other bodies of water only if a safe means of passage is available.
4. If work or travel, by foot or vehicle, need to take place on ice, it shall not be done by a single worker.
5. Employees work on ice shall always remain in clear line of sight of another person.

Section B: CONFINED SPACE ENTRY PROCEDURE

(See Policy on The Source under the Safety Tab).

1. A Confined Space - OSHA defines a Confined Space as an area/space that is large enough and so configured that an employee can bodily enter and perform assigned work; and has limited or restricted means for entry or exit; and is not designed for continuous employee occupancy.
2. Permit Required Confined Space (PRCS) has one or more of the following:
 - a. Contains or has the potential to contain a hazardous atmosphere.
 - b. Contains a material that has the potential to engulf an entrant (water) and high probability that a pipe might break.
 - c. Contains any other recognized serious safety hazard. For example, falling, tripping, chemical hazard, electrical hazards, and any other serious safety and health hazard recognized as being an impairment to escape.

Permit-Required Confined Spaces that have a potential for unauthorized or inadvertent entry shall be posted with either a permanent or temporary sign reading: "DANGER— PERMITREQUIRED CONFINED SPACE, DO NOT ENTER" or similar language.

3. Non-Permit Required Confined Space

Any confined space that does not contain any of the recognized hazards that fall under the definition of Permit Required Confined Space.

- a. If all hazards are eliminated (as opposed to controlled), then a space may be reclassified as Non-Permit Required Confined Space (NPRCS). This option shall apply primarily to spaces containing hazardous energy sources or engulfment hazards.

Attendants

The attendant's sole purpose is to observe that no personnel in the space are overcome or that events outside of the space present a problem to the people in the space. If during the entry the attendant feels that there is an unsafe condition, either in the space or around the space, he/she will instruct all entrants to exit the space immediately.

An attendant trained in first aid/CPR and familiar with emergency procedures and equipment shall be available in the immediate vicinity to render assistance.

The attendant shall maintain communications (such as visual, voice, or signal line) with employees working in a Permit-Required Confined Space.

Entrant

Any employee who has received the mandatory confined space training who enters a confined space.

Scope – This policy applies to all buildings and grounds in which there exists confined spaces and/or departments in which employees and/or contractors enter confined spaces.

Confined space shall be classified and labeled as follows:

- Class 1 – Confined Space – non-permit required.
- Class 2 – Confined Space – Permit Required.
- Class 3 – Do Not Enter for any reason.

Training

Employees will be trained in confined space entry as attendant, entrant, and Entry Supervisor prior to being allowed to enter such spaces and will be trained every two years. Employees will be retrained whenever spaces or conditions change. Training records will be kept and will include employee names, training dates and name of trainer.

Procedures

Atmospheric Testing – All Permit Required Confined spaces shall be mechanically ventilated for 15 minutes prior to testing and continually during entry.

Air is to be tested using an approved properly calibrated gas detector. All gas detectors shall be calibrated every 3 months and bump tested prior to each day of use.

The air shall be tested for oxygen levels, hydrogen sulfide, carbon monoxide and flammable gases. If all the levels are within acceptable range, the entry may begin. A calibrated gas detector will be worn continually by at least one Entrant while workspace is occupied.

NOTE: When entering a confined space that is covered by a manhole, the probe is to be inserted in a hole in the cover and the air tested for flammable gases before the cover is removed. If there are no holes in the cover it will be carefully lifted and then the air tested for flammable gases.

If readings are outside of the acceptable range, the confined space will be ventilated for an additional 30 minutes and the atmospheric tests will be repeated. If at this point, the space is still not safe to enter, the manager will be called and **NO** entry will be made until such time as the manager determines the problem, remedies the problem and the air retests satisfactorily.

Retrieval – Retrieval equipment is required for all permit required confined space entries. Retrieval equipment consists of:

- a. Full body harness.
- b. Mechanical lifting device.
- c. A lifeline for each additional Entrant.

Fall Protection – Any individual who enters a confined space will use a tripod or Davit System and fall limiter.

Entry Permits – The appropriate Aquarion confined space permit will be completed each time an entry is made into a confined space. All permits will be scanned and attached to the appropriate notification in SAP.

Rescue – At **NO** time is an attendant or any worker to enter the space, even to assist in rescue if they are the only one on the scene. Instead, they are to call 911 and advise their manager of the situation. They may assist in rescue attempts from outside the space with Fire Departments and/or Rescue Service.

Entry Requirements: Non- Permit Required Confined Space

- a. 1 Attendant and 1 Entrant.
- b. Test Atmosphere.
- c. Complete AWC Non-Permit Required Permit Follow Lock Out Tag out procedure.
- d. Use fall protection.
- e. Test air continuously during entry

Entry Requirements: Permit Required Confined Spaces

- a. 1 Attendant and 1 Entrant.
- b. Continuously ventilate with blower.
- c. Complete AWC Confined Space Permit.
- d. Follow Lock out Tag out procedure.
- e. Test atmosphere.
- f. Set up retrieval device.
- g. Don harness.
- h. Test continuously during entry.

Equipment – Hard Hat, Safety Glasses, Gloves, Traffic Vest if appropriate, Blower, Gas Detector, Fall Limiter, Tripod or Davit System, Harness, Retrieval System, Safety Cones.

Training

Training for Entrants/Attendants/Authorized Persons (Entry Supervisor)

- 1. All personnel involved in entries will complete the same amount of training.
- 2. This training is appropriate for entrants, attendant and entry supervisor.
- 3. All entrants and attendants shall receive the same amount of training even if it is likely they will only perform Low Hazard entries.
- 4. The training is designed to also certify all attendees as authorized persons.
- 5. It is felt by The Company that all confined space entry is potentially hazardous and that the entire training course will be given to all personnel involved with entry duties.

Work Area Protection

1. Work area protection shall be used to WARN, GUIDE, AND PROTECT pedestrians, employees, property, and traffic approaching and leaving areas of construction and/or areas where company facilities are being maintained on streets and highways.
2. Aquarion shall adhere to all requirements of Part VI of the Federal Highway Administration's Manual on Uniform Traffic Control Devices for Streets Highways, millennium edition, (MUTCD).
3. All employees exposed to vehicular traffic hazards shall wear Class III high visibility retro-reflective apparel, (vests, and rain gear).
4. Prior to leaving the jobsite, the leader shall check the work area protection equipment on the vehicle(s) to ensure an enough equipment is available to address the planned work.
5. On arrival at the job site, the vehicle shall be parked in a safe place with the vehicle's warning devices (dominant devices such as amber rotating beacons/strobes) turned on.
6. Although the vehicle's hazard warning lights are permitted to be used to supplement dominant devices, they shall not be used instead of dominant devices such as amber rotating beacons/strobes. The crew shall then look over the work area and plan the arrangement of protective and warning devices.
7. Supervisors and employees shall consider local conditions and topography and apply good judgment in setting up work area protection so that the worksite is identified and protected without creating a hindrance to traffic and pedestrian flow.

ARRANGING WORK AREA PROTECTIONS (Employees should be familiar)

1. Advance Warning: The first advance warning signs shall be placed well in advance of the job site so it can be seen but not hinder the flow of traffic.
2. Transition Area: Between the advance warning signs and the job site, traffic cones shall be positioned to affect a guidance path for channeling traffic through or around the work area.
3. Activity Area: Shall be considered the area of a roadway or shoulder where the work takes place. It is composed of the workspace and the traffic space and may contain a buffer space.
 - The workspace is that portion of the roadway which is closed to traffic and set aside for workers, equipment, and material.
 - The traffic space is the portion of the roadway in which traffic is routed through the workspace.
 - The buffer space is an optional feature in the activity area and Work activities, or storage of equipment shall not occur in the buffer space.
 - Work activities or storage of equipment shall not occur in the buffer space.
4. Use of Vehicle as a Blocker or Shadow: If feasible, a vehicle shall be placed between the flow of traffic and the work area with the vehicle's warning devices (dominant devices such as amber rotating beacons/strobes) turned on.

SHORT-TERM STATIONARY WORK

1. Short duration work that shall not exceed sixty (60) minutes including set-up time as defined by the MUTCD.

NOTE: Visibility is critical during short duration work.

2. The vehicle's warning devices (dominant devices such as amber rotating beacons/strobes) shall be used.
3. Signs and cones should also be deployed to increase visibility.

Fall Protection

1. Employees shall be protected from falls by a fall restraint system, personal fall arrest system, work positioning equipment, guardrail, or safety net.
2. Fall Restraint System- A system that prevents the user from falling any Distance.
3. Personal Fall Arrest System- A system used to arrest an employee in a fall from a working level
4. Work Positioning Equipment- A system rigged to allow an employee to be supported on an elevated vertical surface and work with both hands free while leaning.
5. Guard Rails- A system that consists of a top rail at 39" to 45"
6. and can withstand 200 lbs. of force and a mid-rail that will support 150 lbs. of force Safety Net- A large net rigged between a person and the ground as protection in a fall.
7. Fall protection equipment includes, but is not limited to, full body harness, fall arrest equipment, and travel restricting equipment.
8. Only approved fall protection arrest equipment shall be used (e.g., full body).

BEFORE USE

1. Fall protection arrest equipment shall be inspected prior to each use to determine that the equipment is in safe working condition.
2. Defective equipment or equipment subjected to shock loading shall be removed from service immediately.
3. Snap hooks shall not be connected to loops made in webbing-type lanyards or to each other.
4. Body belts, harnesses, and components shall be used only for employee protection (as part of a personal fall arrest system or positioning device system) and not to hoist materials.
5. When a harness and lanyard is used to arrest falls, the harness shall be a synthetic fiber full body harness and shall have a D-ring in the upper middle back for attaching the lanyard.
6. Lanyards shall be rated a minimum of 5,000 pounds breaking strength.

7. Fall arrest equipment shall be free from additional metal hooks and tool loops, other than those supplied by the manufacturer.
8. A rescue plan shall be in place to promptly rescue employees in the event of a fall or ensure that they are able to rescue themselves harnesses, lanyards, lifelines, and safety straps).
9. When employees are working on roofs, the leading edge of the roof shall be protected by rigidly affixed rails, guards, parapets, or other building structures at least forty-two (42) inches high on exposed sides. Otherwise, employees shall maintain at least six (6) feet of clearance between the employee and the edge of the roof or use a personal fall arrest system.

Respiratory Protection

VOLUNTARY RESPIRATOR USE

1. Voluntary use (for sweeping floors, etc.) of an approved filtering face piece (dust mask) is permitted for employees not in the Respiratory Protection Program, only after they have been provided with Appendix D of OSHA 1910.134.

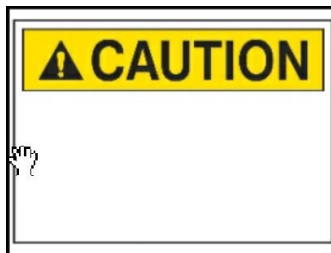
Protection of the Public

1. Every effort shall be made by employees to properly warn or protect the public from danger to their person or property.
2. When artificial light is required on a customer's premises, portable lighting, flashlights, battery lanterns, or extension cords shall be used. DANGER: Do not use a flame of any kind for illumination.

Signage

PORTABLE FUEL CONTAINERS

1. Safety signs shall be used to warn against hazards or to caution against unsafe conditions.
2. Caution signs shall be used only to warn against potential hazards or unsafe practices.



3. Warning signs may be used to represent a hazard between caution and danger.



4. Danger signs shall be used to indicate immediate danger and special precautions are necessary.



5. Employees shall adhere to posted signage.

Fire Prevention

1. Flammable fluids such as gasoline and kerosine shall be kept in dispensing containers approved by the "Underwriters Laboratory" and shall be painted red. Cans shall be clearly marked as to contents. Gasoline shall not be used for cleaning.
2. Rubbish shall not be allowed to accumulate.
3. Open flames are prohibited in all areas where flammable liquids or gases are stored or being used. Such areas shall be posted with appropriate warning signs.
4. Fire exits shall be properly marked and shall not be obstructed.

Training

1. The company shall initiate and maintain programs necessary to reinforce the rules specified in the *Employee Safety Manual*.
2. All employees shall have access to the *Employee Safety Manual* and the company shall ensure employees understand the rules that specifically pertain to their work assignment.
3. Employees shall be trained in and be familiar with the safety-related work
4. practices, safety procedures, and other personal safety requirements in the *Employee Safety Manual* that pertain to their respective job assignments.

5. Employees shall be trained in and be familiar with other safety practices not specifically addressed by the *Employee Safety Manual*, but which are job specific, including all other applicable procedures, policies, and rules

NOTE: Continuous training and retraining is integral to premier work performance and employee safety. Training occurs in many different venues, such as the classroom, on the job, e- Learning, safety briefing, self-directed or whatever is most appropriate.

6. Each employee shall understand their assigned duties and participate in all offered training. It is the responsibility of the company to provide the appropriate level and frequency of employee training.
7. Employees who have not performed a task within the last twelve (12) months shall be retrained on that task before performing it.
8. The retraining format may be classroom, on-the-job, or through a documented job safety briefing, or whatever format is the most appropriate.

DOCUMENTATION OF TRAINING

1. Training shall be documented and input into a centralized data base when the employee successfully completes the training.
2. Training records shall be retained for the duration of the employee's Employment.

EMPLOYEE LICENSES AND CERTIFICATIONS

NOTE: Certain work activities may require that the employee maintains a license and/or certification.

1. The employee shall be responsible for maintaining the required license and/or certification.
2. Where appropriate, the company shall provide the resources and training necessary to maintain the license and/or certification.

Visitors

1. All visitors who enter any company facility shall be asked to report to the security office or, where a security office is not provided, to a designated representative upon entering and leaving any facility.
2. All visitors on company property shall abide by rules set forth in the *Employee Safety Manual*.
3. The person responsible for the visitor is accountable for the visitor.
4. Where PPE is required, all visitors shall wear the appropriate protective equipment.
5. Any employee entering company property where the employee is not usually employed or after the employee's usual working hours shall immediately report to the security office or to a

designated representative in charge of the facility.

6. Employees shall make their presence known to the Person in Charge in order to receive information on special system conditions affecting employee safety.
7. Only qualified employees shall work in foreign departments without supervision.

Walking and Working Surfaces

Floor and Wall Openings

1. Any floor or wall opening that a person can trip on or fall four (4) feet or more from shall be properly covered, barricaded, or guarded.
2. Standard railings shall be provided on the open sides of all exposed stairways and stair platforms.
3. Handrails shall be provided on at least one side of closed stairways, preferably on the right-side descending.
4. Employees shall use handrails when ascending or descending stairs.
5. Any floor opening through which persons can trip or fall shall be protected by guardrails with toe boards or covers of sufficient strength to withstand the load to which they may be subjected.
6. When working on equipment in attics, employees shall ensure that the adjacent area and passageway to the equipment are floored.

Work in Foreign Departments

1. Employees shall follow the rules of their own department and the rules of the department where work is being performed.
2. Before work of any kind is begun, each employee shall understand thoroughly the job to be done.

Section C: JOB BRIEFING/JOB HAZARD ANALYSIS

(See Policy on The Source under the Safety Tab).

JOB BRIEFING

1. A Job Briefing shall be conducted to identify key hazards associated with the anticipated task(s). This includes mitigations methods for the identified hazards.
2. Where non-standard conditions exist and where existing safety rules and/or procedures increase risk, management shall perform a Job Hazard Analysis (JHA).
3. The supervisor or Person in Charge shall ensure a Job Briefing is performed with all individuals involved before they start each job, and again if a significant job scope change occurs, or new crew members/personnel arrive.
4. All Job Briefings shall be written and documented according to local company procedures.
5. The Job Briefing shall cover at least the following subjects:
 - hazards associated with the job
 - a. job location
 - b. work procedures involved
 - c. special precautions
 - d. energy source controls
 - personal protective equipment requirements
6. Job briefings shall be documented.
7. An employee working alone need not document a job briefing unless required by local procedure; however, the tasks and safety precautions to be performed shall be planned as if a briefing were required.
8. All documented briefings shall be available onsite or returned to a supervisor and retained a minimum of two (2) weeks.

JOB HAZARD ANALYSIS

1. Management shall perform a formal Job Hazard Analysis (JHA) when standard protective measures are not feasible and/or could create a greater hazard. In addition to the department's safety goal for the year.
2. The JHA shall occur well in advance of the work activity and shall include coordination with all affected employees.

Section D: LOCKOUT/TAGOUT (LO/TO)

(See Policy on The Source under the Safety Tab).

1. All equipment or machinery that may cause injury due to unexpected release of energy while being serviced or maintained shall be locked/tagged out according to local operating LO/TO procedures.
2. Only trained and authorized employees shall perform LO/TO activities and shall follow prescribed procedures for the equipment to be locked and tagged.
3. Prior to working on any equipment, employees shall inspect the equipment for all energy sources (e.g., electrical, mechanical, hydraulic, pneumatic, chemical, and thermal). All energy sources shall be rendered non-hazardous and locked and tagged before actual work commences.
4. Before LO/TO devices are removed and before a machine or equipment is restored to service, affected employees shall be notified that the LO/TO device(s) is/are being removed.

NOTE: LO/TO is not required for work on cord-and plug-connected electric equipment, for which exposure to the hazards of unexpected energization or start-up of the equipment is controlled by the unplugging of the equipment from the energy source and by the plug being under the exclusive control of the employee performing the servicing or maintenance.

Section E: MOTORIZED VEHICLE OPERATIONS

(See Policy on The Source under the Safety Tab).

1. Equipment should be kept in good operating condition, and driven in a safe, courteous manner. The public's attitude toward AQUARION is influenced greatly by the appearance of our automobiles and trucks, and the manner in which they are driven over public streets and highways.
2. All employees operating a vehicle for company business shall comply with all applicable motor vehicle laws, company safety rules, and procedures.
3. Drivers shall be thoroughly familiar and comply with the State and City traffic laws covering the territory where they operate.
4. An employee shall not operate company motor vehicles, hoisting, or other motorized equipment unless in possession of a valid operator's license as required and rated for the equipment, and the employee is thoroughly familiar with the complete operation of the vehicle.
5. Other than employees, only persons authorized by the company shall be permitted to ride in company vehicles.
6. Employees whose assignments require operating a motor vehicle on company business shall immediately report to their supervisor if their operator's license is revoked.
7. All employees operating or riding as a passenger in a company motor vehicle shall wear a properly adjusted and fastened safety belt. This applies to vehicles being driven on company property and public or private ways.
8. No employees shall operate a company motor vehicle when their physical or mental condition might impair normal judgment or ability.
9. Vehicle operators shall check to see that all vehicle safety equipment is in proper working order.
10. Before leaving the garage or parking area, vehicle operators shall test headlights, stoplights, and directional lights. Windshields shall be cleaned if necessary.
11. The operator shall test brakes and steering gear immediately upon taking charge of the vehicle. Before driving any vehicle, the operator shall remove all ice and snow from the vehicle for clear visibility and the protection of the public.
12. The interior of all vehicles shall be kept clean and free of litter.
13. No material shall be stored on the dashboard or rear window ledge.
14. Employees are authorized to take a vehicle out of service when, in their opinion, it is in an unsafe operating condition.
15. If a vehicle is taken out of service, employees shall report the condition of vehicle to their supervisor and fleet.
16. Vehicles shall be shut off, properly parked, and attended during refueling.
17. There shall be no smoking or open flames near refueling operations.

PORTABLE FUEL CONTAINERS

1. Only DOT approved flammable liquid containers shall be used.
2. Portable gas containers shall be placed on the ground and the nozzle shall stay in contact with the container being filled, to prevent buildup and discharge of static electricity.
3. Employees shall not fill a container in or on a vehicle, including truck beds and in the back of vans. (Placing the container on the ground minimizes any static electricity buildup that could lead to a spark and cause a fire.)
4. A gas container shall be filled at a slow rate to decrease the chance of static ignition buildup and to minimize incidents of spillage or splattering.
5. A gas container shall be filled no more than 95 percent to allow for
6. Expansion.

Vehicle Operation

1. Before starting a vehicle and driving away, the driver shall carefully inspect any material loads and perform the Circle of Safety & Cone Policy ([see policy on The Source under the Safety Tab](#)).
2. Employees shall always use defensive driving techniques, including adjusting speed to traffic, road, and weather conditions.
3. No one shall ride in or on any vehicle unless positioned in an appropriate seat intended for that purpose.
4. When possible, employees shall maintain three points of contact to prevent slips, trips, and falls while entering and exiting vehicles.
5. No one shall be allowed to get on or off any vehicle while it is in motion.
6. When possible, passengers shall access the vehicle from the curbside.
7. The operator shall always be on the alert for pedestrians crossing at crosswalks, between intersections, and walking along the roadway.
8. The operator shall not enter intersections unless the crossing or turning attempt can be done without interference. Yield rather than contest the right of way.
9. On approach to railroad crossings, whether guarded or not, operators shall look in both directions to be sure that making the crossing is safe.
10. Unless there is a clear view in each direction, the operator shall reduce speed so that the vehicle can be easily stopped before reaching the crossing, if necessary, and have enough space to travel through the intersection, considering whether a vehicle is in tow.
11. Electronic Devices - Wireless devices (cellphones, laptop computers, tough books, etc.) are issued by the company to improve coordination, safety, and productivity. The company expects drivers to use wireless devices only when it is safe to do so.

