

INTERMODAL FACILITY SAFETY HANDBOOK



IANA
INTERMODAL ASSOCIATION
OF NORTH AMERICA™

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CONTENTS

<i>Introduction</i>	4
<i>Acknowledgments</i>	5
101 – <i>Bloodborne Pathogens</i>	6
102 – <i>Blue Signal Protection</i>	7
103 – <i>Cargo/Handling/Trailer and Container Doors</i>	9
104 – <i>Compressed Gases & Air (Storage & Use)</i>	11
105 – <i>Confined Spaces</i>	13
106 – <i>Contractor Management</i>	14
107 – <i>Drug/Alcohol Use</i>	17
108 – <i>Electrical Safety</i>	18
109 – <i>Emergency Action Plans</i>	21
110 – <i>Employee Assistance Programs</i>	26
111 – <i>Employee Fatigue</i>	27
112 – <i>Ergonomics and Repetitive Motion</i>	29
113 – <i>Fall Protection</i>	33
114 – <i>Fire Protection and Prevention</i>	36
115 – <i>First Aid and CPR</i>	37
116 – <i>Flammable Liquids</i>	40
117 – <i>General Safety Rules/Office Safety</i>	43
118 – <i>Hand & Power Tool Safety</i>	49
119 – <i>Hazard Prevention & Control</i>	56
120 – <i>Hazardous Communication</i>	61
121 – <i>Hearing Conservation Programs</i>	66
122 – <i>Heat & Cold Stress</i>	68
123 – <i>Hostler/Spotter Truck Operator Safety</i>	70
124 – <i>Inspections and Audits</i>	75

**“Many
thanks to my
intermodal
colleagues...
who hung in
there with me
from start to
finish.”**

-Vernon Prevatt

125 – Lockout/Tagout Procedure (LOTO)/Controlling Hazardous Energy Sources	79
126 – Machine and Machinery Guards.....	81
127 – Material Handling & Storage	83
128 – Mishap Reporting & Protecting of Accident Site	85
129 – Motor Vehicle Operations (Mobile Service Units and Pick-Up Trucks).....	87
130 – Painting.....	93
131 – Personal Protective Equipment (PPE) & Respiratory Protection.....	95
132 – Personnel On and About Tracks.....	100
133 – Powered Industrial Trucks – Forklifts.....	103
134 – Powered Platforms, Manlifts and Vehicle–Mounted Work Platforms.....	118
135 – Pre-Shift Briefing.....	122
136 – Radio Rules.....	124
137 – Ropes, Chains, and Slings (Inspect, Repair, Replace)	127
138 – Safe Start – Employee Orientation.....	129
139 – Scaffolds, Ladders, and Other Staging Surfaces.....	131
140 – Servicing Multi-Piece or Single-Piece Rim Wheels.....	135
141 – Servicing Rubber-Tired and Rail-Mounted Gantry Cranes & Loaded Container Handling Equipment.....	137
142 – Servicing Vehicles (Ramp and Mobile Service).....	139
143 – Slips, Trips, and Falls.....	141
144 – Stretching Programs (Recommendations and Benefits)	142
145 – Welding & Cutting Metal.....	144
References.....	155
Appendix A (123 – Hostler/Spotter Truck Operator Safety).....	162



INTRODUCTION

The *Intermodal Facility Safety Handbook* project was initiated by IANA's Intermodal Safety Committee to develop a common set of safety recommendations, drawn from Occupational Safety and Health Administration guidelines, to assist intermodal facility operators for improving safety.

The project team included representatives from across the industry and included railroads, ports, and equipment owners and maintenance providers from railcar and intermodal chassis pools, and leasing companies. Our sincere thanks to the entire team for their efforts and willingness to contribute to the discussion that allowed the completion of this Handbook.

The approach to writing the Handbook was somewhat unique, conducting an exhaustive literature search of OSHA requirements to ensure all safety guidelines were covered. Later in the process, the project team added safety topics specific to intermodal facility operators to ensure that all safety scenarios were captured and addressed in the Handbook. Great care was taken to ensure that all recommendations adhered closely to the appropriate OSHA guidelines, which are noted throughout the work.

The result is a thoroughly researched and written Handbook that provides a set of recommendations based on 45 OSHA safety elements pertinent to intermodal facilities.

Disclaimer: This *Intermodal Facility Safety Handbook* is derived from selected Occupational Safety and Health Administration regulations. The Handbook is intended to be advisory in nature and to assist employers in providing a safe and healthy workplace adapted to the needs of individual places of employment. Notwithstanding any language that appears compulsory in this Handbook, this Handbook does not establish a standard of care and is not a substitute for a party's independent judgment or any regulation, guidance, or standards of any kind issued by OSHA or any other government agency or organization. If at any time the materials presented herein vary from OSHA regulations or from other federal or state laws and regulations or local ordinances, it is understood that those laws, regulations, and ordinances take precedence over the information presented in this Handbook.

The United States Department of Labor maintains a website that is intended to enhance public access to the Department's information, and it is continually under development. As such, the information presented on the website may be incorrect or out-of-date at any given time. Do not rely solely on the referenced webpages in this Handbook for current OSHA regulations as webpages do not establish law, and their accuracy is not guaranteed. Where applicable, this Handbook references regulatory citations for the convenience of the user.



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IANA would like to sincerely thank the following individuals and their companies for contributing their time, energy, and expertise into developing the content of this Handbook. Representing a broad base of stakeholders from across the intermodal community, this group shaped and led the development of these very important safety recommendations relevant to all intermodal facilities' daily activities.

Many thanks to my intermodal colleagues Drue Gray, Mike Dougherty, Shawn Ruth, Gene Coker, Carl Francis, and Patrick Valentine, who hung in there with me from start to finish. Thanks, gentlemen; your help and encouragement made this happen!

– Vernon Prevatt

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BLOODBORNE PATHOGENS

OSHA guidance on bloodborne pathogens in the workplace is found in 29 CFR 1910.1030 (OSHA, 1910.1030 - Bloodborne pathogens, 2020). The guidance requires a written exposure control plan designed to eliminate or minimize employee exposure. The rules below are intended to guide employee actions in case of contact with bloodborne pathogens but does not meet the requirements for the full exposure control plan. OSHA provides assistance with a [Model Exposure Control Program](#) (OSHA, Model Exposure Control Plan, 2020).

- 101.1.** After any accident or incident where human remains, blood, or other fluids are observed on company equipment, tools, or property, notify your immediate supervisor, the facility host, and emergency personnel as required. Do not attempt to remove or clean blood or Other Potentially Infectious Materials (OPIM).
- 101.2.** Employees who come in contact with blood or OPIM must immediately wash the contact area, then report to the nearest medical facility for further examination or follow procedures as established by the employer.
- 101.3.** Employees are responsible for the cleanup of their own bodily fluids and disposal of cleanup materials as appropriate and must:
 - 101.3.1.** Use approved multi-purpose germicidal cleaner and paper towels or disposable wipes.
 - 101.3.2.** For cleanup of large quantities of materials that are not considered bloodborne pathogens or OPIM, facilities should contact a local industrial cleaning company.
- 101.4.** Employees who utilize needles or sharps are responsible for the safe disposal of those needles or sharps. Employees must:
 - 101.4.1.** Recap the hypodermic syringe or lancet after use.
 - 101.4.2.** Store syringes or lancets in a hard, closed casing marked with the word "biohazard" and/or labeled with a biohazard label.
 - 101.4.3.** Dispose of used hypodermic syringe or lancet off intermodal facility property, in an appropriate manner.
 - 101.4.4.** If needles or sharps are encountered within work areas, notify your immediate supervisor or facility host so they can engage the service agent contracted to deal with blood and OPIM.

BLUE SIGNAL PROTECTION

The reference for Blue Signal Protection is 49 CFR Subpart B – Blue Signal Protection of Workers (FRA, 2020). The reference provides minimum requirements for protection of workers engaged in the inspection, testing, repair, and servicing of rolling equipment to include intermodal facility activities of loading, unloading, placing, and removing intermodal box connectors and protecting rail crossing on the facility.

Protection established by a craft by locking a switch or derail should only be removed by the craft initially placing the lock and establishing the protection. The integrity of the protection and wide communication about locked-out or released tracks is vital to safety on the intermodal facility.

- 102.1.** No worker may engage in any activity on or about a railcar unless the track is properly locked out at the switch providing access and/or derailleurs properly locked and blue flagged at both ends.
 - 102.1.1.** If locomotives are within the blue signal protection and/or are connected to railcars while loading, unloading, or inspection, a blue light must be placed in the cab (near the controls) and a blue tag on the throttle. If multiple locomotive engines are attached, the first and last engine must be tagged and lighted.
 - 102.1.2.** Tracks adjacent to working tracks must be locked out and tagged. Adjacent tracks, for the purpose of this requirement, are defined as 2 or more tracks with track centers spaced less than 15 feet apart.
 - 102.1.3.** A multi-hole locking device must be installed when one or more crafts are working the same track(s).
 - 102.1.4.** A clearly distinguishable blue flag or blue light by day and blue light by night must be displayed at or near each switch providing access to the track that is worked by personnel.
 - 102.1.5.** The terminal leader and/or designated persons (vendor partners) shall have possession of the keys for switches and derailleurs (whichever are used) during all operations involving the loading, unloading, and inspection of railcars.
 - 102.1.6.** Terminal leaders and/or designated persons will not permit any activity on or around the railcars until switches and derails have been verified and secured.
 - 102.1.7.** Following a personnel or shift change, blue signal status must be physically confirmed by the terminal leader and/or designated persons.
 - 102.1.8.** If any person on the shift has doubt as to the protection on the track, that person will verify proper blue signal protection.
 - 102.1.9.** Any person working on the shift has the authority to cease operations until proper blue signal protection is in place. No one shall commence work on any railcars unless certain all blue signal safety rules are being followed. This responsibility also applies to each employee.

102.2. Derails

- 102.2.1.** On tracks other than main line tracks, a derail capable of restricting access to that portion of the track, which will be worked by personnel, is permitted in place of locking switches.
- 102.2.2.** The derailer will fulfill the requirements of a locked switch when positioned no less than 150 feet from the end of the equipment being loaded, and each derailer must be locked in a derailing position with an effective locking device, and a blue signal must be displayed at each derail.
- 102.2.3.** If the facility is unable to comply with the 150 feet minimum requirement, the switch providing access to the track must be locked.
- 102.2.4.** Derailers, including portable derailers, must be locked at all times when placed on a track, whether in the “derail” position or in the “open” position, to prevent tampering or removal.
- 102.2.5.** When installing additional or moving derailers, notifications must be made to the terminal leaders to include local Yardmaster, Trainmaster, and Superintendent of location.

102.3. Switches

- 102.3.1.** Each switch providing access to a track that will be worked by personnel must be lined against movement to that track and locked with an effective locking device.
- 102.3.2.** If the track to be worked by personnel is on a track equipped with one or more crossovers, both switches of each crossover must be lined against movement through the crossover and locked.
- 102.3.3.** The switch must be locked with devices provided by the terminal leader of the intermodal facility, and blue signal policy applies.

CARGO/HANDLING/TRAILER AND CONTAINER DOORS

The OSHA reference for cargo handling gear and equipment is 29 CFR 1917.44 (OSHA, Cargo Handling Gear and Equipment, 2020) and primarily addresses requirements in Marine Terminals. It is an excellent reference for the topic area and applies equally to intermodal facilities of all types.

- 103.1.** Do not break, remove, or apply unit seals, operate hasps, or open or close doors from the ground or from a platform while a car or trailer is in motion.
- 103.2.** Do not load or unload freight while a car or trailer is in motion.
- 103.3.** Maintain firm grip and footing, and do not overexert when opening or closing trailer doors. Remain alert to avoid strains, bruises, mashed hands, etc. Stand in the clear to avoid injury from falling material or from inside pressure against the door. When a bar is used, do not stick it in the ground where a person might descend on it.
- 103.4.** Inspect the floors, linings, walls, etc. for defects, protruding nails, strapping, or dunnage when first entering cars or trailers, and avoid body contact with these conditions and other defects that might result in injury. Report defective equipment, and properly dispose of loose strapping or dunnage.
- 103.5.** When necessary to open or close a trailer door, the following procedure must be followed:
 - 103.5.1.** Visually check the door's track or hinge arrangement to be sure the door is properly tracked or attached. If door is not tracked and cannot be retracted, special care must be exercised to prevent injury. Avoid using door until repaired.
 - 103.5.2.** To avoid swing-back or damage to trailer doors while backing or unloading, personnel must secure trailer doors with bungee cords, which must be 3 feet in length.
 - 103.5.2.1.** Use the special handhold and lift lever provided.
 - 103.5.2.2.** Maintain secure footing, and avoid overexertion. When necessary, obtain help from fellow personnel and, in stubborn cases, utilize a pinch bar, if available.
- 103.6.** Personnel must guard against the following principal hazards when opening and closing trailer doors:
 - 103.6.1.** Doors falling off.
 - 103.6.2.** Lading falling out of trailer.
 - 103.6.3.** Catching fingers on pinch points, such as doorsills, door tracks, operating levers, and other contact points.
 - 103.6.4.** Puncture wounds from splinters or nails.

- 103.6.5.** Slipping, falling and strains.
- 103.6.6.** Impact to face or head by levers under tension.
- 103.7.** Load Shift Inspection Procedure – If a load is not secured properly upon loading or is exposed to excessive or abrupt movement in transit, it can shift, creating an unsafe and potentially fatal situation. While in transit, unsecured contents can shift and possibly lean against the doors of a container, creating an unsafe situation for any worker attempting to open the container doors.

 - 103.7.1.** Doors need to be properly secured prior to removing the first door lock.

 - 103.7.1.1.** Best practice is to secure or chain the double doors together or brace with heavy machinery to ensure the doors do not spring open due to cargo pressing against them.
 - 103.7.1.2.** Anyone attempting to open container doors should not do so alone. They should always be accompanied by someone aware of the actions taking place so they can react timely if needed.
 - 103.7.1.3.** Once the doors are open, if it appears that the load has shifted inside the container during transit, a discussion should take place between the customer and the shipper prior to unloading so that all interested parties are aware of potential damage or issues resulting from the shifting load.
- 103.8.** Container Markings – Every intermodal container shall be legibly and permanently marked with:

 - 103.8.1.** The weight of the container when empty, in pounds;
 - 103.8.2.** The maximum cargo weight the container is designed to carry, in pounds; and
 - 103.8.3.** The sum of the weight of the container and the maximum cargo weight, in pounds.
- 103.9.** For a loaded container, the actual gross weight shall be plainly marked and visible to the crane or other hoisting equipment operator or signalman, or to every supervisor or job boss on site and in charge of the operation; or the cargo stowage plan or equivalent permanently recorded display serving the same purpose, containing the actual gross weight and the serial number or other positive identification of that specific container, shall be provided to the crane or other hoisting equipment operator and signalman, and to every supervisor and job boss on site and in charge of the operation.

 - 103.10.** Container Inspection

 - 103.10.1.** Prior to hoisting, each container shall be inspected for any visible defects in structural members and fittings that would make the handling of such container unsafe.
 - 103.10.2.** Any container found to have such a defect shall either be handled by a special means to ensure safe handling or shall be emptied before handling.

COMPRESSED GASES & AIR (STORAGE & USE)

OSHA guidance on this topic is found in several areas within 29 CFR 1910.101 – 1918 (OSHA, Hazardous Materials, 2020). OSHA has provided an [overview and guide to the topic](#) (OSHA, Safety and Health Topics, 2020).

- 104.1.** Compressed gas cylinders at each maintenance location will be inspected to determine they are in a safe condition to the extent this can be determined by a visual inspection.
- 104.2.** Visual and other inspections shall be conducted as prescribed in the Hazardous Materials Regulations of the Department of Transportation (DOT, 2020). Where those regulations are not applicable, visual and other inspections shall be conducted in accordance with references mentioned in the General section for paragraph 104.
- 104.3.** Each compressed gas cylinder or portable tank will be equipped with a pressure relief device installed and maintained per Compressed Gas Association Pamphlets S-1.1-1963 and 1965 addenda and S-1.2-1963, which is incorporated by reference as specified in Sec. 1910.6 (OSHA, General, 2020).
- 104.4.** Compressed gas cylinders will be stored upright with a chain or strap in a proper cylinder car or container designed for the storage of compressed gas cylinders.
- 104.5.** Store cylinders at least 20 feet from combustible materials in a dry, ventilated location.
- 104.6.** Ensure valves are completely closed and protection devices are secured.
- 104.7.** Avoid storing cylinders in lockers – a leak could result in a dangerous gas buildup.
- 104.8.** Use proper warning signs in areas where cylinders are stored.
- 104.9.** Keep cylinders in a location free from vehicle traffic, excessive heat, and electrical circuits.
- 104.10.** Keep empty cylinders away from full ones.
- 104.11.** Handle cylinders with care, and avoid dropping or hitting them against other objects.
- 104.12.** Follow proper procedures, and use the correct equipment, including PPE (safety glasses, heavy-duty gloves, and protective footwear.)
- 104.13.** Ensure safety measures, such as caps or guards, are securely installed on each cylinder.
- 104.14.** Use a cart or hand truck to move cylinders. Do not drag or roll cylinders.
- 104.15.** Use proper cradles, nets, or platforms if using a crane or other lifting device to move cylinders.
- 104.16.** Avoid lifting cylinders by cylinder caps or guards or with magnets or slings, which can damage the valves.

104.17. Transporting Compressed Gas Cylinders

104.17.1. When transporting compressed gas cylinders on public highways, employees must:

104.17.1.1. Close cylinder valve, and release pressure from regulators and hoses if approved nonrotating valve protector is used.

104.17.1.2. Remove regulators, and securely install caps on compressed gas cylinders if the approved nonrotating valve cylinder is not used.

CONFINED SPACES

OSHA provides a [confined spaces overview](#) (OSHA, Confined Spaces, 2020). Standards and enforcement information is located within 29 CFR 1910 (OSHA, Regulations (Standards - 29 CFR), 2020) with specifics on general industry and maritime operations.

- 105.1.** When performing work around open pits, confined spaces, and manholes, employees must:
 - 105.1.1.** Call utility locators before you dig.
 - 105.1.2.** Shore vertical excavations of 5 feet deep or more.
 - 105.1.3.** Protect all open holes and trenches with adequate barricades.
 - 105.1.4.** Never use open flames to thaw frozen pits or manhole covers.
 - 105.1.5.** Ensure adequate atmospheric testing and ventilation in confined spaces.

CONTRACTOR MANAGEMENT

OSHA provides an excellent guide for [host employers managing contract workers](#) on their facilities (OSHA, Communication and Coordination for Host Employers, Contractors, and Staffing Agencies, 2020).

OSHA DEFINITIONS:

Host Employer – An employer who has general supervisory authority over the worksite, including controlling the means and manner of work performed and having the power to correct safety and health hazards or require others to correct them.

Contractor – An individual or firm that agrees to furnish materials or perform services at a specified price and controls the details of how the work will be performed and completed.

- 106.1. No worker may engage in any activity, work, or service aboard the host facility without first meeting requirements set forth by the host employer to include but not limited to background investigation, pre-employment drug screening, and designated training to ensure contract employees are capable to operate safely.
- 106.2. Facility hosts will ensure effective communication and coordination with contractors before arriving on site regarding the following:
 - 106.2.1. Types of hazards that may be present on the facility
 - 106.2.2. The procedures and processes contractors need to use to avoid or control exposure to the identified hazards
 - 106.2.3. Methods or means to contact the facility host to report an injury, illness, or incident or if they have a safety concern
 - 106.2.4. The types of hazards that may arise from the work being done on site by workers employed by contractors or staffing agencies
 - 106.2.5. The procedures or measures needed to avoid or control exposure to these hazards
 - 106.2.6. How to contact the contract or staffing firm if they have a safety concern
 - 106.2.7. What to do in case of an emergency
- 106.3. The host employer or facility operator will:
 - 106.3.1. Communicate with contractors to determine requirements for participation in the safety and health programs to include safety meetings, hearing conservation, PPE mandates and registration with a third-party contractor to manage training and compliance as required by the host.
 - 106.3.2. These determinations should be included in contract documents that define the relationships between the contractor and host facility.

- 106.3.3.** The host employer establishes and implements procedures to exchange information with contractors about hazards present in the workplace and the measures that have been implemented to prevent or control such hazards.
- 106.3.4.** The host employer gathers and disseminates information sufficient to enable each contractor to assess hazards encountered by its workers and to avoid creating hazards that affect other or all workers on the site.
- 106.3.5.** Contractors will promptly report to the host employer any information about injuries, illnesses, hazards, or concerns reported by their workers and the results of any tracking or trend analysis they perform.
- 106.3.6.** The host employer will communicate with contractors and their workers about nonroutine and emergency hazards and emergency procedures.
- 106.4.** Pre-shift briefs will be provided to contractor work teams prior to starting work at the beginning of a day/shift or when conditions change.
 - 106.4.1.** Pre-shift briefs will cover at a minimum the following:
 - 106.4.1.1.** PPE inspection to ensure the required PPE is displayed in serviceable condition prior to commencing work.
 - 106.4.1.2.** Discussion of the weather and potential impact on work planned during the shift.
 - 106.4.1.3.** Review of safety topics to include previous day accidents, safety trend data, or any other safety information that captures the attention of the team to focus on safety during their shift.
 - 106.4.1.4.** Work assignments and break times for each member of the crew.
 - 106.4.1.5.** Leader will engage in two-way conversation with each crew member to discuss risk that will be faced during the shift and their individual actions to manage that risk and avoid accidents or injury.
- 106.5.** Contractors will communicate and collaborate with facility hosts to identify and work out conflicts regarding resource, space, equipment, or time availability or concerns impacting safety and health on the facility.
 - 106.5.1.** Ensure that work is planned and scheduled to minimize impacts on safety.
 - 106.5.2.** Ensure that contractor workers are adequately trained and equipped before arriving on the worksite.
 - 106.5.3.** Hosts and contractors will harmonize safety and health policies and procedures to resolve important differences so that all workers at the site have the same protection and receive consistent safety information.

106.5.4. Host employers will:

106.5.4.1. Work together to deal with unexpected staffing needs by ensuring that enough trained and equipped workers are available or that adequate lead time is provided to train and equip workers.

106.5.4.2. Make sure that managers with decision-making authority are available and prepared to deal with day-to-day coordination issues.

DRUG/ALCOHOL USE

OSHA requires an employer to provide a workplace free of employees performing assigned duties with mechanical machinery under the intoxicating influence of alcohol or the influence of illicit drugs. Additional information to aid [intermodal facilities](#) is available (OSHA, Drug Free Workplace Alliance, 2020).

- 107.1.** Personnel reporting for duty/a scheduled shift are prohibited from having in their possession, using, or being under the influence of alcoholic beverages or intoxicants.
- 107.2.** Personnel shall neither report for duty, nor perform service(s) while under the influence of, nor use while on duty, or on company property, any drug, medication, or other substance including prescribed medication, that will in any way adversely affect their alertness, coordination, reaction, response, or safety. To avoid any doubt, the company restricted medication policy applies and is to be used as a reference for this rule.
- 107.3.** Anyone using any type of medication is responsible to ensure it will not affect your alertness, coordination, reaction time, or ability to work safely.
- 107.4.** If prescribed medication by a physician, the employee must explain to the physician or pharmacist the details of your work assignment and comply with their advice when receiving any type of medication.
- 107.5.** Employee shall stop work immediately and inform your supervisor if experiencing any adverse effects to medication such as mental confusion or dizziness.
- 107.6.** The illegal use and/or possession of a drug, narcotic or other substance that affects alertness, coordination, reaction, response, or safety is prohibited while on or off duty.

ELECTRICAL SAFETY

The OSHA reference for electrical safety is found in 29 CFR 1910.331 through 1910.335 (OSHA, Regulations (Standards - 29 CFR), 2020). Electrocutation makes up one of the OSHA Fatal Four causes of death in the workplace annually. Electrical safety should be respected for that reason alone. Safety-related work practices should be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, when work is performed near or on equipment or circuits which are or may be energized. The specific safety-related work practices should be consistent with the nature and extent of the associated electrical hazards.

108.1. Electrical Safety Lockout/Tagout Procedures

- 108.1.1.** Assume that any wire or source of electricity is energized.
- 108.1.2.** Do not alter any safety features of any electrical equipment.
- 108.1.3.** Do not use any portable metal ladder around electrical work.
- 108.1.4.** Do not use any electrical cord for hoisting purposes.
- 108.1.5.** Reference section 125 of this Handbook for more specific lockout/tagout requirements and guidelines.

108.2. Training is required for all employees who face a risk of electric shock.

- 108.2.1.** Content of Training – Qualified persons (i.e., those permitted to work on or near exposed energized parts) shall, at a minimum, be trained in and familiar with the following:
 - 108.2.1.1.** The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment
 - 108.2.1.2.** The skills and techniques necessary to determine the nominal voltage of exposed live parts
 - 108.2.1.3.** The clearance distances specified in 1910.333(c) (OSHA, Electrical, 2020) and the corresponding voltages to which the qualified person will be exposed
 - 108.2.1.4.** The types of training required shall be of the classroom or on-the-job type. The degree of training provided shall be determined by the risk to the employee

108.3. De-energized parts and equipment to which an employee may be exposed shall be deenergized before the employee works on or near them, unless the employer can demonstrate that de-energizing introduces additional or increased hazards or is infeasible due to equipment design or operational limitations.

- 108.4.** For energized parts and equipment that are not deenergized (i.e., for reasons of increased or additional hazards or infeasibility), other safety-related work practices shall be used to protect employees who may be exposed to the electrical hazards involved. Such work practices shall protect employees against contact with energized circuit parts directly with any part of their body or indirectly through some other conductive object. The work practices that are used shall be suitable for the conditions under which the work is to be performed and for the voltage level of the exposed electric conductors or circuit parts.
- 108.5.** Working on or near energized parts and equipment involving either direct contact or by means of tools and materials must involve only qualified persons. Such qualified persons shall be capable of working safely on energized circuits and shall be familiar with the proper use of special precautionary techniques, PPE, insulating and shielding materials, and insulated tools.
- 108.6.** Overhead lines shall be deenergized and grounded, or other protective measures shall be provided before work is started. If the lines are to be deenergized, arrangements shall be made with the person or organization that operates or controls the electric circuits involved to deenergize and ground them.
- 108.6.1.** Vehicular and mechanical equipment capable of having parts of its structure elevated near energized overhead lines shall be operated so that an appropriate clearance is maintained. Reference appropriate clearance chart and distances referenced in 29 CFR 1910.333(c) (OSHA, Electrical, 2020).
- 108.6.2.** If any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines is intentionally grounded, employees working on the ground near the point of grounding may not stand at the grounding location whenever there is a possibility of overhead line contact.
- 108.7.** Portable ladders shall have nonconductive siderails if they are used where the employee or the ladder could contact exposed energized parts.
- 108.8.** Conductive articles of jewelry and clothing (such as watch bands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, or metal headgear) may not be worn if they might contact exposed energized parts. However, such articles may be worn if they are rendered nonconductive by covering, wrapping, or other insulating means.
- 108.9.** Employees working in areas where there are potential electrical hazards shall be provided with, and shall use, electrical protective equipment that is appropriate for the specific parts of the body to be protected and for the work to be performed. Protective equipment shall be maintained in a safe, reliable condition and shall be periodically inspected or tested.
- 108.10.** When working near exposed energized conductors or circuit parts, each employee shall use insulated tools or handling equipment if the tools or handling equipment might make contact with such conductors or parts.

- 108.11.** Ropes and handlines used near exposed energized parts shall be nonconductive.
- 108.12.** Protective shields, protective barriers, or insulating materials shall be used to protect each employee from shock, burns, or other electrically related injuries while that employee is working near exposed energized parts which might be accidentally contacted or where dangerous electric heating or arcing might occur. When normally enclosed live parts are exposed for maintenance or repair, they shall be guarded to protect unqualified persons from contact with the live parts.
- 108.12.1.** Safety signs, safety symbols, or accident prevention tags shall be used where necessary to warn employees about electrical hazards which may endanger them.
- 108.12.2.** Barricades shall be used in conjunction with safety signs where it is necessary to prevent or limit employee access to work areas exposing employees to uninsulated energized conductors or circuit parts.
- 108.12.3.** If signs and barricades do not provide sufficient warning and protection from electrical hazards, an attendant shall be stationed to warn and protect employees.
- 108.13. Charging Batteries**
- 108.13.1.** Do not smoke in any area where a battery is being charged.
- 108.13.2.** Battery charging area shall be well ventilated.
- 108.13.3.** Battery charging area should not be exposed to flames, sparks, or any electric arc.
- 108.13.4.** Vent caps should be left in place to avoid electrolyte spray when charging.
- 108.13.5.** Face shields should be worn over goggles when filling or charging a battery.
- 108.13.6.** Battery electrolytes should be kept away from skin, eye, and clothing contact. If electrolytes come in contact with skin or eyes, flush with cold water immediately.
- 108.13.7.** When scrapping batteries, remove any leads from the terminal posts.
- 108.13.8.** Tools, metal jewelry (including watches), and any other metallic object should be kept away from the top of any uncovered battery.
- 108.13.9.** Do not use a welding machine to jump-start a battery.

EMERGENCY ACTION PLANS

It is important that an Emergency Response and Action Plan be developed, communicated, and available to all employees. When a fire, evacuation, or emergency event occurs, personnel should be familiar with the plan so emergency activities can be safely and quickly coordinated. The OSHA [tool for developing an ERAP](#) is available (OSHA, Emergency Action Plan, 2020)

- 109.1.** Emergency Response Action Plans must be:
 - 109.1.1.** Created as location specific, posted in the workspace, and be available for all employees to review; and
 - 109.1.2.** Reviewed with employees at least once per year and when:
 - 109.1.2.1.** Newly assigned to the location,
 - 109.1.2.2.** An employee's role and/or responsibility changes under the plan, or
 - 109.1.2.3.** The plan is changed or updated.
- 109.2.** Emergency Response Action Plans must contain the following elements at a minimum:
 - 109.2.1.** Procedures for reporting fires and other emergencies
 - 109.2.2.** Procedures for emergency evacuation, including the type of evacuation and exit route assignments
 - 109.2.3.** Procedures for employees who stay behind during an evacuation to continue critical operations before their own evacuation (if applicable)
 - 109.2.4.** Procedures to account for all employees after evacuation
 - 109.2.5.** Procedures for emergency shelter-in-place
 - 109.2.6.** Procedures for employees working outdoors to follow during a lightning event
 - 109.2.7.** Procedures for employees performing rescue or medical duties
 - 109.2.8.** Names or job titles of persons to contact for additional detailed plan information and/or explanation of employee responsibilities during an emergency event
 - 109.2.9.** Description of emergency alarm system (communication system) used to alert workers of a fire, evacuation, or emergency event — e.g., Portable Radio/ Air Horn/Siren/Alarm/Strobe Lights
 - 109.2.10.** Procedures for initiating emergency alarm system (communication system)
 - 109.2.11.** Identification of employees who are designated to assist in an evacuation or emergency event

- 109.3.** Fire Prevention Plans is an OSHA recommended practice for all employers and must be:
- 109.3.1.** Created as location specific, posted in the workspace, and be available for all employees to review; and
 - 109.3.2.** Reviewed with employees annually and when newly assigned to the location identifying those parts of the plan necessary for self-protection and informing of any fire hazards they may be exposed to.
- 109.4.** Fire Prevention Plans must contain the following elements at a minimum:
- 109.4.1.** List of all major workplace fire hazards, proper handling and storage procedures for hazardous materials, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard.
 - 109.4.2.** Procedures to control accumulations of flammable and combustible waste materials (e.g., oily rags).
 - 109.4.3.** Procedures for regular maintenance of safeguards installed on heat-producing equipment to prevent the accidental ignition of combustible materials (if applicable).
 - 109.4.4.** Name or job title of employees responsible for maintaining equipment to prevent or control sources of ignition or fires.
 - 109.4.5.** Name or job title of employees responsible for the control of fuel source hazards.
- 109.5.** Emergency evacuation drill will be conducted once per year (at a minimum), and a record of the drill will be maintained for inspection.
- 109.6.** Employers shall ensure all employees are trained on specifically what they are expected to do in an emergency evacuation and how to assist in a safe and orderly evacuation.
- 109.7.** If employer has provided fire extinguishers in the workplace, but emergency plan calls for a full evacuation of all employees in the event of a fire, then employees are not required to be trained in the use of fire extinguishers.
- 109.8.** If employer has provided fire extinguishers for employee use and when/if a fire occurs not all employees evacuate because particular employees are expected to stay and fight the fire, then the employer shall provide training (upon initial employment and at least annually thereafter) on the basic principles of use and the hazards involved with fighting an incipient stage fire in compliance with 1910.157(g)(1) and (g)(2) (OSHA, Fire Protection, 2020).
- 109.9.** Exit routes must have the following specifications:
- 109.9.1.** Be adequately lighted so an employee can see along the exit route.
 - 109.9.2.** Be no less than 28 inches wide at all points and unobstructed (this includes interior and exterior staircases if stairs are part of the exit route). No materials (permanent or temporarily) may be placed within the 28-inch exit route.

- 109.9.3.** Be at least 7 feet 6 inches high from floor to ceiling. Anything projecting from the ceiling must allow 6 feet 8 inches from the floor to the projection.
- 109.9.4.** Not go through a room that can be locked to reach an exit or exit discharge.
- 109.9.5.** Be arranged so that employees do not have to go toward or through a high-hazard area.
- 109.9.6.** Be kept free of explosive or highly flammable items, including when stored in flammable cabinets.
- 109.9.7.** Discharge to an area of safety outside, or an open space with access to the outside that is large enough to accommodate the building occupants likely to use the exit route.
- 109.10.** Exit route door(s) must be:
 - 109.10.1.** Clearly visible and free of any items that obscure the visibility of exit route door(s);
 - 109.10.2.** Marked by a sign reading "EXIT"; and
 - 109.10.3.** Able to be opened from the inside at all times without keys, tools, special knowledge, or removal of any securement device.
- 109.11.** Panic bar/push bar device that locks only from the outside is permitted on exit discharge doors.
- 109.12.** Exit signs must:
 - 109.12.1.** Have the word "EXIT" in plainly legible letters not less than 6 inches high and 3/4 inch wide; and
 - 109.12.2.** Be illuminated by a reliable light source:
 - 109.12.2.1.** Self-luminous (e.g., tritium-powered)
 - 109.12.2.2.** Photo luminescent (e.g., glow-in-the-dark)
 - 109.12.2.3.** Electroluminescent (e.g., electrical power/battery backup)
- 109.13.** Line-of-sight to an exit sign indicating the direction of travel to the exit must be clearly visible at all times. If this cannot be achieved, egress marker signs must be posted at corridors along the exit access and along the exit access every 100 feet with an arrow indicating the direction of travel to the nearest exit (egress markers often have an arrow and a pictogram of a running man).
- 109.14.** Each doorway or passage along an exit access that could be mistaken for an exit must be marked "Not an Exit" or identified by a sign indicating its actual use.
- 109.15.** No exit sign is required if there is only one means of egress and line-of-sight to the exit is clearly and immediately visible. (i.e., a repurposed shipping container with only one means of egress which is clearly and immediately visible).

- 109.16.** Safeguards installed to protect employees during an emergency (e.g., sprinkler system, fire detection/fire signaling system, fire door(s), exit lighting) must be in proper working order at all times.
- 109.17.** Electronic access-controlled egress door(s) requiring a button to be pushed in order for an occupant to exit shall have the following specifications:
- 109.17.1.** Open in the direction of egress.
 - 109.17.2.** Be clearly identified by a sign at the release device reading "PUSH TO EXIT".
 - 109.17.3.** Automatically unlock in the event of a loss of power to the part of the electronic access-control system that locks/unlocks the door(s).
 - 109.17.4.** Automatically unlock at activation of the building fire-protective signaling system, automatic sprinkler system, and/or fire detection system (if equipped) and remain unlocked until the system is reset.
- 109.18.** Emergency Lighting Testing
- 109.18.1.** Monthly activation test must be performed. Emergency lights must remain illuminated for 30 seconds to pass monthly activation test. Written record of monthly activation test must be maintained for inspection.
 - 109.18.2.** Annual activation test must be performed. Emergency lights must be activated for 1.5 hours to simulate an extended emergency event. Written record of annual activation test must be maintained for inspection.
- 109.19.** Smoke Alarms
- 109.19.1.** Monthly activation test must be performed, and written record of test maintained for inspection.
 - 109.19.2.** Replace battery power supply immediately in battery powered units that fail the activation test.
 - 109.19.3.** Remove excess dust or foreign particulate built up on the alarm as this can limit advance warning time provided by the unit.
 - 109.19.4.** Use only properly trained persons to maintain and service alarm systems other than basic battery-powered smoke alarms.
- 109.20. Fire Extinguisher(s)**
- 109.20.1.** Must be located throughout the workplace and readily accessible in the event of a fire.
 - 109.20.1.2.** Office environment – 75 feet maximum travel distance
 - 109.20.1.3.** Maintenance shops/parts storage – 50 feet maximum travel distance
 - 109.20.2.** Must be mounted with brackets or placed in wall cabinets specifically designed to house portable extinguishers and mounted no higher than 5 feet above the floor for accessibility.
 - 109.20.3.** Must not be obstructed from access.

- 109.20.4.** Must be visually inspected monthly and written record of monthly inspection maintained for inspection (typically recorded on extinguisher inspection tag). Units that fail monthly visual inspection will be reported, tagged to indicate unit is not serviceable, and placed in a designated location until maintenance technician can repair/service the unit. Monthly visual inspection will include the following:
- 109.20.4.1.** Clear of obstruction from access.
 - 109.20.4.2.** Nameplate with operating instructions is legible and facing forward.
 - 109.20.4.3.** Pressure gauge showing the needle in the green indicating unit is properly charged.
 - 109.20.4.4.** Pull pin and break-away/tamper seal are intact.
 - 109.20.4.5.** No signs of physical damage, leakage, or corrosion.
- 109.20.5.** Must have a maintenance inspection completed annually by a technician to ensure unit is serviceable and maintenance procedures (e.g., hydrostatic testing) are not required. Written record of annual maintenance inspection must be maintained for inspection (typically the extinguisher maintenance company tag displays the year and month of the last annual maintenance inspection).
- 109.20.5.1.** Nonrefillable/disposable extinguishers are exempt from annual maintenance inspection requirement, but monthly visual inspections must be completed and written record maintained for inspection.
- 109.20.6.** If taken out of service, unit must be tagged indicating it is not serviceable and placed in a designated location until extinguisher maintenance technician can complete repairs.

EMPLOYEE ASSISTANCE PROGRAMS

Intermodal facilities should develop an Employee Assistance Program (EAP) that adheres to the guidance below and best meets the needs of the intermodal facilities and employees.

[Additional guidance](#) is available (OPM, 2020).

- 110.1.** An EAP is a voluntary, work-based program that offers free and confidential assessments, short-term counseling, referrals, and follow-up services to employees who have personal and/or work-related problems. EAPs address a broad and complex body of issues affecting mental and emotional well-being, such as alcohol and other substance abuse, stress, grief, family problems, and psychological disorders. EAP counselors also work in a consultative role with managers and supervisors to address employee and organizational challenges and needs. Many EAPs are active in helping organizations prevent and cope with workplace violence, trauma, and other emergency response situations.

EMPLOYEE FATIGUE

OSHA has [documented](#) the impact of fatigue, caused by demanding work schedules, physical and mental stress, noise, chemicals, and other environmental variables. Irregular and extended shifts are common among workers at intermodal facilities (OSHA, Long Work Hours, Extended or Irregular Shifts, and Worker Fatigue, 2020).

- 111.1.** The senior leader responsible for work schedules will:
 - 111.1.1.** Ensure that measures are taken to monitor and limit worker exposure to health and physical hazards in the workplace for all personnel scheduled to work on the intermodal facility.
 - 111.1.2.** Ensure that scheduling for work allows workers necessary time for transit to their domicile for quality, uninterrupted sleep; 7 to 9 hours is recommended for undisturbed sleep each night.
 - 111.1.3.** Ensure that hours of service rules and mandatory rest periods are written in policy, published, posted, and rigorously enforced.
 - 111.1.4.** Ensure policies relating to the consumption of alcohol (duration from last use to scheduled shift start time) and/or use of drugs is published and is consistent with OSHA guidance.
 - 111.1.5.** Establish programs consistent with OSHA guidance to combat worker fatigue by offering breaks, scheduling work when employees are most alert, and considering the importance of sleep when establishing work schedules.
 - 111.1.6.** Examine staffing issues such as workload, work hours, understaffing, and worker absences, scheduled and unscheduled, which can contribute to worker fatigue. Develop solutions to avoid problematic issues.
 - 111.1.7.** Arrange schedules to allow frequent opportunities for rest breaks and nighttime sleep.
 - 111.1.8.** Make adjustments to the work environment such as lighting, temperature, and physical surroundings to increase alertness.
 - 111.1.9.** Provide worker education and training addressing the hazards of worker fatigue; the symptoms of worker fatigue; the impact of fatigue on health and relationships; adequate quality and quantity of sleep; and the importance of diet, exercise, and stress management strategies to minimize the adverse effects of fatigue.
- 111.2.** Individual employees will:
 - 111.2.1.** Report for work rested, alert, and ready to operate safely while performing the assigned work.
 - 111.2.2.** Inform and communicate with supervisors on issues impacting levels of fatigue and their ability to operate safely because of the work schedule.

- 111.2.3.** Actively participate in training opportunities provided on the topics of sleep and fatigue management.
- 111.2.4.** Immediately stop work and report symptoms of fatigue impacting their ability to perform assigned duties safely. Symptoms include but are not limited to the following:
 - 111.2.4.1.** Blurry vision
 - 111.2.4.2.** Dehydration
 - 111.2.4.3.** Dizziness or poor eye-hand coordination
 - 111.2.4.4.** Headache
 - 111.2.4.5.** Moodiness
 - 111.2.4.6.** Poor concentration or lack of ability to maintain concentration on assigned work tasks
 - 111.2.4.7.** Sore or aching muscles

ERGONOMICS AND REPETITIVE MOTION

Even if there are no guidelines specific to your industry, as an employer you still have an obligation under the [General Duty Clause](#), section 5(a)(1) (OSHA, OSH Act of 1970, 2020), to keep your workplace free from recognized serious hazards, including ergonomic hazards. OSHA will cite for ergonomic hazards under the General Duty Clause or issue ergonomic hazard alert letters, where appropriate, as part of its overall enforcement program. OSHA encourages employers to implement effective programs or other measures to reduce ergonomic hazards and associated Muscular Skeletal Disorders.

112.1. To reduce the chance of injury, work tasks should be designed to limit exposure to ergonomic risk factors. Engineering controls are the most desirable, where possible. Administrative or work practice controls may be appropriate in some cases where engineering controls cannot be implemented or when different procedures are needed after implementation of the new engineering controls. Personal protection solutions have only limited effectiveness when dealing with ergonomic hazards.

112.1.1. Engineering Controls (implement physical change to the workplace, which eliminates/reduces the hazard on the job/task)

112.1.1.1. Use a device to lift, and reposition heavy objects to limit force exertion.

112.1.1.2. Reduce the weight of a load to limit force exertion.

112.1.1.3. Reposition a worktable to eliminate a long/excessive reach and enable working in neutral postures.

112.1.1.4. Use diverging conveyors off a main line so that tasks are less repetitive.

112.1.1.5. Install diverters on conveyors to direct materials toward the worker to eliminate excessive leaning or reaching.

112.1.1.6. Redesign tools to enable neutral postures.

112.1.2. Administrative and Work Practice Controls (establish efficient processes or procedures)

112.1.2.1. Require that heavy loads are only lifted by two people to limit force exertion.

112.1.2.2. Establish systems so workers are rotated away from tasks to minimize the duration of continual exertion, repetitive motions, and awkward postures. Design a job rotation system in which employees rotate between jobs that use different muscle groups.

112.1.2.3. Staff “floaters” to provide periodic breaks between scheduled breaks.

- 112.2.7.2.** The symptoms of an RMI may include one or more of the following: Pain; stiffness; swelling; numbness or tingling in the hands, wrists, elbows, shoulders, back, or neck; discomfort brought on by performing a particular task, and which then ceases or improves when no longer performing the task, such as on weekends or holidays.
- 112.2.7.3.** Often the discomfort begins in one area, for example, neck and back, and then spreads to other parts of the body. Early warning signs may manifest as sore shoulders or neck pain, particularly when driving home after a day at work, or a loss of flexibility or strength. It is also possible that the effects of RMI may not manifest until the next morning as aches and stiffness in the arms or hands.
- 112.2.8.** Prevention of RMI

 - 112.2.8.1.** Take scheduled breaks.
 - 112.2.8.2.** Vary or rotate tasks whenever possible.
 - 112.2.8.3.** Keep your hands warm. Cold hands tend to grip tools and materials too tightly.
 - 112.2.8.4.** Shake out your hands or rotate your hands and wrists periodically.
 - 112.2.8.5.** Keep wrists in a neutral position.
 - 112.2.8.6.** Avoid prolonged bending of the wrists.
 - 112.2.8.7.** Avoid excessive pressure on parts of the hand, wrists, or arm.
 - 112.2.8.8.** Make adjustments at your workstation.
 - 112.2.8.9.** Grip tools correctly.
 - 112.2.8.10.** Wear protective equipment when using tools with high levels of vibration, especially below 1,000 cycles per second.
 - 112.2.8.11.** Wear proper fitting gloves when required. Vibration-absorbing padding in gloves can lessen the adverse effects of some tools.
 - 112.2.8.12.** Avoid wearing watches, bracelets, or tight clothing that hampers wrist circulation.
 - 112.2.8.13.** Grasp objects with the whole hand if possible.
- 112.3.** Back injury prevention and ergonomics applies to operations where personnel perform manual lifting and have the potential for material handling and ergonomic stresses. The purpose of this procedure is to prevent back injuries and Work-Related Muscular Skeletal Disorders or cumulative trauma injuries to personnel.

- 112.3.1.** Safe Lifting Practices Management
 - 112.3.1.1.** Evaluate all assignments to assess if they can be completed without risk of back injury (e.g., moving boxes, computers, equipment, etc.).
 - 112.3.1.2.** Require that heavier items are stored on lower shelving units, ideally below knee and shoulder height.
 - 112.3.1.3.** Recognize lifting-intensive tasks (poor lift design, high frequency, and/or excessive weight), and provide the means by which personnel can perform lifting duties without risk of injury (e.g. carts, dollies, trucks with lift gates).
 - 112.3.1.4.** Secure outside assistance if personnel cannot safely accomplish the job (e.g., additional staff, contract movers).
 - 112.3.1.5.** Ensure that personnel receive the required training.

FALL PROTECTION

The [OSHA Fall Protection fact sheet](#) is an excellent resources for ensuring programs are in place to protect workers at risk of a fall while performing assigned duties (OSHA, Fall Protection, 2020). OSHA provides a [Managing Fall Protection Hazards Workbook](#) (OSHA, Managing Fall Protection Hazards Workbook, 2020).

- 113.1.** OSHA requires that fall protection be provided at elevations of 4 feet in general industry workplaces, 5 feet in shipyards, 6 feet in the construction industry, and 8 feet in longshoring operations. In addition, OSHA requires that fall protection be provided when working over dangerous equipment and machinery, regardless of the fall distance.
- 113.2.** Employers must guard every floor hole into which a worker can accidentally walk (using a railing and toe-board or a floor hole cover).
- 113.3.** Provide a guardrail and toe-board around every elevated open sided platform, floor, or runway.
- 113.4.** Regardless of height, if a worker can fall into or onto dangerous machines or equipment (e.g., a vat of acid or a conveyor belt) employers must provide guardrails and toe-boards to prevent workers from falling and getting injured.
- 113.5.** When in the basket of an aerial lift, employees require fall protection any time the lift is moving OR the basket is above 4 feet. The use of a scissor lift or forklift lifting-basket does not require a harness as long as the guardrails, gates, and latches are secure.
- 113.6.** Fall protection must be provided whenever the length of climb on a fixed ladder equals or exceeds 24 feet.
- 113.7.** Employees may occupy the roof of a freight car, locomotive, or caboose if approved fall protection is used.
- 113.8.** Other means of fall protection that may be required on certain jobs include safety harness and line, safety nets, stair railings, and handrails.
- 113.9.** Fall protection equipment should be personally inspected before each use and at least once a year by a jobsite competent person (or more frequently if required by the manufacturer).
- 113.10.** Always inspect fall protection equipment for strength and functionality prior to use.
- 113.11.** Employees will utilize fall protection when required (see section 113.1).
- 113.12.** When performing work where fall protection is required, two-man integrity will be used to ensure there is a co-worker who is responsible for knowing their partner's location at all times.