STOPPING and PARKING

1. When drivers are about to stop, they shall give the proper signal and approach the stopping location gradually.
2. Drivers shall allow sufficient stopping distance between their vehicle and the one ahead.
3. All laws and ordinances regarding parking shall be strictly observed.
4. Vehicles shall always be parked so that others may pass with ease and safety.
5. Unless the nature of the work requires it or it is necessary, vehicles shall not be parked on bridges, culverts, blind curves, the brows of hills, at narrow places in the road, or opposite driveways.
6. Drivers shall not drive or park vehicles on private driveways or on customers' premises except when necessary.
7. When a vehicle is left unattended or in an unsecured location, the emergency brakes shall be set, engine shut off, automatic transmission placed in park, (first gear or reverse for standard transmission) ignition keys removed, and vehicle locked.
8. On active jobsites the vehicle shall be locked/secured as necessary.
9. If a vehicle is parked on a DOWNHILL grade, the front wheels shall be turned toward the curb or side of the road.
10. If the vehicle is parked on an UPHILL grade, the front wheels shall be turned toward the center of the road.
11. The following requirements shall apply for wheel chocking a company vehicle:
 - a. Any vehicle over 10,000 lbs. gross vehicle weight (GVW) shall use wheel chocks whether the truck has chock holders or not.
 - b. Any vehicle that comes equipped with chock holders shall use chocks.
 - c. Any vehicle attached to a trailer shall use wheel chocks.
12. On level ground, two (2) chocks shall be used, placed on each side of a rear wheel on a solid surface.
13. On an incline, two (2) chocks shall be placed on the downhill side of the rear wheels.
14. On extreme inclines, when equipped, four (4) chocks shall be placed on the downhill side of the rear wheels on dual wheel vehicles. *NOTE: Chocks are not required when parking trucks on level ground in company-owned garages. In this situation, the parking brake shall be set.*
15. Where possible, the driver shall:
 - a. Get the vehicle entirely off the traveled portion of the road when stopping to change tires, while awaiting repairs, or to do any other work.
 - b. Avoid stepping into a traffic lane suddenly.
16. At night, use all warning lights on vehicles so equipped and ensure to not stand in front of the vehicle's parking lights or block them so they are concealed from approaching traffic.

Backing

1. Whenever possible, employees shall pull through or back vehicles into designated parking areas upon arrival.
2. When parking or setting up vehicles at job sites, drivers should position vehicles to avoid backing. However, if this is not possible, backing should be done upon arriving rather than when leaving the job site.
3. The deployment of cones and/or flags when parking is required by company Policy.
4. Prior to moving a vehicle, at least one occupant shall conduct a 360-degree walk-around inspection immediately before the vehicle is moved to ensure no persons, animals, equipment, or property will be injured or damaged when the vehicle is moved.

Incident and Vehicle Damage

1. All incidents and vehicle damage, however slight, shall be immediately reported to the supervisor.
2. The employee shall complete the appropriate company Motor Vehicle
3. Accident Report (found on The Source under Safety).
4. *NOTE: Incidents and events include, but are not limited to, collisions causing property damage to company vehicles, damage to vehicles and property of others, damage to public property, injury to any person or animal, damage resulting from vandalism, natural causes, etc.*
5. If the incident involves a parked vehicle or private property and the owner cannot be located, the driver shall leave contact information. The operator shall immediately notify his/her supervisor of the circumstance.

PROCEDURE IN TRAFFIC ACCIDENTS

1. Do not become involved in an argument as to who was responsible for an accident, but endeavor to get all the facts in the case. Remember that accidents which may appear trivial often result in claims for personal injury or property damage.
2. Do not lose your temper; try to be courteous and helpful.
3. Do not admit responsibility nor offer to make any kind of settlement. Representatives of AQUARION will handle this.
4. The following instructions should be observed in the order given, if possible, when you are involved in a traffic accident.
5. Stop - Pull over to the curb or out of traffic, if possible. Never leave the scene of an accident without stopping to identify yourself and render such assistance as possible.
6. Assist injured persons insofar as you are able, giving immediate attention to severe bleeding. Do not remove seriously injured persons unless necessary for their protection against further injury. Send for doctor and ambulance, if necessary.
7. Try to extinguish any fires, and guard against starting any.
8. Set flags, cones, or reflectors where necessary to warn traffic.

9. When requested, give your name, address, and company affiliation, and show your driver's license to the other party.
10. Secure name, address, and license number of other drivers; car license number, and names of car owner and insurance company I.D. number.
11. Record names and address of witnesses and if possible, get statements.
12. Unless some law-enforcement officer is present at the scene of the accident, notify police having jurisdiction (State, County, or City) depending upon where the accident occurs. Record name and badge number of any officer present.
13. Sketch the location showing position of vehicle or pedestrians involved, and any special conditions such as obstructions, parked cars, skid marks. Show date, time of day, weather and road conditions, and any other information which you may consider useful.
14. Take pictures.

PARKING AND OTHER TICKETS

1. You are required to park sensibly and responsibly. If you are issued a parking ticket, bring it immediately to your supervisor on the same day it is issued. Your supervisor will arrange for payment. If you do not turn in a parking ticket in a timely manner, late fees accumulate, and you will be responsible for the payment of any accrued late fees.
2. If you are issued a summons or ticket for a violation relating to the vehicle you are driving (i.e., a broken taillight or other unsafe condition), bring it immediately to Fleet Services on the same day it is issued. Fleet Services will arrange for payment and repair of the vehicle. If you do not turn in a summons or ticket in a timely manner, late fees accumulate, and you will be responsible for the payment of any accrued late fees.
3. If you are issued a summons or ticket in which you're driving, not the vehicle is in violation of the law or for any other unsafe condition, you will be responsible for payment of the summons, and you will be disciplined accordingly.

Garaging

1. Drivers shall proceed slowly and with caution when entering and leaving garages.
2. If necessary, a driver shall sound his/her horn to alert others in the area.
3. Internal combustion engines shall not be left running in a garage or other enclosed area unless pipe or hose connection is provided from the vehicle's exhaust to the open air.
4. If a vehicle is unsafe, it shall be taken it out of service, properly tag it, and the fleet personnel notified.

Cargo and Load Securement

1. The employee responsible for transporting and any employee responsible
2. For assisting in loading a vehicle shall ensure that:
 - a. The load is secured to meet all federal, state, local DOT, and company requirements.
 - b. The load is properly distributed, secured, and not piled too high.
3. Ensure the load is secured by checking and re-checking the securement points.
4. The driver shall have ultimate responsibility for checking the load Securement.
5. Vehicles, including load, shall never exceed the registered gross vehicle weight.
6. Objects shall not extend beyond the sides of a vehicle or trailer.
7. When possible, loads shall be handled from the street side of a vehicle.
8. Prior to travel, the driver shall:
 - a. Ensure tailgate, doors and all detachable equipment are secured.
 - b. Ensure booms, derricks, stabilizers, and retractable jacks are returned to the travel position.
 - c. Inspect and check the load securement and make any final adjustments as required.
9. The driver shall inspect the cargo and the devices used to secure the cargo within the first fifty (50) miles after beginning a trip and make any adjustments as required.
10. The driver shall continue to inspect and recheck the cargo and load securement devices after every "drop off" during the day.

Trailers

1. Trailer hitches shall comply with state laws and regulations.
2. The trailer shall be attached using all the features of the required hitch.
3. Safety chains or cables provided for each trailer or vehicle shall be connected to prevent the load from breaking away should the primary hookup fail.
4. Trailers operated at night shall have proper lights.
5. Vehicles or trailers carrying a load extending four (4) feet or more beyond the cab or body of such vehicle or trailer shall display at the extreme rear end of such load or object a red light plainly visible from a distance of at least five hundred feet (500) to the sides and rear.
6. When lights are not required a red flag or other suitable marker, not less than eighteen (18) inches square shall be used.
7. Every commercial motor vehicle or trailer weighing, with its load, more than twelve thousand (12,000) pounds, shall, in addition to such rear light, be equipped with a red reflector of a type complying with such minimum standards for construction and performance.
8. The loading and unloading of trailers (not secured at the loading dock) shall be done with the trailer attached to the pulling vehicle. If this is not feasible, the trailer shall be secured by chocks, blocks, or other means to prevent tilting.

9. When a trailer is to be detached from the pulling vehicle, it shall first be secured using wheel chocks prior to detachment.
10. All trailers parked in storage areas shall be secured by wheel chocks.

Signaling

1. Before starting, stopping, turning, backing, or changing lanes, drivers shall first make sure that such movements can be made safely and then give a proper signal to warn others.

Forklifts

1. Only trained and authorized employees shall be permitted to operate a forklift. Refer to state regulations for additional requirements.
2. Prior to first use of a forklift on a shift, a visual inspection shall be performed and documented on the pre-shift inspection form. Forms shall be kept for at least 1 week.
3. Brakes and controls shall be tested prior to use.
4. Forklifts found to have faulty brakes, or mechanical or electrical defects shall not be operated.
5. No additional person shall ride on a forklift other than the operator.
6. No person shall stand or pass under the elevated portion of the forklift whether it is loaded or empty.
7. Unauthorized modification of forklifts that affects their capacity or safe operation shall not be permitted.
8. All nameplates and markings shall be in place and maintained in a legible condition.
9. Under no circumstances shall the rated capacity of the forklift be exceeded.
10. Forklifts shall be operated at a speed that is safe for existing conditions.
11. When forklifts and motor vehicles share common areas, the forklift shall have the right of way.
12. Before moving the forklift, the operator shall make sure that no person or objects are in the path of the vehicle.
13. Sufficient headroom shall be maintained when operating under overhead installations, lights, pipes, and sprinkler systems.
14. Operators shall approach blind corners and pass-through openings cautiously, sounding the horn as necessary.
15. Brakes shall be set, engines shut off, and chocks shall be in place on any truck or trailer while loading or unloading is being performed.
16. The flooring of trucks and trailers shall be checked for safeness before being driven upon.
17. No forklift or electric hand-operated pallet truck shall go aboard any dump body vehicle.
18. Only approved dock boards/bridge plates of adequate capacity shall be used, and they shall be properly secured before they are driven over.
19. Loose material shall be secured to prevent shifting or toppling while in motion.

20. Loads shall not be suspended or swung over people.
21. An overhead guard shall be used on each forklift to protect the operator from falling objects.
22. If the load being carried obstructs forward view, the operator shall travel with the load trailing.
23. When ascending or descending grades more than ten (10) degrees, loaded forklifts shall be driven with the load upgrade.
24. Unloaded forklifts shall be operated on all grades with the forks downgrade.
25. When a forklift is left unattended, the forks or platform shall be fully lowered, the controls neutralized, power shut off, and brakes set.
26. A forklift unattended in outside locations shall, in addition to the above, have the key removed.

NOTE: A forklift is considered unattended if the operator is more than twenty-five (25) feet away or if the operator's view of the unit is obstructed in any way.

27. Propane forklifts stored and not in use shall have the tanks in the off position.
28. Refueling/recharging of forklifts shall be performed in areas designated for such purpose.
29. The applicable safe methods for handling liquid fuels, fuel gas containers, or battery-charging equipment shall be followed, and the forklift motor shall be shut off and the brakes set.
30. Only attachments provided or approved by the manufacturer shall be used.
31. A load chart for the attachment shall be affixed to the forklift.
32. Improvised methods shall not be used.
33. All attachments shall be properly secured.
34. When lifting a load using slings of any type, an approved lifting attachment shall be used to prevent slings from sliding or being cut.
35. The slings shall not be suspended directly from the forks, (e.g., free rigging) of the forklift.

Section F: PERSONAL PROTECTIVE EQUIPMENT

1. Engineering and administrative controls shall always be considered to eliminate or minimize hazards on the job. When such controls are not feasible or effective to eliminate exposures to acceptable levels, Personal Protective Equipment shall be worn to protect from the hazard.
2. Where conditions make PPE impractical, a Job Hazard Analysis (JHA) shall be required to identify alternative mitigation measures for personal protection.
3. PPE shall be worn when job conditions involve hazards that may result in possible injury or when employees are directed to do so by a supervisor, leader, or other Person in Charge.
4. Only company-approved PPE shall be worn.
5. Approved PPE shall be provided, used, and maintained in a sanitary and reliable condition according to manufacturer specifications.
6. Employees shall properly maintain and have available all PPE that has been issued for their use.
7. All PPE shall be inspected prior to use.
8. Damaged or malfunctioning personal protective equipment shall be taken out of service and reported to a supervisor.
9. Employees shall receive appropriate training prior to being issued PPE.
10. Each employee is responsible for compliance with the PPE rules before starting work and while work is in progress. The designated Person in Charge shall hold off part or all the work until the required protection is in place.
11. All employees are responsible to warn others in their work area that may be unaware of the potential hazards and PPE requirements.

Clothing and Accessories

1. Clothing worn by employees in the performance of their duties shall be suitable for the work to be performed and the conditions under which the work is to be performed.
2. Employees shall be at their designated reporting or work location at their scheduled starting time dressed in proper work attire and ready for work at the start of the shift.
3. Full-length sleeves and pants shall be worn when employees are exposed to potential lacerations or abrasions or when other hazardous conditions exist, which include, but are not limited to:
 - a. High temperature
 - b. Grinding
 - c. Welding
 - d. Working with wood products
 - e. Compound or other potentially hazardous materials

NOTE: Additional PPE may be required for the above tasks.

4. Loose clothing shall not be worn near rotating parts.
5. Employees handling or working with acids, caustics, asbestos, polychlorinated biphenyls (PCBs), or any other hazardous substances shall wear protective clothing in accordance with local operating procedures.

Head Protection (Hard Hats)

1. Approved head protection ANSI Z89.1, Type 1, Class E for electricians or Class G for other employees shall be worn by all employees where there is a potential risk of head injury from striking or falling objects, being struck by an object, or being exposed to electrical conductors that could contact the head.
2. Approved bump caps may be used as an alternative to a hard hat where there is a potential for minor head injury in stairwells, customer basements, areas with low ceilings, etc. A formal hazard assessment is required to downgrade the level of protection.
3. Approved protective headgear shall be worn by all employees, contractors, and visitors.
4. Examples of where head protection is required include, but are not limited to:
 - a. When at locations where building construction or demolition work is in progress.
 - b. When working on overhead or underground lines or related equipment.
 - c. When working in or around plants, stations, substations, vaults, and switchgear rooms.
 - d. While at any outdoor or indoor work operation that includes loading or unloading of vehicles.
 - e. Where posted.
 - f. When directed by the supervisor, leader, or other employee in charge.
5. Hard hats and suspension systems shall be inspected before use, maintained in proper working order, and not altered from the original design.
6. Hard hats shall be replaced when any one of the following occurs:
 - a. Suspension system deteriorates, becomes worn, or breaks.
 - b. The hard hat sustains impact from falling object sufficient to cause damage to shell or suspension.
 - c. The hard hat is exposed to flame or electric arc.
 - d. Manufacturer's specification requires replacement.
7. Hard hats shall be worn in the proper fashion.
8. Areas that usually would not be considered hard hat areas (e.g., offices, control rooms) may require hard hats due to the nature of work being performed.
9. Employees shall abide by posted PPE requirements.

Eye/Face Protection

GENERAL INFORMATION

1. Safety glasses shall include side shields or wrap arounds that offer side protection.
2. Approved safety glasses shall meet or exceed ANSI standards ANSI Z87.1- 2020.
3. Each employee is responsible for the condition of and use of the proper type of eye protection equipment.
4. Eye protection shall be worn any time potential eye injury exists.
5. Eye protection shall be worn any time head protection is required.
6. Safety glasses shall be worn over contact lenses where required. Contact lenses do not provide eye protection and in certain cases may even increase the likelihood of injury.

SAFETY GLASSES REQUIREMENTS

1. Examples (not all-inclusive) of when safety glasses shall be worn by employees:
 - a. When head protection is required.
 - b. When posted (e.g., "safety glasses are required").
 - c. While operating or working with power, pneumatic, hydraulic, or hand tools to produce a driving, chipping, cutting, drilling, chiseling, or breaking action.
 - d. While in or above manholes, vaults, and any confined spaces.
 - e. When working with molten or semi-molten solder, petrolatum, oils, chemicals, epoxy mixtures, solvents, silicone, askarel, and synthetic or hydrocarbon lubricants.
 - f. When using chain saws, weed whackers, blowers, and other landscaping equipment.
 - g. When clearing brush or tree branches.
 - h. When opening or closing any exposed switching devices.
 - i. When operating pad-mount switching devices.
 - j. When removing or installing energized secondary connections, including streetlight fixtures.
 - k. When performing any work that requires rubber gloves/rubber sleeves.
 - l. While working on energized parts, conductors, or equipment.
 - m. While buffing the cable jacket or cable insulation on EPR or XL cables with aluminum oxide cloth.
 - n. When replacing fuses in energized circuits.
 - o. When replacing lamps or globes, working on luminaries, and working on posts, poles, or structures.

- p. While in or around substations, transformer vaults, switchyards, and generating or combustion turbine stations.
- q. While taking load readings and cleaning vaults.
- r. When entering confined/enclosed spaces.

GOGGLES REQUIREMENTS

1. Examples (not all-inclusive) of when goggles shall be worn:
 - a. When handling acids, solvents, or caustic chemicals.
 - b. When cleaning manholes or vaults by scrubbing, brushing, or blowing.
 - c. While sealing leaks on pipe-type cable or fuel oil lines where oil is continuing to escape under pressure.
 - d. When rolling or spraying epoxies or fast-drying paints.
 - e. When exposed to abnormally dusty environments.
 - f. When using air or liquid under pressure.

FACE SHIELD REQUIREMENTS

1. Examples (not all-inclusive) of when face shields, with safety glasses, shall be worn:

General Hazards

1. When grinding.
2. When wire brushing.
3. When buffing.
4. When cutting.
5. When blast cleaning.
6. When turning any type of material with a power tool.
7. When exposed to a chemical splash (e.g., when handling acids, caustics, or solvents).

Impact Hazards

1. While operating a chain saw.
2. When using a grinder.

Chemical Hazards

1. When exposed to a chemical splash (e.g., when handling acids, caustics, or solvents).
2. When performing station battery work and battery electrolyte exposure exists, which may include

replacing cells, installing single cell or portable chargers, maintaining, or replacing connecting links, adding water or electrolyte, taking specific gravity readings, taking pilot cell temperature readings, and taking voltage or resistance measurements.

3. When handling liquefied natural gas.
4. When handling acids, caustics, or solvents.

Electric Arc Related Hazards

1. If wearing a face shield near electric equipment when the possibility of an electric arc may occur, the face shield shall be arc-rated. Examples (not all-inclusive) of when an arc related face shield with safety glasses shall be worn:
 - a) While operating or testing any overhead switching device or high voltage equipment such as reclosers, switches, and cutouts.
 - b) When replacing fuses in energized circuits.
 - c) When working on energized and open breaker boxes.
 - d) When working on equipment energized above 240 volts, such as terminal boxes, meters, or limiter cabinets.
 - e) While operating pad-mount equipment such as elbows.
2. Welding helmets or goggles shall have the proper filter shade when employees use electric arc or gas equipment for brazing, welding, or cutting, and shall not have expired.

Hearing Protection

1. Employees shall wear hearing protection where required and in "posted areas."
2. Hearing protection is required when working near machinery or equipment producing noise levels above regulated limits. (85 Decibels (dB) is the "Action Level" where hearing protection is required.)
3. Examples (not all-inclusive) of when hearing protection may be required:
 - a. Air hammers
 - b. Chainsaws
 - c. Compressors
 - d. Cutouts (closing)
 - e. Diggers
 - f. Emergency generators
 - g. Generation stations
 - h. High voltage circuit breakers (when operated)

- i. Tractors
- j. Trenchers
- k. Vacuum pumps
- l. Woodchippers

NOTE: As a rule of thumb, hearing protection should be considered if a person is unable to carry on a normal conversation from at least three (3) feet away.

Foot Protection

1. Employees shall always wear company-approved protective footwear when exposed to foot hazards.
2. If an employee is exposed to electrical hazards when all other electrical protection is in place, the employee shall wear safety footwear with an electrical hazard (EH) rating (e.g., step potential when closing a switch).
3. All protective footwear made after August 2018 shall have the following stamped on the tongue of the footwear:
 - ASTM F2413-18
 - “M” for male or “F” for female shoe
 - I/75 – Protects the wearer’s toes from an impact of up to 75 foot-pounds.
 - C/75 – Protect the wearer’s toes from compressive loads up to 2,500 pounds.
 - Electric Hazard (EH) rating*: Electrical Hazard (EH) footwear is manufactured with non-conductive electrical shock restraint soles and heels. It is intended to provide secondary source of protection against accidental contact with live electrical circuits, electrically energized conductors, parts, or apparatus. It must be capable of withstanding the application of 18,000 volts at 60 hertz for one minute with no current flow or leakage current in excess of 1.0 milliampere, under dry conditions.
4. Shoes suitable to the type of work usually performed shall be always worn.
5. Shoes shall be maintained in good condition.
6. A high-top, laced shoe (minimum six (6) inches high with a defined heel and arch support) shall be worn by employees whose usual work requires the climbing of ladders, poles, and steel structures.
7. Employees using handheld jackhammers, saw cutting, and street drills shall wear metatarsal protection.
8. Where slippery conditions exist (ice/snow), company-approved anti-slip footwear shall be used.

Hand Protection

1. Employees shall wear work gloves appropriate for the job.

2. Employee shall wear hand protection when exposed to hand hazards, including but not limited to:
 - a. Abrasions
 - b. Chemical burns
 - c. Cuts or lacerations
 - d. Harmful temperature extremes
 - e. Punctures
 - f. Skin absorption
 - g. Thermal burns
 - h. Vibration
3. Cuts & Punctures: Cut and puncture-resistant gloves shall be worn by employees performing tasks that expose hands to hazards of cuts, abrasions, or other potential injuries.
4. Chemicals: Chemical-resistant gloves shall be worn for handling certain chemicals. Consult manufacturer's safety data sheet (SDS) or container label for more information.
5. Heat: Heat-resistant gloves shall be worn for handling materials that may present thermal injury to the hands.
6. Vibration: Anti-vibration gloves shall be worn when employees perform extended work with tools that have been identified as causing excessive vibration.