113.13. Training Requirements

113.13.1. Training Program

113.13.1.1. The employer shall provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed in order to minimize these hazards.

113.13.1.2. The employer shall ensure that each employee has been trained, as necessary, by a competent person qualified in the following areas:

113.13.1.2.1. The nature of fall hazards in the work area.

113.13.1.2.2. The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used.

113.13.1.2.3. The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used.

113.13.1.2.4. The role of each employee in the safety monitoring system when this system is used.

113.13.1.2.5. The limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs.

113.13.1.2.6. The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection.

113.13.1.2.7. The role of employees in fall protection plans.

113.13.2. Certification of Training

113.13.2.1. The employer shall verify compliance with section 113.13 by preparing a written certification record. The written certification record shall contain the name or other identity of the employee trained, the date(s) of the training, and the signature of the person who conducted the training or the signature of the employer. If the employer relies on training conducted by another employer or completed prior to the effective date of this section, the certification record shall indicate the date the employer determined the prior training was adequate rather than the date of actual training.

113.13.2.2. The latest training certification shall be maintained.

113.13.3. Retraining

113.13.3.1. When the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by section 113.13, the employer shall retrain each such employee. Circumstances where retraining is required include, but are not limited to, situations where:

113.13.3.1.1. Changes in the workplace render previous training obsolete;

113.13.3.1.2. Changes in the types of fall protection systems or equipment to be used render previous training obsolete; or

113.13.3.1.3. Inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the requisite understanding or skill.

113.14. Selecting Anchor Points for Fall Protection

113.14.1. Where guardrails or similar engineering controls are not feasible, a Personal Fall Arrest System consisting of a full body harness, connecting device, and an anchor point may be used to prevent injury in the event of a fall.

113.14.2. Anchor points must be rated at 5,000 pounds.

113.14.3. Anchor points must be high enough to prevent contact with a lower level or any object below.

113.14.4. Select structural members in good condition for use as an anchor point.

113.14.5. Use straps to wrap around large diameter anchor points.

113.14.6. Install pad-eyes when needed on flat surfaces.

113.14.7. Install lifelines if no structural objects exist overhead.

113.14.8. Use Self Retracting Lifelines if clearance below is inadequate to accommodate fall arrest via a 6-foot shock-absorbing lanyard.

FIRE PROTECTION AND PREVENTION

Intermodal facilities are required to develop and maintain an effective fire protection and prevention program consistent with OSHA standard 1926.150 and the provisions below (OSHA, 1926.150 - Fire protection, 2020).

- 114.1.** At least one portable fire extinguisher having a rating of not less than 12-B units shall be located outside of, but not more than 10 feet from, the door opening into any room used for storage.
- 114.2.** At least one portable fire extinguisher having a rating of not less than 12-B units must be located not less than 10 feet, nor more than 25 feet, from any Category 1, 2, or 3 flammable liquid storage area located outside of a storage room but inside a building.
- 114.3.** Open flames and smoking shall not be permitted in flammable liquid storage areas.
- 114.4.** Employees discovering a fire must turn on the fire alarm immediately, if available, and
 - 114.4.1.** In an enclosed space, clear out of the area quickly and safely.
 - 114.4.2.** In an open space, control or extinguish the fire using a fire extinguisher rated for the fire involved only when it can be done safely.
- 114.5.** When performing welding, cutting, and heating work, maintenance personnel must:
 - 114.5.1.** Have proper fire protection such as a fire extinguisher, water, sand, or dirt within 50 feet of the operation before starting work.
 - 114.5.2.** Use screens when other people may be affected by the work being performed.
 - 114.5.3.** Ensure the area is properly ventilated.
 - 114.5.4.** Use a utility blower when welding or grinding, if not using a respirator.
 - 114.5.5.** Remove electrodes from holders when not in use.
 - 114.5.6.** Keep molten metal from contact with any form of moisture when making thermite welds.
 - 114.5.7.** Close cylinder valves in the event of a fire.
- 114.6.** While working in environments where the risk of fire is elevated, do not use flammable or combustible liquids to start or accelerate fires. Employees must:
 - 114.6.1.** Maintain clear access to all fire-fighting equipment.
 - 114.6.2.** Maintain contact between metal containers while gasoline or other highly flammable liquids are being poured from one container to another and use a wire with suitable connectors or clips where direct contact cannot be maintained.

FIRST AID AND CPR

First aid is emergency care rendered to a person suffering from injury or acute illness until the time that emergency medical services arrive on the scene, or the victim can be delivered to an appropriate caregiver. Employee training in first aid and cardiopulmonary resuscitation is a low-cost way for employers to be compliant with regulations, as well as protect employees.

- 115.1.** Employers are required to adequately train an employee or employees in first aid if an infirmary, clinic, or hospital is not in near proximity to the workplace.
 - 115.1.1.** In locations where the workplace has availability of a trained emergency service provider, such as fire department paramedics or emergency medical services (EMS), this would be considered the equivalent of “near proximity to the workplace” provided they could respond to the scene in the timeframe set forth in section 115.1.2.
 - 115.1.2.** “Near proximity”, per OSHA Standard Interpretation, is considered as follows:
 - 115.1.2.1.** No more than 3–4 minutes in an industrial work environment.
 - 115.1.2.2.** No more than 15 minutes in a non-industrial office environment.
- 115.2.** Employer is required to have adequate first-aid supplies readily available for emergency access and use by an employee or employees trained to render first aid to an injured employee.
 - 115.2.1.** First-aid kits in a non-industrial office environment will be stocked with minimal supplies as outlined by ANSI Z308.1 Minimum Requirements for Workplace First Aid Kits (ANSI, American National Standard ∪ Minimum Requirements For Workplace First Aid Kits And Supplies, 2020).
 - 115.2.2.** First-aid kits in industrial environments, such as maintenance shops and maintenance pads, must be evaluated by the employer and stocked with additional supplies as appropriate based upon the hazards encountered in the work environment.
- 115.3.** Employer must ensure first-aid kits are:
 - 115.3.1.** Visually inspected monthly and inspection documented.
 - 115.3.1.1.** All required contents are present at time of inspection.
 - 115.3.1.2.** Mini bottles of emergency eyewash are not expired or opened, allowing contamination.
 - 115.3.1.3.** All contents, including over-the-counter medicine, has not exceeded the expiration date if marked on the product.
 - 115.3.2.** Not obstructed from access during an emergency.

- 115.3.3.** Located in an area that is properly marked and easily located in an emergency.
- 115.4.** Employer is required to provide initial and annual bloodborne pathogens training to any employee who is assigned first-aid duties by their employer per the OSHA Bloodborne Pathogens Standard 29 CFR 1910.1030(g)(2) (OSHA, 1910.1030 - Bloodborne pathogens, 2020).
- 115.5.** Employer is required to provide emergency eyewash facilities, within the work area for immediate emergency use, that are appropriate for the hazard(s) and potential eye irritant(s) in their workspace.

 - 115.5.1.** Emergency Eyewash Facilities

 - 115.5.1.1.** Should be available within 10 seconds or 55 feet from the hazard along a path that is free of obstructions (step into an enclosure where emergency eyewash facility is located is not considered an obstruction).
 - 115.5.1.2.** Must be located on the same level as the hazard.
 - 115.5.1.3.** Must be located in a well-lit area properly marked as an emergency eyewash station.
- 115.6.** Employer must ensure individual handheld bottles of emergency eyewash are:

 - 115.6.1.** Visually inspected and inspection documented monthly (at a minimum).
 - 115.6.2.** Not frozen, or partially frozen and unavailable for emergency use due to extreme cold temperatures.
 - 115.6.3.** Not opened. Once emergency eyewash bottle seal is broken, or eyewash bottle is otherwise exposed to air or contaminants, it must be disposed of and replaced.
 - 115.6.4.** Not expired. Emergency eyewash has a shelf life and an expiration date. Once emergency eyewash has passed the expiration date it must be disposed of and replaced.
 - 115.6.5.** Not obstructed from access during an emergency.
- 115.7.** Employer must ensure wall mounted/portable gravity-fed emergency eye flushing stations are:

 - 115.7.1.** Visually inspected weekly and inspection documented.
 - 115.7.2.** Purged and refilled, with appropriate mix of water and manufacturer provided preservative, per the manufacturers' requirement (typically every 120 days/4 months).
 - 115.7.3.** Not obstructed from access during an emergency.
 - 115.7.4.** Mounted so the flushing spray pattern is between 33 inches and 53 inches from the floor.
 - 115.7.5.** Immediately replaced after each use.

- 115.8.** Plumbed Emergency Eyewash Stations
 - 115.8.1.** May be installed for the protection of employees who are exposed to injurious corrosive materials.
 - 115.8.2.** Must be visually inspected, activated/tested, and inspection documented weekly.
 - 115.8.3.** Standard for Emergency Eyewash and Shower Equipment (ANSI Z358.1) guidance must be adhered to for the installation and operation of plumbed emergency eyewash stations (ANSI, ANSI Z358.1-2014: Emergency Eyewash & Shower Standard, 2020).
 - 115.8.3.1.** Must activate in 1 second or less.
 - 115.8.3.2.** Water pressure will not exceed 30 pounds per square inch, or PSI.
 - 115.8.3.3.** Minimum flow rate of 0.4 gallons per minute for 15 minutes.
 - 115.8.3.4.** Hands-free/stay-open valve must activate, and unit must remain on until user shuts it off.
 - 115.8.3.5.** Station must have the flushing spray pattern between 33 inches and 53 inches from the floor.
 - 115.8.3.6.** Flushing fluid must be able to irrigate, preferably to a drain.
 - 115.8.3.7.** Flushing fluid must flush both eyes simultaneously.
 - 115.8.3.8.** Flushing fluid must be tepid temperature, suitable range 60°F – 100°F.

FLAMMABLE LIQUIDS

OSHA guidance on this topic is found within 29 CFR 1926.152 (OSHA, Fire Protection and Prevention, 2020).

- 116.1.** Flammable and/or Combustible Storage Cabinets:
 - 116.1.1.** Shall be made of metal:
 - 116.1.1.1.** Bottom, top, and sides of cabinet must be made of steel/iron.
 - 116.1.1.2.** Cabinet must be double walled with 1 1/2 inch airspace.
 - 116.1.1.3.** Joints must be riveted, welded, or made tight by some equally effective means.
 - 116.1.1.4.** Door must have a three-point latch.
 - 116.1.1.5.** Door sill must be raised at least 2 inches above the cabinet bottom to retain spilled liquid within the cabinet.
 - 116.1.2.** Shall be painted safety yellow.
 - 116.1.3.** Shall be labeled in conspicuous lettering, "FLAMMABLE – KEEP FIRE AWAY" or "Flammable – Keep Away from Open Flames" in 4 inch red letters unless otherwise stenciled by the manufacturer.
 - 116.1.4.** Shall not be stored in basements, office buildings, areas used for exits, stairways, or areas normally used for the safe passage of people.
 - 116.1.5.** Shall be stored at least halfway into a storage container when container has only one means of egress.
 - 116.1.6.** Shall be in a cool, dry location out of direct sunlight and away from any possible heat or ignition source when placed indoors.
 - 116.1.7.** Must be inspected inside of the cabinet for spills and cleaned immediately if found.
 - 116.1.8.** Shall not have more than 3 storage cabinets present in a single storage area.
 - 116.1.8.1.** If more than 3 storage cabinets are present, any additional cabinets or groups of cabinets must be separated by at least 100 feet.
 - 116.1.9.** Shall not contain more than 60 gallons of flammable stored in any one storage cabinet.
 - 116.1.10.** Shall not contain more than 120 gallons of combustible stored in any one storage cabinet.
 - 116.1.11.** Shall not have rags, paper, manuals, clothing, gloves, cardboard, respirators, etc. stored in, or on top of, flammable and/or combustible cabinets.
- 116.2.** Flammable and combustible liquids may be stored in the same cabinet provided they do not exceed the storage limitations set forth in sections 116.1.9. and 116.1.10.

- 116.3.** Venting of Flammable Cabinets Located Indoors
 - 116.3.1.** Cabinet is required to be vented whenever possible to allow ignitable vapors to discharge from the cabinet to a safe exterior location.
 - 116.3.2.** If not possible to vent both openings, then vent one opening (preferably the bottom) from the cabinet to a safe exterior location.
 - 116.3.3.** Vent opening shall be sealed with bungs if cabinet cannot be vented due to location, or inaccessibility to an exterior wall or safe exterior discharge location.
 - 116.3.4.** If cabinet is vented, the cabinet vent openings shall:
 - 116.3.4.1.** Be vented from the cabinet to a safe location on the exterior of the building
 - 116.3.4.2.** Be vented using metal piping only. Use of PVC for venting is prohibited.
 - 116.3.4.3.** Be vented from the bottom opening with make-up air supplied to the top.
 - 116.3.4.4.** Have a total vent duct run that does not exceed 25 feet.
 - 116.3.5.** Up to 3 cabinets may be manifold vented together.
 - 116.3.5.1.** It is not permissible to manifold vent both flammable and combustible cabinets together.
- 116.4.** Flammable cabinets located outdoors shall have bungs inserted into both vent openings.
- 116.5.** Flammable and/or combustible cabinets stored indoors or outdoors should be grounded whenever possible.
- 116.6.** Flammable and/or combustible liquids shall not be stored in plastic containers.
- 116.7.** Flammable and/or combustible liquids will be stored in metal safety cans meeting the following requirements:
 - 116.7.1.** Capacity of 5 gallons or less
 - 116.7.2.** Equipped with a spring-closing lid and spout cover
 - 116.7.3.** Means to relieve internal pressure when subjected to fire exposure
 - 116.7.4.** Equipped with a flash-arresting screen (mesh or perforated metal insert)
- 116.8.** Flammable aerosol cans shall be stored in flammable cabinets with lids secured.
- 116.9.** Small portable propane and/or butane cylinders shall not be stored in flammable storage cabinets.
- 116.10.** Fire extinguisher shall be available no less than 10 feet and no more than 25 feet from locations where flammable liquids are stored.

- 116.11.** Any storage or shop container with a flammable cabinet inside will have placards affixed on all exposed sides of the container to identify the potential hazard inside.
- 116.12.** When transporting flammable or combustible liquids in a truck or mobile service unit:
 - 116.12.1.** Metal safety can meeting the requirements set forth in section 116.7 (1-4) shall be used, and
 - 116.12.2.** Metal safety can will be stored in a flammable cabinet if available. If there is no flammable cabinet, metal safety can will be secured to prevent movement and protect from impact or spill during transport.

GENERAL SAFETY RULES/OFFICE SAFETY

The OSHA act of 1970 provides specific requirements for employers and employees:

- Each employer
 - Shall furnish to each of its employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to employees, and
 - Shall comply with
 - Safety and health standards promulgated under this Act.
- Employees shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct. (OSHA, OSH Act of 1970, 2020)

117.1. General safety rules are designed to cover those broad areas not covered in specific sections of this Handbook. In the absence of specific guidance, seek the safe course. Stop work and seek assistance.

117.2. Employees must know and comply with rules, instructions, and procedures that govern their duties. They must also comply with the instructions of supervisors. When there is uncertainty, employees must:

117.2.1. Take the safe course, and

117.2.2. Contact a supervisor for clarification.

117.3. When rules and special instructions conflict, the following apply:

117.3.1. Special instructions supersede rules.

117.3.2. Urgent safety-related messages supersede special instructions and rules.

117.4. When on duty, employees must have current rule books, standard operating procedures, and special instructions that are in effect available for use.

117.5. Contractor/supplier employees performing service on intermodal facilities are governed by the intermodal facility and must know and have access to rule books and SOPs of that intermodal facility.

117.6. Updates or changes to a rule book or SOP supersede all previous versions on the effective date and time. Employees and contractor/suppliers must:

117.6.1. Obtain a copy.

117.6.2. Verify the document is complete.

117.6.3. Have the documents available for use.

- 117.7.** Before beginning work, all employees must determine if any updates or changes to safety rules or SOPs have been issued since their last tour of duty, and:
- 117.7.1.** Read and comply with all of the bulletins that affect their tour of duty.
 - 117.7.2.** Read and comply with the information contained in notices.
- 117.8.** The intermodal facility will identify the standard time equivalent to U.S. Standard Time using the 24-hour clock system.
- 117.9.** Employees must keep electronic devices, tools, keys, or other property of the intermodal facility or issued by the employer:
- 117.9.1.** In a safe, clean, and working condition
 - 117.9.2.** Available for use as required
 - 117.9.3.** Protected against unauthorized use or theft
- 117.10.** Do not use intermodal facility equipment or communication systems unnecessarily or for unauthorized personal business.
- 117.11.** The unauthorized possession, removal, or disposal of any material from the employer's property or from the property of customers is prohibited. Any article of value found on the intermodal facility must be protected and turned in to a supervisor.
- 117.12.** Employees must return company or intermodal facility property when leaving service or upon demand by a supervisor.
- 117.13.** Employees must notify a supervisor when they have knowledge of:
- 117.13.1.** Activities proposed by a public or private interest that would affect the intermodal facility, or
 - 117.13.2.** Encroachment on property of the intermodal facility.
- 117.14.** Unless authorized by the proper authority, employees must not:
- 117.14.1.** Furnish information detrimental to the interest of the company or its customers.
 - 117.14.2.** Permit access to company records.
 - 117.14.3.** Provide information of an incident to the public.
- 117.15.** Employees must not:
- 117.15.1.** Restrict or interfere with the intended functions of any device or equipment.
 - 117.15.2.** Post unauthorized information on property of the intermodal facility.
 - 117.15.3.** Deface or destroy property.
 - 117.15.4.** Place trash or refuse anywhere except in the appropriate receptacle.
 - 117.15.5.** Read literature unrelated to work when on duty.
 - 117.15.6.** Possess a firearm or other weapon when on duty, on property of the intermodal facility, or when occupying facilities provided by the intermodal facility unless authorized.

- 117.16.** An employee who is involved in an on-duty accident or incident must provide all issued documents and accident report forms to a supervisor.
- 117.17.** When notified of a tornado warning, all work and movements located within the warning area must stop, and employees must take immediate shelter until the warning has expired. If safe to do so, avoid stopping on bridges or rail-highway grade crossings.
- 117.18.** When on duty, employees must:
- 117.18.1.** Devote themselves exclusively to the service of the intermodal facility or the contractor/supplier employer.
 - 117.18.2.** Assist and cooperate with other employees.
 - 117.18.3.** Perform duties in a safe and efficient manner that prevents unnecessary delay to customers.
 - 117.18.4.** Promptly report violations of the rules or special instructions to a supervisor.
 - 117.18.5.** Take the safe course when conditions are not covered by rule.
- 117.19.** Employee behavior must be respectful and courteous. Employees must not be any of the following:
- 117.19.1.** Dishonest
 - 117.19.2.** Insubordinate
 - 117.19.3.** Disloyal
 - 117.19.4.** Quarrelsome
- 117.20.** The following behaviors are prohibited while on duty, on property of the intermodal facility, or when occupying facilities provided by the intermodal facility:
- 117.20.1.** Boisterous, profane, or vulgar language
 - 117.20.2.** Altercations
 - 117.20.3.** Practical jokes or horseplay
 - 117.20.4.** Carelessness, incompetence, or willful neglect of duties
 - 117.20.5.** Behavior that endangers life or property
- 117.21.** The following behaviors are prohibited at all times:
- 117.21.1.** Concealment of facts under investigation
 - 117.21.2.** Criminal conduct that may damage the reputation of the intermodal facility or that endangers intermodal facility property, employees, customers, or the public
- 117.22.** Contractors and suppliers are responsible for the actions of employees under their instruction. They must verify those employees:
- 117.22.1.** Have cleared background investigations and pre-employment drug screening prior to commencing work on the intermodal facility.
 - 117.22.2.** Are familiar with their duties.
 - 117.22.3.** Are provided proper instruction.

- 117.23.** Employees must report for work at the designated time and place. Employees unable to work or who want time off must make the request:
- 117.23.1.** To the proper authority.
 - 117.23.2.** Sufficiently in advance to allow the vacancy to be filled.
- 117.24.** Employees must have the permission of a supervisor to:
- 117.24.1.** Leave work before designated off-duty time.
 - 117.24.2.** Arrange for a substitute to perform their duties.
 - 117.24.3.** Use a personal vehicle to perform assigned duties.
 - 117.24.4.** Request assistance from a non-employee to perform assigned duties, except in cases of emergency.
- 117.25.** Employees must keep the following information current with intermodal facility:
- 117.25.1.** Mailing address
 - 117.25.2.** Phone number
- 117.26.** Employees subject to be called to perform service must:
- 117.26.1.** Provide necessary contact information to the proper authority.
 - 117.26.2.** Be available to accept the call.
- 117.27.** Pay must only be claimed:
- 117.27.1.** For actual time or work performed,
 - 117.27.2.** By the employee to be paid or the employee authorized to make claims for the crew or group of workers, and
 - 117.27.3.** In accordance with agreed-upon procedures.
- 117.28.** An employee must not engage in any other type of work or business that:
- 117.28.1.** Interferes with the employee's ability to perform service with the intermodal facility, or
 - 117.28.2.** Creates a conflict of interest with or is detrimental to the intermodal facility.
- 117.29.** An employee must submit completed forms (Attending Physician's Return to Work Report) to the intermodal facility medical department or their contractor/supplier employer and must not return to work until cleared for duty by the medical department any time the employee:
- 117.29.1.** Has been off work for medical reasons for seven consecutive days or more,
 - 117.29.2.** Has been hospitalized due to a significant illness,
 - 117.29.3.** Has had surgical intervention, or
 - 117.29.4.** Has any medical issue that could influence the employee's performance of safety on the job.
- 117.30.** Employees must not sleep while on duty. An employee laying down or in a reclined position with eyes closed, covered, or concealed is considered to be sleeping.

- 117.31.** Employees must protect tools and equipment against any known condition that may interfere with safe operations. Immediately report the following conditions to the proper authority:
- 117.31.1.** Accidents
 - 117.31.2.** Defects in roadway, ramp, yard, track, bridge, signal, or highway-rail crossing warning devices
 - 117.31.3.** Fires on or near the right-of-way or on the intermodal facility
 - 117.31.4.** Loss, damage, or theft of intermodal facility or customers' property
 - 117.31.5.** Any condition that may affect safe and efficient operations
- 117.32.** Drugs and Alcohol
- 117.32.1.** The illegal possession or use of a drug, narcotic, or other substance that affects alertness, coordination, reaction, response, or safety is prohibited both on and off duty.
 - 117.32.2.** An employee shall neither report for duty nor perform service while under the influence of nor use while on duty or on intermodal facility property any drug, medication, prescription medication, or other substance that will in any way adversely affect the employee's alertness, coordination, reaction, response, or safety.
 - 117.32.3.** Employees are prohibited from possessing, using, or being under the influence of alcoholic beverages or intoxicants when doing any of the following:
 - 117.32.3.1.** Reporting for duty
 - 117.32.3.2.** On duty
 - 117.32.3.3.** On intermodal facility property
 - 117.32.3.4.** Operating a company vehicle
 - 117.32.3.5.** Occupying facilities provided by intermodal facility
- 117.33.** When on duty, employees must not use any tobacco products, including electronic cigarettes, when:
- 117.33.1.** Serving customers, or
 - 117.33.2.** Uniformed employees are in the presence of customers or the public.
- 117.34.** Smoking, including electronic cigarettes, is prohibited in all of the following locations:
- 117.34.1.** Intermodal facility buildings
 - 117.34.2.** Locomotive cabs
 - 117.34.3.** Intermodal facility vehicles, lift equipment, mobile service trucks or any vehicle used to transport intermodal facility employees
 - 117.34.4.** Areas designated by No Smoking signs
 - 117.34.5.** Where prohibited by law

- 117.35.** Assignments that require a certification or license must only be performed by employees who have:
- 117.35.1.** Been issued the required certification or license,
 - 117.35.2.** Certification or license in their possession, and
 - 117.35.3.** Maintained required rule and territorial physical characteristics qualifications.
- 117.36.** Employees with a certification or license are subject to the applicable federal or state regulations.
- 117.37.** Employees whose work activities subject them to the Hours of Service Act must:
- 117.37.1.** Have the required mandatory rest.
 - 117.37.2.** Inform the proper authority before accepting any call to work that requires reporting for duty before the completion of mandatory rest period,
 - 117.37.3.** Report to the proper authority any occurrence in which the maximum limits of the Hours of Service Act are exceeded, and
 - 117.37.4.** Accurately complete Hours of Service documentation with the required information in the prescribed format.