Section G: TOOLS AND EQUIPMENT

1. All tools and equipment shall be company approved and used for the intended purpose.
2. Before use, all tools and equipment shall be inspected, in good condition, and used in accordance with manufacturer instructions. Defective tools and equipment shall be removed from service for repair and replacement.
3. Tools and other equipment used on company work, whether owned by the company or leased shall be subject to inspection at any time. Any tool or equipment deemed unsafe shall be promptly replaced, repaired, or removed from the property.
4. Employees shall use the right tool for the task and the best tool available.
5. Insulated tools or barriers shall not serve as a substitute for wearing rubber gloves in situations where rubber gloves would otherwise be required.
6. Tools used around energized electrical equipment shall be designed and insulated to prevent short circuiting.
7. The use of metal measuring tapes/rules or other devices containing conductive material is not permitted in proximity to live lines or equipment.
8. Tools shall not be thrown from one employee to another.
9. Tools shall not be placed on narrow pathways or scaffolds, creating tripping hazards, or placed in a position where they may fall.
10. Tool handles shall be kept free of splinters and cracks and shall be firmly secured to the tool.
11. Safety glasses shall be the minimum PPE requirement for using impact and powered tools. Additional PPE, such as face and hearing protection, may also be required
12. Knives, saws, chisels, and other sharp-edged tools shall be properly stored when not in use.
13. Guards or other safety devices on power tools shall not be removed or rendered inoperable.
14. Repair and maintenance of machines shall follow local operating LO/TO procedures.

Compressed Air Equipment

1. Before an air compressor is started, the air receiver shall be properly drained of all collected liquids.
2. Air-line valves shall not be turned on until the hose connectors have been made and properly secured.
3. Compressed air shall not be used for cleaning purposes except were reduced to less than 30 psi and then only with effective chip guarding and PPE.
4. Compressed air shall not be used to blow dust or dirt from clothing.
5. Compressed air shall not be used around energized electrical equipment unless designed for that purpose.
6. Air-line couplings shall be incompatible with outlets for other gas and air Systems.

Compressed Gas and Air Cylinders

1. Cylinders shall be stored vertically and secured to prevent falling.
2. Cylinder valve protection caps shall be in place and secured on all cylinders when not in active use.
3. Cylinder valve protection caps shall not be used for lifting cylinders.
4. The cylinder valve shall be closed when work is finished or when cylinders are moved at any time.
5. Cylinders shall be hoisted by use of a cradle, sling board, or pallet. They shall not be hoisted or transported by means of magnets or choker slings.
6. Regulators shall be removed, and valve protection caps put in place before cylinders are moved, unless cylinders are firmly secured on special carriers intended for this purpose.
7. Cylinders shall be moved by tilting and rolling them on their bottom edges or by cylinder truck. Manual lifting of large cylinders shall require two (2) people. Cylinders shall not be dropped, struck, or permitted to strike each other violently.
8. When cylinders are transported by powered vehicles, they shall be secured in a vertical position.
9. Unless cylinders are carried in a special truck or cart, regulators shall be removed, and caps put in place before moving cylinders. Cylinders shall never be carried by valves or caps. Compressed gas cylinders shall not be transported over the road with regulators attached.
10. A suitable cylinder truck, chain, or other steadying device shall be used to keep cylinders from being knocked over while in use.
11. Cylinders shall never be used as rollers or supports.
12. Oxygen and fuel gas cylinders in storage shall be separated and kept away from other combustible materials by a minimum of twenty (20) feet or by a noncombustible barrier at least five (5) feet high having a fire-resistant rating of at least 1/2 hour.
13. Spent cylinders shall be so marked and stored in an upright position and properly secured.

Extension Cords/GFCIs/Work Lights

1. Extension cords shall be inspected prior to each use; damaged cords (e.g., broken grounds, cut insulation) shall be removed from service. 2. Splices in flexible electrical cords are not permitted.
2. All extension cords for use with portable power tools and work lights shall be the 3-wire U-ground type of proper gauge for the application and distance from the power source.
3. The integrity of the 3-wire cords shall be always maintained.
4. Ground fault circuit interrupters (GFCI) shall be used for employee protection while on construction and maintenance projects.
5. GFCIs shall be tested prior to use and placed at the source end of the extension cord.
6. GFCIs shall be used when operating corded power tools.

7. GFCI breaker shall be on the source end of the extension cord.
8. Flexible cords (e.g., extension cords and cables) shall not:
 - a. Be used as a substitute for fixed permanent wiring.
 - b. Be run through holes in walls, ceiling, floors, doorways, windows, or similar openings, with the exception of running portable tools.
 - c. Be overloaded (i.e., daisy chained) to provide more outlets and/or reach a greater length.
9. Low voltage lighting does not require GFCI protection and should be the primary consideration for use in damp or wet locations.
10. Work lights shall not be used without the proper bulb guard in place.
11. Lamps shall not exceed the maximum wattage of the work light and should be of heavy-duty design.
12. Work lights having an integral receptacle shall be considered as an extension cord and subject to use as described in this section.
13. Temporary wiring and lighting used in flammable atmospheres shall be designed for the purpose and intrinsically safe.

Generators

1. Before starting a generator, carefully read, understand, and follow the manufacturer's instructions.
2. Always operate generators outdoors and in a well-vented area.
3. PPE shall, at a minimum, include safety glasses and a long-sleeve shirt. Hearing protection may be required.
4. Inspect the battery, cables, and fluid levels. Determine if the batteries are sealed or unsealed lead acid. If the batteries are unsealed lead acid, check the electrolyte level in the battery before starting the generator. If the electrolyte is low and the plates are exposed, do not start the generator. Add distilled water to the electrolyte to specified level in battery.
5. Before refueling, shut down the generator and allow it to cool down.
6. Do not store flammable or combustible materials near the generator.
7. Before starting a generator, doors shall be closed (if equipped) and employees shall stand clear.
8. When practical, protect generators from exposure to the weather (rain/snow).

Hand Tools

1. Employees shall use tools suited to the job and shall not modify or use makeshift tools.
2. An employee's body shall be properly positioned to prevent impacting a fixed object should the tool slip.

Hammers, Mauls, Axes

1. Tool heads shall be firmly attached to the handles.
2. Sufficient swinging clearances shall be maintained to ensure that only the targeted object is struck.
3. Handles should be replaced when a crack is observed or “sounded,” the neck area is severely abraded, or the tool head cannot be firmly seated to the handle.
4. Axe blades shall be always maintained with sharp edges.
5. When not in use, axe blades shall be properly sheathed or covered with a protective guard.

Screwdrivers

1. Tip size shall be appropriate for the task.
2. Tips shall be kept straight and true.
3. Screwdrivers shall not be used in place of a prying tool, except to open containers used for paint-type products not larger than gallon size.
4. Screwdrivers shall not be used as a chisel.

Wrenches

1. Wrenches, including adjustable pipe, open end, and socket, shall not be used when the jaws are sprung or worn to the point that slippage occurs.
2. Pipe wrench teeth shall be maintained (i.e., brushed) so debris does not build up between the teeth, preventing the wrench from biting and causing the wrench to slip.
3. Pipe or other extensions shall not be used on a wrench handle to increase leverage unless the wrench is specifically designed for use of such extension.

Hydraulic and Pneumatic Tools

1. All hydraulic or pneumatic tools, hoses, and fittings shall be inspected for defects prior to use.
2. Hydraulic or pneumatic tools shall only be used by trained and qualified employees.
3. Hydraulic and pneumatic tools that could reasonably be anticipated to contact energized lines or equipment shall have non-conducting hoses and be designed and maintained for such use.
4. The manufacturer’s safe operating pressures for tools, hoses, valves, pipes, filters, and fittings shall not be exceeded.
5. Safety clips or retainers shall be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.
6. Pressure shall be released before connections are broken, except where quick disconnects are used.

7. Hoses shall not be kinked or pinched.
8. The air shall be shut off at the air supply valve ahead of the hose and the line depressurized. The hose shall be held at the tool before breaking the connection.
9. Couplings shall be wiped clean before connecting.
10. An employee shall not use any part of the body to physically detect or attempt to stop a hydraulic or air leak.
11. The use of hoses for hoisting or lowering tools shall not be permitted.
12. Minimum PPE requirements for using pneumatic tools shall be eye, head, ear, and hand protection.

Impact Tools

1. Impact tools such as chisels, driving bars, drills, hammers, drift pins, or wedges with mushroomed heads shall not be used and shall be removed from service.

Jacks and Hoists

1. All jacks and associated equipment shall be inspected prior to use.
2. Jacks shall not be subjected to loads more than their rating, which shall be marked on jack bodies.
3. Jacks shall be placed in such a manner that firm footing is ensured.
4. Employees shall center jacks properly under loads. (A timber placed on top of a jack will help keep it in position if there is a danger of the head slipping.)
5. Employees shall not leave a jack standing under a load with the handle in the socket.
6. Employees shall not rely on jacks alone to support any load that they may be working under.
7. Substantial blocking shall also be used when necessary to work under a load.
8. Hoists shall not be loaded more than their rating, which shall be marked on hoist blocks.
9. Chain hoists shall not be used where chains or handles can contact energized conductors, equipment, or cable ways.
10. Always allow at least a five (5) to one (1) (manufacturer's rating to load) safety factor when using rope.

Ropes

11. All ropes shall be thoroughly inspected for abrasion and deterioration before Use.

Ladders

GENERAL

1. Only company-approved ladders and accessories shall be used.
2. All ladders shall be inspected before use. If any part of the ladder or its extending or bracing mechanism is found defective, the ladder shall not be used.
3. Defective ladders shall be tagged "Out of Service" and promptly reported to a supervisor.
4. Design load rating of ladders shall not be exceeded. Load Capacity* Description ANSI Code:
 - 200 lb. Light Duty Type III
 - 225 lb. Medium Duty Type II
 - 250 lb. Heavy Duty Type I
 - 300 lb. Heavy Duty Type IA
 - 375 lb. Heavy Duty Type IAA
 - *Includes user and materials
5. More than one worker shall not be permitted on a ladder unless the ladder is designed for that purpose.
6. Employees shall maintain three (3) points of contact when on a ladder and shall grasp the sides rather than the rungs of the ladder.
7. Employees shall not slide down ladders and shall always face the ladder when climbing or descending.
8. When on a ladder, employees shall avoid leaning or reaching too far to one side.
9. Ladders shall not be placed in front of doors, unless the door is blocked open, locked, or otherwise guarded.
10. Ladders shall not be placed on boxes, barrels, or other unstable bases to obtain additional height.
11. Non-conductive ladders shall be used in all electric operations.
12. Portable metal ladders (conductive) and other portable conductive ladders shall not be used near exposed energized lines and equipment if any possibility of electrical contact exists or excavations that involve gas operations are present.
13. Unless stored on vehicles, ladders shall be stored where they are protected from the weather, excessive heat, or dampness.
14. Ladders stored in the upright position shall be secured to prevent falling.

Fixed Ladders

1. Permanently fixed ladders that require a continuous climb greater than twenty (20) feet shall be equipped with a fixed cage or fall protection.

Step Ladders

1. Step ladders shall not exceed twenty (20) feet in length.
2. Step ladders shall be fully opened with braces locked in place before stepping on them.
3. Step ladders in a folded position shall not be climbed.
4. Tools and other materials shall not be left on the steps of a ladder as they may fall on anyone who may be moving the ladder:
 - a. Before climbing a ladder, an employee may place tools and materials on the paint shelf of a ladder not more than eight (8) feet tall.
 - b. Tools and materials shall be removed from the paint shelf whenever the ladder is left unattended.
5. Employees shall not stand higher than the second step from the top of a stepladder unless it is otherwise designed and never straddle a stepladder.

Straight and Extension Ladders

1. Straight or extension ladders shall be equipped with approved safety feet.
2. When used on smooth or slippery surfaces, a ladder shall be firmly secured or held by another employee at the foot.
3. Ladders inserted into a manhole, vault, tank, excavation etc., shall be held steady at the top. The ladder shall extend a minimum of three (3) feet above the entry-level surface.
4. The foot of a ladder shall be placed one quarter of the distance of the working length of the ladder from the vertical surface against which the top is leaned. If this cannot be accomplished, the ladder shall be lashed or otherwise secured.
5. The base of a straight ladder shall be one (1) foot out for every four (4) feet of height to the point of support:
 - a. When a ladder is used to gain access to surfaces to be walked upon, such as roofs, at least three (3) feet of the ladder shall extend above the point of support, gutter, or roof line.
 - b. Whenever weather, terrain, or other conditions undermine the stability of a ladder, the ladder shall be lashed or otherwise secured.
6. On two-section extension ladders, the minimum overlap for the two (2) sections in use shall be:
Size Overlap Up to and including 36 feet 3 feet Over 36 feet, up to and including 48 feet 4 feet
7. Before climbing an extended ladder, workers shall ensure that ladder locks are engaged, and the pull rope is securely tied to two (2) rungs of the lower section.
8. Employees shall not work from or ascend beyond the fourth (4) rung from the top of the ladder.
9. Ladders shall not be used in a horizontal position as platforms, runways, or scaffolds.

Portable Power Tools and Electrical Hazards

1. Only grounded or double-insulated tools shall be used.
2. Portable electric hand tools shall be one of the following types:
 - a. Equipped with 3-wire cords having the grounding wire connected to the frame of the tool.
 - b. Provided with a ground fault circuit interrupter (GFCI) protective device.
3. All electric tools and portable equipment shall be protected by a GFCI when used outdoors, in confined spaces, indoors in wet locations, with temporary services, or in construction activities.
4. All GFCIs shall be plugged in as close to the source as possible.
5. The use of electric cords for hoisting or lowering tools or other equipment shall not be permitted.

NOTE: Test equipment is exempt from this requirement.

Chain Saws

1. Chain saws shall be used only by trained operators.
2. Whenever possible, gasoline-powered chain saws shall not be used off the ground when hydraulic or hand saws are available.
3. While using a chain saw, employees shall follow the minimum PPE requirements of a hard hat, face shield, safety glasses, hearing protection (if a gas-operated chain saw), hand protection, foot protection, and chaps.
4. Gasoline-powered chain saws shall be equipped with a chain brake and the brake shall be operating properly.
5. Saws shall be stopped while being refueled, serviced, or maintained.
6. Fuel shall be stored in approved containers.
7. Chain saws shall be started by using the leg lock method or being placed on
8. the ground.
9. When starting a chain saw on the ground, the saw shall be placed on or against something solid to support and steady the saw.
10. Employees shall not drop-start a chain saw unless it is being started from inside a bucket on an aerial lift.
11. When employees use a chain saw aloft, the following work practices shall be used:
 - a. Start and test-operate the chain saw on the ground prior to sending aloft.
 - b. The chain saw shall not be raised from the ground or lowered from aloft with the engine running or power source connected.

Section H: WELDING AND CUTTING OPERATIONS

This section specifies general requirements for welding and cutting operations and supplements other sections of this manual.

1. All department employees shall become familiar with and adhere to:
 - a. General Safety Rules in the *Employee Safety Manual*, which are applicable to all employees.
 - b. Local operating procedures for the work to be performed.
 - c. All other phases of the company's safety program.
2. Employees shall refer to specific operating procedures and federal/state requirements regarding certifications, etc., prior to performing any welding and cutting operations.
3. The following precautions shall be taken prior, during, and after welding to mitigate the primary hazards from electric shock, burns, radiant energy, toxic fumes, fires, and explosions:
 - a. Electric Shock: All welder frames shall be grounded.
 - b. Burns: Proper clothing shall be worn.
 - c. Radiant Energy: Proper clothing shall be worn.
 - d. Toxic Fumes: Adequate ventilation shall be provided, or a respirator used as required.
 - e. Fires and Explosions: Firefighting equipment shall be in the immediate area of all welding and cutting operations.
4. Prior to any welding or cutting operation, all equipment shall be inspected to ensure that it is in proper working order.
5. Welding equipment shall not be operated by unqualified employees unless under the guidance of a Qualified Person.
6. Except for emergencies, no one shall adjust or tamper with the controls of a Welder's equipment without permission of the Welder.

Clothing and Personal Protective Equipment

1. Low-cut shoes and trousers with cuffs shall not be worn.
2. Clothing around the neck and wrists shall always be fastened.
3. Safety shoes/boots made of leather material shall be worn by employees when welding, cutting, or using a torch.
4. Fire resistant gauntlets, aprons, or jackets shall be worn. Leg chaps may also be needed in certain applications.
5. All personnel in the vicinity of electric arc welding shall keep all exposed skin covered to prevent a reaction similar to sunburn from ultraviolet radiation.
6. Proper helmets, hand shields, or goggles with properly tinted glass shall be worn by the operator (and helpers) to prevent eye injury. The following is a guide for the shade to be used for eye protection in common operations:

- a. For arc welding, no shade lighter than 10 shall be used.
- b. For oxyacetylene operations, no shade lighter than 5 shall be used.
- c. For flame soldering, a face shield shall be used.

Gas Welding and Cutting

1. Equipment shall never be handled with oily or greasy hands or clothing, and oil or grease shall never be applied to such equipment under any circumstances. (A violent reaction can occur if an oxygen cylinder, hose, valve, etc., comes in contact with oil or grease.)

TRANSPORTING, MOVING, AND STORING COMPRESSED GAS CYLINDERS

1. Cylinders shall be inspected before each use and shall be legibly marked to identify contents.
2. A clear space shall be kept between the work and the cylinders so that the cylinders can be reached quickly, if necessary
3. Great care shall be exercised in handling all high-pressure cylinders, even when empty. Careless handling, such as jarring or dropping, can result in a very serious accident.
4. When possible, cylinders shall be stored outdoors away from heat and out of the direct rays of the sun.
5. Cylinders shall be stored with the caps in place in an upright position and secured so they cannot fall. This applies to all gas cylinders, regardless of type or gas.
6. Cylinders shall not be placed or stored where sparks from welding or cutting operations can reach them. Fuel and oxygen cylinders in storage shall be separated a minimum of twenty feet or a five-foot barrier with at least a half hour fire rating.
7. Cylinders shall be transported and used in an upright position. Carts with provisions to hold cylinders securely in this position shall be used.

NOTES:

1. Massachusetts General Laws prohibit over-the-road transport of compressed gas cylinders with regulators attached.
2. If a cylinder leaks, it shall:
 - a. Be placed outdoors in good ventilation.
 - b. The valve opened slightly to permit the gas to escape slowly.
 - c. Have warning signs and/or observer(s) stationed nearby to warn others of this condition.
3. Wrenches and tools other than those approved by the manufacturer shall not be used to perform work on gas cylinders.
4. A wrench shall not be used on a valve wheel to open or close a valve.

5. Acetylene valves shall never be open more than a 1-and-1/4 turns and preferably opened just 3/4 turn.
6. Employees shall not attempt to repair defective cylinders or valves.
7. Defective cylinders shall be returned to the supplier for repairs.
8. To remove ice from the outlet valve of a cylinder, use warm water. Boiling water or a flame shall never be used.
9. Tools or other material shall never be piled on top of cylinders. This might interfere with the safety plug or operation of valves in an emergency.
10. While acetylene cylinders are in use, the valve key wrench shall be left in place on the valve spindle so the valve can be closed promptly, if necessary.

PLACING CYLINERS

1. Cylinders shall be placed far enough away from actual welding or cutting operations so that sparks, hot slag, or flames cannot reach them, or fire-resistant shields shall be used.

USE OF FUEL GAS

1. Employees shall not attempt to transfer acetylene from one cylinder to another or mix gases in a cylinder.

HOSES

1. Employees shall inspect hoses before use.
2. Equipment in need of repair shall not be used and shall be tagged, repaired, and/or replaced immediately.
3. Defective hose shall not be repaired by taping or other temporary measures.
4. Permanent repairs shall be made by using connections like those originally furnished by the supplier.
5. Hose(s) shall be protected from damage.
6. Where possible, hoses shall be elevated to keep out of walkways.
7. Hoses shall not be used around sharp corners, dragged over rough surfaces, or come in contact with flame, sparks, hot slag, or other hot materials.
8. Fuel gas and oxygen hose shall be easily distinguishable from each other.

NOTES:

1. The contrast may be made by different colors or by surface.
2. characteristics readily distinguishable by the sense of touch.
3. Oxygen and fuel gas hoses shall not be interchangeable.
4. A single hose having more than one gas passage shall not be used. Green hose with right-hand

thread for oxygen; red hose with left-hand thread for acetylene. Hose couplings shall be of the type that cannot be unlocked or disconnected by means of a straight pull without rotary motion.

5. Boxes used for the storage of gas hose shall be ventilated.
6. When parallel sections of oxygen and fuel gas hose are taped together, not more than four (4) inches out of twelve (12) inches shall be covered by tape.
7. After cylinders have been placed into position and secured, the length of the hose on a job shall be kept to a minimum.
8. Ensure that the hose is not kinked.

TORCHES

1. When lighting a torch, the acetylene or fuel gas valve shall be opened first, and the gas ignited while the oxygen valve is still closed.
2. Torches shall be lit with a friction lighter and never with matches.
3. A torch shall not be relighted from hot work.
4. Flashback arresters shall be installed between the hose and regulator to prevent flashbacks. Flashback arrestors and reverse flow check valves shall be removed and examined semi-annually for carbon soot buildup and replaced as needed.