HAND & POWER TOOL SAFETY

Hand and power tools, when not used properly, can pose a risk to workers. Only authorized and properly trained employees should utilize power tools. Each employer is responsible for the safe condition of tools and equipment used by its respective employees, including tools and equipment brought to the worksite by employees.

118.1. Hand Tools

118.1.1. Inspection of Hand Tools

118.1.1.1. Inspect tools for defects prior to use.

118.1.1.2. Do not use hand tools identified to have the following defects.

118.1.1.2.1. Cracks

118.1.1.2.2. Mushroomed striking surfaces

118.1.1.2.3. Burrs

118.1.1.2.4. Splinters

118.1.1.2.5. Loose/missing wedges

118.1.1.2.6. Worn ratchets/teeth

118.1.1.2.7. Loose/cracked handles

118.1.1.2.8. Other identified defects not listed

118.1.2. Correct Tool Use

118.1.2.1. Use tools only for what they are designed to do. If unsure about a tool's correct use, ask your supervisor.

118.1.2.2. Knives, box cutters, and tools with sharp, open blades are considered weapons and are not permitted on intermodal facilities.

118.1.3. Appropriate Precautions During Use

118.1.3.1. When using tools such as screwdrivers, punches, and pry bars, direct points, edges, and movement away from your body or hands.

118.1.3.2. For swinging tools, do the following:

118.1.3.2.1. Warn others to keep clear when using swinging tools (e.g., a sledge). Stand so that the point is away from your body if the tool unexpectedly flies to the side.

118.1.3.2.2. Before using swinging tools, remove oil, grease, and dirt from hands and handles.

- 118.1.3.3.** For pry/lining bars
 - 118.1.3.3.1.** Never straddle, sit, or stand on a claw bar, lining bar, anchor wrench, or similar tool.
 - 118.1.3.3.2.** Never pry on an object that when it releases, releases toward you or a co-worker.
- 118.1.3.4.** For banding material
 - 118.1.3.4.1.** Carefully handle banding material and tools as follows:
 - 118.1.3.4.1.1.** Wear cut-resistant gloves to protect your hands from sharp corners of the cutting band.
 - 118.1.3.4.1.2.** Use only band cutters to cut steel bands.
 - 118.1.3.4.3.** Place scrap banding in suitable containers for disposal or move it to a designated area.
- 118.1.4.** Redressing of Hand Tools
 - 118.1.4.1.** For redressing of hand tools, adhere to the following standards:
 - 118.1.4.1.1.** Hand tools are made of three types of steel: carbon steel, alloy steel grade A, and alloy steel grade B. Grade B alloy steel is designed to allow field dressing of the tool without the need for subsequent heat treating.
 - 118.1.4.1.2.** Prior to redressing, visually inspect the tool for the following:
 - 118.1.4.1.2.1.** A manufacturer's brand
 - 118.1.4.1.2.2.** A letter "B" to identify grade B steel
 - 118.1.4.1.2.3.** If either the brand or letter is not found, discard the tool.
 - 118.1.4.2.** Do not redress nongrade "B" hand tools. Properly dispose of them when they become mushroomed or chipped.
 - 118.1.4.3.** Redress tools frequently to reduce the amount of metal flow on the struck end of the tool.
 - 118.1.4.4.** Redress tools with a hand file only, unless you are qualified to redress tools with a properly equipped bench grinder.
- 118.2.** Power Tools and Machinery
 - 118.2.1.** Authorized Employees
 - 118.2.1.1.** Operate power tools and machinery only if you are authorized and trained to do so.

- 118.2.2.** Inspection and Use
 - 118.2.2.1.** Inspect tools and equipment for defects before and during use, repairing or removing from service those that fail inspection.
 - 118.2.2.2.** Promptly tag and report to your supervisor (fill out the proper form) or person in charge any defect.
 - 118.2.2.3.** If necessary, guard the hazard if defective.
- 118.2.3.** Insulation/Grounding
 - 118.2.3.1.** Frequently inspect the power cord insulation and connections on electric power tools and maintain them to prevent shorts and faults. Unless the power tool is double insulated, make sure it has three conductor cords, one of which grounds the tool frame when connected to an adequate ground. Do not remove the grounding prong from the plug.
- 118.2.4.** Power Source
 - 118.2.4.1.** Disconnect the power source before cleaning, repairing, adjusting, or replacing accessories, on electric and pneumatic power tools. Where required, follow lockout/tagout procedures.
 - 118.2.4.1.1.** Exception – Spring-loaded quick-disconnect sockets are exempt.
- 118.2.5.** Storage/Handling of Abrasive Disks and Wheels
 - 118.2.5.1.** Store abrasive disks and wheels in a dry area protected from extreme temperature changes, especially in below-freezing temperatures.
 - 118.2.5.2.** Handle abrasive stones carefully to prevent dropping or bumping them.
 - 118.2.5.3.** Always inspect disks prior to use.
- 118.2.6.** Floor Area/Aisles
 - 118.2.6.1.** Keep the floor area around shop machinery free from holes and irregularities.
 - 118.2.6.2.** Designate aisles with railings, safety chains, paint, or other markings.
- 118.2.7.** Safety Guards
 - 118.2.7.1.** Do not operate power tools, machinery, or appliances without required safety guards on belts, shafts, gears, and other moving parts.
- 118.2.8.** Gloves
 - 118.2.8.1.** Do not wear gloves while operating tools or machinery if the gloves could be caught by moving parts or rotating stock.

- 118.2.9.** Pneumatic Tool Use
 - 118.2.9.1.** Air Valve
 - 118.2.9.1.1.** Close the air valve at the supply source, and relieve the line pressure on pneumatic tools that will not be used for a long time.
 - 118.2.9.2.** Hose Connections
 - 118.2.9.2.1.** Make sure air hose connections are secure. Unless the connections are equipped with quick disconnects, do the following before uncoupling them:
 - 118.2.9.2.1.1.** Close the air valve.
 - 118.2.9.2.1.2.** Relieve the line pressure.
 - 118.2.9.2.1.3.** Use whip stops.
 - 118.2.9.2.2.** Do not use wire in air or hydraulic couplings in place of clip pins.
 - 118.2.9.2.3.** Do not use hoses on hydraulic or pneumatic tools for hoisting or lowering.
 - 118.2.9.3.** Spindle Speed
 - 118.2.9.3.1.** Regularly check pneumatic grinding tools for proper spindle speed, especially if the tools have been dropped.
- 118.2.10.** Laying Tools Down
 - 118.2.10.1.** Stop the motor before laying down pneumatic, electric, or other power tools.
 - 118.2.10.2.** Place the tool so it will not start accidentally.
- 118.2.11.** Surfaces
 - 118.2.11.1.** Do not place electric power tools on wet surfaces or in loose dirt.
- 118.2.12.** Falling Tools
 - 118.2.12.1.** If a tool or other object falls to the bed of a machine, stop the machine before removing the tool.
- 118.2.13.** Lockout/Tagout of Machinery
 - 118.2.13.1.** When machinery is being repaired, cleaned, or adjusted, ensure that the control switch or power source is locked in the OFF position and tagged. The employee working with the machine must keep the key.
 - 118.2.13.2.** See Safety Handbook section 125 for additional Lockout/Tagout procedures

118.2.14. Grinding Machine Use

118.2.14.1. Inspect grinding wheels as follows:

118.2.14.1.1. Inspect each wheel immediately after unpacking it from the shipping container and again just before mounting it on the grinder.

118.2.14.1.2. Ring-test each wheel, and inspect it for surface cracks, chips, or other defects, before mounting grinding wheels.

118.2.14.1.3. Make sure protective guards are in place, secured, and properly aligned. Make sure the tool rest and tongue guard adjustment are not more than 1/8 inch from the wheel.

118.2.14.1.4. Make sure the frame is securely mounted with no vibrations, and the wheel face is well-lighted and dressed evenly. The grinder RPM must be plainly labeled and not exceed the RPM rating of the wheel.

118.2.14.1.5. Make sure a certified worker dresses and trues the wheels.

118.2.15. Mounting Grinding Wheels

118.2.15.1. The wheel is the appropriate type and size for the machine on which it will be used.

118.2.15.2. The wheel fits freely on the spindle and remains free under all grinding conditions.

118.2.15.3. The contact surfaces of wheels, blotters, and flanges are flat and free of foreign matter.

118.2.15.4. The blotters or flange facings of compressible material cover the entire contact area of wheel flanges.

118.2.15.5. The spindle and nut are tightened enough to drive the wheel and prevent slipping.

118.2.15.6. The flanges are equal in size and are the correct diameter for at least 1/3 of the wheel diameter. For cut-off wheels, flanges will be at least 1/4 of the wheel diameter.

118.2.16. Operating Grinding Wheels

118.2.16.1. Run new wheels at full operating speed for at least 1 minute before applying work. (Most defective wheels break when first started.) During this time, do not stand in the direct line of the rotating wheel.

118.2.16.2. Operate wheels at the manufacturer's recommended speed.

118.2.16.3. Do not drop, bump, roll, or handle grinding wheels carelessly.

- 118.2.16.4.** Protect grinding wheels from oil, grease, water, or other liquids, and from freezing temperatures or conditions that cause surface condensation.
- 118.2.16.5.** Do not perform grinding operations on the sides of wheels, except on wheels designed for side-face grinding.
- 118.2.16.6.** Do not grind nonferrous materials on wheels not specified for that purpose.
- 118.2.16.7.** When the wheel is cold, apply grinding force gradually and evenly to prevent thermal shock, which could break the wheel. Avoid forcing it and causing glazing or breakage.
- 118.2.17.** Operating Portable Grinders

 - 118.2.17.1.** Be careful to avoid damaging the abrasive wheel.
 - 118.2.17.2.** Do not leave or lay the portable grinder down while it is running.
 - 118.2.17.3.** Use a protective shield or screen to protect others from sparks and flying debris.
- 118.2.18.** Wire Brush Wheels

 - 118.2.18.1.** Follow the manufacturer’s recommended wheel speed.
 - 118.2.18.2.** Make sure the hood is adjustable and encloses the wheel as completely as the work allows. The hood should cover the exposed arbor ends. If not, install a smooth-headed nut.
 - 118.2.18.3.** Do not use wire brush wheels to remove ACM from surfaces, such as gaskets.
- 118.2.19** Band Saws

 - 118.2.19.1.** Make sure the length of blade exposed is no longer than the thickness of the stock being cut plus 3/8 inch.
 - 118.2.19.2.** Feed the stock gradually and steadily.
 - 118.2.19.3.** Make sure the blade is not twisted or crowded.
- 118.2.20.** Operating other Metal or Woodworking Machines

 - 118.2.20.1.** When installing the machine, place its front end slightly higher than its rear to cause the cutting head to return gently to the starting position when the operator releases it.
 - 118.2.20.2.** Stand to one side and not directly behind the material being fed for saws where kickback is possible.
 - 118.2.20.3.** Use a push block to feed narrow material through a circular or band saw.
 - 118.2.20.4.** Do not reach over a circular saw.
 - 118.2.20.5.** Do not operate circular rip saws with missing or broken hoods, spreaders, or kick-back devices.

- 118.2.20.5.** Provide an adjustable stop to prevent the blade from traveling beyond the point necessary to complete the cut in repetitive operations.
- 118.2.20.6.** Do not lower dead plates on planers while material is in the machine and the machine is running.
- 118.2.20.7.** Use hold downs/push blocks whenever joining stock is narrower than 3 inches.
- 118.2.21.** Cleanup
 - 118.2.21.1.** Removing Chips
 - 118.2.21.1.1.** Do not use your hands to remove chips or shavings from a drill press or other machines. Use a brush, vacuum equipment, or special tools designed for that purpose.
 - 118.2.21.2.** Use of Compressed Air/Gas when cleaning yourself or equipment
 - 118.2.21.2.1.** Do not use compressed air, oxygen, or gas to blow dust or dirt from your body or clothing. Do not place the air nozzle against your body or purposefully inhale compressed gas.
 - 118.2.21.2.2.** Do not use compressed air to clean shop areas. Use an air nozzle that meets OSHA requirements (less than 30 psi with effective chip guarding).
 - 118.2.21.2.3.** Do not use compressed air to clean up areas where lead, silica-containing dust, or asbestos has accumulated.
- 118.2.22.** On/Off Switch
 - 118.2.22.1.** Protect on/off switches to prevent the machine or equipment from being unintentionally energized.

HAZARD PREVENTION & CONTROL

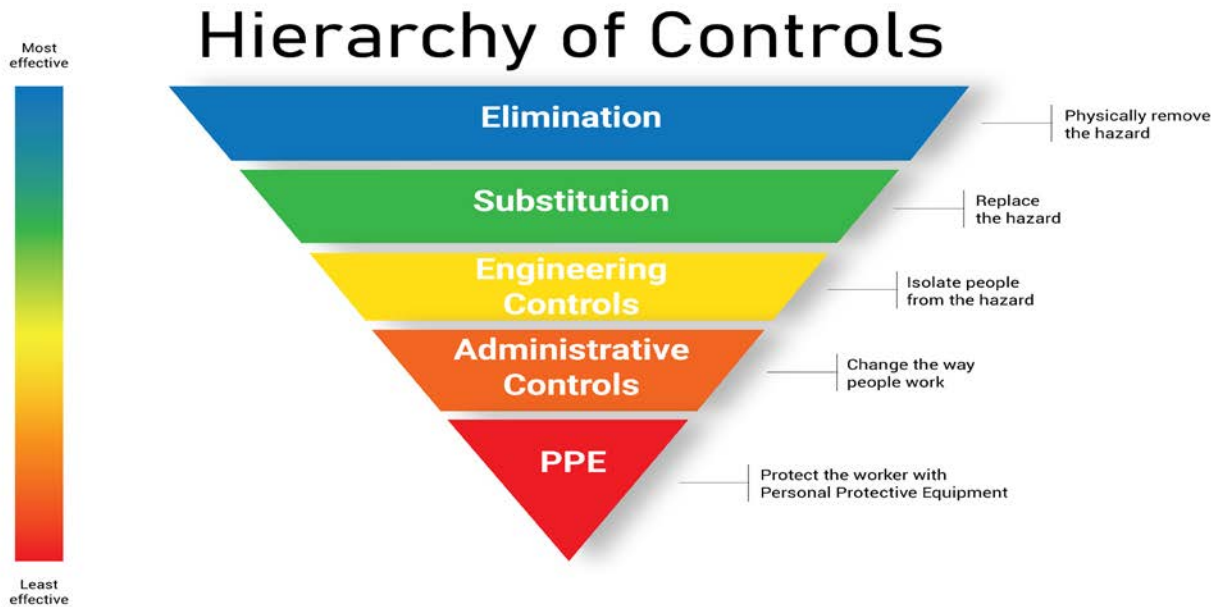
Hazard Prevention and Control is one of the core elements in OSHA's Recommended Practices for Safety and Health Programs (OSHA, Recommended Practices for Safety and Health Programs, 2020). After identifying hazards in the workplace, controls should be developed to protect workers from hazards in the workplace with the goal of avoiding injury, illness, and incidents and to eliminate safety and health risks to workers.

To be clear, once hazards are identified, the intermodal facility will implement a hazard prevention and control program that implements the hierarchy of controls (OSHA, Hazard Prevention and Control, 2020).

Intermodal Facility Operators are encouraged to review the OSHA recommended practices for specific guidance on developing local safety programs.

Explaining the process of hazard identification and assessment is beyond the scope of this section of the Handbook. However, mention of the diagnostic and assessment tools used is below.

- 119.1.** Intermodal facilities will document hazard control measures and safe work procedures within local Standard Operating Procedures and review them annually to ensure material is updated and current.
- 119.2.** Hazard identification information for workers will be documented and available to all intermodal facility employees. Recommendations for where to find document control measures:
 - 119.2.1.** Safe work procedures and operating instructions
 - 119.2.2.** Hazard analysis and safety rules along with inspection and audit results
 - 119.2.3.** New employee orientation (refer to Safe Start, section 138, of this Handbook)
- 119.3.** Hazard Controls are implemented using Hierarchy of Controls published by the National Institute for Occupational Safety and Health (NIOSH, Hierarchy of Controls, 2020). The controls and steps are shown in the graphic below:
 - 119.3.1.** The hierarchy describes the controls on the top as most effective with those on the bottom as least effective.
 - 119.3.2.** Information below is extrapolated and condensed from the [OSHA Example Safety Program](#) (OSHA, Recommended Practices for Safety and Health Programs, 2020).



119.4. Hazard Prevention and Control is implemented with 6 action items identified by OSHA. They are briefly discussed below:

119.4.1. Identify the control options through industry survey and recommended practices for each type of hazard.

119.4.1.1. Hazard control information will be communicated to the workforce during Safe Start orientation and regularly during safety meetings and other safety discussion venues.

119.4.2. Hazards can be prevented and controlled through continuous review of workspaces, shop area, and maintenance facilities. Common methods used on a regular basis are listed below:

119.4.2.1. Regularly and thoroughly maintain equipment, following recommendations for maintaining and servicing equipment listed in appropriate sections of this handbook.

119.4.2.2. Ensure that hazard correction procedures are in place and set before work commences. If the situation or conditions change, reset the correct procedures.

119.4.2.3. Ensure that everyone participated in a pre-shift job brief and knows how to use and maintain PPE.

119.4.2.4. Make sure that everyone understands and follows safe work procedures.

119.4.2.5. For hazards identified or anticipated, the intermodal facility operator will gather and evaluate information about appropriate controls from the following sources:

- 719.4.2.5.1.** OSHA standards and other information from the OSHA website
 - 719.4.2.5.2.** Input from workers
 - 719.4.2.5.3.** Industry best practices
 - 719.4.2.5.4.** Information from intermodal equipment and service vendors and suppliers
 - 719.4.2.5.5.** Consultation with technical experts from intermodal industry associations
- 719.4.1.** Select Controls
 - 719.4.1.1.** If an OSHA standard specifies the control method for an identified hazard, the intermodal facility operator will select that control.
 - 719.4.1.2.** The intermodal facility operator will select an appropriate control method by following the “Hierarchy of Controls” (as identified in OSHA’s Recommended Practices) and by using the information obtained from the sources listed above.
 - 719.4.1.3.** Other considerations are cost, ease of implementation, and how quickly the controls can be installed.
 - 719.4.1.4.** The likelihood, frequency, and duration of worker exposure and the number of workers exposed.
 - 719.4.1.5.** The intermodal facility operator will implement any readily available interim controls immediately, while investigating the most effective, permanent controls.
- 719.4.2.** Develop and update a hazard control plan by consulting with workers.
 - 719.4.2.1.** Plan to control hazards covered by OSHA standards.
 - 719.4.2.2.** Plan to control hazards likely to cause serious injuries or illnesses.
 - 719.4.2.3.** Plan to control all hazards that can cause injuries or illnesses, regardless of how serious.
 - 719.4.2.4.** Prioritize hazards for control based on the seriousness of the injuries or illnesses that could result and get worker input on reasoning used to make decisions.
 - 719.4.2.5.** Update the plan as it is implemented and evaluated.
 - 719.4.2.6.** For hazards that can’t be controlled immediately, the intermodal facility operation with worker input will:
 - 719.4.2.7.** Select and provide interim controls to protect workers or remove workers to prevent them from being exposed to the hazard.
 - 719.4.2.8** Set up a schedule, assign responsibilities and tasks, and monitor

- progress in implementing permanent controls.
- 119.4.2.9.** Implement permanent controls, starting with controls for the highest priority hazards.
 - 119.4.2.10.** Ensure control measures will be documented and hazard control plan will be posted in writing.
 - 119.4.2.11.** Make the hazard control plan available to all workers and discussed it at intermodal facility safety meetings.
- 119.4.3.** Select controls to protect workers during nonroutine operations and emergencies.
- 119.4.3.1.** The intermodal facility operator with worker input will develop plans and procedures to respond effectively and safely in situations like fires, chemical spills, etc.
 - 119.4.3.2.** The intermodal facility operator will obtain any equipment needed to control emergency-related hazards.
 - 119.4.3.3.** The intermodal facility operator will incorporate the plans and procedures into training and conduct emergency drills at least twice a year.
- 119.4.4.** Implement selected controls on the intermodal facility.
- 119.4.4.1.** The intermodal facility operator will implement the selected controls according to the priorities in the hazard control plan.
 - 119.4.4.2.** The intermodal facility operator will make “quick fixes” (e.g., removing tripping hazards) on an ongoing basis regardless of their priority level.
- 119.4.5.** Follow up to confirm that controls are effective.
- 119.4.5.1.** The intermodal facility operator will verify the control measures have been implemented according to schedule agreed upon with worker input.
 - 119.4.5.2.** The intermodal facility operator will verify that engineering controls have been properly installed and tested.
 - 119.4.5.3.** The intermodal facility operator will verify that all workers understand the controls, including safe work practices and PPE use requirements.
 - 119.4.5.4.** The intermodal facility operator will conduct regular inspections to confirm that (1) engineering controls are operating as designed and have not been removed or deactivated, and (2) work practices, administrative controls, and PPE use policies are being followed.

- 119.4.5.5.** The intermodal facility operator will conduct routine preventive maintenance of equipment, facilities, and controls to prevent incidents due to equipment failure.
- 119.4.5.6.** The intermodal facility operator will track injuries and illnesses that the controls were selected to prevent.

OSHA Checklist to Identify Hazards

(OSHA, Recommended Practices for Safety and Health Programs, 2020)

Checklist to Identify Hazards					
	Location	Safe	Unsafe	Comment/Action Required/Person Responsible	Completion Date
1. Hazardous Substances (Chemical and Biological)					
Are there SDSs for all hazardous chemicals used in the workplace?					
Do all workers have access to SDSs?					
Have all workers received training on the SDSs for the hazardous chemicals used in the workplace?					
Are all chemicals properly labeled?					
Are controls in place to prevent chemical exposure?					
Are chemicals stored away from sources of ignition or reactive/incompatible substances and in tightly closed containers?					
Is any required personal protective equipment available, in good working order, and used by workers?					
Are procedures in place and followed to prevent exposure to laundry contaminated with blood/bodily fluids?					
Are procedures in place and followed to prevent needle stick injuries?					
Are all workers adequately trained in preventing injury and illness from biological and chemical hazards?					
2. Machinery					
Is all equipment in good working order?					
Is a fault reporting and tagging system in place?					
Does all machinery have guarding to prevent contact with moving/hot/otherwise hazardous parts?					
Is lint cleaned from screens and filters as required by the equipment manufacturer?					
Is everyone who operates machinery adequately trained in using it safely?					

HAZARDOUS COMMUNICATION

Chemicals can pose potential hazards if not used properly. Hazard Communication, also known as “Employees’ Right-to-Know”, provides employees with important information regarding potential hazards of chemicals and products they may work with. This information is communicated through product Safety Data Sheets (SDS), labeling of chemicals, and annual regulatory Hazardous Communication training.

- 120.1.** Unapproved chemical products are prohibited and shall not be used on the property. If unsure, contact your location’s Environmental Manager.
- 120.2.** Suppliers must provide a Safety Data Sheet (SDS) at the time of the first shipment of a chemical and with the first shipment after there has been any change or update to the SDS.
- 120.3.** Supervisor or Designated Person will ensure the following:
 - 120.3.1.** All personnel under their responsibility know and comply with all relevant hazard communication guidance and established safety rules, policies, and/or procedures that protect them from harm due to exposure to chemical hazard(s) in their workspace, including chemical handling, chemical storage, and Spill Prevention, Control, and Countermeasure.
 - 120.3.2.** Most up-to-date SDS is available to all employees exposed to the chemical hazard(s). SDS will be readily accessible to employees in their workspace.
 - 120.3.3.** Employees complete a Hazardous Communication Training Program prior to working with any hazardous chemicals and complete annual training as required.
 - 120.3.4.** Employees are trained on the properties, hazard(s), and use precautions of any new products introduced to the workspace.
 - 120.3.5.** Employees are provided with and trained on the proper use of all PPE required for all chemical hazard(s) in their workplace.
 - 120.3.6.** Other employer(s) working at the same facility are provided Safety Data Sheets for any hazardous chemical(s) to which their employees may be exposed, as well as information on all necessary in-house labeling systems and precautionary information for normal operations and foreseeable emergencies.
- 120.4.** Every container with hazardous chemicals must be labeled, tagged, or marked with the hazard information set forth in section 120.7.
- 120.5.** Every secondary container (also known as portable or temporary containers) with hazardous chemicals must be labeled with the hazard information set forth in section 120.8.