NOTE: Do not permit unburned acetylene gas or fuel gas to accumulate, especially in confined spaces.

5. When extinguishing a torch during normal operation, the oxygen shall be closed first, then the fuel valve.
6. In event of a flashback (fire inside torch or hose), the oxygen shall be closed first.
7. When completing a job or leaving the work location for more than a few minutes, employees shall extinguish the torch and then proceed as follows:
 - a. Close both cylinder valves.
 - b. Ensure that the next steps do not allow gas to escape into a confined space.
 - c. Open the acetylene or fuel gas on torch for ten (10) to fifteen (15) seconds to bleed pressure from the fuel side of the equipment, then close the valve.
 - d. Open the oxygen valve on the torch for ten (10) to fifteen (15) seconds to bleed the pressure from the oxygen side of the equipment then close the valve.
 - e. Turn both regulator valves to the extreme left or low-pressure position.
8. If necessary, to change torches, the gases shall be shut off by closing both cylinder valves, never crimping the hoses.
9. When the gas pressure becomes too low to maintain adequate delivery pressure, work shall be stopped at once and the cylinders replaced.

REGULATORS AND GAUGES

1. Regulators shall be inspected before use.
2. Equipment in need of repair shall not be used and shall be tagged, repaired and/or, replaced immediately.
3. Regulators shall be handled with care and shall not be dropped or hammered.
4. A leaky or creeping regulator shall not be used and shall be returned to the manufacturer for repairs.
5. A pressure regulator shall be used when withdrawing gas for use at a pressure lower than cylinder pressure.
6. The cylinder valve shall be opened slowly after the operator ensures the regulating valve is turned to the extreme left or low-pressure position.
7. The operator shall not stand in front of the gauges on the regulator when opening the valve. Sudden pressure may damage the gauge and blow out the glass. 42. Metal-clad hose shall not be used.

Section I: VEHICLE MAINTENANCE

This section supplements other sections of the *Employee Safety Manual* with specific instructions applying to Fleet Services Department employees.

1. All Fleet Services Department employees shall become familiar with and adhere to the following:
 - a. The *Employee Safety Manual*, General Safety Rules, which are applicable to all employees.
 - b. Any safety rules in this section of the *Employee Safety Manual* that are applicable.
 - c. All other phases of the company safety requirements.
2. Employees shall comply with the company smoking policy.

Job Briefing

1. The Person in Charge shall ensure that a documented job briefing is conducted with the workers as required in the *Employee Safety Manual*, and local operating procedures.

Personal Protection Equipment (PPE)

1. Personal Protective Equipment (PPE) as required in the *Employee Safety Manual*, shall be used.
2. Safety shoes and safety glasses with side shields shall be always worn when employees are performing physical work inside and outside of the Fleet Services facilities. **EXCEPTION:** PPE is not required in the office environment.

Hydraulic Lifts

1. Only trained and authorized personnel shall operate fixed above- and below-ground lifts and portable lifts.
2. Lifts shall be operated in accordance with the manufacturer's recommendations.
3. Loads shall be securely engaged and neither the lift nor the adapter shall be overloaded.
4. When using the lift to raise a car or truck, employees shall securely position the saddle adapter under the front and rear axles to provide safe lifting. A lift shall be immediately inspected and repaired if it:
 - a. jerks or jumps when raised or lowered
 - b. slowly settles down after being raised
 - c. slowly rises when not in use
 - d. comes down excessively slow
 - e. shows signs of excessive wear
 - f. leaks oil

5. When not in use, the lift openings in the floor shall be adequately covered to prevent tripping or someone stepping into the opening.
6. The lift controls shall be manually operated at all times and not blocked or locked in the operating position.
7. Safety devices shall not be defeated.
8. Safety latches, when supplied, shall be locked in place when the lift is in up position.
9. If a lift is not raised high enough for the safety latches to engage, safety
10. stands with the proper load rating shall be in place under a vehicle or load.

Tools and Equipment

For general rules for tools and equipment, refer to the *Employee Safety Manual*.

1. Tools and equipment that are defective shall be removed from service and the defect reported to the supervisor immediately.
2. Portable tools, jacks, drain pans, or other similar equipment shall be kept clean and returned to their proper place after use.
3. Any vehicle jacked up for repairs shall have safety stands installed. *NOTE: A jack is a lifting device, NOT a holding device.*
4. Vehicles shall be blocked or secure so they cannot roll forward or backward if floor jacks are being used.
5. Employees shall not work under a car or truck supported only by a portable jack.
6. Portable lighting equipment (droplights) shall:
 - a. Be equipped with handle, lamp holder, hook, and a substantial guard attached to the lamp holder handle.
 - b. Have all exterior surfaces that might come in contact with battery terminals, wire terminals, or other objects be of non-conducting material or shall be effectively protected with insulation.
7. Lamp holders shall:
 - a. Be of an un-switched type.
 - b. Not provide a means for plug-in attachment plugs.
 - c. Have an outer shell of a molded composition or other suitable material.
8. Portable lighting shall meet the requirements of the National Electrical Safety Code Article 511.4 (B) (2).
9. Compressed air outlets and blow guns shall not be altered in any manner as required by 29 CFR 1910.106.

Housekeeping

1. Workers shall clean up the work area at the end of each day and follow good housekeeping

during the day.

2. Floors, walkways, and work areas shall be kept free of oil and grease.
3. Grease, oil, and solvent spills on the floor shall be cleaned up immediately using a cloth or by sprinkling and sweeping up an oil-absorbent compound.
4. Gasoline spills that are inside the garage shall be cleaned up immediately.

WARNING: Sweeping compounds work as a wick and speed vaporization into the flammable range.

5. Sweeping compounds shall not be used on gasoline spills.
6. Fire extinguisher and eye wash stations shall be always kept accessible.
7. Lift pits, openings, and drains shall be kept covered.
8. Fuel or other flammable liquids shall not be poured into the sewer or a drain.
9. Oily rags and waste materials shall be stored in approved containers and emptied daily.
10. Tools shall not be left lying on the floor.
11. Creepers shall be stored upright when not in use.
12. Hoses from overhead lube reels, droplights, electrical cords, air hoses, exhaust hoses, or roll-around drums shall be retracted or properly stored when not in use.

Fuel

1. Fuel transported over the road shall be carried in Department of Transportation (DOT)-approved container and clearly marked with the word "GASOLINE."
2. When filling the fuel tank of a vehicle or when pouring or pumping fuel from one container into another, employees shall keep the metal spout or nozzle in contact with the receiving container to prevent a spark or static ignition.
3. All portable gas containers shall be filled on the ground.
4. There shall be no smoking within fifty (50) feet of all places where fuel is dispensed or handled, in accordance with local and state laws.
5. A vehicle's ignition shall be shut off when employees put fuel into the vehicle's tank, in accordance with local and state laws.
6. To prevent spillage and allow for expansion, vehicle fuel tanks shall not be overfilled.
7. Fuel shall not be used as a cleaning agent.

Indoor Vehicle Servicing

1. Drivers shall bring all vehicles to a full stop before entering or leaving a garage and then shall proceed with caution.
2. All vehicles equipped with chocks and not being serviced shall be chocked.

3. The exhaust pipe(s) of a vehicle parked in an inside servicing location shall be connected to the exhaust fume ventilation system before the vehicle is started again, except when the vehicle is started to drive out of the service area.
4. Any vehicle with dual exhaust pipes shall have both pipes connected to the ventilation system.
5. All vehicles with an exhaust pipe or pipes that require special fittings to enable them to be connected to the ventilation system shall have the proper fitting installed and shall then be connected to the system.?
6. Care shall be taken when removing hoses and/or couplings from any vehicle that has been running for a length of time due to heat/pressure build-up.
7. Any defects in the exhaust fume ventilation system shall be reported to a supervisor and steps shall be taken for immediate repair of those defects.
8. Whenever fuel tanks, lines, filters, or other fuel system components need to be serviced, power tools and drop lights shall be kept away from the area of anticipated fuel spillage.
9. There shall be no smoking, open flames, or welding activity in the area where fuel system servicing is being performed.

Welding, Brazing, and Cutting

1. Welding, brazing, and cutting shall be done in accordance with the *Employee Safety Manual*, Welding and Cutting Operations.

Battery Charging

For additional requirements for batteries, refer to the *Employee Safety Manual*.

1. Employees shall follow the battery charger manufacturer's procedures for setting charging rate and time.

NOTE: The preferred method for battery charging is when the battery is mounted in the vehicle. When in-vehicle charging cannot be accomplished, battery charging procedures shall be conducted in an area designated for that purpose.

WARNING: Electric storage batteries emit hydrogen and oxygen, particularly while on charge. This forms a highly explosive mixture.

2. If electric storage batteries are on charge, every precaution shall be taken against creating sparks or flames.
3. When it is necessary to do work in battery rooms that require an open flame, the battery shall not be on charge and the room shall have constant and adequate ventilation.
4. When handling batteries, employees shall wear goggles and face shields.

5. Diffusion of the gases emitted from batteries shall be ensured by ventilation sufficient to prevent the accumulation of an explosive mixture.
6. To prevent sparks, charger clips shall only be connected and disconnected when the charger is in the "OFF" position.

Jump-Starting Dead Batteries

1. To minimize battery explosion hazards and prevent damage to the alternator, the following jump-start sequence shall always be used:
 - a. Turn off all electrical loads connected to the dead battery.
 - b. Check to be sure that the battery electrolyte is not frozen.

WARNING: In the next step, never try to jump-start a frozen battery.

2. Do not lean over batteries when making connections.
3. Connect the positive jumper cable to the positive terminal of the discharged battery.
4. Connect the other end of positive cable to the positive terminal of the booster battery.
5. Connect the negative jumper cable to the negative terminal of booster battery.

WARNING: In the next step, avoid making the connection near the discharged battery.

6. Connect the other end of the negative cable to a good ground on the engine of the disabled vehicle.
7. If booster battery is vehicle-mounted, start booster vehicle engine and then start the disabled vehicle's engine.
8. Remove the jumper cables in the following sequence:
 - a. Negative cable from engine.
 - b. Negative cable from negative terminal of booster battery.
 - c. Positive cable from booster battery and positive cable from battery of disabled vehicle.

Emergency Treatment Facilities

1. The area in front of emergency eye wash facilities, first aid kits, and fire blankets shall be kept clear of obstructions that would prevent an employee from reaching the facility in an emergency.
2. Eye wash stations shall be maintained and inspected in accordance with manufacturer's recommendations.
3. Eye rinse solution bottles shall be replaced whenever the seal is broken or expired.
4. Partially used eye rinse solution bottles shall be replaced and not returned to the station.

Tire-Changing

For additional requirements, refer to the *Employee Safety Manual, Tools and Equipment*.

1. Employees shall follow the manufacturer's procedure and cautions for the type of tire changer being used.
2. All tire-changing tools shall be in good condition, not damaged, dented, or deformed.
3. The tire valve core shall be removed to exhaust all air from the tire before demounting. Ensure that the valve is not plugged.

WARNING:

1. Heat can increase air pressure to a level sufficient to burst the tire or rim.
2. Heat shall not be applied to repair work on a rim with a tire mounted on it.
3. Single piece wheels shall be placed in a restraining device or barrier unless the rim wheel will be bolted onto a vehicle during inflation.
4. Multi-piece rims shall be placed in a cage or portable safety device before employees attempt to inflate the tire to seat beads.

Tire Cage

1. Whenever a rim wheel is in a restraining device the employee shall not rest or lean any part of their body or equipment on or against the restraining device.
2. Tires (tube) shall not be inflated beyond the recommended bead seating pressure.
3. Employees shall not stand over the tire while inflating it.
4. Multi-piece wheel components shall not be interchanged except as provided in the charts or in the applicable rim manual.
5. Multi-piece wheel components and single piece wheels shall be inspected prior to assembly.
6. Any wheel component which is bent out of shape, pitted from corrosion, broken, or cracked shall not be used and shall be marked or tagged unserviceable and removed from the service area.

Pressure Washing/Steam Cleaning

1. Power supply to washers and cleaners shall be supplied only through ground fault interrupters (GFIs).
2. All washing and steam cleaning shall be performed in designated areas.
3. When washing and steam cleaning is performed indoors, care shall be used to minimize mist over to electrical or adjacent work area facilities.

Spray Painting

1. All required Personal Protective Equipment as required by the *Employee Safety Manual* shall be used.
2. Respirators/cartridges shall be appropriate for the task as identified in a safety data sheet (SDS).
3. Grinding, scraping, sandblasting, or any other type of lead paint removal shall be performed in a manner that will not expose personnel to lead dust.
4. Painting shall not be performed indoors unless in an approved paint booth.
5. When painting is performed outdoors, only minor finishing or touch-up painting shall be performed.
6. Manufacturer's recommendations for handling, mixing, and using paints, accelerators, and thinners shall be followed.

Welding

For additional welding requirements, refer to the *Employee Safety Manual*.

1. Local exhaust ventilation (engineering controls) shall be used when performing welding operations in a structure.
2. Metal fumes shall be removed from the breathing zone and diverted to the outside atmosphere away from occupied space.

Road Service/Tow Trucks

For additional requirements, refer to the *Employee Safety Manual*.

1. All personnel exposed to vehicular traffic shall wear Class III high-visibility retro-reflective safety vests.
2. Operators of these vehicles shall ensure that all warning lights and flashers are operating properly, and US DOT safety devices are deployed.
3. Flashers and warning lights shall be operated properly when a vehicle is being towed.
4. Vehicles in tow shall be secured with safety chains when being transported.

Section J: WAREHOUSEING

This section supplements other sections of the *Employee Safety Manual* with specific instructions applying to material logistics operations.

1. All warehousing employees shall become familiar with and adhering to:
 - a. The *Employee Safety Manual*, General Safety Rules, that are applicable to all employees, and
 - b. All other phases of the company safety program.

Job Briefing

1. The Person in Charge shall ensure that a documented job briefing is conducted as required in the *Employee Safety Manual*.

Direct and Secure the Load

For additional cargo/load securement requirements, refer to the *Employee Safety Manual* where?

Material Handling

1. Prior to lifting or moving any loose material, cartons, tools, reels, etc., employees shall observe the following safety requirements:
 - a. Wear the proper work gloves whenever the material to be handled or the condition of the packaging is such that a pinching, puncturing, or lacerating hand injury could occur.
 - b. Wear work gloves of impervious design when handling containers for chemicals, solvents, and oils.
 - c. Wear a face shield and rubber apron when the integrity of a container is suspect or obvious leakage is evident.
 - d. When the weight, shape, or size of the material precludes manual handling, use proper tools or equipment, request assistance, or break down the load to manageable size.

Use of Two-and Four-Wheel Hand Trucks

1. Employees shall operate hand trucks no faster than walking speed and with full attention towards the avoidance of:
 - a. Running wheels off bridge plates or platforms.
 - b. Colliding with other trucks or obstructions.
 - c. Jamming hands between the truck and other objects.
 - d. Running wheels over feet.
2. Employees shall keep the load's center of gravity as low as possible by placing heavy objects below lighter objects.

3. Employees shall place the load well forward so the weight will be carried by the axle, not by the handles.
4. Employees shall position the load so it will not slip, shift, or fall. This is especially important for four-wheeled hand trucks, which shall be evenly loaded to prevent slipping.
5. Employees shall load only to a height that will allow a clear view ahead.
6. Employees shall let the truck carry the load; the operator shall only balance and push.

EXCEPTION: In the case of four-wheeled trucks with an extra (fifth) wheel and a handle for pulling.

7. Employees shall never walk backwards with a hand truck.
8. Employees shall use hand trucks on level surfaces. *NOTE: Avoid the use of hand trucks when on inclines.*
9. Employees shall move the hand truck at a safe speed, having complete control of the truck.
10. Employees shall operate hand trucks only in designated areas and watch out for pedestrians.
11. When not in use, hand trucks shall be stored out of the way and not left in aisles or other places where they can become tripping hazards. *NOTE: For forklift rules, refer to the Employee Safety Manual.*

Material Storage

1. All employees working with chemicals shall be aware of the physical and health hazards, proper handling, and emergency procedures for the chemicals being used.
2. Safety Data Sheets (SDS) shall be available to all employees.
3. Rooms and areas used for the storage of hazardous/toxic materials shall be approved for that use.
4. No such storage shall be permitted in confined/enclosed spaces, under stairs, or within any exit routes/doors.
5. All hazardous substance containers shall be clearly labeled to identify their contents, the hazards, and safeguards.
6. When bulk packaged substances are transferred to smaller containers, Employees shall:
 - a. Ensure the smaller containers are properly labeled.
 - b. Ensure that the new labels repeat all the original cautionary wording.
7. Warehouse storage shall be neat, orderly, and safe.
8. Where manual handling is necessary, placement of heavy or cumbersome items shall be planned to eliminate the need for employees to lift items from the floor or reach above their head.
9. If the load is more than one person can handle, employees shall use an additional person to assist or employ the proper material-handling equipment to eliminate potential for injury.
10. To stack or pile items, employees shall:

- a. Always start with a safe base.
 - b. Ensure uneven surface of floor or yard is leveled before stacking.
11. Materials shall be stacked to a safe height as determined by floor load limit, type of materials, and strength of containers.
 12. Materials shall be stacked to allow at least eighteen (18) inches between the top of the stack and any sprinkler heads.
 13. Employees shall crosstie (interlock) the stack as necessary to prevent component shifting.
 14. Reels and other round objects that may roll shall be always chocked.

Handling of Strapping Materials

1. Employees shall wear safety goggles or glasses and leather or leather palmed gloves when applying or removing strapping.
2. Only approved strapping tools and clips shall be used.
3. Special caution shall be used when tensioning the strapping on noncompressible material.
4. When cutting any strapping under tension, employees shall secure one end to the packaging by hand pressure or other means to secure the free end from springing away from the employee making the cut. *NOTE: Certain conditions may require that both ends of the strapping be secured before a cut is made.*
5. Employees shall use special caution when unstrapping loose packed or other materials, such as pipes, conduits, etc., which may have shifted in transit and may be set free to fall or roll when some or all the strapping is removed.
6. Strapping that has been removed from packaging shall be folded or rolled into a manageable size, secured from unraveling, and properly disposed of as soon as the task is complete.

Pallets

1. Defective pallets create unstable loads and shall not be used.
2. Lift truck drivers shall be sure that the load is stacked on the correct type of pallet.
3. Pallets shall be inspected regularly.
 - a. The deck board shall be sound and securely fastened to the runners.
 - b. There shall be no splintered, broken, or loose parts.
 - c. The pallet shall be free of protruding nails, staples, and other sharp projections.
4. Pallets shall be stored in a safe place out of traffic.
5. Pallets shall be stored in stacks, but not more than twenty (20) pallets high unless they are secured.
6. Pallets shall not be left standing on end, not even temporarily.

Rigging Tackle

1. All ropes, cables, chains, hoists, blocks, slings, and other rigging equipment
1. shall be inspected before use and maintained in a safe working order.
2. All equipment used for rigging and lifting shall be marked as to its load capacities.
3. Any rigging equipment that appears to be unsafe shall be tagged "Out of Service" and reported to supervision.
4. Out of service equipment shall be inspected or tested and either returned to service if safeness is determined, repaired to the state of safeness, or disposed.
5. When disposal is warranted, the equipment shall be destroyed so as not to be usable by anyone.
6. All rigging and lifting equipment shall be properly rated for the intended load.
7. Load capacity shall never be exceeded.
8. Special slings that require hanging storage shall be kept in a designated area for that purpose.
9. Special slings shall be hung on suitable pegs to prevent kinking or touching the floor.

Housekeeping

1. General housekeeping throughout the facility shall be checked regularly.
2. Aisles and walkways shall be free of obstructions.
3. Fire extinguishers, hoses, and standpipes shall be always kept clear and accessible.
4. Storage areas shall be inspected regularly and cleaned and reorganized as necessary.
5. An adequate number of trash containers shall be kept on the dock.
6. Containers shall be emptied as required.
7. There shall be no accumulation of cartons and other waste outside of containers.
8. All floors shall be swept regularly.
9. Spillage of packaging fillers shall be picked up immediately.
10. When floors are washed, signs shall be posted to alert personnel of the hazard.
11. Spills shall be quickly and completely mopped up or covered with an absorbent designed for such purpose.
12. Non-dripping, oil-soaked, or paint-covered rags and other combustible materials shall be disposed of in approved covered metal containers.
13. Scrap wire, junk equipment, and other refuse shall be properly disposed.
14. Staples shall be removed by employees after opening all cardboard cartons.

Section K: GENERAL RULES FOR ELECTRICAL EMPLOYEES

This section contains general rules for all employees working on or near unguarded, uninsulated energized lines or parts of equipment operating at 50 volts or more.

Only Qualified Employees may work in areas containing unguarded, uninsulated energized lines or parts of equipment operating at 50 volts or more.

NOTE: The rules of this section apply to all work performed on any energized line or equipment operating at 50 volts or more, to prevent the possibility of contact and electric shock.

NOTE: Required retraining for electrical workers is covered under OSHA 1910.269.

1. Employees who have not performed a task within the last twelve (12) months
 1. shall be retrained on that task before performing it.
2. The required retraining format shall be in the classroom, through an on-the job safety briefing, or whichever format is the most appropriate.
3. Employees shall receive additional training (or retraining) under any of the following conditions:
 - a. The employee demonstrates a lack of understanding of established safe work practices (observations, near misses, etc.).
 - b. New technology, new types of equipment or changes in procedures require new work practices.
 - c. The employee will be using safety-related work practices not normally used during their regular job duties.
 - d. Training for Qualified & Non-Qualified employees will receive training approximately every three years.