- 120.6.** Each employer shall have a site-specific hazardous communication program that is in compliance with the OSHA Hazard Communication Standard 29 CFR 1910.1200 (OSHA, Hazard Communication, 2020) and any applicable state-specific Hazard Communication Program guidance.
- 120.6.1.** Hazardous communication program must:
- 120.6.1.1.** Identify and list hazardous chemicals.
 - 120.6.1.2.** Address specific hazardous chemicals and processes used in the workplace.
 - 120.6.1.3.** Ensure proper labeling.
 - 120.6.1.4.** Verify all employees have access to Safety Data Sheets.
 - 120.6.1.5.** Ensure employee training.
 - 120.6.1.6.** Be developed, implemented, maintained, and enforced.
- 120.7.** Chemical container labels must be legible, prominently displayed in English using Globally Harmonized System (GHS), and shall include (see Figure 1: Sample Label):
- 120.7.1.** Product Identifier – Name or number for a hazardous product used in the SDS.
 - 120.7.2.** Pictogram (See Figure 2: Pictograms)
 - 120.7.2.1.** Symbol on a white background framed within a red border and represents a distinct hazard(s).
 - 120.7.2.2.** Determined by the chemical hazard classification.
 - 120.7.3.** Hazard Statement – Phrase that describes the nature of the hazard(s) of a chemical as determined by the hazard classification.
 - 120.7.4.** Signal Word – Indicates the degree of severity of a hazard and alerts the user to a potential hazard (“Danger” or “Warning” are the only signal words allowed).
 - 120.7.5.** Precautionary Statement – Provide measures that should be taken to minimize or prevent adverse effects resulting from exposure to the hazard(s). It is not adequate to reference the GHS precautionary statement number; the statement must be written out.
 - 120.7.6.** Supplier Identification – Name, address, and phone number of the manufacturer. This information must be the same as the Supplier Identification located on the SDS.
 - 120.7.7.** Supplemental Information – May be included on the label as long as it does not impede the ability to identify hazard(s) information on the label.
- 120.8.** Secondary chemical containers (also known as portable or temporary containers) are required to be labeled.

- 120.8.1.** Workplace labeling of secondary containers shall include:
- 120.8.1.1.** Product Identifier, and
 - 120.8.1.2.** Words, pictograms, symbols, or a combination of these which provide general information regarding the hazard(s) of the chemical.
- 120.8.2.** Workplace labeling of secondary containers are not required to include:
- 120.8.2.1.** Manufacturers name and address,
 - 120.8.2.2.** Precautionary Statements,
 - 120.8.2.3.** Hazard Statements, and/or
 - 120.8.2.4.** Pictogram

120.9. Safety Data Sheets

- 120.9.1.** Should be available/readily accessible to all employees (in their workspace) exposed to chemical hazard(s).
- 120.9.2.** Are required to be in a uniform format and include the section numbers, headings, and associated information under the 16 headings as seen in Figure 3: Safety Data Sheet.

Figure 1: Sample Label (OSHA, Hazard Communication Standard Labels, 2020)

SAMPLE LABEL



<p>CODE _____ Product Name _____</p>	} Product Identifier	
<p>Company Name _____ Street Address _____ City _____ State _____ Postal Code _____ Country _____ Emergency Phone Number _____</p>	} Supplier Identification	<p style="text-align: center;">Hazard Pictograms</p> <div style="display: flex; justify-content: space-around;">   </div> <p style="text-align: center;">Single Word Danger</p> <p style="text-align: center;">Highly flammable liquid and vapor. May cause liver and kidney damage. } Hazard Statement</p>
<p>Keep container tightly closed. Store in a cool, well-ventilated place that is locked. Keep away from heat/sparks/open flame. No smoking. Only use non-sparking tools. Use explosion-proof electrical equipment. Take precautionary measures against static discharge. Ground and bond container and receiving equipment. Do not breathe vapors. Wear protective gloves. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Dispose of in accordance with local, regional, national, international regulations as specified.</p> <p>In Case of Fire: use dry chemical (BC) or Carbon Dioxide (CO₂) fire extinguisher to extinguish.</p> <p>First Aid If exposed call Poison Center. If on skin (or hair): Take off immediately any contaminated clothing. Rinse skin with water.</p>	} Precautionary Statements	<p>Supplemental Information</p> <p>Directions for Use _____ _____</p> <p>Fill weight: _____ Lot Number: _____ Gross weight: _____ Fill Date: _____ Expiration Date: _____</p>

Figure 2: Pictograms (OSHA, Hazard Communication Standard Pictogram, 2020)



Figure 3: Safety Data Sheet (OSHA, Hazard Communication Safety Data Sheets, 2020)

Section 1.	Identification: includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.
Section 2.	Hazard(s) identification: includes all hazards regarding the chemical; required label elements.
Section 3.	Composition/information on ingredients: includes information on chemical ingredients; trade secret claims.
Section 4.	First-aid measures: includes important symptoms/effects, acute, delayed; required treatment.
Section 5.	Fire-fighting measures: lists suitable extinguishing techniques, equipment; chemical hazards from fire.
Section 6.	Accidental release measures: lists emergency procedures; protective equipment; proper methods of containment and cleanup.
Section 7.	Handling and storage: lists precautions for safe handling and storage, including incompatibilities.
Section 8	Exposure controls/personal protection: lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).
Section 9.	Physical and chemical properties: lists the chemical's characteristics.
Section 10.	Stability and reactivity: lists chemical stability and possibility of hazardous reactions.
Section 11.	Toxicological information: includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.
Section 12.	Ecological information
Section 13.	Disposal considerations
Section 14.	Transport information
Section 15.	Regulatory information
Section 16.	Other information, includes the date of preparation or last revision

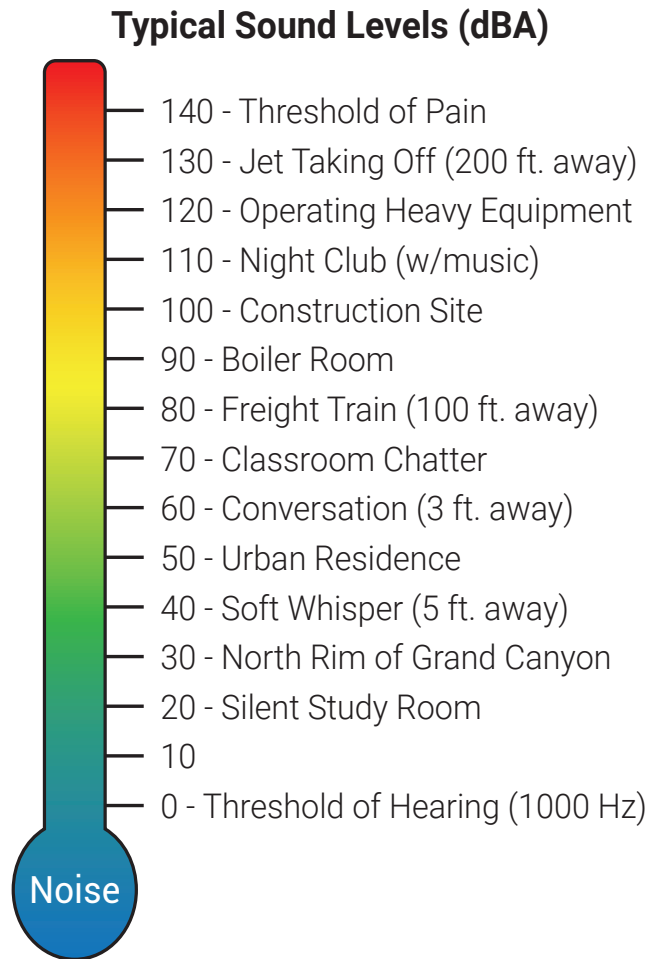
HEARING CONSERVATION PROGRAMS

The OSHA Occupational Noise Exposure Standard and Hearing Conservation Amendment, 29 CFR 1910.95 (OSHA, Occupational Health and Environmental Control, 2020), requires that employers establish a hearing conservation program to include all employees with occupational noise exposures equal to or greater than 85 dBA measured under applicable time weighted average standards.

- 121.1. The senior leader responsible for maintenance activities will:
 - 121.1.1. Ensure that all personnel under their control are knowledgeable of and in compliance with the hearing protection requirements for the areas in which they work.
 - 121.1.2. Ensure that hearing protection is used properly according to instructions and training.
 - 121.1.3. Ensure that only approved hearing protection devices are used when hearing protection is required.
 - 121.1.4. Periodically audit and inspect to ensure the use of the hearing protection does not interfere with the employee's ability to hear and understand speech, radio communications, and other warning sounds and refer any issues as required for resolution.
 - 121.1.5. Ensure personnel are participating in required training and audiometric examination.
- 121.2. Individual employees will:
 - 121.2.1. Use the provided hearing protection devices according to applicable safety rules and training received, maintaining these devices in a sanitary and operable condition.
 - 121.2.2. Actively participate in the training and audiometric testing programs.
 - 121.2.3. Inform supervisors if hearing protection interferes with ability to hear and understand speech, radio communications, and other warning sounds.
- 121.3. Hearing protection devices must be worn where required by special instructions or posted notice.
- 121.4. Hearing protection is required when performing the following activities:
 - 121.4.1. Gate Operations
 - 121.4.2. Securement and Yard/Ground Operations
 - 121.4.3. Spotter or Hostler Operations
 - 121.4.4. Container Handling Equipment Operations (side loader, reach stacker and empty handler operation)

- 121.5. Hearing protection is not required while operating Widespan/RMG, RTG or Shuttle Carrier equipment or during remote operations of lift equipment from an operations center.

*How Loud Is Too Loud? Decibel (Loudness) Comparison Chart
(OSHA, How Loud Is Too Loud?, 2020)*



HEAT & COLD STRESS

OSHA provides [Heat](#) (OSHA, Heat Stress Guide, 2020) and [Cold](#) (OSHA, Cold Stress Guide, 2020) Stress guides.

122.1. Heat Stress

122.1.1. Terminal leaders and/or designated persons must provide heat stress training such that all workers understand worker risk, prevention, symptoms, and treatment related to heat-related illnesses such as Heat Stroke, Heat Exhaustion, Heat Syncope, Heat Cramps, and Heat Rash, and the importance of watching for symptoms in themselves and their co-workers.

122.1.2. Workers must report heat illness symptoms to terminal leaders and/or designated persons immediately.

122.1.3. Terminal leaders and/or designated persons must make sure that appropriate control programs are put in place to prevent heat stress problems. Appropriate control program components include but are not limited to the following when the heat index is elevated.

121.1.3.1. Cool water or liquids will be provided to workers. Drinks with large amounts of caffeine or sugar should be avoided.

121.1.3.2. Rest periods with water breaks will be provided to workers.

121.1.3.3. Cool areas will be provided for use during break periods (i.e., offices, vehicles with air condition, etc.).

121.1.3.4. Terminal leaders and/or designated persons will monitor workers who are exposed to the heat for long periods of time and take immediate action if heat stress symptoms are recognized.

122.2. Cold Stress

122.2.1. Terminal leaders and/or designated persons must provide cold stress training such that all workers understand worker risk, prevention, symptoms, and treatment related to cold-related illnesses such as Frostbite, Hypothermia, Trench Foot, and Chilblains, and the importance of watching for symptoms in themselves and their co-workers.

122.2.2. Workers must report cold illness symptoms to terminal leaders and/or designated persons immediately.

122.2.3. Terminal leaders and/or designated persons must make sure that appropriate control programs are put in place to prevent cold stress problems. Appropriate control program components include but are not limited to the following in cold weather.

122.2.3.1. Break periods in warm areas will be provided to workers (i.e., offices, vehicles with heaters).

- 122.2.3.2.** Terminal Leaders and/or designated persons will monitor workers who are exposed to the cold for long periods of time and take immediate action if cold stress symptoms are recognized.
- 122.2.3.3.** Persons must use care when walking into or exiting buildings, as water or ice at entrances can increase risk of slips and falls.
- 122.2.3.4.** Workers must dress appropriately in cold temperatures in approved cold-weather apparel to prevent unnecessary exposure.

HOSTLER/SPOTTER TRUCK OPERATOR SAFETY

Intermodal facilities should have clearly defined expectations and accountability for safe operations of spotter trucks. The rules below are a great start. OSHA provides applicable [guidance](#) (OSHA, Safeguarding Equipment and Protecting Workers from Amputations, 2020). For information on employee fatigue, see section 111.

- 123.1.** Inspect all machines before use. See Appendix A for a sample pre-shift inspection checklist. Ensure there is no damage or leaks and that the following items are in good working condition: seatbelt, horn, wipers, lights, back-up alarm, and tires. If these items are not working, inform maintenance, and do not accept the equipment until the safety item is corrected. Lights are not required for daytime operations.
 - 123.1.1.** Complete an Exterior Inspection before use. Check for leaks and that tires are in good condition. Also check the tires on trailer trains, chassis, and MAFIs. If there is a problem, have it evaluated by maintenance.
- 123.2.** Personal Protective Equipment When Outside of the Hostler.
 - 123.2.1.** Safety shoes
 - 123.2.2.** ANSI-2 Hardhat
 - 123.2.3.** ANSI-2 vest, shirt, or coverall
 - 123.2.4.** Work gloves
 - 123.2.5.** Protective lenses as/if required by the intermodal facility operator
- 123.3.** When entering and exiting the Hostler, use the handrail. Face inward toward the vehicle steps when entering and exiting. Use extra care during bad weather, especially when the steps and handholds may be icy or wet.
- 123.4.** Modifying the wiring to charge any electronic device or connect to accessories is prohibited.
- 123.5.** Only enter the maintenance shop if authorized and guided by a maintenance person.
- 123.6.** Report bent mirrors to maintenance because they can cause a visual illusion.
- 123.7.** Upon entry or exit of a warehouse, or critically tight turn with limited visibility, blow the horn.
- 123.8.** When entering a warehouse, pier, or interchange lane with an out-of-gauge load, a spotter must be used when a load is within one foot of the top of the entry.
- 123.9.** A spotter must be used if backing out of a warehouse, pier, or interchange lane.
- 123.10.** Cutting through container parking rows is prohibited.
- 123.11.** Weaving through over-the-road truck traffic is prohibited.

- 123.12.** Ensure the fifth wheel is locked. After engaging a chassis, be sure to hear the “click” when backing into it, to ensure the chassis is secure. See section 123.44 for additional information.
- 123.13.** When driving with a chassis and making a turn, ensure a wide enough turning radius is achieved so that the rear of the chassis clears all obstructions.
- 123.14.** Park chassis only in a marked spot or approved location.
- 123.15.** When parking a chassis, lower the chassis until the legs are resting securely on the ground. Pull out slowly to ensure the load is resting properly, and if there are signs of an unstable load, stop immediately and contact a supervisor.
- 123.16.** When parking the hostler, place the vehicle in neutral and apply the parking brake by pulling up the airbrake button. Listen for a release of air. If hooked to a chassis/trailer train, also pull the red brake button on the dashboard. Listen for a release of air.
- 123.17.** Do not pull a chassis with locked brakes unless approved by a supervisor as this can cause extensive tire damage. To free up locked brakes, use the following procedure.
 - 123.17.1.** Ensure the chassis pin securely seats into the fifth wheel.
 - 123.17.2.** Disconnect the seatbelt, open the back door, and step onto the hostler platform.
 - 123.17.3.** Connect the hostler airlines to the chassis glad-hands; the right is the red Supply Line, the left is the blue Signal Line.
 - 123.17.4.** Proceed back into the hostler, and secure the seatbelt.
 - 123.17.5.** Disengage the chassis brake.
 - 123.17.6.** Watch the pressure gauge climb up to 100lbs of pressure. The hostler driver can rev the engine to build pressure.
 - 123.17.7.** After revving the engine, the pressure gauge will max out at 110-120 PSI.
 - 123.17.8.** Raise the fifth wheel and pull forward to ensure fifth wheel is locked. You must hear the “click” of the fifth wheel engaging when you are backing into it.
 - 123.17.9.** If the chassis brakes are still locked up and all wheels will not roll, then put the hostler in neutral and rev the engine. This allows air to build up in the chassis.
 - 123.17.10.** Proceed to pull the chassis forward and ensure all wheels will roll.
 - 123.17.11.** If the chassis brakes are still locked, place the hostler in reverse and roll the chassis backwards a maximum of 3 feet.
 - 123.17.12.** Attempt to pull forward. This back-and-forth process will usually only work with a chassis that has a container (empty or load) on it.
 - 123.17.13.** If the chassis brakes remain locked, call a supervisor and notify them of the parking slot number and the chassis number.
 - 123.17.14.** Do not pull a chassis with locked brakes. This can cause extensive tire damage.

- 123.17.15.** The supervisor must report the locked chassis to maintenance immediately for service.
- 123.18.** Ro-Ro Operations at Port Facilities
- 123.18.1.** Drivers shall not drive vehicles, either forward or backward, while any personnel are in positions where they could be struck.
- 123.18.2.** Utilize a spotter when backing vehicles with obscured views to the rear. Be sure to use both mirrors to look for personnel and obstructions.
- 123.18.3.** Workers shall be instructed to stay within the designated work area and remain clear of areas outside of the prescribed work area.
- 123.18.4.** Only authorized persons shall be permitted on any deck while loading or discharging operations are being conducted. Such authorized persons shall be equipped with high visibility vests to ensure they are seen in the work area.
- 123.18.5.** Driving, walking, working, and climbing areas shall be illuminated.
- 123.18.6.** Illumination for cargo transfer operations shall be of a minimum light intensity of five foot-candles (54 lux). Where work tasks require more light to be performed safely, supplemental lighting shall be used.
- 123.19.** If the legs on a chassis are bent or broken, do not back under it. If already attached to the chassis, do not lower the fifth wheel. Contact a supervisor.
- 123.20.** When there is an indication of an unbalanced or leaning load, ask a supervisor; your concern will be appreciated and respected. Mishaps occur because operators take the risk to “get the job done” even when they are concerned that the load might tip over. This is especially true with loaded reefers and Out-of-Gauge (OOG) cargo, which are often the heaviest loads with the highest center of gravity.
- 123.21.** Hauling a Reefer or OOG cargo, raise the chassis legs, lower the fifth wheel as low as possible, and unlock the pins on the chassis. Just taking the risk without lowering the load is when most incidents occur.
- 123.22.** When a 20-foot tank is being loaded onto a bomb cart, ensure the 20-foot tank is centered forward/aft so that all four corners of the tank frame are securely resting on the steel surface of the bomb cart within the side rails. Loading a 20-foot tank onto the forward or aft end could result in a corner of the tank frame not being supported, thereby allowing the tank to roll off.
- 123.23.** A distance of not less than 20 feet (6 meters) shall be maintained between the first two vehicles in a check-in, check-out, or loading/discharging line. This distance shall be maintained between any subsequent vehicles behind which employees are required to work.
- 123.24.** Identify out of service items by lockout/tagout, and notify intermodal facility leaders of maintenance defects or unsafe equipment. Do not operate equipment with safety-related issues.

- 123.25.** Avoid parking any vehicle in a position fouling a right of way, crane path, rail track, or access to an operating area.
- 123.26.** Conduct an inspection of all vehicles and lift equipment prior to use, and document findings and discrepancies for that shift. Ensure fire suppression systems or fire extinguishers are operable, if applicable.
- 123.27.** Ensure beacon or four-way flashers are in use when vehicles and equipment are operating/traveling on ramp property. Safety cones must be displayed in front and behind any vehicle performing work on the facility (while stationary), as well in adjacent parking bays.
- 123.28.** Headlights must be used at all times while operating on the facility.
- 123.29.** Ensure equipment is clean, windows are clear, and cab and components are free of trash.
- 123.30.** Prior to operating vehicles or equipment with on board camera recording devices, operators will ensure lenses are clear and unobstructed.
- 123.31.** Operators of vehicles and equipment will not interfere or tamper with the on-board recording device nor will the vehicle be operated if the equipment is knowingly obscured, positioned, or blocked from operating as designed.
- 123.32.** Personal vehicles may not be used in operational areas without approval from the terminal manager.
- 123.33.** Operate all vehicles and equipment within manufacturer and operational guidelines.
- 123.34.** A valid state driver's license is required to operate all vehicle and equipment.
- 123.35.** Report all issues or damage that interferes with the safe operation of the vehicle or equipment.
- 123.36.** Do not operate/drive damaged or faulty equipment. Maintenance must clear all reported issues prior to equipment use.
- 123.37.** Ensure bare chassis twist locks and front pushpins are in the unlocked position when bringing track side for loading. Ensure all chassis twist locks and pushpins are in the locked position when moving a chassis with a container to or from trackside.
- 123.38.** In the event of a fire, initiate fire suppression system (if equipped), and exit vehicle promptly, using fire extinguisher to aid in exit as appropriate.
- 123.39.** Do not alter, restrict, or otherwise tamper with the intended function of any installed device or safety equipment.
- 123.40.** Drive in the right-hand lane and in the direction indicated by signs or terminal SOP; do not foul tracks.
- 123.41.** When not in operation, back vehicle and equipment into parking space, close doors, and windows.

- 123.42.** Do not allow passengers to ride along outside of the equipment cab nor inside when no training seat is installed.
- 123.43.** When using onboard computers, positioning Glad Hands or IBCs, and any time an operator takes their hands off the steering mechanism the following actions will be taken:
- 123.43.1.** Terminal Vehicles – Must be stationary or in park.
 - 123.43.2.** Hostler – Neutral with parking brake applied.
 - 123.43.3.** IBC Cart – Stationary.
- 123.44.** Prior to lifting or moving a load:
- 123.44.1.** Lift operators must float the load to verify containers are not locked down on a chassis or in a double-stacked railcar.
 - 123.44.2.** Hostler operators must perform a tug test to ensure the kingpin is locked into the fifth wheel.
 - 123.44.3.** Lift operators must perform a reverse-pull test to ensure the kingpin is locked into the hitch.
- 123.45.** Operators must be aware of and follow proper shut-down procedures in case of an emergency.

INSPECTIONS AND AUDITS

This section addresses the benefits of an inspection and audit program and provides information on areas to inspect that lead to effective hazard analysis and correction. Internal inspections and audits help to ensure hazards in the workplace are being identified and actions are taken to eliminate risks associated with the hazard. Benefits of a thorough safety audit program include:

- Being prepared for an OSHA visit. Understanding the OSHA recommended practices for safety programs and building your safety program around those practices is a proactive, positive step to ensure your workplace operates safely, and if an OSHA inspection is called, you'll be ready using guidance they provided. [OSHA Recommended Practices for Safety and Health Programs](#) is available for download (OSHA, Recommended Practices for Safety and Health Programs, 2020).
- Reducing Incidents – Regular inspections and audits can reduce incidents through a regular review of workplace safety and hazards and resolving issues before they become problematic.
- Safety Participation and Buy-in from Employees – Job site leaders who take responsibility for proactively identifying safety issues build confidence in the safety system and the local work force.
- Finally, OSHA identifies these benefits of following their guidance for Safety and Health Programs.
 - **Prevent** workplace injuries and illnesses.
 - **Improve** compliance with laws and regulations.
 - **Reduce** costs, including significant reductions in workers' compensation premiums.
 - **Engage** workers.
 - **Enhance** their social responsibility goals.
 - **Increase** productivity and enhance overall business operations.

124.1. Internal inspections and audits begin with a thorough review of past incidents and hazard-prone areas. Were corrective actions taken to mitigate or eliminate the hazards still in place, or are correct processes being followed?

124.2. Review the most recent [OSHA Top 10 Most Frequently Cited Standards](#) (OSHA, Top 10 Most Frequently Cited Standards, 2020), and ensure inspection checklists include these areas. The current (2020) OSHA Top 10 list includes the following:

124.2.1. Fall protection, construction (29 CFR 1926.501)
(OSHA, Fall Protection, 2020)

124.2.2. Hazard communication standard, general industry (29 CFR 1910.1200)
(OSHA, Toxic and Hazardous Substances, 2020)

124.2.3. Scaffolding, general requirements, construction (29 CFR 1926.451)
(OSHA, Scaffolds, 2020)

- 124.2.4. Respiratory protection, general industry (29 CFR 1910.134) (OSHA, Personal Protective Equipment, 2020)
 - 124.2.5. Control of hazardous energy (lockout/tagout), general industry (29 CFR 1910.147) (OSHA, General Environmental Controls, 2020)
 - 124.2.6. Ladders, construction (29 CFR 1926.1053) (OSHA, Stairways and Ladders, 2020)
 - 124.2.7. Powered industrial trucks, general industry (29 CFR 1910.178) (OSHA, Materials Handling and Storage, 2020)
 - 124.2.8. Fall Protection – Training Requirements (29 CFR 1926.503) (OSHA, Fall Protection, 2020)
 - 124.2.9. Machinery and Machine Guarding, general requirements (29 CFR 1910.212) (OSHA, Machinery and Machine Guarding, 2020)
 - 124.2.10. Eye and Face Protection (29 CFR 1926.102) (OSHA, Personal Protective and Life Saving Equipment, 2020)
- 124.3. Identify leading indicators and take action to prevent safety incidents from occurring. Reference article *Using Leading Indicators to Improve Safety and Health Outcomes* (OSHA, Leading Indicators, 2020).
- 124.3.1. OSHA defines leading indicators as proactive, preventative, and predictive measures that provide information about the effectiveness of organizational safety and health activities. Some examples of leading indicators that could be used on an Intermodal facility are shown in the table below.

Leading Indicator	When	Expectation
Terminal Safety Action Plan	Annually, update as required through the year.	Identify safety challenges at the terminal level and develop plan to improve and sustain.
Pre-Shift Safety Brief	Daily	Premier engagement opportunity. Delivered before work starts and if the work changes. Job brief guide is OSHA 49 CFR 1910.269(c). (OSHA, Special Industries, 2020) OSHA recommended practice guide for job briefings (OSHA, Job Briefings and Best Practices, 2020)

Leading Indicator	When	Expectation
Terminal Emergency Action Plan (EAP)	Annually, update as required.	The purpose of an EAP is to facilitate and organize employee actions during workplace emergencies. Well-developed emergency plans and proper employee training (i.e., employees understand their roles and responsibilities within the plan) will result in fewer and less severe employee injuries and less structural damage to the facility during emergencies. OSHA guide to Emergency Action Plans (OSHA, Emergency Action Plan, 2020)
Terminal Safety Meeting	Monthly	Monthly meeting discussing topics identified in the Terminal Safety Action Plan. Attendees should include managers and craft employees, vendors, and the dray community. Focus on proactive communication and resolution of safety-related issues on the terminal.
DVIR submission and equipment Status	Daily	Daily Vehicle Inspection Reports should be completed immediately following the pre-shift job brief. A defined process should be used to identify discrepancies and report them to the maintenance provider. A feedback loop should be established so that maintenance corrects and provides feedback to Operations on repairs completed or pending.
Terminal Incident Reviews	Monthly	Discussed often, recommend weekly and during the monthly safety meeting.
Operational Testing	Daily	Internal inspections should include observation-based evaluations of employees completing tasks assigned at the job brief. Their performance should be evaluated against the rules, policy, and expectations to perform safely. Provide coaching and counseling where unsafe behaviors are observed. Follow up on findings with additional targeted observations to ensure the coaching and counseling were effective in changing the behavior.
Days Since Last Test	Weekly	Monitor crew to ensure testing and engagement are occurring at least every 14 days for each member of the crew.
Regulatory & Compliance Training	Organizational Learning Management System	Completion of required training prior to deadlines. Recommended training includes Rail/Port Security Awareness, Environmental Awareness, Facility Standard Operating Procedures, Hazardous Material Awareness, Hazardous Communication, Blue Signal training and Operation Lifesaver Safety Information (Operations Lifesaver, 2020)

Leading Indicator	When	Expectation
Onboard Vehicle Camera Systems	Daily	Regular review of events reported from onboard camera system, such as triggering events (seatbelts, smoking, electric devices in cab, speeding, turning at excessive speed, etc.) Provide coaching, counseling, and discipline as required.
Power Equipment & Container, Chassis & Trailer Maintenance Shop	Frequent visits	Compliance with housekeeping, hazmat, electrical, and safety expectations. OSHA guidance for vehicle maintenance shops (OSHA, Trucking Industry, 2020). OSHA guidance on qualifications for maintenance and repair employees (OSHA, Cranes and Derricks in Construction, 2020).
Third-Party Registration to Certify Compliance and Training	Monthly during the safety meeting	If the facility uses a compliance agency, conduct a monthly check of vendors and their employees for compliance (security/training).
Track Inspection	Refer to your vendors checklist and results	Who is responsible for track inspections on the facility?
Review track inspections completed over the last 60 days.		
What issues were identified?		
What are plans to correct discrepancies?		

LOCKOUT/TAGOUT PROCEDURE (LOTO)/CONTROLLING HAZARDOUS ENERGY SOURCES

Lockout/Tagout standards cover situations where injury could be caused by the unexpected startup, energization, or release of stored energy while a machine or equipment is being serviced or maintained.

- 125.1.** Lockout devices must be used for equipment or machinery that is able to be locked out.
- 125.2.** Tagout devices may be used in lieu of lockout devices only if the tagout program provides employee protection equivalent to that provided through a lockout program.
- 125.3.** Employer is responsible to:
 - 125.3.1.** Develop, implement, and enforce a hazardous energy control program for use when employees are exposed to hazardous energy while servicing and maintaining equipment and machinery.
 - 125.3.2.** Ensure employees are trained so they know, understand, and follow the provisions of the hazardous energy control procedures.
 - 125.3.2.1.** Employee training on hazardous energy control procedures must take place upon initial employment and at least annually to include the following at a minimum:
 - 125.3.2.1.1.** Key aspects of the employer's hazardous energy control procedures
 - 125.3.2.1.2.** Elements of the hazardous energy control procedures relevant to the employee's duties or work assignment
 - 125.3.2.1.3.** Machinery or equipment in the workspace requiring lockout/tagout before serving or maintenance is conducted
 - 125.3.2.1.4.** Any additional requirements of the OSHA standards related to lockout/tagout not covered in this document
 - 125.3.3.** Ensure that new, repaired, or remanufactured machinery and equipment is capable of being locked out.
 - 125.3.3.1.** If machines or equipment are not capable of being locked out, develop, implement, and enforce an effective tagout program.
- 125.4.** Pulling a fuse or flipping a circuit breaker shall not be used as a substitute for proper lockout/tagout procedures.

125.5. Applying Lockout/Tagout Devices

125.5.1. Each individual involved with the lockout/tagout of machinery or equipment will have their own lock and key that only they control.

125.5.1.1. Key to device will be kept in the possession of the individual that applied the device, and no one will ever be permitted to remove another employee's energy-isolating device.

125.5.2. Lock and tag will be placed directly on the energy-isolating device. Ensure all energy-isolating devices on machinery or equipment are in the locked position prior to starting any work.

125.5.3. All tags used for lockout/tagout are to have the name of the employee who applied the energy-isolating device written clearly on the tag for identification.

125.5.4. A multiple lock hasp shall be used on each energy-isolating device that requires more than one employee to lock out and isolate each energy source.

125.6. Follow all hazardous energy control program guidelines for de-energizing machinery or equipment.

125.7. Remove your lock from the energy-isolating device before leaving the workplace or facility.

125.7.1. If your lock is the only lock on the energy-isolating device and the machinery or equipment locked out is not ready to be released for normal use, have a supervisor or designated person affix a lock after confirming the machinery or equipment has been de-energized.

125.8. Removal of Another Employee's Lock on an Energy-Isolating Device

125.8.1. Every possible effort must be made to locate and inform the employee who placed the lock that it is being removed.

125.8.2. Once confirmed the employee who placed the lock is no longer on the property and is unable to return to remove their lock, a designated two-person verifying team (typically a supervisor and a designated employee) may remove the lock after they verify it is safe to do so.

125.9. Locks for Lockout/Tagout

125.9.1. All locks used for lockout of machinery or equipment must be individually keyed and used exclusively for lockout/tagout.

125.9.2. Locks may be either individually assigned, stored in a designated location for use by authorized employees, or a combination of the two methods.

MACHINE AND MACHINERY GUARDS

These guidelines are to protect personnel working with, or adjacent to equipment, machines, or tools with a point of operation, pinch point, moving parts, rotating parts, or flying chips or sparks that may pose a safety hazard or cause injury.

- 126.1.** Personnel are prohibited from operating equipment, machines, or tools without manufacturer provided guards in place.
- 126.2.** No modifications shall be made to machine guards without the manufacturer's approval.
- 126.3.** Supervisor will ensure the following requirements are met:
 - 126.3.1.** Employees receive training on machine guarding.
 - 126.3.2.** Unguarded equipment, machines, or tools are removed from service.
 - 126.3.3.** Equipment, machines, or tools removed from service will be identified using lockout/tagout procedures.
 - 126.3.4.** Periodic inspections are conducted of guarding devices on equipment, machines, and tools.
- 126.4.** Employees will ensure the following requirements are met:
 - 126.4.1.** Operate and maintain machine guards on equipment, machines, or tools as intended by the manufacturer.
 - 126.4.2.** Never operate equipment, machines, or tools with missing or damaged guarding.
 - 126.4.3.** Report all guarding issues to supervisor.
 - 126.4.4.** Never remove or circumvent guarding on equipment, machines, or tools to complete a task.
 - 126.4.5.** Follow lockout/tagout procedures to identify equipment, machines, or tools that are removed from service.
- 126.5.** Fans shall be guarded if the fan is less than 7 feet above the floor or working level. Fan guards shall have openings no larger than 1/2 inch in width.
- 126.6.** The following apply to abrasive wheel/bench grinder machinery:
 - 126.6.1.** All manufacturer's recommendations for safe operation shall be followed.
 - 126.6.2.** Machinery shall be visually inspected for defects prior to use.
 - 126.6.3.** It shall not be operated if guarding is missing or damaged. This includes spark guards/eye shields.
 - 126.6.4.** Machinery must be securely anchored in a fixed location to prevent walking or moving during operation.
 - 126.6.5.** It shall be unplugged from energy source when not in use.
 - 126.6.6.** Never leave the grinder running while unattended.

- 126.6.7.** Abrasive wheels will be visually inspected, and a Ring Test will be performed prior to being installed on a bench grinder.

 - 126.6.7.1.** To complete a Ring Test on an abrasive wheel, tap the wheel lightly with a light nonmetallic implement (like the handle of a screwdriver) in each quadrant. An undamaged wheel will give a clear metallic tone (ring). If the tapping produces a “dead” sound, this is indication of a crack or fracture in the abrasive wheel, and the wheel must be disposed of.
 - 126.6.7.2.** The maximum operating speed at which the abrasive wheel is rated must be checked prior to installation to ensure it does not exceed the machine’s declared spindle speed.
- 126.6.8.** Work Rests

 - 126.6.8.1.** Shall be kept adjusted closely to the wheel with a maximum opening of 1/8 inch.
 - 126.6.8.2.** Shall not be adjusted while the wheel is in motion.
 - 126.6.8.3.** Shall be firmly clamped after adjustment.
- 126.6.9.** Safety tongue shall be kept adjusted closely to the abrasive wheel with a maximum opening of 1/4 inch.
- 126.7.** If the abrasive wheel on a portable abrasive wheel/hand grinder is less than 2 inches in diameter, a guard is not required.

MATERIAL HANDLING & STORAGE

Manually or mechanically lifting, moving, carrying, or storing materials can be hazardous without proper planning and execution.

- 127.1.** Prior to moving materials manually, check surroundings for hazards and:
 - 127.1.1.** Consider hand and body placement to ensure hands, body parts, and personnel are not in crunch/pinch points.
 - 127.1.2.** Reduce reaching, bending, and twisting whenever possible.
 - 127.1.3.** Consider the use of gloves to protect hands from sharp edges, coarse materials, or projections.
 - 127.1.4.** Keep body, feet, and hands clear of moving equipment.
- 127.2.** Do not throw material or objects from containers, trailers, trucks, equipment, or elevated positions.
- 127.3.** While handling materials (manually and/or mechanically), be aware of possible shifting or falling of load.
- 127.4.** When two or more personnel are handling heavy or cumbersome materials manually, discuss and understand the way the object is to be handled prior to movement, and observe the following precautions before attempting the lift:
 - 127.4.1.** Remove slipping or tripping hazards if practical. If impractical, identify the hazard and exercise caution to prevent slipping or tripping.
 - 127.4.2.** Designate one person to give commands for all movements (lifting, walking, or lowering), and move only on command from the designated person.
 - 127.4.3.** Avoid walking backward whenever possible.
- 127.5.** Prior to moving materials mechanically with a powered industrial truck (forklift), check surroundings for hazards and:
 - 127.5.1.** Never operate a powered industrial truck without a current qualification.
 - 127.5.2.** Follow all manufacturers' operational requirements, including those indicated on the data plate.
 - 127.5.3.** Never overload, and never operate if all tires cannot maintain contact with the floor due to overloading.
 - 127.5.4.** Load so that the operator's view is not obstructed. If view is obstructed, operate unit in reverse using caution.
 - 127.5.5.** Center the load on the forks as close to the mast as possible to maximize load stability.
 - 127.5.6.** Adjust the load to the lowest position when traveling to allow clearance while maximizing load and truck stability.
 - 127.5.7.** Ensure dock boards or bridge plates are secured so they will not move when driven over.

127.6. Hand Trucks

- 127.6.1.** Inspect entire unit, wheels, and tires prior to placing materials on hand truck. Do not use hand truck, place out of service using lockout/tagout, and notify supervisor if:
 - 127.6.1.1.** Handle, frame, nose, or tongue is damaged,
 - 127.6.1.2.** Solid rubber tires are damaged,
 - 127.6.1.3.** Inflatable tires are deflated or not set to manufacturer's suggested tire pressure, or
 - 127.6.1.4.** Wheels are loose or damaged.
- 127.6.2.** Load so that the operator's view is not obstructed.
- 127.6.3.** Prior to movement, observe conditions avoiding abrupt pulls, jerks, bumps, and stops to prevent slips, trips, falls, and strains.
- 127.6.4.** Firm handholds must be maintained at all times.
- 127.6.5.** Do not overload or load in any unsafe manner.

127.7. Material Storage

- 127.7.1.** Keep storage areas free from accumulated materials that may cause a tripping hazard, fire hazard, or contribute to the harboring of insects or pests.
- 127.7.2.** Visually inspect shelves or racks for damage and proper securement prior to loading with materials.
- 127.7.3.** Do not store materials in a way that impedes aisles, walkways, or drive lanes, creating a hazard for personnel or equipment.
- 127.7.4.** When loading on elevated surfaces, or stacking materials in storage:
 - 127.7.4.1.** Consider the need for accessibility or access to the material.
 - 127.7.4.2.** Ensure the stacks are stable and self-supporting.
 - 127.7.4.3.** Observe established height limitations.
 - 127.7.4.4.** Do not obstruct access to emergency egress routes, fire extinguishers, or electrical panels.
 - 127.7.4.5.** Do not place materials within 18 inches of sprinkler heads.
 - 127.7.4.6.** Use banding, shrink wrap, chocks, or dunnage where needed to prevent shifting.
- 127.7.5.** Flammable and combustible materials must be stored according to their fire characteristics in adherence with fire safety precautions.

MISHAP REPORTING & PROTECTING OF ACCIDENT SITE

This section addresses the mishap reporting processes and measures taken to protect the mishap site prior to and through the completion of the post mishap investigation.

- 128.1.** All mishap reports and claims of damage must be made truthfully and with the full disclosure of all facts.
- 128.2.** Mishaps involving personal injury or work-related illness require an immediate and adequate response. Medical treatment must be provided if either the injured personnel requests medical treatment, or if deemed necessary by the intermodal facility leader.
- 128.3.** Intermodal facility leaders will evaluate any mishap involving personal injury, or reported illness, and determine the appropriate transportation conveyance, based on the severity of the illness or injury. Personnel who become ill or are injured on duty and whose illnesses or injuries require immediate medical treatment should be taken by ambulance to the nearest medical facility.
- 128.4.** All mishaps must be reported immediately. Any person, if physically able to do so, must make an immediate verbal and written report to the intermodal facility leader, of any personal injury suffered while on duty or on intermodal facility property.
- 128.5.** The scene of a mishap and any tools or equipment involved in a mishap shall be left undisturbed until the investigation is completed and management directs the scene to be cleared.
- 128.6.** Following the mishap and the completion of the investigation, all tools, equipment, or machinery involved in a mishap with any potential for damage will be taken out of service and inspected by a qualified mechanic/technician to determine the condition. Results will be included in the mishap report. If in doubt about returning equipment to service, notify the intermodal facility Maintenance Duty Manager for instructions on return to service.
- 128.7.** Intermodal facility leaders must make a prompt written report of any mishap. If the mishap involves personal injury, the injured person must furnish the written witness/injured party statement. The terminal leader will complete the report if the injured person is unable to do so.
- 128.8.** Personnel with an off-duty injury that adversely affects their ability to perform normal assigned duties must report their condition to the intermodal facility medical department prior to reporting for their next shift or tour of duty after such injury. Personnel, who have been off duty because of accident or illness, or whose sight, color sense, hearing or health will have become affected, may be required to undergo a physical examination.
- 128.9.** Any personnel witnessing or riding as a passenger in a vehicle involved in a collision (regardless of visible damage) must also make a report of the incident.

- 128.10.** Mishaps involving outside parties on intermodal facility property require those parties involved to report the mishap to the intermodal facility leader. The report must furnish information required for completing the Accident Information Form (AIF) collected by intermodal facility risk management, including the names of any witnesses.
- 128.11.** If involved parties furnish a written statement concerning a mishap to a person other than an official of the intermodal facility, then such person shall promptly forward an exact copy of the statement to intermodal facility leadership.
- 128.12.** Drug and alcohol tests are required when an employee is involved in a mishap while in a duty status or if an employee is injured while on duty and the injury requires medical attention.
- 128.13.** After any accident or incident where human remains, blood, or other fluids are observed on intermodal facility equipment or property, notify the immediate supervisor, who will contact the appropriate intermodal facility department to arrange for cleaning and sanitizing the equipment. Do not attempt to remove or clean blood or Other Potentially Infectious Materials (OPIM).
- 128.14.** Employees who come in contact with blood or OPIM must immediately wash the contact area, then report to the nearest medical facility or follow the instructions provided by intermodal facility leadership for further examination.
- 128.15.** Employees are responsible for the cleanup of their own bodily fluids and disposal of cleanup materials as appropriate and must:
- 128.15.1.** Use approved multi-purpose germicidal cleaner and paper towels or disposable wipes.
 - 128.15.2.** For cleanup of large quantities of materials that are not considered bloodborne pathogens or OPIM, facilities should contact a local industrial cleaning company for assistance.

MOTOR VEHICLE OPERATIONS (MOBILE SERVICE UNITS AND PICK- UP TRUCKS)

Intermodal facilities should have training and enforcement programs governing motor vehicle operations consistent with the guidance below and [OSHA guidance](#) (OSHA, General Working Conditions, 2020).

129.1. Operator Requirements

- 129.1.1. Only authorized personnel that possess and carry a valid current driver's license may operate motor vehicles.
- 129.1.2. Operators must immediately stop operating vehicles and notify terminal leaders and/or designated personnel if their license or permit is suspended, revoked, or restricted.
- 129.1.3. Operators must know and obey local, state, and federal laws and regulations for operating vehicles.
- 129.1.4. Operators must comply with all rules and procedures as defined by the intermodal facility where they are operating, including obeying posted safety signs, signals, and painted markings; yielding to trains, yard equipment, and pedestrians; and using headlights, flashers, or other warning lights as required by the site.
- 129.1.5. Operators must operate motor vehicles in a careful and safe manner, focusing attention in the direction of travel and maintaining awareness of pedestrians, other vehicular traffic, intermodal equipment, railcars, switching, loading, etc.
- 129.1.6. All vehicles must make a complete stop at stop signs and must stop for flares and flashing lights at rail crossings.
- 129.1.7. A vehicle must not be operated while personnel are boarding or departing.
- 129.1.8. Operators must never transport unauthorized persons in a vehicle except in an emergency.
- 129.1.9. Never operate a vehicle down a grade with gears in neutral or with the clutch disengaged.
- 129.1.10. Before turning around in any situation, stop and look both ways for train, vehicle, equipment, or pedestrian movement.
- 129.1.11. Do not drive or park on lift equipment lanes, under lift equipment, or impede lift equipment movement.
- 129.1.12. Always expect movement of trains, engines, cars, or other equipment at any time, and in either direction.

- 129.1.13.** Operators must never permit more passengers than the number of seatbelts available (including bench type seats).
- 129.1.14.** Work vehicles may not be operated at speeds exceeding the posted speed limit.
 - 129.1.14.1.** Where the speed limit is not posted, 20 mph will be the maximum speed limit, with the exception of inspection areas, shop areas, all unregulated intersections such as parking aisle openings, and rail crossings where the speed limit is 5 mph.
 - 129.1.14.2.** Never exceed a safe and reasonable speed when unfavorable weather, traffic, road conditions, vehicle load, vision impairment, or any other prevailing conditions require operating at a slower speed than the posted limit.
- 129.1.15.** Alternate routes around speed bumps or through parking spaces are prohibited.
- 129.2.** Occupant Requirements
 - 129.2.1.** While in motion, occupants must remain seated and keep all body parts inside the vehicle.
 - 129.2.2.** Seatbelts must be worn by all occupants at all times when operating or riding in equipment or vehicles that are equipped with them.
 - 129.2.3.** When practical, occupants must enter or exit vehicles away from the traffic side.
 - 129.2.4.** Do not sit on the side rails or stand in the bed of a truck in motion.
 - 129.2.5.** Do not ride in the bed of a truck unless the truck bed is equipped with seatbelts and communication between the cab and bed is feasible.
 - 129.2.6.** Never attempt to mount or dismount vehicles while in motion, except in the case of an emergency.
 - 129.2.7.** Occupants must not distract the vehicle operator or create a situation that requires the operator to direct their attention away from driving.
- 129.3.** Cell Phone and Electronic Device Use
 - 129.3.1.** The use of personal electronic devices is not permitted in a vehicle under any circumstances.
 - 129.3.2.** The use of nonpersonal electronic devices such as cell phones, RF technology, laptop computers, etc. while operating a motor vehicle is prohibited. The use of these devices is permitted in a vehicle by the operator when the vehicle is stopped in a safe location with the vehicle gear lever set in the "PARK" position.
 - 129.3.3.** Do not use a cell phone or electronic device while fueling a vehicle.
 - 129.3.4.** The driver may instruct passengers to turn off electronic devices if they present a distraction while the vehicle is moving.

129.4. Vehicle Inspection

- 129.4.1.** Operators must complete a vehicle inspection prior to each shift's use.
- 129.4.2.** Operators must immediately notify their terminal leader and/or designated persons if their work vehicle is found to be defective, including during the shift.
- 129.4.3.** Do not place any body part under a vehicle to make inspection or repair unless the engine is stopped and the vehicle is properly protected against movement.
- 129.4.4.** All vehicle warning devices must be operational before a vehicle can be placed in service.
- 129.4.5.** Operators must ensure that any emergency response equipment in the vehicle, such as a fire extinguisher or first-aid kit, is in good condition.
- 129.4.6.** Any defects found during inspections that might prevent the vehicle from operating safely must be corrected by a trained person before the vehicle is used.
- 129.4.7.** Chassis protection is required to be present and in good condition on vehicles operating beside railroad tracks at facilities where chassis are staged beside railcars.

129.5. Housekeeping

- 129.5.1.** Operators must maintain good housekeeping with their vehicles and keep them in a clean and orderly condition.
- 129.5.2.** Littering or throwing any object from motor vehicles is prohibited.
- 129.5.3.** Trash must be placed in appropriate receptacles. Paper, rubbish, greasy or saturated rags or absorbent material, and discarded clothing must be disposed of properly.
- 129.5.4.** Never store paper, books, tools, or other items on the vehicle dashboard, rear window shelf, or floorboards. Keep these areas clean and free of clutter at all times.
- 129.5.5.** Operators must ensure tools, parts, and supplies to their proper storage location when they have finished using them.
- 129.5.6.** Operators must ensure hoses, welding leads, cords, cabinet doors, etc. are properly secured before movement.