Clearance for Exposed Energized Parts

Each employee whose duties require work in proximity to exposed energized conductors, parts, or apparatus shall take all necessary precautions to prevent contact with such exposed energized conductors, parts, or apparatus.

1. The Job Brief should be completed (see section C).
2. No employee shall place any part of their body or reach with any conducting object nearer to any unprotected energized conductor or part than the Minimum Approach Distances shown in Table A (Qualified Employees) and B (Non-Qualified Employees) in this section of the Safety Manual.?
3. When conductors or equipment are adequately covered or barricaded with proper protective equipment, closer work clearances may be allowed.

NOTES:

1. This protective equipment is for accidental or unintentional brush contact with energized conductors.

2. This does not apply to a conductor or equipment being worked on in accordance with rubber gloving or live-line bare-hand work procedures.

Minimum Approach Distance for Qualified Employees

A Qualified Employee is an employee trained with competent skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment, can determine the nominal voltage of exposed live parts, is knowledgeable of clearance distances required for corresponding voltages to which the qualified employee will be exposed and is able to select the appropriate personal protective equipment (PPE) and tools required to perform work.

1. No employee shall approach or take any conductive object closer to exposed energized parts than set forth in Table A, "Live-Line Work Minimum Approach Distance for Qualified Employees," (phase to ground and phase to phase).

EXCEPTION: The employee is insulated from the energized part and the energized part is insulated from the employee and from any other conductive object at a different potential.

WARNING: Rated insulating gloves or sleeves are considered insulation of the employee only with regard to the energized part upon which work is being performed.

Minimum Approach Distance for Non-Qualified Employees

A non-Qualified Employee is an employee who is not trained to work on or near energized lines and equipment.

Selection of Protective Clothing and Personal Protective Equipment

1. The standard or basis Personal Protective Equipment (PPE) ensemble for electrical employees includes:
 - a. Arc-flash rated (AR) clothing
 - b. Safety footwear
 - c. Safety eyewear
 - d. Hard hat
2. As different work tasks are added, additional levels of PPE shall also be considered and added to the basic PPE ensemble based on the task. EXAMPLE: If working around vehicular traffic, a HI-VIS vest or outer garment is added to the basic PPE ensemble.
3. At the start of their shift, all Eversource employees reporting to their work locations shall, at a minimum, wear AR clothing and EH-rated footwear.
4. Safety eyewear and hard hat shall be worn at the job site.

EXCEPTIONS: Include inside a vehicle, a station control room, or designated office trailer.

5. Electrical employees shall select protective clothing and PPE based on their department's operating documents and PPE Matrix.
6. Additional PPE requirements shall be based on the electrical employees anticipated arc flash energy exposure.
7. Where feasible, electrical employees shall select work methods that include live line tools and insulate and isolate practices that will reduce or eliminate the need for head or face protection. (The best protection from an arc flash is distance and/or isolation.)

Arc-Rated Clothing

Calorie per square centimeter (cal/cm²) is the unit of measure of the heat energy of an arc flash and the protective level of AR clothing. The larger the calorie number, the greater the heat energy level of arc flash and the greater the protective level of the clothing needed.

The table below summarizes each Arc Flash PPE Category.

Arc Flash PPE Category	Minimum Arc Rating (cal/cm ²)	Maximum Arc Rating (cal/cm ²) ¹
1	4.0	7.9
2	8.0	24.9
3	25.0	39.9
4	40.0	+
	Reference: NFPA 70E-2018, Table 130.7(c)(15) (c)	

General Rules for Electrical Operations

1. Employees exposed to a potential electric arc when working on or near energized parts or equipment energized at 50 volts or greater shall wear arc rated clothing with an arc thermal performance value (ATPV), not less than the anticipated level of arc energy per local operating company policies.
2. Arc-rated clothing shall be worn, including a long-sleeved shirt, whenever rubber insulating gloves are required and anytime while working in manholes, in vaults, in the air, or when working on or near energized equipment, conductors, or switching.
3. Clothing that could increase the extent of an injury when exposed to flames or electric arcs shall not be worn.
4. Clothing made from the following types of fabrics shall not be worn:
 - a. untreated polyester
 - b. rayon
 - c. acetate

- d. nylon, either alone or in blends
- 5. When arc-rated clothing is required, arc-rated garments shall consist of the entire outside layer of clothing from head to foot.

EXCEPTION: When handling, performing maintenance, or testing batteries, employees shall use company-approved aprons as the outermost layer.

- 6. When wearing required clothing, employees shall have buttons, snaps, zippers, etc., engaged to provide coverage of their bodies.
- 7. When working on or near exposed energized parts operating at 50 volts or above, employees whose clothing does not comply with requirement shall be in violation of this rule.
- 8. All required clothing shall be in good condition and be free of rips, tears, holes, etc. that would affect its performance.
- 9. When more than one layer of clothing is worn to increase the Arc Thermal Performance Value (ATPV) the layers shall be approved arc-rated clothing including rainwear.
- 10. All clothing worn beneath layers of arc-rated clothing shall be only 100% natural fiber materials.
- 11. Clothing that has been stenciled or embroidered with non-flame-resistant paint or thread shall not be worn, even if it used as an undergarment.

NOTE: These requirements are in addition to any current requirements for the use of PPE, such as switching garments, flash hoods, etc.

Selection of Head and Face Protection

Head and face protection shall be used when exposed to arc flash energy as stated in the Table below.

Arc Flash PPE – Head and/or Face Protection		
2-8 cal/cm ²	>8-12 cal/cm ²	>12 cal/cm ²
None (1)	Arc-rated face shield with a minimum rating of 8 cal/cm ² (1,2)	Arc-rated hood or face shield with balaclava (1,2)

NOTES:

- 1. These ranges assume that employees are wearing hardhats.
- 2. The arc-rating must align with the anticipated arc flash exposure energy. OSHA states that the arc rating must be minimum of 4 cal/cm² less than the estimated incident energy. *NOTE that 1910.269(l)(8)(v)(E) permits this type of head and face protection, with a minimum arc rating of 4 cal/cm² less than the estimated incident energy, at any incident energy level.*

Accessories

1. When work is performed within the Minimum Approach Distance for Qualified Workers of exposed energized parts of equipment, each employee shall remove all exposed conductive articles, such as keys, rings, wrist watches, or bands, unless such articles do not increase the hazards associated with contact with the energized parts.

Rubber Gloves

This section establishes how rubber gloves are tested and cared for. Rubber gloves are one of the most important items of PPE for anyone working on or near energized lines or equipment.

Rubber gloves are rated by Class.

Employees shall select the correct class of gloves based on the voltage to be worked on or voltages within Minimum Approach Distances (MAD) for qualified workers and within local operating procedures.

Testing and Inspection of Rubber Gloves

1. Rubber gloves shall be dielectric tested before the first issue.
2. Rubber gloves shall be exchanged and dielectrically tested in accordance with local operating procedures established for that purpose, or at any time dielectric protection is doubtful.
3. Rubber gloves shall be examined, and air tested before each day's use and at any time it is suspected that a glove may have been damaged, including the possibility of damage at any time the gloves are not in the personal possession of the user.
4. Rubber gloves used for the direct handling of energized or ungrounded conductors or equipment shall be tested after lunch (midpoint of day/shift).
5. Rubber gloves shall not be turned inside out for use.

EXCEPTION: They may be turned inside out for inspecting.

6. Rubber gloves shall not be used and shall be immediately removed from service when the user's inspection reveals any of the following conditions:
 - a. A hole, tear, puncture, or cut.
 - b. Ozone cutting or ozone checking.
 - c. Texture changes resulting in swelling, softening, or hardening or the gloves becoming sticky or inelastic.
 - d. A test stamp that is not legible or the rubber gloves have not been tested within the current test cycle.
7. If a rubber glove(s) fails, the user's inspection:
 - a. It shall not be used.
 - b. It shall be returned to the company testing facility.

- c. A note identifying the service area, date returned, and reason for return shall accompany the glove(s) back to the company testing facility.

WARNING: DEFECTIVE GLOVES SHALL NEVER BE WORN.

8. Rubber gloves that have come in contact with oil, solvents, excessive heat, or any of the inhibitors used in connection with aluminum connectors, and damage is suspected, shall be returned to the company testing facility.

Storage of Rubber Gloves

1. Rubber gloves shall be worn, transported, and stored right side out and never left folded or in a roll.
2. Rubber gloves shall be stored in their natural shape and in an approved glove bag with cuffs down and shall not be stored in direct sunlight.
3. Leather protectors shall be removed from rubber gloves before placing in approved glove bag.
4. Rubber gloves shall not be stored with leather protectors on.
5. Rubber gloves shall not be stored or carried in places where they will be exposed to damage by other tools or equipment, oil, excessive heat, light, or corona discharge.
6. Wet gloves shall be dried before storing.
7. Rubber gloves that are stored flat shall not have any objects placed on them.
8. For purposes of this safety rule, low voltage ranges from 50-600V (AC/DC).
9. Employees who work on or near exposed electrical conductors or equipment energized from 50-600V shall wear, at a minimum, Class 0 rubber gloves.
10. Where special circumstances exist, approved alternative insulating and/or isolating methods may be substituted with the approval of a Supervisor and the completion of a Job Hazard Analysis (JHA).

EXAMPLES: Can include, but are not limited to, the intricate nature of the work or task requires fine motor dexterity or there is insufficient working space.

17. Rubber gloves shall not be worn without the appropriate rubber glove protectors.
18. Rubber glove protectors shall not be used as work gloves.

Rubber Sleeves

This section establishes how rubber sleeves shall be worn, tested, and cared for. Rubber sleeves are rated by class.

Qualified Employees shall know the voltage and class of rubber sleeves required.

1. Qualified Employees shall select the class of sleeves based on the voltage to be worked on or

voltages within MAD for qualified employees and within local operating procedures.

2. Rubber sleeves shall meet the ASTM D 120, Specification for Rubber Insulating Sleeves. ASTM Sleeve Class and Maximum Voltage Use. *NOTE: Voltages are phase to ground.*
3. Rubber sleeves shall be electrically tested in accordance with local operating procedures.
4. Qualified Employees shall check and verify that the rubber sleeves are within the current test cycle.
5. Rubber sleeves shall be worn as designed and shall not be worn while turned inside out.
6. Rubber sleeves shall be visually inspected prior to each use and any other time deemed necessary.
7. Rubber sleeves shall be immediately inspected following any incident that can be expected to have caused damage. (e.g., puncture or laceration to the sleeve).
8. Rubber sleeves shall not be used when inspection reveals any defects or is outside of test date.
9. Rubber sleeves failing the user's inspection shall be returned to the company testing facility.

Rubber Sleeve Storage

1. Rubber sleeves shall be stored in cool, dark, and dry locations free from ozone, chemicals, oils, solvents, damaging vapors or fumes, sunlight, and electrical discharges.
2. Rubber sleeves shall not be folded, creased, or turned inside out in any manner to cause stretching or compression.
3. Rubber sleeves may be loosely rolled lengthwise inside a canvas sleeve bag.
4. Tape shall not be used to secure sleeves for shipment or storage.

Care of Live-Line Tools and Hot Sticks

1. High-voltage test sticks, switch sticks, live-line tools, and insulating handles shall be kept clean and dry and used in the same condition as which they were dielectrically tested.
2. Hot-stick line tools shall undergo a dielectric test every two (2) years or after the tool has been repaired or refinished. Hot sticks shall have a tag with the test date.
3. Prior to use, hot-stick line tools shall be visually inspected for defects, wiped clean, and checked to be compliant with current test cycle.
4. Regarding insulated bucket trucks, no changes shall be made that will reduce the dielectric integrity of the insulating boom unless manufacturer approved (example: mounting a stick saw to the boom).

Rubber Blankets

1. Rubber blankets shall be electrically tested in accordance with local operating procedures.
2. Qualified Employees shall check and verify that rubber blankets are within the current test cycle.

and shall remove this equipment from service any time it is damaged or out of its test cycle.

3. Rubber blankets shall be stored in an appropriate container.
4. Rubber blankets shall be rolled, hung, or kept flat, but never folded.
5. If standing or kneeling on the rubber blanket, the surface beneath shall be free of objects that may damage or impair the insulating qualities of the rubber blanket.
6. Where it is impracticable to establish the surface beneath the blanket free of objects that may damage or impair the insulating qualities, mechanical protection such as canvas or plywood shall be used between the blanket and its bearing surface.

Testing and Test Facilities (High-Voltage and High-Power Testing)

1. Permanent test areas shall be guarded with walls, fences, and/or barriers to limit access to the test area.
2. Temporary test areas shall be guarded by any of the following:
 - a. One or more Qualified Employees.
 - b. A temporary test site barricaded with a waist-high barrier of high-visibility colored tape.
 - c. A barrier or barricade that limits access only to qualified employees.
3. Qualified Employees shall maintain the MAD from exposed energized parts of the equipment being tested.

Material Handling and Storage Around Energized Equipment

1. No materials or equipment shall be stored under an energized bus, energized lines or near energized equipment if it is practicable to store them elsewhere.
2. Extraordinary caution shall be exercised when moving materials near energized equipment.
3. In areas with restricted access to electrically Qualified Employees, material or equipment shall not be stored closer to energized lines or equipment.
4. In areas with unrestricted access, material or equipment shall not be stored closer than the Minimum Approach Distances for non-Qualified Employees.
5. Materials and equipment that can retain an induced voltage shall be grounded when stored under or near transmission lines and in substation yards.
6. When in close proximity to energized equipment, a non-conductive tag line or other suitable devices shall be used to control loads being handled by hoisting equipment.
7. Material no longer needed at a job site shall be returned or disposed of promptly.

Grounding for Personal Protection

This section covers general grounding rules.

1. All temporary grounds used shall be inspected before use and shall have periodic inspection and testing in compliance with local operating procedures.

2. Grounds shall be attached to the best available ground in the following order of preference, based on the tested level of effectiveness.
 - a. System neutral
 - b. Substation ground grid (when inside a substation)
 - c. Equipment ground rod
 - d. Guy anchor rod
 - e. Screw ground or driven ground
3. Ground clamps shall be cleaned with a wire brush immediately before use and be compatible with the connections being made.
4. Temporary grounding cable shall be company-approved, flexible-stranded conductor and be of sufficient current-carrying capacity.

Section L: CONSTRUCTIONS OPERATIONS

WATER MAIN INSTALLATION SAFETY PRACTICES

1. Pipe delivered to a job shall be placed in a safe location and blocked to prevent rolling. If the pipe creates a hazard, it shall be protected at night by blinker lights and by barricades in daytime.
2. All intersections shall be kept as clear of obstructions as possible.
3. When easing pipe into trench, construction worker shall stand at the rear of the pipe and use rope when necessary to control its movement.
4. All lifting tackle shall be sound, and all pipe slings used for lifting pipe shall be suitable for the use intended.
5. An employee shall be clear of, and never under, the pipe while it is being moved by mechanical or any other means.
6. When carrying heavy material with others, such as pipe, valves or other fittings, all constructions workers shall understand the prearranged signals for lifting and lowering.
7. Gloves shall be always worn when handling pipe and fittings.

GENERAL PROTECTION REQUIREMENTS

1. All employees shall be protected with suitable personal protective equipment for the protection of the head, eyes, respiratory organs, hands, feet, and other parts of the body.
2. Employees exposed to vehicular traffic shall be provided with and shall be instructed to wear
3. Class 3 safety vests marked with or made of reflective or high visibility material.
4. Employees subjected to hazardous dusts, gases, fumes, mists, or atmosphere deficient in oxygen, shall be protected with approved respiratory protection.?
5. No person shall be permitted under loads handled by power shovels, derricks, or hoists. To avoid injury from spillage employees shall be required to wear hard hats and stand away from any vehicle being loaded or unloaded.
6. Inspections of excavations shall be made by the crew foreman. If evidence of possible cave-ins or slides is apparent, all work in the excavation shall cease until the necessary precautions have been taken to safeguard the employees.?
7. Prior to opening an excavation by mechanical means, it shall be determined whether underground installations, i.e., sewer, telephone, water, fuel, electric lines, etc., will be encountered, and if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact locations shall be determined and when it is uncovered, proper supports shall be provided for the existing installation. Call Before U Dig procedures shall be followed.
8. Trees, boulders, and other surface encumbrances located to create a hazard to employees involved in excavation work or in the vicinity thereof at any time during operations shall be

removed or made safe before excavating is begun.

9. The walls and faces of all excavations in which employees are exposed to danger from moving ground shall be guarded by a shoring system, sloping of the ground, or some other equivalent means.
10. Excavations shall be inspected after every rainstorm or other hazard-increasing occurrence,
11. and the protection against slides and cave-ins shall be increased if necessary.
12. The determination of the angle of repose and design of the supporting system shall be based on evaluation of pertinent factors such as: Depth of cut; possible variation in water content of the material while the excavation is open; anticipated changes in materials from exposure to air, sun, water, or freezing, loading imposed by structures, equipment, overlying material, or stored material; and vibration from equipment, blasting, traffic, or other sources.

SLOPES

1. All slopes shall be excavated to at least the angle of repose except for areas where solid rock allows for line drilling or presplitting.
2. The angle of repose shall be flattened when an excavation has water conditions, silty materials, loose boulders, and areas where solid rock allows for line drilling or presplitting.
3. As an alternative to the clearance prescribed above the individual in charge may use effective barriers or other effective retaining devices in lieu thereof in order to prevent excavated or other materials from falling into the excavation.
4. Except in hard rock, excavations below the level of the base of footing of any foundation or retaining wall shall not be permitted unless precautions are taken to ensure the stability of the adjacent walls for the protection of employees involved in excavation work or in the vicinity thereof.
5. If the stability of adjoining buildings or walls is endangered by excavations, shoring, bracing, or underpinning shall be provided as necessary to ensure their safety. Such shoring, bracing, or underpinning shall be inspected daily or more often, as conditions warrant, by the crew supervisor and the protection effectively maintained.
6. Diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering an excavation and to provide adequate drainage of the area adjacent to the excavation. Water shall not be allowed to accumulate in an excavation.
7. Where any bank or side more than 5 feet high exists, adequate piling or bracing shall be provided. Or all sides of the excavation shall be sloped to prevent cave-in, or the trench shall be extended so that the length and width of the trench exceeds the depth and the work to be performed is centered in the trench or excavation.
8. An electrical jumper cable shall be used on all service work and meter vault installations on existing services and fire line repairs.

SPECIFIC TRENCHING REQUIREMENTS

BACK UP DEVICE

Earth moving equipment shall be equipped with a reverse signal alarm distinguishable from the surrounding noise level.

PIPE JOINTS

1. When hot lead or leadite is used as a jointing material there should be a clear path between the leadite pot and the location where the joint is being poured.
2. Employees involved with the work shall wear safety glasses or face shield, and gloves while doing the work.
3. Hot leadite shall be lowered into the bell holes by means of handles so provided on lead pot.
4. Employees in bell holes shall stand clear during the lowering.

Section M: MATERIALS & CHEMICAL STORAGE HANDLING

GENERAL RULES

1. No one shall be allowed to stand or walk under elevated forks.
2. If at any time an industrial power truck, including forklift, is found to be out of repair, defective or in any way unsafe, the matter shall be reported immediately to the designated authority and tagged. Special consideration shall be given to the proper functioning of tire, horns, lights, battery, controller, lift system (including forks, chains, cable, and limit switches), brakes, steering mechanisms, and back-up alarms.
3. Open flames shall never be used for checking water level in storage batteries. A safety light shall be used where necessary.
4. All individuals shall observe designated load capacity of truck. No counter weighting shall be added to fork trucks to increase lifting capacity. Extreme care shall be used when tilting load forward or backward, particularly when high tiering.
5. Operators shall never put their arms or legs between the uprights or the mast or outside the running lines of the truck.
6. A lift truck shall never be left on an incline.
7. All types of loaded lift trucks shall be driven downgrade with the load last and upgrade with the load first. On descending grades, the truck shall be kept under control so that it can be brought to an emergency stop in the clear space in front of the truck. On all grades, the mast shall be tilted back, and the forks raised only as far as necessary to clear the road surface.
8. Forks shall always be placed under the load as far as possible, and the mast titled backward to cradle the load.
9. The load shall be carried as low as possible, consistent with safe operations. When it is
10. necessary to travel with a load that will obstruct forward vision, the truck shall be operated in reverse and at a slow speed. When a fork truck is empty, the operator shall travel with the forks as low as possible while conforming to local conditions.
11. Operators operating indoors shall avoid striking sprinkler heads, pipes, elevator gates, walls, columns, fire doors and other obstructions.
12. When required, there shall be one employee designated to guide the operator in this operation.
13. Only trained and authorized personnel shall operate the above-mentioned equipment.
14. No person other than the operator shall ride on the forklift.
15. It shall be the duty of all employees to report promptly to their supervisor any unsafe or hazardous condition that may cause personal injury or property damage.
16. When two or more employees are working together on the same job, a thorough understanding shall be had so that there shall be absolute cooperation between them.
17. The job should be discussed, and job brief completed. Lack of this may result in an injury because employees may not know what their fellow workers intend to do.