129.6. Backing

- 129.6.1.** No reverse move is permitted when a forward move can safely be made in its place.
- 129.6.2.** Operators must stop and look to ensure their path is free of obstacles before backing.
- 129.6.3.** When two persons are present during a backing move (i.e., persons in the vehicle or immediate vicinity), the second person must direct the reverse move as a spotter.

- 129.6.4.** When backing vehicles without a backup alarm, operators must sound the horn with three short blasts before starting the backing movement.
- 129.7. Parking**
- 129.7.1.** When parking unattended vehicles, defined as a stopped vehicle when the operator is out of sight or more than 25 feet away, the transmission must be placed in park, engine shutoff, parking brake set, ignition key removed, and windows rolled up.
- 129.7.2.** When parking attended vehicles, defined as a stopped vehicle when the operator is in sight and within 25 feet, the same parking steps must be taken as with unattended vehicles. However, the engine may remain running if it is necessary for the vehicle to accomplish its designed function (i.e., boom or maintenance vehicle).
- 129.7.3.** When parking on a hill or grade, operator must position the vehicle's front wheels in a direction to prevent it from rolling into traffic lanes or roadways in case of unexpected movement while parked.
- 129.8. Crossing Railroad Tracks**
- 129.8.1.** Before proceeding over any railroad crossing, vehicles must make a complete stop, and operators must look both ways and listen. This includes crossings where no stop sign is posted. Only one stop is required for multiple crossings.
- 129.8.2.** Operators must approach track crossings at as close to a right angle as possible. Doing so will allow for the best line of sight for viewing potential approaching movements.
- 129.8.3.** In cases where the operator's line of sight is impaired or blocked, preventing a clear view of approaching traffic or trains, the driver must stop the vehicle and verify, either with a spotter or personal observation, that there will be no movement on the tracks being crossed.
- 129.8.4.** Operators must yield to trains, engines, railcars, and on-track equipment before proceeding across the track(s).
- 129.8.5.** Vehicles must not stop on, park on, or foul tracks, without proper authorization and protection.
- 129.9. Operating a Work Vehicle Between Tracks**
- 129.9.1.** When traveling between two unprotected tracks (no blue signal protection), one protected and one unprotected track, or two tracks where the vehicle cannot turn around safely, operators must only travel in the forward direction, unless the vehicle is specifically designed to operate bi-directionally (i.e., IBC Carts).
- 129.9.2.** When driving between protected tracks (blue signal protection) with limited clearance, drivers should make every effort to travel in a forward direction. If this is not possible, operators must follow section 129.6, Backing.

129.10. Driving Through Curves, Turns, and Around Corners

- 129.10.1.** When traveling around corners and curves, operators must slow down, stay alert for oncoming traffic or obstacles coming into view, and stay to the right unless lanes are specifically marked for alternate traffic flow.
- 129.10.2.** Operators must stop at all corners that are posted with a stop sign and where visibility is impaired, or traffic flow is not visible.
- 129.10.3.** Before turning or traveling past a blind corner, operators must sound a warning with the vehicle horn to provide an alert in case personnel are present. A blind corner is defined as a corner that the driver's view is obscured or limited due to obstacles such as buildings, materials, vehicles, fencing, etc.
- 129.10.4.** When turning a vehicle, operators must always look both ways and check for other vehicles approaching from behind.

129.11. Transporting Tools and Materials

- 129.11.1.** Operators must properly secure tools, equipment, material, and freight before movement.
- 129.11.2.** All materials and loads must be secured and placed to preclude interference with the driver's vision, freedom of motion, use of emergency equipment, or otherwise impair ability to operate the vehicle safely.
- 129.11.3.** Do not transport hazardous materials, such as gasoline, solvents, or other highly flammable liquids in the passenger compartment of automobiles, trucks, off-road or all-terrain vehicles such as four wheelers and utility vehicles.
- 129.11.4.** When it is necessary to carry or transport a reserve supply of gasoline (or other flammable material), a DOT-approved container must be used. Approved containers must be stored in a way to protect them from impact and secured to prevent unnecessary movement.
- 129.11.5.** When transporting hazardous materials, applicable federal and state regulations related to application of placards and maintaining of required shipping documents must be followed.

129.12. Trailers

- 129.12.1.** Trailers must be equipped with proper provisions to store and/or secure material loaded on the trailer, safety chains (except fifth-wheel or gooseneck trailers), required stop, tail, directional, and clearance lights, and electrical connectors compatible in size and design with those on the designated towing vehicle.
- 129.12.2.** Before towing trailers, inspect equipment and/or material loaded on the trailer to make sure it is in good condition and operable.
- 129.12.3.** Before movement, operators towing trailers must ensure all hitches and locking devices are engaged, safety chains (where applicable) are in place, and trailer lights and brakes (if equipped) are functioning.

- 129.12.4.** Equipment or material loaded on the trailer must not exceed the trailer's weight limit.
- 129.12.5.** Never utilize a trailer that is defective or incompatible in size and design with the tow vehicle.
- 129.13.** Off-Road or All-Terrain Vehicles
 - 129.13.1.** Only authorized drivers that have completed a safety training course specific to that equipment may operate an off-road or all-terrain vehicle such as a four-wheeler or utility vehicle.
 - 129.13.2.** Adjustments or disabling of any speed-limiting device on an off-road or all-terrain vehicle is prohibited.
 - 129.13.3.** Off-road or all-terrain vehicles must be operated only in designated areas.
 - 129.13.4.** Vehicles designed for one person must not be occupied by more than one person.
- 129.14.** Fueling Vehicles
 - 129.14.1.** Do not fuel vehicles while the engine is running.
 - 129.14.2.** Keep the nozzle of the fuel hose in contact with the fill pipe of tank during fueling.
 - 129.14.3.** When performing fueling functions, remain with the fuel pump during the fueling process.
 - 129.14.4.** Smoking or open flames of any type are prohibited during fueling operations.
 - 129.14.5.** A fire extinguisher must be available for immediate use during fueling operations.
 - 129.14.6.** Do not fuel vehicles inside buildings or enclosed structures.

PAINTING

Intermodal facilities should have painting programs ensuring protection of employees and the environment consistent with provisions published by OSHA in 1915.35 (OSHA, Surface Preparation and Preservation, 2020).

- 130.1.** Spray Painting (Definition) – Paint that is a combination of pigments, solvents, and various additives which are applied in an aerosol form to a prepared surface. Some spray paints contain highly toxic pigments and additives that contain toxic metals or materials like hexamethylene diisocyanate (HDI), which can pose serious health risks to those who are exposed. Proper precautions must be taken to protect both workers and those exposed due to general proximity.
- 130.2.** Importance of the Material Safety Data Sheet (MSDS) – Given the wide variety of chemicals and compounds used in paint manufacturing, there is not a “one size fits all” safety protocol for all paints and coatings available for use. A detailed review and full understanding of the MSDS of the product being applied is required to understand the specific requirements for each product. Failure to do so may result in injury due to improper use or toxic exposure.
- 130.3.** Ventilation – Proper ventilation is key to safe application of spray paint. “Engineering controls, such as ventilation, are used to prevent worker exposure to hazardous atmospheric conditions and fires or explosions. During the spray application of paints or coatings where the potential for such hazards exists, a shipyard competent person must conduct frequent tests to verify that solvent vapors are at a concentration below 10% of the lower explosive limit (LEL). Additionally, when using paint mixtures containing highly toxic, flammable, and explosive solvents with flash points below 80°F, employers must:
- 130.3.1.** Stop painting operations and immediately evacuate exposed workers when atmospheric testing indicates that the concentration of solvent vapors reaches or exceeds 10% of the lower explosive limit.
- 130.3.2.** Use exhaust ventilation that is discharged away from working areas and potential ignition sources to keep concentrations of flammable vapors below 10% of the lower explosive limit and prevent fires or explosions.
- 130.3.3.** Continue using ventilation after the completion of paint or coating applications to dissipate excess vapor concentrations, keeping the compartment or space gas free.
- 130.3.4.** Retest the atmosphere 10 minutes after ventilation has been discontinued to confirm that atmospheric conditions remain at an acceptable level.” (OSHA, Hazards Associated with Spray Painting in Shipyard Employment, 2020).

- 130.4.** Personal Protective Equipment – Employers must assess work activities at their facility to determine if hazards are present or likely to be present that require worker use of PPE. 29 CFR Part 1915, Subpart I (OSHA, Personal Protective Equipment, 2020), specifies employer responsibilities to provide workers with and ensure the use of PPE that will adequately protect them from the hazards identified. To protect workers from hazards associated with spray painting operations, employers must make sure workers use:
- 130.4.1.** Airline respirators with auxiliary self-contained air supply for emergency escape when paint mixed with toxic solvents is being applied through spray application in confined spaces. During exterior spray-painting operations, use of filter cartridge type respirators is required.
 - 130.4.2.** The appropriate PPE, such as protective clothing, gloves, goggles, and face shields, that prevent air sprayed coatings from contacting the worker’s face, eyes, head, hands, feet and other exposed skin
 - 130.4.3.** Non-sparking footwear and gloves to prevent static electricity, as well as coveralls or outer clothing made of cotton, and rubber gloves, rather than plastic, where paints or coatings in use have flash points below 80°F.” (OSHA, Hazards Associated with Spray Painting in Shipyard Employment, 2020).
- 130.5.** Disposal – Proper disposal of any excess material is important to ensure yourself, others, or the environment is not exposed to toxic materials. Each product’s MSDS should outline methods for proper disposal. Care should also be taken with any runoff, scrapings, or rags used during that application process that could have been contaminated with the material being used.
- 130.6.** Emergency Response – Toxic exposure and fire are very real dangers when handling or applying many kinds of paint. It’s important to be prepared for these events prior to starting application.
- 130.6.1.** Always make sure others in the area are aware of the chemicals you are working with and the hazards associated with them.
 - 130.6.2.** Fires and or explosions can occur without warning during the painting process. Fire extinguishers are a key safety element that should be within range of anyone handling paints. Not only do you need to know where the fire extinguisher is located but you must be familiar with the proper way to apply the available fire suppression prior to starting to paint.
 - 130.6.3.** If toxic exposure is suspected, you must call 911 for emergency services immediately. Depending on the chemicals being used, time could very much be of the essence, and quick medical evaluation is needed.
- 130.7.** Large Area Painting – The above is focused primarily on “spot painting” and does not focus on the safety standards needed for the safe application of large-scale paint application.

PERSONAL PROTECTIVE EQUIPMENT (PPE) & RESPIRATORY PROTECTION

OSHA provides substantial guidance on the use of PPE. This section was written using [OSHA 3151](#) (OSHA, Personal Protective Equipment, 2020) as a guide. OSHA guidance on Respiratory PPE is published in 29 CFR 1910.134 (OSHA, Occupational Safety and Health Standards, 2020).

Consult OSHA and consider intermodal facility operating conditions when establishing rules for PPE.

OSHA PPE requirements relating to Respiratory are found at 29 CFR 1910.134 (OSHA, Occupational Safety and Health Standards, 2020).

- PPE requirements are published at 29 CFR 1910.132 (General Requirements) (OSHA, 1910.132 – General requirements, 2020)
- 29 CFR 1910.133 (Eye and Face Protection) (OSHA, Personal Protective Equipment, 2020)
- 29 CFR 1910.135 (Head Protection) (OSHA, Head protection, 2020)
- 29 CFR 1910.136 (Foot Protection) (OSHA, Personal Protective Equipment, 2020)
- 29 CFR 1910.137 (Electrical Protective Equipment) (OSHA, Personal Protective Equipment, 2020)
- 29 CFR 1910.138 (Hand Protection) (OSHA, Personal Protective Equipment, 2020)

OSHA requires employers to be responsible for

- Performing a “hazard assessment” of the workplace to identify and control physical and health hazards.
- Identifying and providing appropriate PPE for employees.
- Training employees in the use and care of the PPE.
- Maintaining PPE, including replacing worn or damaged PPE.
- Periodically reviewing, updating and evaluating the effectiveness of the PPE program.
- In general, employees should:
 - Properly wear PPE,
 - Attend training sessions on PPE,
 - Care for, clean and maintain PPE, and
 - Inform a supervisor of the need to repair or replace PPE.

131.1. Always wear company-approved, properly fitted, and securely fastened PPE for your classification and/or work environment.

- 131.2.** All PPE must conform to American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), and Safety and Health Administration (OSHA) standards.
- 131.3.** Employees are responsible for keeping their PPE in good working condition and available for immediate use. Do not alter or otherwise tamper with PPE.
- 131.4.** The required PPE consists of hardhat (or bump cap at option of facility operator), safety eyewear, high visibility vests, hearing protection, and safety gloves as required. The employer provides those items; safety boots are required and are the responsibility of the employee.
- 131.5.** Hardhats
- 131.5.1.** Hardhats may be removed and stowed when inside a motor vehicle or lift equipment.
- 131.5.2.** They must be an OSHA approved Class G with a suspension assembly as prescribed by the ANSI- Z-89.1 standards (ANSI, Industrial Head Protection, 2020).
- 131.5.3.** Employees with less than one year of service must wear an orange high visibility hardhat.
- 131.5.4.** Hardhats will be inspected for serviceability prior to use.
- 131.5.5.** They will not be worn backwards.
- 131.5.6.** Do not drill or cut hardhats, and do not apply paint, decals, or other materials, including insect repellents that contain solvents or hydrocarbons.
- 131.5.7.** Never wear or carry anything inside your hardhat between the suspension and the shell.
- 131.5.8.** Nothing shall be worn on the head or face that could obstruct/impede peripheral vision or restrict movement of the head, neck, or shoulders. This includes hoodies in the up position and cold weather head gear.
- 131.6.** Safety Eyewear
- 131.6.1.** It must meet requirements of current ANSI Z87.1 (ANSI, Current Standard for Safety Glasses, 2020) to prevent and minimize injuries from eye hazards.
- 131.6.2.** Safety eyewear is required inside the cab of intermodal facility vehicles.
- 131.6.3.** It may be removed in lift equipment provided windows and doors are closed.
- 131.6.4.** Tinted safety eyewear is not permitted indoors or when other low light conditions exist.
- 131.6.5.** Prescription or corrective lens wearers must have prescription safety glasses with side shields or safety eyewear that covers the personal eyewear to the same degree.
- 131.6.7.** Face shields and splash-proof goggles shall be worn when performing work that could cause facial injury or exposure to chemicals.

131.7. Safety Boots

131.7.1. Open toe or open heel shoes are not permitted in any office or work area.

131.7.2. Safety boots must be steel or composite toed, meet the ASTM F2413-18 (ASTM, 2020) standard, and have a minimum of 6 inches of rise and provide ankle support, 1 inch defined heel, and lace up. Oil- and puncture-resistant soles are recommended.

131.8. High Visibility Clothing

131.8.1. High visibility garments must meet ANSI 107 class 2 (ANSI, ANSI/ISEA 107-2020: High-Visibility Safety Apparel, 2020) standards and be lime-green or fluorescent orange-red. Vests must be tear-away type.

131.8.2. High visibility and reflective safety gear must be worn as the outer layer.

131.9. Hearing Protection

131.9.1. Hearing protection devices must be worn where required by special instructions or posted notice. For additional information refer to the Hearing Conservation Programs policies in section 121 of this handbook.

131.9.2. Hearing protection is required when performing the following activities: Gate Operations, Securement and Yard/Ground Operations, Hostler or Spotter Truck Operations, Operating Container Handling Equipment Operations (side loader, reach stacker and empty handler operation). Hearing protection is not required while operating Widespan/RMG, RTG or Shuttle Carrier equipment

131.10. Jewelry

131.10.1. Finger rings and jewelry that could become entangled are not permitted outside an office environment.

131.10.2. Single-stud earrings are the only acceptable jewelry in the operational environment.

131.11. Work Clothing

131.11.1. Work clothing should be appropriate for the task and environment.

131.11.2. Shirts will have at least 1/4 length of sleeve and cover the upper body from waist to neck.

131.11.3. Pants must cover the body from the waist to the ankles and be properly fitted at the waist.

131.11.4. When required to wear a respirator, employees must not have facial hair where the sealing surface of the respirator comes into contact with the face.

131.12. Respiratory PPE

When employees must work in environments with insufficient oxygen or where harmful dusts, fogs, smokes, mists, fumes, gases, vapors, or sprays are present, they need respirators.

Where toxic substances are present in the workplace and engineering controls are inadequate to reduce or eliminate them, respirators are necessary. Some atmosphere supplying respirators can also be used to protect against oxygen-deficient atmospheres. Increased breathing rates, accelerated heartbeat, and impaired thinking or coordination occur more quickly in an oxygen-deficient or other hazardous atmosphere. Even a momentary loss of coordination can be devastating if it occurs while a worker is performing a potentially dangerous activity such as climbing a ladder.

131.12.1. Intermodal facility supervisors are responsible for:

- 131.12.1.1.** Ensuring that all personnel required to wear respiratory protection are knowledgeable about, and act in compliance with, the respiratory protection requirements.
- 131.12.1.2.** Ensuring that respiratory protection is used properly and in accordance with the manufacturer's instructions and intermodal facility training program.
- 131.12.1.3.** Ensuring that only approved respiratory protection devices are used when respiratory protection is required.
- 131.12.1.4.** Determining whether the use of respiratory protection interferes with the employee's ability to perform tasks safely and refer any issues to the intermodal facility Industrial Hygiene department.
- 131.12.1.5.** Documenting employee participation in required medical evaluations, follow up, and respirator fit testing.
- 131.12.1.6.** Documenting employee and contractor compliance with the Intermodal Facility Respiratory Protection Policy and Program.

131.12.2. Employees will use/wear respirators whenever engineering and work practice control measures are not adequate to prevent atmospheric contamination at the worksite.

- 131.12.2.1.** Employees will use provided respiratory protection devices per the intermodal facility's/or employer's safety rules, policies, and respiratory protection training.
- 131.12.2.2.** Employees will properly store and maintain respiratory protection devices.
- 131.12.2.3.** Employees will actively participate in training, medical evaluation and follow-up, and respirator fit testing and will inform supervisors if respiratory protection interferes with their ability to safely perform job tasks.

- 131.12.2.4.** Never wear a full beard when using a respirator. Facial hair can limit the effectiveness of a respirator's face-to-face piece seal.
- 131.12.2.5.** Always replace disposable respirators with every use. These respirators are not designed for repeated use.
- 131.12.2.6.** Always read the instructions that come with the respirator closely to determine if it is designed to help protect against the hazards you may face and to ensure that you use it properly.
- 131.12.2.7.** When inserting filters into a half-mask or full-mask respirator face piece, always remember to remove the protective covers from the filters before using the respirator.
- 131.12.2.8.** Employees will not use a respirator until a fit test is performed to ensure the respirator is properly fit tested.
- 131.12.2.9.** Filters on half-mask or full-mask respirators shall be frequently changed per the manufacturers' recommendation.
- 131.12.2.10.** Wear a full-mask respirator or a face shield along with your respirator to protect your face when working around airborne particles or debris.

PERSONNEL ON AND ABOUT TRACKS

The intermodal facility is responsible for ensuring employees, contractors, and visitors understand and comply with rules governing on-track safety.

- 132.1.** No worker may engage in any activity on or about a railcar unless the track is properly locked out at the switch providing access and/or derailleurs properly locked and blue flagged at both ends.
- 132.2.** If locomotives are within the blue signal protection and/or are connected to railcars while loading, unloading, or inspection, a blue light must be placed in the cab (near the controls) and a blue tag on the throttle. If multiple locomotive engines are attached, the first and last engine must be tagged and blue lighted.
- 132.3.** Tracks adjacent to working tracks must be locked out and tagged. Adjacent tracks, for the purpose of this requirement, are defined as 2 or more tracks with track centers spaced less than 15 feet apart. A multi-hole locking device must be installed when one or more crafts are working the same track(s).
- 132.4.** A clearly distinguishable blue flag or blue light by day and blue light by night must be displayed at or near each switch providing access to the track that is worked by personnel.
- 132.5.** The terminal leader and/or designated persons shall have possession of the keys for switches and derailleurs (whichever are used) during all operations involving the loading, unloading, and inspection of railcars.
- 132.6.** Terminal leaders and/or designated persons will not permit any activity on or around the railcars until switches and derails have been verified and secured.
- 132.7.** Following a personnel or shift change, blue signal status must be physically confirmed by the terminal leader and/or designated persons.
- 132.8.** If any person on the shift has doubt as to the protection on the track, that person will verify proper blue signal protection.
- 132.9.** Any person working on the shift has the authority to cease operations until proper blue signal protection is in place. No one shall commence work on any railcars unless certain all blue signal safety rules are being followed. This responsibility also applies to each employee.
- 132.10.** Derails
 - 132.10.1.** On tracks other than main line tracks, a derail capable of restricting access to that portion of the track, which will be worked by personnel, is permitted in place of locking switches.

- 132.10.2.** The derailer will fulfill the requirements of a locked switch when positioned no less than 150 feet from the end of the equipment being loaded, and each derailer must be locked in a derailing position with an effective locking device, and a blue signal must be displayed at each derail.
- 132.10.3.** If the facility is unable to comply with the 150 feet minimum requirement, the switch providing access to the track must be locked.
- 132.10.4.** Derailers, including portable derailers, must be locked at all times when placed on a track, whether in the “derail” position, or in the “open” position to prevent tampering or removal.
- 132.10.5.** When installing additional or moving derailers, intermodal facility personnel will notify the local Yardmaster, Trainmaster, or Director of Operations responsible for the location.
- 132.11.** Switches

 - 132.11.1.** Each switch providing access to a track that will be worked by personnel must be lined against movement to that track and locked with an effective locking device.
 - 132.11.2.** If the track to be worked by personnel is on a track equipped with one or more crossovers, both switches of each crossover must be lined against movement through the crossover and locked.
- 132.12.** The intermodal facility has overall responsibility for ensuring employees understand and comply with the rules governing on-track safety. The following are the responsibility of each employee:

 - 132.12.1.** Compliance with operating rules
 - 132.12.2.** Remaining clear of tracks until required by the job task
 - 132.12.3.** Determining that the appropriate on-track safety has been established before fouling a track
- 132.13.** Only one qualified intermodal facility personnel, referred to as the employee-in-charge, establishes and controls working limits for the purpose of on-track safety. They ensure that the crew do not perform any work that:

 - 132.13.1.** Interferes with the safe passage of trains,
 - 132.13.2.** Is not properly protected,
 - 132.13.3.** Is not in accordance with operating rules,
 - 132.13.4.** Interferes with the proper functioning of switch machines or code apparatus,
or
 - 132.13.5.** Interferes with the proper functioning of signal control machines or code apparatus.
- 132.14.** Upon discovery of damage to a facility rail infrastructure, report the damage and arrange for necessary repairs.

- 132.15.** All parked or secured equipment and vehicles must remain a minimum of 7 feet from the nearest rail of any track unless protected by the appropriate track protection.
- 132.16.** Work performed by contractors must be monitored to ensure:
- 132.16.1.** No work, activity, or equipment interferes with the safe passage of trains.
 - 132.16.2.** Neither contractors nor their equipment fouls a track unless protection has been provided.
- 132.17.** Intermodal facility employees operating switches or derails are responsible for the position of the devices and must visually determine switches and derails are properly lined for the intended route.

POWERED INDUSTRIAL TRUCKS – FORKLIFTS

This section contains safety guidance relating to fire protection, design, maintenance, and use of fork trucks, tractors, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines. This section does not apply to compressed air or nonflammable compressed gas-operated industrial trucks, nor to farm vehicles, nor to vehicles intended primarily for earth moving or over-the-road hauling. OSHA 29 CFR 1910.178 (OSHA, Materials Handling and Storage, 2020)

- 133.1.** All new powered industrial trucks acquired and used by an employer shall meet the design and construction requirements for powered industrial trucks established in the “American National Standard for Powered Industrial Trucks, Part II, ANSI B56.1-1969”, which is incorporated by reference as specified in section 1910.6 (OSHA, General, 2020), except for vehicles intended primarily for earth moving or over-the-road hauling.
- 133.2.** Approved trucks shall bear a label or some other identifying mark indicating approval by the testing laboratory. See section 1910.178 (a)(7) 405 of “American National Standard for Powered Industrial Trucks, Part II, ANSI B56.1-1969”, which is incorporated by reference in section 1910.178 (a)(2) (OSHA, Materials Handling and Storage, 2020) and which provides that if the powered industrial truck is accepted by a nationally recognized testing laboratory it should be so marked.
- 133.3.** Modifications and additions which affect capacity and safe operation shall not be performed by the customer or user without manufacturers prior written approval. Capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly.
- 133.4.** If the truck is equipped with front-end attachments other than factory installed attachments, the user shall request that the truck be marked to identify the attachments and show the approximate weight of the truck and attachment combination at maximum elevation with load laterally centered.
- 133.5.** The user shall see that all nameplates and markings are in place and are maintained in a legible condition.
- 133.6.** As used in this section, the term approved truck or approved industrial truck means a truck that is listed or approved for fire safety purposes for the intended use by a nationally recognized testing laboratory, using nationally recognized testing standards. Refer to section 1910.155(c)(3)(iv)(A) (OSHA, Fire Protection, 2020) for definition of listed, and to section 1910.7 (OSHA, General, 2020) for definition of nationally recognized testing laboratory.
- 133.7.** Designations – For the purpose of this standard there are eleven different designations of industrial trucks or tractors as follows: D, DS, DY, E, ES, EE, EX, G, GS, LP, and LPS.