18. Employees should keep all loose nails, boards, etc., off the floor. Objects in aisles and on floors are a tripping hazard. Always keep aisles and floors clean and clear.
19. These rules do not cover all conditions, hence supplementary orders shall be issued by supervisor as may be necessary to cover situations that apply particularly to their respective storerooms, including instructions to substitute employees.
20. Employees shall make certain that all tools and equipment they are to use are always in safe condition. They shall be inspected before starting work, and frequently thereafter, if the use of the equipment makes it necessary. All defects shall be reported immediately to the supervisor.
21. Slings shall not be overloaded. Know their safe capacities.
22. The load shall not be applied suddenly to a sling.

SLINGS

1. Slings shall not be fastened over sharp corners or edges without padding.
2. Slings shall not be crossed, twisted, or knotted.
3. Slings shall not be used if inspection shows a flaw, crack, fracture, or any other defect.
4. In handling slings in lifting loads, a safe hold shall be used to keep fingers clear. Grasp slings where there is no danger of pinching the fingers.
5. Slings found upon inspection to be unserviceable shall be immediately turned in for replacement.
6. Whenever lifting or moving heavy objects, employees shall take great care to avoid strain:
 - Employees shall never attempt to handle alone any object that cannot be so handled with reasonable assurance of safety. Assistance shall be obtained when required. The best protection against strain is proper position, which consists of keeping the back as straight as possible, bending knees, and lifting with the legs.
 - All objects should be gripped firmly and clearance on all sides assured to avoid jamming the fingers.
 - Objects to be lifted should be inspected by employee to determine that there is no grease or other slippery substance on gripping surface, and that objects are free of splinters or ragged edges.
 - Where there is a crew of employees handling material of any kind and hand signals are required, the individual in charge, shall arrange with the crew what the signals are to be and what each signal means. One individual will be designated to give signals.

OBJECTS FALLING

1. In piling materials, care shall be used so that there will be no danger of objects falling on employees or others.
2. Extreme caution shall be used when working on top of piled material. Care shall be taken not to work too near the edge of a pile.
3. All protruding nails shall be removed as soon as possible after they are exposed. As it is not

always practical to remove nails immediately, extreme care should be exercised to see that they are bent down as flat to the surface of the box or barrel as possible.

4. Materials should be stacked in a neat and orderly manner so as to eliminate the hazard of piles slipping or shifting and material falling on someone.
5. Piled materials shall have a safe base. This means a solid, smooth, level surface. If the floor or ground is not level, dunnage bearing strips or timber should be used to make sure the pile will not shift.
6. Dunnage and ends of materials, especially bar stock and sharp materials, should not protrude beyond the face of the pile.
7. Stacked material shall not block firefighting equipment or fire doors, electrical equipment, or apparatus. (Fire Code)
8. Bags or cartons of material shall be cross tied where possible to ensure stability.
9. Piles shall not go beyond safe heights, which means not so high that the pile will be unsteady.
10. When piling lumber, the pile shall have a firm, level foundation. The pile height shall not exceed the width or depth of pile. Crosstie the boards with spacers of uniform size which do not project.
11. When storing round objects above the floor, they shall be placed so that they cannot roll or fall.
12. Flammable or explosive materials shall be properly labeled, stored in an area apart from regular material as far as possible, and handled with the utmost care.
13. Glass and porcelain material shall be stored in such a manner that it will not be broken, and it will not cause injury to personnel in the event of breakage.
14. Material and tools in a storeroom should be stored in a safe and careful manner. They should be stored with points and cutting edges down where possible. Where this is not possible, they should be stored in such a manner that will eliminate contact hazard.
15. Metal straps or wire used on bales or other packages shall be cut so that the flying ends are controlled. Warn others working nearby. Proper tools shall be used.
16. Caution shall be exercised when opening incoming shipments to prevent cuts, bruises, scratches, etc., from tools or packages.

STORING

1. When material is unpacked for storing, all packing material, such as cardboard, paper, excelsior, etc., should be placed in the trash containers immediately, or properly disposed of, in order to eliminate a fire hazard as well as a housekeeping problem.
2. Materials shall not be thrown to another person. Never attempt to catch a falling object. Injury and damage often result from such practices.
3. Barrels, drums, or reels that may roll or slide shall be chocked at the base.
4. Barrels and drums should generally be stored on barrel pallets or on their ends, with the exception of such barrels as those left on their sides, carefully chocked to prevent rolling.
5. Drum handling equipment shall be used where provided.

6. Utmost care must be taken when handling oil drums; if outside is oily, employees should wipe
7. them dry before handling.
8. Drum shall be rolled by pushing against its sides. Do not grasp the ends and do not use feet
9. to push with or to change direction of the roll.
10. To up-end a full drum, two employees should stand on opposite sides facing the drum middle, grasp both top and bottom chimes near the high point and while lifting one end, press down on the other. As the drum come to a balance on the bottom chimes, release grip on the bottom and straighten up with the drum. An empty drum may be up ended by one employee in this manner.
11. Cable reels stored up-right shall be securely blocked so that they will not roll. Reels stacked upon on their sides shall not be piled so high that they will tilt and fall.
12. Fork truck operators shall adhere to the following rules:
13. Operators shall look in the direction of and keep a clear view of the path of travel.
14. They shall avoid making quick starts, jerky stops, or quick turns, particularly when stacking.
15. Stunt driving and horseplay shall not be permitted.
16. Operators shall slow down for wet and slippery floors.
17. Operators shall always safeguard the pedestrian.
18. Operators shall not pass another truck traveling the same direction at intersections, blind spots, or at other dangerous locations.
19. Operators shall slow down at cross aisles and when vision is obstructed by doors, corners,
20. and elevators, they shall keep to the right.
21. Operators shall avoid running over loose objects on the roadway surface.
22. When leaving an industrial power truck unattended, controls shall be neutralized, power shut off, brakes set, key, or pull connector plug removed, and forks left in a down position.
23. Fuel tanks shall never be filled while motor is running.
24. No passengers shall be permitted to ride on industrial power trucks.
25. When a fork truck is used to elevate an individual, a suitable platform with railing securely fastened to the forks shall be provided.

Section N: REMOTE METER INSTALLATION, METER READING AND METER DEPARTMENT SAFETY

Also refer to *The Confined Space Entry Section* in this manual.

REMOTE METER INSTALLATIONS

1. Safety glasses and gloves shall be worn at all times when drilling through wood or breaking concrete walls for installation of receptacle or cable.
2. In areas where head space is limited safety hats shall be worn.
3. Be alert to hazards such as gas, telephone, and electric lines. Thorough inspection shall be made prior to starting work.
4. Complete the Job Brief.

METER READING AND COMMUNITY RELATIONS

1. Reporting hazards - Hazardous conditions encountered in the field should be reported along with a brief description to employee's immediate supervisor.
2. Snow, ice, rain, or foreign matter makes surfaces slippery and/or dangerous to walk on. Caution and good judgment shall be exercised. Avoid slips and falls. They may cause serious injury.
3. Vaulting and/or climbing fences or hedges shall be considered a violation of safety rules and regulations.
4. Short cuts that may present accident hazards or cause complaints from our customers shall be avoided.
5. Extreme caution shall be used when walking on polished or waxed floors. Throw rugs slide easily when stepped upon. Be alert and avoid falls.
6. As it takes time for eyes to adjust to changing light conditions, flashlights shall be used when descending or entering darkened stairways or rooms. Matches or open flames shall not be used.
7. Caution shall be used while in a cellar for overhead pipes, cabinets, shelves, debris, sump pits, furnace pits, etc. They may cause serious injuries. Meter readers should make notation of such condition in the route book.
8. Application of the following rules should lessen the chances of being bitten by a dog.
 - a) Be wary of a dog that is being restrained by his owner. It may break away and attack.
 - b) Always keep the dog in sight.
 - c) Indicate in notification all houses having dogs so that fellow meter readers can be aware.
 - d) A meter reader shall always be equipped with dog repellent. All animal bites shall be reported immediately, no matter how slight the injury may be.
9. In leaving a customer's property see that all doors, trap doors, cellar doors, etc., are left as found.
10. Always make your presence known to the occupants of the premises before entering.

11. In removing meter vault or manhole covers a proper tool shall be used to remove it. Special care shall be taken by employees to watch the position of their feet during this operation.
12. Employees shall not enter a large manhole without assuring themselves that there is no unusual hazard present in the vault.
13. Exercise extreme caution when descending cellar stairs. Use handrails whenever possible. Look for slippery worn or broken stairs. Brooms, brushes, mops, wastepaper, wearing apparel, etc., are frequently found on cellar steps. Care shall be taken to avoid injury.

METER SETS AND REMOVALS

1. An electrical jumper cable shall be used.
2. Any hazardous conditions encountered shall be immediately reported to your supervisor.

METER DEPARTMENT SAFETY PRACTICES

1. A ladder shall be used when stocking shelves that are not within a safe reaching height.

METER TESTING IN FIELD

1. Warning signs and barricades shall be used when testing meters in traffic areas. For detailed instruction see section "I" (Safeguard).
2. Head space in meter vaults is limited, therefore, head protection shall be worn.
3. Traffic area vault covers are heavy and proper lifting technique should be exercised.
4. Precaution should be taken when entering manholes. A visual inspection should be made prior to entry.
5. When flowing test meter, flow stream should be facing in a direction that will not cause damage to public or private property.
6. Hose fitting from meter to test meter should be tight and gaskets properly inserted.
7. Test meter valve should be shut off slowly to prevent water hammer that can cause hose to rupture, fittings to blow or disc in test meter to break.

Section O: HAZARD COMMUNICATION PROGRAM

See Policy on The Source under the Safety Tab

This Hazard Communication Program is written in compliance with the Occupational Safety and Health Administration Hazard Communication Standard for all locations of the AQUARION Company.

1. Appropriate Safety Data Sheets (SDS's) are on file for all chemicals entering any of the facilities. In all areas, exposure levels have been determined to be safe and these will be monitored on an on-going basis. All purchase orders for metals and chemicals will include a request for SDS's and suppliers who do not furnish them will be contacted.
2. If necessary, a request letter will be sent, followed by a second request letter if the first is not answered with the required SDS. If the second request letter is not answered, a complaint will be filed with regional OSHA office. A copy of the complaint will be forwarded to the supplier and alternate suppliers will be considered at this time.
3. Copies of all related correspondence to suppliers will also be retained. Pertinent SDS's will be maintained in the front entry at all filter plants for easy access by employees and Fire Department personnel and in an easily accessible file at all other locations and employees will be given the opportunity to examine them upon request.
4. Labels supplied by manufacturers on containers delivered to AQUARION Company will be left in place. When necessary, four-color labels will be used to label any containers which do not have manufacturer's labeling on them. Labels will be changed as ingredient changes warrant it.
5. Initial employee training has been completed and further training is conducted:
 - a. when new employees are hired to work in an area where hazardous materials are used.
 - b. when current employees are assigned to work in an area where hazardous material are used.
 - c. when new chemicals are introduced to a work area.
 - d. when a new ingredient is added to a chemical already in use.

Employee training includes instruction in reading Safety Data Sheets and warning labels, and information on where SDS's and hazardous chemical lists are located. A copy of this program is also available for inspection by employees.

1. A list of hazardous chemicals corresponding to the Safety Data Sheets on file has been compiled and will be maintained at each location along with the Safety Data Sheets. This list will be amended as SDS's are added or changed.
2. Employees will be given sufficient verbal notice, and when necessary, written notice of the potential hazards of any non-routine tasks that they may be asked to perform.
3. Employees will be informed verbally, or with written notice when necessary, of any potential hazard associated with the chemicals contained in their work areas.
4. Contractors engaged in any of our facilities will be given a listing of the hazardous chemicals in use at those facilities and will be given access to the SDS file. If necessary, they will be instructed in interpreting SDS's and warning labels.

They, in turn, will pass this information along to their employees. In addition, they will be required to submit a listing of hazardous chemicals that they will be using while at the facility.

The above will not apply when:

- a. The contractor will not have any access or need to access any work area containing hazardous material.
- b. Contractor employees do not have to pass through hazardous material work areas to reach their work area.
- c. The contractor is on a repeat or similar contract involving no new work areas within the last six months and where there has not been any substantial change in the work area.
- d. The contractor is for delivery of material only.

The contractor is a single individual whose work will not involve exposure to self or cause exposure to others.

Section P: ACCIDENT INCIDENT REPORTING

NOTE: See Accident -Injury Reporting Policy on The Source under Safety Tab

1. All work-related incidents shall be reported to local management as soon as possible or by the end of the shift.

NOTE: An incident is defined as any unplanned event, which includes all work-related injuries, illnesses, motor vehicle incidents, property damage, insect and poisonous plant contact, near-miss events, and any other safety related incidents.

2. Safety Manager shall ensure that within 24 hours after the report of a safety related incident, the incident shall be entered into the Safety Information Management System (SIMS).
3. A First Report of Injury form and/or Motor Vehicle Accident Report shall also be submitted within 24 hours of the report of those types of incidents.

Section Q: USEFUL DATA

This section of the Aquarion *Employee Safety Manual* is intended as a ready reference for frequently used information and includes various charts, tables, signals, useful knots, and strength and weights of material.

Employee feedback is an important driver in updating the *Employee Safety Manual* quickly and frequently. Feedback can be provided to the Human Resource/Safety department. All feedback is directed to the safety representatives for review. Your input is appreciated.

The Human Resource/Safety will make changes or updates to the manual as necessary after review with the Safety Committee and Safety Steering Committee.

Fire Extinguishers

There are various types of fire extinguishers, each one useful for fighting particular types of fires. Using the wrong fire extinguisher could lead to making matters worse, so, care must be taken when selecting the right extinguisher for the right type of fire.

- **Class A** - Fires in wood, textiles and other ordinary combustibles containing carbonaceous material. These are extinguished by cooling and quenching with water which wets down material and prevents glowing embers from rekindling. Tri-Class dry chemical extinguisher are also effective on this type of fire and achieve extinguishment by fusing and insulating.
- **Class B** - Fire in gasoline, oil, grease, paint, or other liquids that gasify when heated. These are extinguished by smothering, cooling, and heat shielding. Carbon dioxide and dry chemical extinguisher are effective on this type of fire.
- **Class C** - Fires in live electrical equipment. These types of fires require a non-conducting extinguishing agent. A carbon dioxide extinguisher smothers the fire without damaging the equipment. Dry chemical is also effective.
- **Class D** - This specialized classification includes fires in combustible metals such as magnesium, titanium, zirconium, sodium, potassium, and others. A special extinguishing powder may be applied by scoop or shovel.

Battery Jump-Start Instructions










1. Batteries Produce Explosive Gases: **WARNING**
2. Keep sparks, flames, and cigarettes away from batteries at all times. Wear eye protection.
 - a. Don't lean over batteries during jump-starting.
 - b. See owner's manual for instructions.
3. Jump-Start Instructions
 - a. Ensure the following:
 - a. Vent caps are tight and level
 - b. Vehicles are not touching

- c. Both electrical systems are the same voltage
- b. attaching the cables in the following order:
 4. Clamp one jumper cable to positive (+) terminal of discharged battery wired to the starter or solenoid. Do not allow positive cable clamps to touch any metal other than battery terminals.
 5. Connect other end of positive (+) cable to positive (+) terminal of booster battery.
 6. Connect one end of the second cable [negative (-)] to the other terminal [negative (-)] of booster battery.
 7. Make final connection on engine block of stalled engine (not to negative post) away from battery, fuel line, any tubing, or moving parts.
 8. Stand back from both vehicles.
 9. Start vehicle with good battery and then start the disabled vehicle.
 10. Remove cables in reverse order of connection, beginning by first removing cable from engine block or metallic ground.

Hazard Communication Standard Pictogram

As of June 1, 2015, the Hazard Communication Standard (HCS) requires pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

HCS Pictograms and Hazards

Health Hazard 	Flame 	Exclamation Mark 
<ul style="list-style-type: none"> • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	<ul style="list-style-type: none"> • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides 	<ul style="list-style-type: none"> • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non Mandatory)
Gas Cylinder 	Corrosion 	Exploding Bomb 
<ul style="list-style-type: none"> • Gases under Pressure 	<ul style="list-style-type: none"> • Skin Corrosion/ burns • Eye Damage • Corrosive to Metals 	<ul style="list-style-type: none"> • Explosives • Self-Reactives • Organic Peroxides
Flame over Circle 	Environment (Non Mandatory) 	Skull and Crossbones 
<ul style="list-style-type: none"> • Oxidizers 	<ul style="list-style-type: none"> • Aquatic Toxicity 	<ul style="list-style-type: none"> • Acute Toxicity (fatal or toxic)

Section U: COMMON TERMS AND DEFINITIONS

The safety concepts and terms referenced in this Resource Guide are part of our safety language and culture at Aquarion. These terms provide additional context to the Safety Rules (requirements) referenced in the various sections of the Aquarion *Employee Safety Manual*.

Safety Rules establish the required “dos and don’ts” regarding the conduct of all activities and tasks performed at Aquarion both in the field and in the office. These terms, in addition to specific procedures and training, provide direction on the actions required to safely perform our work.

If, at any time, you are unfamiliar or do not fully understand the definition or meaning of a specific term, contact supervision and/or Human Resource/Safety Department.

Commonly Used Terms

1. **Cold Stress** - Occurs by driving down the skin temperature, and eventually the internal body temperature. When the body is unable to warm itself, serious cold-related illnesses and injuries may occur, and permanent tissue damage and death may result. Types of cold stress include trench foot, frostbite, and hypothermia. For more information refer to the CDC/NIOSH link on Cold Stress
2. **Controls** – Methods to manage hazards. The following Controls are presented in their hierarchy of effectiveness, from most effective to least effective.
 - Elimination of the hazard completely is the most effective approach; however, this is not always possible.
 - Substitution replaces equipment or chemicals with something safer.
 - Engineering controls create barriers and inter-locks that isolate people from the hazard.
 - Administrative controls include rules, procedures, signage, etc.
 - Personal Protective Equipment is the least effective but remains the only
 - feasible solution for many tasks.
 - Aquarion attempts to use multiple controls when possible in our operations to maximize their protective value.
3. **Critical Steps** - A human action that will trigger immediate, irreversible, intolerable harm to a person or asset if said action or proceeding actions are not performed properly.
4. **Energy Wheel** - The energy wheel provides a simple set of reminders to search for hazards that are commonly overlooked and increase hazard identification. Hazards are specific to the energy present at the job site. For example: Gravity is defined as the force of attraction by which items with mass tend to fall towards the center of the earth. These can result in falls by people who have lost their balance for various reasons, as well as falls of unsecured objects or materials.
5. **Fitness for Work** - Employees must always be physically and mentally fit to perform their jobs safely and reliably without any limitations imposed by fatigue, stress, personal issues, the use or aftereffects of alcohol, illicit drugs, non-prescription drugs, prescribed medications, or any other substance. An important skill is self-recognition when there is any physical or mental distraction that could interfere with the performing a Critical Step.

6. **Hazard** - The potential for harm (physical or mental). In practical terms, a Hazard often is associated with a condition or activity that, if left uncontrolled, can result in an injury or illness.
7. **Hazard Assessment** – A Hazard Assessment is a formal process to identify Hazards so they can be managed with administrative, engineering or work controls, or personal protective equipment. Aquarion works with affected departments to conduct these assessments.
8. **A Job Hazard Assessment (JHA)** - is a type of assessment that is specific to the job being performed where there is an absence of standard protective measures
9. **Job Brief** – A pre-task planning and communication tool that provides instructions to facilitate the safe, event-free execution of work tasks. A written Job Brief and crew briefing is conducted at the work site to communicate to the crew the recognized and potential Hazards associated with the work.
9. **Job Hazard Analysis (JHA)** – Performed by management when standard protective measures are not feasible and/or could create a greater hazard. The JHA shall occur well in advance of the work activity and shall include coordination with all affected employees. The Job Brief differs from a JHA in that it is a planning tool for assigned jobs. A JHA is required when standard work practices are inadequate or infeasible. Under such conditions, work must stop until a JHA can be completed.
10. **Heat Stress** - Occurs when the body cannot get rid of excess heat. When this happens, the body's core temperature rises, and the heart rate increases. Heat Stress can result in heat stroke, heat exhaustion, heat cramps, or heat rashes. It is important recognize symptoms to prevent progression to a heat stroke which is a life-threatening condition. For more information refer to the CDC/NIOSH link on Heat Stress.
11. **Human and Organizational Performance (HOP)** - A framework for understanding the relationship between the organization and the individual. The goal of HOP is to improve operational performance which includes reducing risk of harm to people and property.
12. **Person in Charge of work (task or activity)** - Shall be a Qualified Employee designated by management or a management designee. The Person in Charge shall have demonstrated leadership skills and is the most knowledgeable person relating to the task to be performed.
13. **Qualified or Qualified Person** – Is a term defined by OSHA under 29 CFR 1926.32(m) which means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project. This term is used throughout the *Aquarion Employee Safety Manual* to designate personnel who possess the required skills necessary to perform the work safely.
14. **Serious Injury or Fatality (SIF)** - Most serious injuries and fatalities result from a high-risk situation in which control methods are absent, ineffective, or not complied with, and, when allowed to continue, have the potential to result in a fatality or serious injury.
15. **SIF Event** - Defined as an event that resulted in or had the potential to result in a fatality or life-changing injury. “Life-changing” means a significant and negative impact to one’s life: severe burns, amputation, etc. SIF events are rare, but predictable.
16. **SIF Precursors** - SIF precursors (see the following Table) are defined as reasonably detectable events, conditions, or actions that serve as warning signs of a SIF event. The most important

aspects of a precursor are that they are unusual (i.e., anomalies) and they distinguish work completed without SIF events from such occurrences. An Edison Electric Institute (EEI) study of electric industry fatalities found that one or more of 13 key conditions were linked to a SIF event. These are the same 13 SIF Precursors reviewed and tracked by Aquarion.

SIF Precursor Present When

1. Safe Work Procedure Not known or insufficient
2. Hazard Recognition Key significant hazards are missed.
3. Departure from Routine Drift from standard work practices
4. Plan to Address Work Change Lack of plan to address a change in the work.
5. Safety Attitudes At-risk mindset or behavior
6. Rules and Procedures Intentional disregard for safety rules
7. Familiarity with Task Unfamiliar/new task or newly introduced changes to work practice
8. Risk Normalization Taking greater risk with increased familiarity with the task.
9. Productivity Pressure Internal or external pressure to complete task
10. Perceived Safety Culture Misalignment of safety goals between the worker and organization.
11. Stop-Work Execution Fear of challenges other crew members
12. Workers Inactive in Safety Worker appears disengaged or distracted from their work.
13. Pre-Task Plan Not having a plan in place, such as missing equipment for the job or lack of a job brief

SIF Precursor Inspection (Engagement)

A formal review of work activity to determine if any of the thirteen SIF precursors are present. This is performed by Operations management and Safety. Crews shall have a working knowledge of the thirteen SIF precursors and be actively looking for them as part of their work planning and on-going activities.

ATTACHMENT B
SYSTEM MAPS - CONFIDENTIAL

ATTACHMENT C
VALVE INVENTORY FOR THE ROSEBROOK SYSTEM

Gate Valve (map ID and SAP ID)	Location	Size	Type	Turns to Open 11/4/99	Turns to Open New	Opens L or R	Inspection Date	Inspected By	Operable ¹	Comments
2A - 10892508	Storage Tank - 36' from opening to trail, Gate Right of Storage Tank	16"	G		51		1999	unknown		Provan & Lorber Map - Did Not Operate
							11/1/2018	unknown		Good
		16"	G			L	8/10/2021	T. deOgburn	YES	Good
2B - 10892509	Ski Slope -In Clump of Trees, uphill of bunny slope lift	10"	G	42.5	33		1999	unknown		Provan & Lorber Map - Too many turns to open
							11/1/2018	unknown		Good
							8/18/21	T. deOgburn	Need to locate	Could not locate/road has change since 2018. Appears road was widened and gravel packed over valve location.
		10"	G				Needs addt'l work			
2C - 10892510	Ski Slope -Right side of road towards bunny slope lift, 24' from light post	4"	G	23.5	14		1999	unknown		Provan & Lorber Map - Good
							11/1/2018	unknown		Good
		4"	G			L	8/18/2021	T. deOgburn	YES	Good
2D - 10892511	Ski Slope - Left side of Bunny slope, towards FC 31 & 32, 17' from left side of tree line / 30 from right	10"	G	32	33		1999	unknown		Provan & Lorber Map - seems ok
							11/1/2018	unknown		Good
		10"	G			L	8/18/2021	T. deOgburn	YES	Good
2E - 10892512	Rosebrook - 14' from edge of pavement, 6' right of stairway to bldg N 11-16	6"	G	14.5	20		1999	unknown		Provan & Lorber Map - Not enough turns to open
							11/1/2018	unknown		Good
		6"	G			L	7/21/2021	T. deOgburn	YES	Good
2F - 10892513	Rosebrook -				33		1999	unknown		Provan & Lorber Map - Could not Find
							2018	unknown		Need to Locate
							7/21/21	T. deOgburn	Need to locate	Found Out spot in pavement that could be the location of 2F. Pavement needs to be cut to confirm
2G - 10892514	Rosebrook - 6' from Light Post in front on townhomes Unit 1	4"	G	22.5	14		1999	unknown		Provan & Lorber Map - Too many turns to open
							11/1/2018	unknown		Good
		4"	G			L	7/21/2021	T. deOgburn	YES	Good - 10' Key - Put riser on due to landscaping
2H - 10892515	Rosebrook - 12' from light post, 8' from edge of sewer lid	10"	G		33		1999	unknown		Provan & Lorber Map - Did not Operate
							11/1/2018	unknown		Good
		10"	G			L	7/21/2021	T. deOgburn	YES	Good
2I - 10892516	Forest Cottage - 5.5" left of bottom of Forest Lane	8"	G	26	26		1999	unknown		Provan & Lorber Map - Seems ok
							11/1/2018	unknown		Good/BO
		8"	G			L	7/21/2021	T. deOgburn	YES	Good - Water/Mud Needs to be cleaned Out
2J - 10892517	Forest Cottage	10"	G	33	33		1999	unknown		Provan & Lorber Map - Seems ok
							2018	unknown		Need to Locate
		10"	G				7/21/21	T. deOgburn	Need to locate	Need to locate- Could not locate
2K - 10892518	Forest Cottage - Inside Rock Wall at beginning of FC/Remick Ln	10"	G		33		1999	unknown		Provan & Lorber Map - Full of gravel - could not turn
							11/1/2018	unknown		Good
		10"	G			L	8/5/2021	T. deOgburn	YES	Good
		10"	G	33	33		1999	unknown		Provan & Lorber Map - Seems ok

Gate Valve (map ID and SAP ID)	Location	Size	Type	Turns to Open 11/4/99	Turns to Open New	Opens L or R	Inspection Date	Inspected By	Operable ¹	Comments
2L - 10892519	Forest Cottage - 98" from Green Electrical Box, 29" from Lamp Post on corner of Forest Lane						11/1/2018	unknown		Good
		10"	G			L	8/5/2021	T. deOgburn	YES	OK 10" key. The longer wrench & risers being out of alignment make turning the valve awkward
2M - 10892520	Forest Cottage - Near Hydrant 09						1999	unknown		Provan & Lorber Map - Valve Size & Location Unknown
							11/1/2018	unknown		Good
						L	8/5/2021	T. deOgburn	YES	Good
2N - 10892521	Forest Cottage - Near Hydrant 09						1999	unknown		Provan & Lorber Map - Valve Size & Location Unknown
							11/1/2018	unknown		Good
						L	8/5/2021	T. deOgburn	YES	Ok-Plant should be removed, makes accessing and turning gate key difficult
2O - 10892522	Forest Cottage - Directly across from FC Unit 22 on right side of road	8"	G		26		1999	unknown		Provan & Lorber Map - Does not turn
							2018	unknown		Not Good/BO Can't operate/BO
		8"	G				8/5/21 Needs addt'l work	T. deOgburn	NO	Not Good - can't Operate - Gate Key slips on nut
2P - 10892571	aka Z11 - Beginning of Forest Ln from Ski Area Rd					L	8/5/2021	T. deOgburn	YES	
3A1 - 10892523	Ski Lodge -	16"	G	47.5	51		1999	unknown		Provan & Lorber Map - Seems ok
							2018	unknown		Does not exist - FX Lyons dug for a day and tried looking for gate
		16"	G				8/18/21 Needs addt'l work	T. deOgburn	Need to locate	Could not locate
3A2 - 10892524	Not on valve listing from 2021 - in a line with # 3A1 & 3B on GIS map									
									Need to locate	
3B - 10892525	Ski Lodge - 30' from left corner of Base Lodge by Truck unloading double doors	12"	G	37.5	39		1999	unknown		Provan & Lorber Map - Seem ok
							11/2/2018	unknown		Good
		12"	G				8/18/21 Needs addt'l work	T. deOgburn	NO	Need about 2' of riser to bring to grade/ will have to hand dig, bring to grade then inspect
3C - 10892526	Pump Station - In Front of Pump Station - (use 10' wrench)	16"	G		51		1999	unknown		Provan & Lorber Map - Full of Gravel
							2018	unknown		Not Good/BO - Need blown out
		16"	G			L	7/15/2021	T. deOgburn	YES	Good, Gate Box cleaned out. 8' key almost bottoms out
3D - 10892527	Pump Station -	16"	G		51		1999	unknown		Provan & Lorber Map - Did not operate
							2018	unknown		Valve does not have nut on it/was told by FX Lyons that it doesn't have any guts inside
		16"	G			L	7/15/2021	T. deOgburn	YES	Good, Need 10' wrench to get onto operating nut.
		8"	G	27.5	26		1999	unknown		Provan & Lorber Map - Seems ok
							11/2/2018	unknown		Good/BO - Gate full of water/mud

Gate Valve (map ID and SAP ID)	Location	Size	Type	Turns to Open 11/4/99	Turns to Open New	Opens L or R	Inspection Date	Inspected By	Operable ¹	Comments
3E - 10892528	Crawford Ridge - 16' from corner of Rivers Edge & Crawford Ridge Rd, Gate controls water to Rivers Edge Rd	8"	G			L	7/21/2021	T. deOgburn	NO	Unsure if key is sitting on operating nut or compacted dirt. Need to assess further (7/21/21).
		8"	G			L	8/6/2021	T. deOgburn	YES	Good-Cleaned remainder of dirt
3F - 10892529	Crawford Ridge - 17' from Corner of Rivers Edge	12"	G	40	39		1999	unknown		Provan & Lorber Map - Seems ok
							11/2/2018	unknown		Good/BO - Gate didn't want to move/finally worked it an got it free
		12"	G			L	7/21/2021	T. deOgburn	NO	Need a longer gate box cleaner to clean mud/sand.
		12"	G			L	8/6/2021	T. deOgburn	YES	Good-Cleaned remainder of dirt
3G 10892530	Crawford Ridge - 67' from Corner of Porch of CR Unit 9	12"	G	40	39		1999	unknown		Provan & Lorber Map - Seems ok
							11/2/2018	unknown		Good/BO, Gate full of water
		12"	G			L	7/21/2021	T. deOgburn	YES	Good - Cleaned out mud and water
3H - 10892531	Crawford Ridge - in between CR14/CR15 34.5' from porch to CR15	4"	G		14		1999	unknown		Provan & Lorber - Did not operate
							2018	unknown		Not Good/BO - Can't get on operating nut
		4"	G				7/21/21 Needs addt'l work	T. deOgburn	NO	Did not operate. Operating nut appears to be broken. Should be repaved around cover.

Gate Valve (map ID and SAP ID)	Location	Size	Type	Turns to Open 11/4/99	Turns to Open New	Opens L or R	Inspection Date	Inspected By	Operable ¹	Comments
3I - 10892532	Crawford Ridge - 10' from porch to CR22	4"	G		14		1999	unknown		Provan & Lorber Map - Did not operate
							11/2/2018	unknown		Good - Gate was hard at first but got it free
		4"	G			L	7/21/2021	T. deOgburn	YES	Good - noticed more resistance when operating this valve.
3J1 - 10892533	At Drummond Ski shop	8"	G		26		1999	unknown		Provan & Lorber Map - Did not operate
							10/13/21		Need to locate	
		8"	G				Needs addt'l work			Could not locate
3J2 - 10892534	Not on valve listing from 2021 - based on GIS Crawford Ridge Rd									
									Need to locate	
3K - 10892535	Valve on right side of road in front of Presidential Views Unit 5									Not Listed on Provan & Lorber Map
							11/2/2018	unknown		Good
						L	8/18/2021	T. deOgburn	YES	Good
3L - 10892536	Middle of Avalon and Crawford Ridge Road									Not Listed on Provan & Lorber Map
							11/2/2018	unknown		Good
						L	7/21/2021	T. deOgburn	YES	ok - cleaned riser of water/mud. Riser is at an angle so the key hits the riser on every turn
3M - 10892537	Middle of Avalon and Crawford Ridge Road									Not Listed on Provan & Lorber Map
							11/2/2018	unknown		Not Good/BO - Gate full of dirt
						L	7/21/2021	T. deOgburn	YES	Good - cleaned riser of dirt. Filled to gate cover approx. 6'
3N - no SAP ID - 3J1?	70' up hill of hydrant 13, in right side of road going up to Presidential Views *Note this valve was renumbered from 3J to 3N									Not listed on Provan & Lorber map
							2018	unknown		Need to Locate
		8"	G				7/21/21 Needs addt'l work	T. deOgburn	NO	Does not operate. Operating nut appears to be broken
4A - 10892538	Rte 302 West	8"	G		26		1999	unknown		Provan & Lorber Map - Did not operate
							2018	unknown		Need to Locate
		8"	G				8/18/21 Needs addt'l work	T. deOgburn	Need to locate	Need to locate- Could not locate
4B - 10892539	302/Cog Rd - Left side of road by train to cog, 19' from left edge of track	16"	G	50.5	51		1999	unknown		Provan & Lorber Map - Seems ok
							11/2/2018	unknown		Good/BO
		16"	G			L	7/20/2021	T. deOgburn	YES	Good - Could be brought more to grade, but it only becomes an issue in winter
4C - 10892540	302/Cog Rd - 11.5' from Electric Pole	8"	G	19	26		1999	unknown		Provan & Lorber Map - Seems Ok
							11/2/2018	unknown		Good
		8"	G			L	7/20/2021	T. deOgburn	YES	Good
		16"	B	46			1999	unknown		Provan & Lorber Map - Seems Ok
							2018	unknown		Not Good/BO Couldn't get on nut/BO

Gate Valve (map ID and SAP ID)	Location	Size	Type	Turns to Open 11/4/99	Turns to Open New	Opens L or R	Inspection Date	Inspected By	Operable ¹	Comments
4D - 10892541	Cog Road - at exit of MVP	16"	B			L	7/20/2021	T. deOgburn	YES	Good - Cleaned riser of water, the was about 12" of mud I cleaned but I reached the limit of my gate box cleaner. Was able to push key through 18" of thick mud and was able to access oper. nut. Riser needs to be cleaned completely. Riser Cover to grade w/patch (about 6" below grade).
4E - 10892542	Mt. Wash Entr. -	8"	G	26	26		1999	unknown		Provan & Lorber Maps - Seems ok
							11/2/2018	unknown		Good
		8"	G			L	7/19/2021	T. deOgburn	YES	Good. Cleaned gate box of mud
4F - 10892543	Mt. Wash. Pl - at entrance of MWP by hydrant #22	16"	B	49.5			1999	unknown		Provan & Lorber Map - Seems ok
							11/2/2018	unknown		Good/BO
		16"	B			L	7/15/2021	T. deOgburn	YES	Good - Cleaned riser of mud and water
4G - 10892544	Mt. Wash. Pl - at entrance of MWP, by Hydrant #22	8"	G	24.5	26		1999	unknown		Provan & Lorber Map - Seems ok
							11/2/2018	unknown		Good/BO
		8"	G			L	7/15/2021	T. deOgburn	YES	Good Cleaned riser of water and mud
4H - 10892545	Mt. Wash. Pl. - at entrance of Appleby Close/Closest to Hydrant #23	8"	G		26		1999	unknown		Provan & Lorber Map - full of gravel - could not turn
							2018	unknown		Not Good/BO
		8"	G				7/15/21 Needs addt'l work	T. deOgburn	NO	Not Good / Operating nut needs to be replaced
4I - 10892546	Mt. Wash. Pl - at entrance of Appleby Close/ closest to bus stop	8"	25.5	26			1999	unknown		Provan & Lorber Map - Seems ok
							11/2/2018	unknown		Good/BO - Full of water
		8"	G			L	7/15/2021	T. deOgburn	YES	Good. Cleaned riser of water and mud
4J - 10892547	Mt. Wash. Pl - at entrance of Appleby Close/ Shuts Appleby close off	8"	G	26.5	26		1999	unknown		Provan & Lorber Map - Seem ok
							11/2/2018	unknown		Good/BO - Full of Water
		8"	G			L	7/15/2021	T. deOgburn	YES	Good - Cleaned riser of dirt and water - Should be brought to grade with riser and patch
4K - 10892548	Mt. Wash. Pl - Entrance to Hartford Ln	12"	G		39		1999	unknown		Provan & Lorber Map - Full of Gravel - could not turn
							11/2/2018	unknown		Good/BO - Full of Water
		12"	G			L	7/15/2021	T. deOgburn	YES	Good - Cleaned riser of water/mud
4L - 10892549	L-2 Subdiv. - In Front of 45 Hartford La	8"	G		26		1999	unknown		Provan & Lorber Map - Did not operate
							2018	unknown		Not Good/BO
		8"	G				7/15/21 Needs addt'l work	T. deOgburn	NO	Valve box paved over - Need to cut back pavement to assess.
4M - 10892550	Mt. Wash. Pl - Entrance to Hartford Lane Ext.	8"	G	24.5	26		1999	unknown		Provan & Lorber Map - Seem ok
							11/2/2018	unknown		Good/BO - Full of water
		8"	G			L	7/15/2021	T. deOgburn	YES	Good. Cleaned riser of mud/water. Bring to grade
		8"	G	24.5	26		1999	unknown		Provan & Lorber Map - Seems ok

Gate Valve (map ID and SAP ID)	Location	Size	Type	Turns to Open 11/4/99	Turns to Open New	Opens L or R	Inspection Date	Inspected By	Operable ¹	Comments
4N - 10892551	Mt. Wash Pl - Entrance to Hartford Ln Ext.	8"	G			L	11/2/2018	unknown		Good/BO - Full of Water
		8"	G			L	7/15/2021	T. deOgburn	YES	Good. Cleaned riser of mud/water. Bring to grade
4O - 10892552	In road across from Hydrant #29	8"	G		26		1999	unknown		Provan & Lorber - Did not operate
		8"	G			L	11/2/2018	unknown		Good
		8"	G			L	7/19/2021	T. deOgburn	YES	Good
4P - 10892553	Mt. Wash. Pl - In Road across from Hydrant #29	8"	G	25.5	26		1999	unknown		Provan & Lorber - Seems ok
							11/2/2018	unknown		Good
						L	7/19/2021	T. deOgburn	YES	ok - Valve hard to operate initially. Valve would not operate initially. After several efforts, valve freed up and turned w/ difficulty. After turning the valve several times it began to spin normally
4Q - 10892554	Mt. Wash Pl - Dartmouth Ridge - 10' slightly right of Hydrant #30	8"	G		26		1999	unknown		Provan & Lorber Map - Did not Operate
							11/2/2018	unknown		Good - Valve stays closed
		8"	G			L	Needs add'l work	T. deOgburn	YES	Good - valve remains closed. Hydrant valve operates but skips just before fully closing.
4R - no SAP ID	Left side of Road beginning of Stone hill and at the end of MWP Units 19-22									Not Listed on Provan & Lorber Map
							11/2/2018	unknown		Good
						L	7/15/2021	T. deOgburn	YES	Ok-Cleaned riser of mud. Operating nut can be accessed but the nut runs along side of riser making it harder to access at first
4S - 10892584	aka Z27 Hartford Ln near Able Lane					L	7/15/2021	T. deOgburn	YES	Good
4T	aka Z26 - Dartmouth Ridge					L	7/15/2021	T. deOgburn	YES	Good
4U - 10892582	aka Z25 Dartmouth Ridge Rd at top of road					L	7/15/2021	T. deOgburn	YES	Good
5A - 10892555	Stickney Cir. - at beginning of Stickney Way	6"	G		20		1999	unknown		Provan & Lorber Map - Seems ok
							2018	unknown		
		6"	G			L	7/20/2021	T. deOgburn	YES	ok - riser appears to have stones in it. Making the operation of the valve less smooth. Should be cleaned further
5B - 10892556	Fairway Vill. - 21' from light post at beginning of Fairway Ext FWV	8"	G	25.5	26		1999	unknown		Provan & Lorber Map - Seems Ok
							11/6/2018	unknown		Good/BO - Gate full of water/mud
		8"	G			L	7/20/2021	T. deOgburn	YES	Good - Cleaned Gate full of water/mud
5C - 10892557	Fairway Vill. - 10' from sewer cover in front of sand trap in FWV	8"	G	25	26		1999	unknown		Provan & Lorber Map - Seems Ok
							11/6/2018	unknown		Good/BO
		8"	G			L	Needs add'l work	T. deOgburn	YES	Ok - full of mud/water - cleaned out. Top of riser is broken, need a thinner cover so it sits lower. Riser needs to be repaired/replaced 7/20/21
5D - 10892558	Fairway Dr. - 20' from sewer cover in front of sand trap in FWV	16"	B	30.5			1999	unknown		Provan & Lorber Map - Seem ok
							11/6/2018	unknown		Good
		16"	B			L	7/20/2021	T. deOgburn	YES	Good Cleaned riser of mud/water
5E - 10892559	Fairway Vill - 52' from light post on Car barn Ct FWV, at beginning of Car barn	8"	G	25.5	26		1999	unknown		Provan & Lorber Map - Seem ok
							2018	unknown		Not Good/BO - Full of Sand

Gate Valve (map ID and SAP ID)	Location	Size	Type	Turns to Open 11/4/99	Turns to Open New	Opens L or R	Inspection Date	Inspected By	Operable ¹	Comments
		8"	G				7/20/2021	T. deOgburn	YES	Good - Cleaned riser of sand
5F - 10892560	Cog Road - On Base Rd right side in front of Horse Barn	8"	G	26	26		1999	unknown		Provan & Lorber Map - Seem ok
							11/6/2018	unknown		Good
		8"	G			L	7/20/2021	T. deOgburn	YES	Good
5G - 10892561	Cog Road - On Base Road right side in front of Horse Barn	6"	G	20	20		1999	unknown		Provan & Lorber Map - Seem ok
							11/6/2018	unknown		Good/BO
		6"	G			L	7/20/2021	T. deOgburn	YES	Good
5H - 10892562	Cog/Stickney	6"	G	19	20		1999	unknown		Provan & Lober Map - Full of Gravel - Could not turn
							11/6/2018	unknown		
		6"	G			L	7/20/2021	T. deOgburn	YES	Good - Cleaned out mud/water
5I - 10892563	Stickney Dr. - at beginning of Stickney Way	6"	G	19	20		1999	unknown		Provan & Lorber Map - Seem ok
							11/6/2018	unknown		Good
							7/21/21			
		6"	G			L	Needs addt'l work	T. deOgburn	YES	Able to access nut but very difficult to turn. Look at for replacement/further assessment
5J - 10892564	Stickney Dr -	6"	G		20		1999	unknown		Provan & Lorber Map - Did not operate
							2018	unknown		Need to Locate
		6"	G				7/20/21	Needs addt'l work	T. deOgburn	Need to locate Could not locate
5K - 10892565	L-2 Subdiv. - In middle of Hartford Ln at beginning of Able by MM	8"	G		26		1999	unknown		Provan & Lorber Map - Did not operate
							11/6/2018	unknown		Good/BO - Full of mud and water
		8"	G			L	8/18/2021	T. deOgburn	YES	Good
5L - 10892566	Cog Road - Base Road near Fairway Ext	8"	G		26		1999	unknown		Provan & Lorber Map - Did not operate
							11/6/2018	unknown		Good
		8"	G			L	7/20/2021	T. deOgburn	YES	OK - is supposedly at the end of the main near a cap.
5M - 10892567	Cod Rd/FWV - Base Road near FWV Ext	16"	B	44			1999	unknown		Provan & Lorber Map - Seem ok
							2018	unknown		Not Good/BO - Full of pavement/gravel
		16"	B			L	8/13/2021	T. deOgburn	YES	Cleaned out about 6' of sand/gravel/pavement. Need a longer Gate Box cleaner/Cleaned out remainder of dirt (8/13/21)

Gate Valve (map ID and SAP ID)	Location	Size	Type	Turns to Open 11/4/99	Turns to Open New	Opens L or R	Inspection Date	Inspected By	Operable ¹	Comments
5N - no SAP ID	Base Road at entrance to SC						11/6/2018	unknown		Not Listed on Provan & Lorber Map
						L	8/13/2021	T. deOgburn	YES	Good
5O - no SAP ID	Shown in GIS without a Z#					L	8/13/2021	T. deOgburn	YES	Good
5P - no SAP ID	Shown in GIS without a Z#					L	8/18/2021	T. deOgburn	YES	Good
5Q - 10892577	aka Z17 - Hartford Ln, just before Mt Adams Ln					L	8/18/2021	T. deOgburn	YES	Good
5R - 10892588	aka Z5 - Hartford Ln, top of Mt Adams Ln					L	8/18/2021	T. deOgburn	YES	Good
5S - 10892579	aka Z19 - Mt Adams Ln/Hartford Ln Intersection					L	8/18/2021	T. deOgburn	YES	Good
5T - 10892580	aka Z2					L	8/18/2021	T. deOgburn	YES	Good
5U - 10892569	aka Z1 - Mt Adams Ln at turn off					L	8/18/2021	T. deOgburn	YES	Good
5V - 10892591	aka Z8 - Dead end of Mt Adams Ln					L	8/18/2021	T. deOgburn	YES	Good
5W - 10892572	aka Z12 Off Mt Adam Ln					L	8/18/2021	T. deOgburn	YES	Good
5X - 10892587	aka Z4 - Off Mt Adams Ln					L	8/18/2021	T. deOgburn	YES	Good
7A - 10892568	at Bretton Arms	16"	G		51					Provan & Lorber Map (No Comments)
		16"	G				8/13/21 Needs addt'l work	T. deOgburn	Need to locate	Map shows one valve but there are 2 next to each other near the Bretton Arms. This is also a dead end according to the map, so lines need to be traced before the valves are inspected for precautionary measures.
7B - 10892574	aka Z14 - On main to Bretton Arms					L	8/13/2021	T. deOgburn	YES	
7C - 10892592	aka Z9 - On main to Bretton Arms					L	8/13/2021	T. deOgburn	YES	

ATTACHMENT D
HYDRANT INVENTORY FOR THE ROSEBROOK
SYSTEM

Hydrant #	SAPID	Location	Make	Date Inspected	Type	Direction to Open (DTO)	Date Set	Hydrant Pressurized Test	Static Pressue	Hydrant Flow Test	Nozzle Inspection	Nozzles Lubricated	Additional Comments
1	10892119	Top of Rosebrook Dr. Near #23 / 9' in front of steamer, slight right	Waterous	10/14/2021	Dry	Left	1998	Pass	108	Pass	Yes	Yes	All nozzle gaskets replaced, replaced all 3 nozzles, flushed 750GPM for 5 mins. Added 200ml food grade anti-freeze
2	10892120	Rosebrook in front of units 17-22 / in road 19' in front	Dresser 500	10/14/2021	Wet	Left		Pass	122	Pass	Yes	Yes	All nozzle gaskets replaced, flushed 750 GPM for 5 mins., added 400ml food grade anti-freeze
3	10892136	Mountain View / Woods Rd Near # 304 / 5' in front of steamer	B-62-B	10/13/2021	Dry	Left	1999	Pass	90	Pass	Yes	Yes	Added 1 cup food grade anti-freeze flushed @ 750GPM for 3-5 mins.
4	10892137	Mountain View / Bottom of Woods Rd, Near Unit 101 / 5'6" in front of steamer	Amer.Darling	10/13/2021	Dry	Left	1997	Pass	110	Pass	Yes	Yes	Install riser for hydrant valve, flushed @ 750 GPM for 3 mins.
5	10892118	Rosebrook Lane in front of Unit 50	Metropolitan	10/12/2021	Dry	Left	1986	Fail	88	Pass	Yes	Yes	Bonnet seal needs to be replaced, added 1 cup food grade anti-freeze, flushjed 3 mins @750GPM
6	10892116	29 Forest Cottage / 1' in front of steamer	USP Metro	10/20/2021	Dry	Left	1988	Fail		Pass	Yes	Yes	Bonnet seal needs to be replaced
7	10892117	Forest Cottage near #48 / 1' in front of steamer	Metropolitan	10/20/2021	Dry	Left		Fail		Pass	Yes	Yes	Bonnet seal needs to be replaced, flowed @750 GPM for 3 min
8	10892135	9 Forest Cottage / 3' in front	USP Metro	10/20/2021	Dry	Left		Pass	130	Pass	Yes	Yes	Flowed hydrant @750 GPM for 3 mins.
9	10892121	Forest Cottage / 1' directly behind	Waterous-Pacer	10/20/2021	Dry	Left	1983	Pass	120	Pass	Yes	Yes	Assoc. planted bushes around hydrant. Flowed hydrant @ 520 GPM for 3 mins.
10	10892106	Remick Lane entrance across from Peabody Realty/ 2' 8" right	US Pipe	10/20/2021	Wet	Left	1987	Pass	150	Pass	Yes	Yes	Pumped barrel, added 1/2 gln food grade anti-freeze. Flushed for 2 min @750 GPM
11	10892132	Crawford Ridge Near #6 (up hill Redish single building)/Top of Presidential Views / 10' front & slightly right of steamer	Waterous-Pacer	5/19/2021	Wet	Left	2006	Pass	160	Pass	Yes	Yes	Flushed for 3 mins @720 GPM, pumped barrel
11A	10892133	Avalon Drive, Near Unit 13 / 16' 6" in front of steamer very slightly to the right of center	Waterous-Pacer	5/19/2021	Wet	Left	2006	Pass	145	Pass	Yes	Yes	Flushed for 3 mins @720 GPM, pumped barrel
12	10892130	Crawford Ridge near Unit 4, across from Slope Side Lane / Presidential Views / 30" from center cap in road		10/20/2021	Wet	Left	2004	Pass	160 (gauge maxed out)	Pass	Yes	Yes	Pumped barrel, added 1/2 gln food grade anti-freeze. Flushed for 3 min @650 GPM
12A	10892131	Slope Side Lane, Near Unit 10 / Presidential Views, 8' away, middle of left nozzle & steamer	Waterous-Pacer	10/21/2021	Dry	Left	2006	Pass	160 (gauge maxed out)	Pass	Yes	Yes	flushed for 3 mins @720 GPM
13	10892098	Crawford Ridge, on right corner across from Unit 12 / 3' from Hydrant	Waterous-Pacer	10/21/2021	Wet	Left	2006	Pass	160 (gauge maxed out)	Pass	Yes	Yes	pumped barrel, added 1/2 gln anti freeze flused 5 min @ 620 GPM
14	10892097	Crawford Ridge, near Unit 14 / in pavement	Amer.Darling	10/21/2021	Wet	Left	2006	Pass	150	Pass	Yes	Yes	pumped barrel, added 1/2 gln anti freeze flused 2 min @ 720 GPM
15	10892129	Crawford Ridge just above River Edge Rd / 1' in front	B-62-B	10/21/2021	Dry	Left	1989	Pass	145	Pass	Yes	Yes	flushed @ 720 GPM for 3 min
16	10892096	Rivers Edge near generator bldg at end of cul de sac / 1' in front	B-62-B	10/21/2021	Dry	Left	1988	Pass	160 (gauge maxed out)	Pass	Yes	Yes	
17	10892099	West side of base lodge next to 15 minute parking and near Bethlehem Express / 19' in front of steamer	Waterous	10/21/2021	Wet	Left	2018	Pass	160 (gauge maxed out)	Pass	Yes	Yes	drained hydrant & added 1/2 gal food grade anti-freeze
18	10892134	Left side of Alpine Club / 4' in front of steamer	Waterous	10/21/2021	Wet	Left	2006	Pass	160 (gauge maxed out)	Pass	Yes	Yes	drained hydrant, added 1/2 cup food grade anti-freeze. Flushed 2 mins @720 GPM
19	10892104	Left side of rec center near basketball hoop / 9' in front of steamer in tar slightly left of steamer	USP Metro	10/20/21, 11/11/21	Dry	Left	1988/2018	Pass		Pass	Yes	No	10/20/21 - Need to replace valve rod coupling (hydrant temporarily out of service) Repaired hydrant & confirmed it is operational and passed pressure and flow test 11/11/21 -
20	10892105	Behind Rec Center near tennis courts / kitty corner from left and front nozzles	US Pipe	10/20/2021	Wet	Left	1988	Pass	140	Pass	Yes	Yes	flushed @ 720 GPM for 3 min, added 1/2 gln food grade anti-freeze
21	10896610	RTE 302 between Fabyans & Irving	Waterous	10/21/2021	Dry	Left	1988	Pass	160 (gauge maxed out)	Pass	Yes	Yes	
21A	10892100	Behind Drummonds MS / 8' in front of steamer	Metropolitan	10/21/2021	Dry	Left	1988	Pass	160	Pass	Yes	Yes	Flushed 3 min @ 720GPM
22	10892102	Entrance to Hannah Loop at MWP / 2 1/2' in front, in grass	US Pipe	12/8/2021	Dry	Left	1987	Pass	151	Pass	Yes	Yes	Added 1 gal food grade anti-freeze ran hydrant 3 min @720 GPM
23	10892107	MWP across from Appleby / 7' in front	Waterous-Pacer	9/15/2021	Dry	Left	1988	Pass	160 (gauge maxed out)	Pass	Yes	Yes	Flushed for 3 min @ 720 GPM
24	10892108	MWP Hannah Loop near MWP 19-22/ 3' in front of steamers 3" under grass	B-62-B	9/15/2021	Dry	Left	1987	Pass	135	Pass	Yes	Yes	Flushed for 3 min @ 720 GPM
25	10892139	Top of Hannah Loop / 17' 6" in road in front of steamer	Waterous-Pacer	9/15/2021	Dry	Left	1999	Pass	145	Pass	Yes	Yes	Flushed for 5 min @ 620 GPM
26	10892140	Ableby Close	Amer.Darling	9/15/2021	Dry	Left		Pass	145	Pass	Yes	Yes	Flushed for 3 min @ 720 GPM
27	10892103	Hannah Loop near #59 / 1/2 way between hydrant and tar	US Pipe	9/15/2021	Wet	Left	1989	Pass	125	Pass	Yes	Yes	Flushed for 3 mins @ 620 GPM, Pumped barrel empty & added 1/2 gal anti-freeze
28	10892110	Corner of Hartford Lane & Hannah Loop / 2' in front	USP Metro	9/15/2021	Dry	Left	1987	Pass	130	Pass	Yes	Yes	Flushed for 3 mins @ 620 GPM
29	10892111	Corner of Dartmouth Ridge & Hannah Loop/ In pavement, front of steamer	Waterous	5/19/2021	Dry	Left	1996	Pass	130	Pass	Yes	Yes	Flushed for 3 mins @ 620 GPM
30	10892112	Dartmouth Ridge, end of road / Directly in front	Waterous	5/19/2021	Dry	Left	1996	Pass	125	Pass	Yes	Yes	Flushed 15 min at various flow rates (avg flow rate was 720 GPM)
31	10892113	Top of Dartmouth Ridge byu traffic circle / 7' in front in pavement	Waterous	5/19/2021	Dry	Left	1996	Pass	130	Pass	Yes	Yes	Flushed for 3 mins @ 960 GPM
32	10892114	Top of Dartmouth Ridge near Bode's House/ in road 18" from curb directly in front	Waterous	5/19/2021	Dry	Left	2001	Pass	125	Pass	Yes	Yes	Flushed for 3 min @ 720 GPM
33	10892141	45 Hartford Lane / in pavement	Mueller	9/3/2021	Wet	Left	1987	Pass	135	Pass	Yes	Yes	Drained hydrant & added 1/2 cup food grade anti-freeze. Flushed @ 720 GPM for 2 min
34	10892153	81 Hartford Ln / 3' in front of steamer	Mueller	9/3/2021	Wet	Left	1987	Pass	130	Pass	Yes	Yes	Flushed hydrant 5 min @ 620 GPM

35	10892128	Corner of Hartford and Abel / 3' in front of steamer	USP Metro	9/3/2021	Wet	Left	1988	Pass	125	Pass	Yes	Yes	Drained hydrant & added 1/2 gal food grade anti-freeze. Flushed 5 min @ 620 Gpm
36	10892143	Abel Lane on hill near #132 / 4' in front of steamer	USP Metro	9/1/2021	Wet	Left	1989	Pass	120	Pass	Yes	Yes	Flushed hydrant 5 min @ 620 GPM
37	10892142	Abel Lane / 3' in front of steamer	Mueller	9/1/2021	Wet	Left	1988	Pass	120	Pass	Yes	Yes	Flushed hydrant for 30 min @ 520 GPM - Abel Ln Service Tap
38	10892115	Top of Mt Adams Lane / 4' left of left nozzle - closest to road	Waterous-Pacer	9/3/2021	Wet	Left	2005	Pass	100	Pass	Yes	Yes	Flushed hydrant @ 630 GPM for 5 min, pumped empty and added 1/2 gal food grade anti-freeze
39	10892144	Mt. Adams Lane near #88 / 16.5' in front of steamer	Waterous-Pacer	9/3/2021	Wet	Left	2005	Pass	115	Pass	Yes	Yes	Drained hydrant and added anti-freeze, flushed @ 620 GPM for 3 min
40	10892155	Mount Madison Townhouse at Unit 5 / 7' in front of steamer	Waterous	9/24/2021	Dry	Left	2001	Pass	110	Pass	Yes	Yes	Confirmed dry hydrant, flushed hydrant 3 min @ 750 GPM
41	10892109	Stickney Circle across from building 10 /in road 13' in front of steamer	Amer.Darling	12/8/2021	Dry	Left	1998	Pass	125	Pass	Yes	Yes	added 1 gal food grade anti-freeze, flushed 5 min @ 560 GPM
42	10892152	Stickney Circle near Unit #43/in road near sewer manhole, 56' in front of steamer	B-84-B	12/8/2021	Wet	Left	1999	Pass	130	Pass	Yes	Yes	added 1 gal food grade anti-freeze, flushed 3 min @ 560 GPM
43	10892154	Stickney Circle / 3' in front of steamer	Waterous	12/8/2021	Wet	Left	2006	Pass	140	Pass	Yes	Yes	added 2 gal food grade anti-freeze, flushed 3 min @ 560 GPM
44	10892122	Fairway near Unit 45 & 46/Corner in grass	USP Metro	12/8/2021	Dry	Left	1989	Pass	160	Pass	Yes	Yes	added 1 gal food grade anti-freeze, flushed 3 min @ 560 GPM
45	10892123	Fairway near Unit 31 & 32/3'6 in front of steamer, 14" down, 2" to right	USP Metro	12/8/2021	Dry	Left	1989	Pass	160	Pass	Yes	Yes	added 1 gal food grade anti-freeze, flushed 3 min @ 560 GPM
46	10892124	Fairway Village Sand Trap Lane near 21 & 22 / front of steamer in tar	USP Metro	12/8/2021	Dry	Left	1989	Pass	160	Pass	Yes	Yes	added 1 gal food grade anti-freeze, flushed 5 min @ 560 GPM
47	10892125	Fairway Village near Unit 17 & 18/6' 9" in front of steamer, 1' to left	USP Metro	12/8/2021	Dry	Left	1989	Pass	160	Pass	Yes	Yes	extremely difficult to turn operating nut and it is difficult w/ the high pressures. Added 1 gal food grade anti-freeze, flushed @ 560 GPM for 3 min
48	10892126	FWV - Car Barn Court near #10 / 10' 6" in front of steamer	Mueller	12/8/2021	Dry	Left	1988	Pass	160	Pass	Yes	Yes	added 1 gal food grade anti-freeze, flushed 3 min @ 560 GPM
49	10892127	Fairway Village across from #1 & #2 / 5.5' in front of steamer	USP Metro	12/8/2021	Wet	Left	1989	Pass	160	Pass	Yes	Yes	added 1 gal food grade anti-freeze, flushed 3 min @ 560 GPM
50	10892151	MWH Bretton Arms / Closest to Hydrant	Waterous	11/10/2021	Dry	Left	2008	Pass	160	Pass	Yes	Yes	added 1 gal food grade anti-freeze, flushed 3 min @ 560 GPM
51	10892147	Behind hotel near pump station / Front of steamer edge of road, 10' from hydrant, 5" down below grade	Waterous	11/10/2021	Dry	Left	2002	Pass	150	Pass	Yes	Yes	Tag on hydrant says no drain, however the hydrant drained itself after use. Flushed 3 min @ 750 GPM. Added 1/2 gal food grade -freeze after pumping out remaining water. 24" extension tag on hydrant
52	10892146	MWH behind Carpenter Shop / Middle of road in front of steamer	Waterous	11/10/2021	Dry	Left	2001	Pass	160	Pass	Yes	Yes	Flushed 3 min @ 480 GPM added 1 gal food grade anti-freeze
53	10892145	MWH Next to paint shop / 8' in front of steamer/inside pvc pipe	USP Metro	11/10/2021	Wet	Left		Pass	160	Pass	Yes	Yes	Hydrant was initially stuck closed. Was able to finally open hydrant after several attempts. Pumped down and added 1 gal food grade anti-freeze. Flushed 1 min @ 520 GPM. High traffic area, flushing was overseen by Jonathan
54 - Owned by Omni		MWH Valet Parking/12' in front of steamer	Waterous	11/10/2021	Wet	Left	1999	Pass	160	Pass	Yes	Yes	18" extension, flushed 2 min @ 720 GPM. Drained barrel & added 1 gal food grade anti-freeze
55 - Owned by Omni		Across from front entrance of hotel, left west of entrance	Waterous	11/10/2021	Wet	Left	1999	Pass	160	Pass	Yes	Yes	Flushed 2 min @ 720 GPM, pumped hydrant empty, added 1 gal food grade anti-freeze, hydrant flag needs to be replaced
56 - Owned by Omni		MWH near Front Entrance/3' in front of steamer, open right	Waterous	11/10/2021	Wet	Left	1999	Pass	145	Pass	Yes	Yes	Flushed hydrant 3 min @ 520 GPM added 1 gal food grade anti-freeze, pumped down hydrant (have to drive on grass to do so - approval given by Jonathan)
57 - Owned by Omni		Farthest east behind hotel by conference center / Tennis court side to 2.5 nozzle	United Fire Flow	11/10/2021	Dry	Left	2005	Pass	125	Pass	Yes	Yes	(Aux Valve) Needs replacement fire flag, addd 1 gal food grade anti-freeze, flushed 2 min @ 500 GPM
58	10892149	Next to Tennis Court / 2.5' in front of steamer	Waterous	11/10/2021	Dry	Left	2001	Pass	160	Pass	Yes	Yes	Could not locate valve box & cover. Flushed for 3 min @ 720 GPM, pumped hydrant and added food grade anti-freeze
59	10892150	Front of Nordic Center/Club House, Right of stone pillar lodge / 14' from sewage electric post		11/10/2021	Dry	Left	2013	Pass	160	Pass	Yes	Yes	Flshed 3 min @ 520 GPM. Added 1 gal food grade anti-freeze
60	10892148	MWH behind Spa/ In sidewalk	United Fire Flow	11/10/2021	Dry	Left	2005	Pass	150	Pass	Yes	Yes	Moved closer to road/river due to hotel construction (Hotel Addition) Aux ValVE IS RIGHT TO OPEN. Flushed 2 min @ 520 GPM added 1/2 gal food grade anti-freeze
61	10892138	Next to pump station/24' in front of steamer	USP Metro	9/22/2021	Dry	Left	2006	Pass	160 (gauge maxed out)	Pass	Yes	Yes	
62	10892101	By Fabayans Station/9' in front	Waterous	10/21/2021	Wet	Left	2010	Pass	160 (gauge maxed out)	Pass	Yes	Yes	Flushed hydrant 3 min @750 GPM Drained barrel, added 1/2 gal food grade anti-freeze