- 133.8.** The D designated units are units similar to the G units except that they are diesel engine powered instead of gasoline engine powered.
- 133.9.** The DS designated units are diesel-powered units that are provided with additional safeguards to the exhaust, fuel, and electrical systems. They may be used in some locations where a D unit may not be considered suitable.
- 133.10.** The DY designated units are diesel-powered units that have all the safeguards of the DS units and in addition do not have any electrical equipment including the ignition and are equipped with temperature-limitation features.
- 133.11.** The E designated units are electrically powered units that have minimum acceptable safeguards against inherent fire hazards.
- 133.12.** The ES designated units are electrically powered units that, in addition to all of the requirements for the E units, are provided with additional safeguards to the electrical system to prevent emission of hazardous sparks and to limit surface temperatures. They may be used in some locations where the use of an E unit may not be considered suitable.
- 133.13.** The EE designated units are electrically powered units that have, in addition to all of the requirements for the E and ES units, the electric motors and all other electrical equipment completely enclosed. In certain locations the EE unit may be used where the use of an E and ES unit may not be considered suitable.
- 133.14.** The EX designated units are electrically powered units that differ from the E, ES, or EE units in that the electrical fittings and equipment are so designed, constructed, and assembled that the units may be used in certain atmospheres containing flammable vapors or dusts.
- 133.15.** The G designated units are gasoline-powered units having minimum acceptable safeguards against inherent fire hazards.
- 133.16.** The GS designated units are gasoline-powered units that are provided with additional safeguards to the exhaust, fuel, and electrical systems. They may be used in some locations where the use of a G unit may not be considered suitable.
- 133.17.** The LP designated unit is similar to the G unit except that liquefied petroleum gas is used for fuel instead of gasoline.
- 133.18.** The LPS designated units are liquefied petroleum gas powered units that are provided with additional safeguards to the exhaust, fuel, and electrical systems. They may be used in some locations where the use of an LP unit may not be considered suitable.
- 133.19.** The atmosphere or location shall have been classified as to whether it is hazardous or nonhazardous prior to the consideration of industrial trucks being used therein and the type of industrial truck required shall be as provided in accordance with section 1910.178 (d) (OSHA, Materials Handling and Storage, 2020) for such location.

133.20. Designated Locations

- 133.20.1.** The industrial trucks specified under subparagraph (2) of section 1910.178 (OSHA, Materials Handling and Storage, 2020) are the minimum types required but industrial trucks having greater safeguards may be used if desired. For specific areas of use, see Table N-1, which tabulates the information contained in this section. References are to the corresponding classification as used in subpart S of section 1910.178 (OSHA, Materials Handling and Storage, 2020).
- 133.21.** Power-operated industrial trucks shall not be used in atmospheres containing hazardous concentration of acetylene, butadiene, ethylene oxide, hydrogen (or gases or vapors equivalent in hazard to hydrogen, such as manufactured gas), propylene oxide, acetaldehyde, cyclopropane, diethyl ether, ethylene, isoprene, or unsymmetrical dimethyl hydrazine (UDMH).
- 133.22.** Power-operated industrial trucks shall not be used in atmospheres containing hazardous concentrations of metal dust, including aluminum, magnesium, and their commercial alloys, other metals of similarly hazardous characteristics, or in atmospheres containing carbon black, coal, or coke dust except approved power-operated industrial trucks designated as EX may be used in such atmospheres.
- 133.23.** In atmospheres where dust of magnesium, aluminum, or aluminum bronze may be present, fuses, switches, motor controllers, and circuit breakers of trucks shall have enclosures specifically approved for such locations.
- 133.24.** Only approved power-operated industrial trucks designated as EX may be used in atmospheres containing acetone, acrylonitrile, alcohol, ammonia, benzene, benzol, butane, ethylene dichloride, gasoline, hexane, lacquer solvent vapors, naphtha, natural gas, propane, propylene, styrene, vinyl acetate, vinyl chloride, or xylenes in quantities sufficient to produce explosive or ignitable mixtures and where such concentrations of these gases or vapors exist continuously, intermittently, or periodically under normal operating conditions or may exist frequently because of repair, maintenance operations, leakage, breakdown, or faulty operation of equipment.
- 133.25.** Power-operated industrial trucks designated as DY, EE, or EX may be used in locations where volatile flammable liquids or flammable gases are handled, processed, or used, but in which the hazardous liquids, vapors, or gases will normally be confined within closed containers or closed systems from which they can escape only in case of accidental rupture or breakdown of such containers or systems, or in the case of abnormal operation of equipment; also in locations in which hazardous concentrations of gases or vapors are normally prevented by positive mechanical ventilation but which might become hazardous through failure or abnormal operation of the ventilating equipment; or in locations which are adjacent to Class I, Division 1 locations, and to which hazardous concentrations of gases or vapors might occasionally be communicated unless such communication is prevented by adequate positive-pressure ventilation from a source of clear air, and effective safeguards against ventilation failure are provided.

Table N-1-Summary Table on Use of Industrial Trucks in Various Locations (OSHA, Materials Handling and Storage, 2020)

Classes	Unclassified	Class I locations	Class II locations	Class III locations
Description of classes	Locations not possessing atmospheres as described in other columns	Locations in which flammable gases or vapors are, or may be, present in the air in quantities sufficient to produce explosive or ignitable mixtures	Locations which are hazardous because of the presence of combustible dust	Locations where easily ignitable fibers or flyings are present but not likely to be in suspension in quantities sufficient to produce ignitable mixtures.

Groups in classes	None	A	B	C	D	E	F	G	None
Examples of locations or atmospheres in classes and groups	Piers and wharves inside and outside general storage, general industrial, or commercial properties	Acetylene	Hydrogen	Ethyl ether	Gasoline Naphtha Alcohols Acetone Lacquer solvent Benzene	Metal dust	Carbon black coal dust, coke dust	Grain dust, flour dust, starch dust, organic dust	Baled waste, cocoa fiber, cotton, excelsior, hemp, istle, jute, kapok, oakum, sisal, Spanish moss, synthetic fibers, tow

Table N-1-Summary Table on Use of Industrial Trucks in Various Locations-Continued

		1	2	1	2	1	2
Divisions (nature of hazardous conditions)	None	Above condition exists continuously, intermittently, or periodically under normal operating conditions	Above condition may occur accidentally as due to a puncture of a storage drum	Explosive mixture may be present under normal operating conditions, or where failure of equipment may cause the condition to exist simultaneously with arcing or sparking of electrical equipment, or where dusts of an electrically conducting nature may be present	Explosive mixture not normally present, but where deposits of dust may cause heat rise in electrical equipment, or where such deposits may be ignited by arcs or sparks from electrical equipment	Locations in which easily ignitable fibers or materials producing combustible flyings are handled, manufactured, or used	Locations in which easily ignitable fibers are stored or handled (except in the process of manufacture)

Authorized uses of trucks by types in groups of classes and divisions																		
Groups in classes	None	A	B	C	D	A	B	C	D	E	F	G	E	F	G	None	None	
Type of truck authorized:																		
Diesel:																		
Type D	D**																	
Type DS									DS						DS		DS	
Type DY									DY						DY	DY	DY	
Electric:																		
Type E	E**																E	
Type ES									ES						ES		ES	
Type EE									EE						EE	EE	EE	
Type EX					EX				EX	EX	EX				EX	EX	EX	
Gasoline:																		
Type G	G**																	
Type GS									GS						GS		GS	
LP-Gas:																		
Type LP	LP**																	
Type LPS									LPS						LPS		LPS	
Paragraph Ref. in No. 505	210.211		201 (a)		203 (a)				204 (a), (b)		202 (a)	205 (a)		209 (a)	206 (a), (b)	207(a)	208 (a)	

**Trucks conforming to these types may also be used – see subdivision (c)(2)(x) and (c)(2)(xii) of this section.

- 133.26.** In locations used for the storage of hazardous liquids in sealed containers or liquefied or compressed gases in containers, approved power-operated industrial trucks designated as DS, ES, GS, or LPS may be used. This classification includes locations where volatile flammable liquids or flammable gases or vapors are used, but which would become hazardous only in case of an accident or of some unusual operating condition. The quantity of hazardous material that might escape in case of accident, the adequacy of ventilating equipment, the total area involved, and the record of the industry or business with respect to explosions or fires are all factors that should receive consideration in determining whether or not the DS or DY, ES, EE, GS, LPS designated truck possesses sufficient safeguards for the location. Piping without valves, checks, meters, and similar devices would not ordinarily be deemed to introduce a hazardous condition even though used for hazardous liquids or gases. Locations used for the storage of hazardous liquids or of liquefied or compressed gases in sealed containers would not normally be considered hazardous unless subject to other hazardous conditions also.
- 133.27.** Only approved power-operated industrial trucks designated as EX shall be used in atmospheres in which combustible dust is or may be in suspension continuously, intermittently, or periodically under normal operating conditions, in quantities sufficient to produce explosive or ignitable mixtures, or where mechanical failure or abnormal operation of machinery or equipment might cause such mixtures to be produced.
- 133.28.** The EX classification usually includes the working areas of grain handling and storage plants, room containing grinders or pulverizers, cleaners, graders, scalpels, open conveyors or spouts, open bins or hoppers, mixers or blenders, automatic or hopper scales, packing machinery, elevator heads and boots, stock distributors, dust and stock collectors (except all-metal collectors vented to the outside), and all similar dust-producing machinery and equipment in grain processing plants, starch plants, sugar pulverizing plants, malting plants, hay grinding plants, and other occupancies of similar nature; coal pulverizing plants (except where the pulverizing equipment is essentially dust tight); all working areas where metal dusts and powders are produced, processed, handled, packed, or stored (except in tight containers); and other similar locations where combustible dust may, under normal operating conditions, be present in the air in quantities sufficient to produce explosive or ignitable mixtures.
- 133.29.** Only approved power-operated industrial trucks designated as DY, EE, or EX shall be used in atmospheres in which combustible dust will not normally be in suspension in the air or will not be likely to be thrown into suspension by the normal operation of equipment or apparatus in quantities sufficient to produce explosive or ignitable mixtures but where deposits or accumulations of such dust may be ignited by arcs or sparks originating in the truck.
- 133.30.** Only approved power-operated industrial trucks designated as DY, EE, or EX shall be used in locations which are hazardous because of the presence of easily ignitable fibers or flyings but in which such fibers or flyings are not likely to be in suspension in the air in quantities sufficient to produce ignitable mixtures.

- 133.31.** Only approved power-operated industrial trucks designated as DS, DY, ES, EE, EX, GS, or LPS shall be used in locations where easily ignitable fibers are stored or handled, including outside storage, but are not being processed or manufactured. Industrial trucks designated as E, which have been previously used in these locations may be continued in use.
- 133.32.** On piers and wharves handling general cargo, any approved power-operated industrial truck designated as Type D, E, G, or LP may be used, or trucks which conform to the requirements for these types may be used.
- 133.33.** If storage warehouses and outside storage locations are hazardous only the approved power-operated industrial truck specified for such locations in section 1910.178 (c) (2) (OSHA, Materials Handling and Storage, 2020) shall be used. If not classified as hazardous, any approved power-operated industrial truck designated as Type D, E, G, or LP may be used, or trucks which conform to the requirements for these types may be used.
- 133.34.** If general industrial or commercial properties are hazardous, only approved power-operated industrial trucks specified for such locations in section 1910.178 (c)(2) (OSHA, Materials Handling and Storage, 2020) shall be used. If not classified as hazardous, any approved power-operated industrial truck designated as Type D, E, G, or LP may be used, or trucks which conform to the requirements of these types may be used.
- 133.35.** Converted Industrial Trucks – Power-operated industrial trucks that have been originally approved for the use of gasoline for fuel, when converted to the use of liquefied petroleum gas fuel in accordance with section 1910.178 (q) (OSHA, Materials Handling and Storage, 2020), may be used in those locations where G, GS or LP, and LPS designated trucks have been specified in the preceding paragraphs.
- 133.36.** Safety Guards
- 133.36.1.** High lift rider trucks shall be fitted with an overhead guard manufactured in accordance section 1910.178 (a)(2) (OSHA, Materials Handling and Storage, 2020), unless operating conditions do not permit.
- 133.36.2.** If the type of load presents a hazard, the user shall equip fork trucks with a vertical load backrest extension manufactured in accordance with section 1910.178 (a)(2) (OSHA, Materials Handling and Storage, 2020).
- 133.37.** Fuel Handling and Storage
- 133.37.1.** The storage and handling of liquid fuels such as gasoline and diesel fuel shall be in accordance with NFPA Flammable and Combustible Liquids Code (NFPA No. 30-1969), which is incorporated by reference as specified in section 1910.6 (OSHA, General, 2020).
- 133.37.2.** The storage and handling of liquefied petroleum gas fuel shall be in accordance with NFPA Storage and Handling of Liquefied Petroleum Gases (NFPA No. 58-1969), which is incorporated by reference as specified in section 1910.6 (OSHA, General, 2020).

133.38. Changing and Charging Storage Batteries

- 133.38.1.** Battery charging installations shall be located in areas designated for that purpose.
- 133.38.2.** Facilities shall be provided for flushing and neutralizing spilled electrolyte, for fire protection, for protecting charging apparatus from damage by trucks, and for adequate ventilation for dispersal of fumes from gassing batteries.
- 133.38.3.** A conveyor, overhead hoist, or equivalent material handling equipment shall be provided for handling batteries.
- 133.38.4.** Reinstalled batteries shall be properly positioned and secured in the truck.
- 133.38.5.** A carboy tilter or siphon shall be provided for handling electrolyte.
- 133.38.6.** When charging batteries, acid shall be poured into water; water shall not be poured into acid.
- 133.38.7.** Trucks shall be properly positioned, and brakes applied before attempting to change or charge batteries.
- 133.38.8.** Care shall be taken to assure that vent caps are functioning. The battery (or compartment) cover(s) shall be open to dissipate heat.
- 133.38.9.** Smoking shall be prohibited in the charging area.
- 133.38.10.** Precautions shall be taken to prevent open flames, sparks, or electric arcs in battery charging areas.
- 133.38.11.** Tools and other metallic objects shall be kept away from the top of uncovered batteries.

133.39. Lighting for Operating Areas

- 133.39.1.** Where general lighting is less than 2 lumens per square foot, auxiliary directional lighting shall be provided on the truck.

133.40. Control of Noxious Gases and Fumes

- 133.40.1.** Concentration levels of carbon monoxide gas created by powered industrial truck operations shall not exceed the levels specified in section 1910.1000.

133.41. Dock Boards (bridge plates) – See 29 CFR 1910.26 subpart D (OSHA, Walking-Working Surfaces, 2020).

133.42. Trucks and Railroad Cars

- 133.42.1.** The brakes of highway trucks shall be set and wheel chocks placed under the rear wheels to prevent the trucks from rolling while they are boarded with powered industrial trucks.
- 133.42.2.** Wheel stops or other recognized positive protection shall be provided to prevent railroad cars from moving during loading or unloading operations.
- 133.42.3.** Fixed jacks may be necessary to support a semitrailer and prevent upending during the loading or unloading when the trailer is not coupled to a tractor.

133.42.4. Positive protection shall be provided to prevent railroad cars from being moved while dockboards or bridge plates are in position.

133.43. Operator Training

133.43.1. The employer shall ensure that each powered industrial truck operator is competent to operate a powered industrial truck safely, as demonstrated by the successful completion of the training and evaluation specified in section 1910.178 (I) (OSHA, Materials Handling and Storage, 2020).

133.43.2. Prior to permitting an employee to operate a powered industrial truck (except for training purposes), the employer shall ensure that each operator has successfully completed the training required by section 1910.178 (I) (OSHA, Materials Handling and Storage, 2020), except as permitted by section 1910.178 (I)(5) (OSHA, Materials Handling and Storage, 2020).

133.44. Training Program Implementation

133.44.1. Trainees may operate a powered industrial truck only:

133.44.1.1. Under the direct supervision of persons who have the knowledge, training, and experience to train operators and evaluate their competence; and where such operation does not endanger the trainee or other employees.

133.44.1.2. Training shall consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace.

133.44.1.3. All operator training and evaluation shall be conducted by persons who have the knowledge, training, and experience to train powered industrial truck operators and evaluate their competence.

133.45. Training Program Content

Powered industrial truck operators shall receive initial training in the following topics, except in topics which the employer can demonstrate are not applicable to safe operation of the truck in the employer's workplace.

133.45.1. Truck-Related Topics

133.45.1.1. Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate

133.45.1.2. Differences between the truck and the automobile

133.45.1.3. Truck controls and instrumentation - where they are located, what they do, and how they work

133.45.1.4. Engine or motor operation

133.45.1.5. Steering and maneuvering

- 133.45.1.6.** Visibility (including restrictions due to loading)
- 133.45.1.7.** Fork and attachment adaptation, operation, and use limitations
- 133.45.1.8.** Vehicle capacity
- 133.45.1.9.** Vehicle stability
- 133.45.1.10.** Any vehicle inspection and maintenance that the operator will be required to perform
- 133.45.1.11.** Refueling and/or charging and recharging of batteries
- 133.45.1.12.** Operating limitations
- 133.45.1.13.** Any other operating instructions, warnings, or precautions listed in the operator’s manual for the types of vehicle that the employee is being trained to operate
- 133.45.2.** Workplace-related topics
 - 133.45.2.1.** Surface conditions where the vehicle will be operated
 - 133.45.2.2.** Composition of loads to be carried and load stability
 - 133.45.2.3.** Load manipulation, stacking, and unstacking
 - 133.45.2.4.** Pedestrian traffic in areas where the vehicle will be operated
 - 133.45.2.5.** Narrow aisles and other restricted places where the vehicle will be operated
 - 133.45.2.6.** Hazardous (classified) locations where the vehicle will be operated
 - 133.45.2.7.** Ramps and other sloped surfaces that could affect the vehicle’s stability
 - 133.45.2.8.** Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust
 - 133.45.2.9.** Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation
 - 133.45.2.10.** The requirements of this section
- 133.46.** Refresher Training and Evaluation
 - 133.46.1.** Refresher training, including an evaluation of the effectiveness of that training, shall be conducted as required by section 1910.178 (l)(4)(ii) (OSHA, Materials Handling and Storage, 2020) to ensure that the operator has the knowledge and skills needed to operate the powered industrial truck safely.
 - 133.46.2.** Refresher training in relevant topics shall be provided to the operator when:
 - 133.46.2.1.** The operator has been observed to operate the vehicle in an unsafe manner.
 - 133.46.2.2.** The operator has been involved in an accident or near-miss incident.

- 133.46.2.3.** The operator has received an evaluation that reveals that the operator is not operating the truck safely.
- 133.46.2.4.** The operator is assigned to drive a different type of truck.
- 133.46.2.5.** A condition in the workplace changes in a manner that could affect safe operation of the truck.
- 133.46.2.6.** An evaluation of each powered industrial truck operator's performance shall be conducted at least once every 3 years.
- 133.46.2.7.** Avoidance of Duplicative Training – If an operator has previously received training in a topic specified in section 1910.178 (l)(3) (OSHA, Materials Handling and Storage, 2020), and such training is appropriate to the truck and working conditions encountered, additional training in that topic is not required if the operator has been evaluated and found competent to operate the truck safely.

133.47. Certification

The employer shall certify that each operator has been trained and evaluated as required by section 1910.178 (l) (OSHA, Materials Handling and Storage, 2020). The certification shall include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.

- 133.47.1.** Dates – The employer shall ensure that operators of powered industrial trucks are trained, as appropriate, by the dates shown in the following table.

If the employee was hired:	The initial training and evaluation of that employee must be completed:
Before December 1, 1999	By December 1, 1999.
After December 1, 1999	Before the employee is assigned to operate a powered industrial truck.

133.48. Truck Operations

- 133.48.1.** Trucks shall not be driven up to anyone standing in front of a bench or other fixed object.
- 133.48.2.** No person shall be allowed to stand or pass under the elevated portion of any truck, whether loaded or empty.
- 133.48.3.** Unauthorized personnel shall not be permitted to ride on powered industrial trucks. A safe place to ride shall be provided where riding of trucks is authorized.
- 133.48.4.** The employer shall prohibit arms or legs from being placed between the uprights of the mast or outside the running lines of the truck.
- 133.48.5.** When a powered industrial truck is left unattended, load engaging means shall be fully lowered, controls shall be neutralized, power shall be shut off, and brakes set. Wheels shall be blocked if the truck is parked on an incline.

- 133.48.6.** A powered industrial truck is unattended when the operator is 25 feet or more away from the vehicle that remains in his view, or whenever the operator leaves the vehicle and it is not in his view.
- 133.48.7.** When the operator of an industrial truck is dismounted and within 25 feet of the truck still in his view, the load engaging means shall be fully lowered, controls neutralized, and the brakes set to prevent movement.
- 133.48.8.** A safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock or platform or freight car. Trucks shall not be used for opening or closing freight doors.
- 133.48.9.** Brakes shall be set, and wheel blocks shall be in place to prevent movement of trucks, trailers, or railroad cars while loading or unloading. Fixed jacks may be necessary to support a semitrailer during loading or unloading when the trailer is not coupled to a tractor. The flooring of trucks, trailers, and railroad cars shall be checked for breaks and weakness before they are driven onto.
- 133.48.10.** There shall be sufficient headroom under overhead installations, lights, pipes, sprinkler systems, etc.
- 133.48.11.** An overhead guard shall be used as protection against falling objects. It should be noted that an overhead guard is intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application, but not to withstand the impact of a falling capacity load.
- 133.48.12.** A load backrest extension shall be used whenever necessary to minimize the possibility of the load or part of it from falling rearward.
- 133.48.13.** Only approved industrial trucks shall be used in hazardous locations.
- 133.48.14.** Fire aisles, access to stairways, and fire equipment shall be kept clear.
- 133.49.** Traveling
 - 133.49.1.** All traffic regulations shall be observed, including authorized plant speed limits. A safe distance shall be maintained, approximately three truck lengths from the truck ahead, and the truck shall be kept under control at all times.
 - 133.49.2.** The right of way shall be yielded to ambulances, fire trucks, or other vehicles in emergency situations.
 - 133.49.3.** Other trucks traveling in the same direction at intersections, blind spots, or other dangerous locations shall not be passed.
 - 133.49.4.** The driver shall be required to slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver shall be required to travel with the load trailing.
 - 133.49.5.** Railroad tracks shall be crossed diagonally wherever possible. Parking closer than 8 feet from the center of railroad tracks is prohibited.
 - 133.49.6.** The driver shall be required to look in the direction of and keep a clear view of the path of travel.

- 133.49.7.** Grades shall be ascended or descended slowly.
- 133.49.8.** When ascending or descending grades in excess of 10%, loaded trucks shall be driven with the load upgrade.
- 133.49.9.** On all grades the load and load engaging means shall be tilted back if applicable and raised only as far as necessary to clear the road surface.
- 133.49.10.** Under all travel conditions the truck shall be operated at a speed that will permit it to be brought to a stop in a safe manner.
- 133.49.11.** Stunt driving and horseplay shall not be permitted.
- 133.49.12.** The driver shall be required to slow down for wet and slippery floors.
- 133.49.13.** Dockboard or bridgeplates shall be properly secured before they are driven over.
- 133.49.14.** Dockboard or bridgeplates shall be driven over carefully and slowly and their rated capacity never exceeded.
- 133.49.15.** Elevators shall be approached slowly, and then entered squarely after the elevator car is properly leveled. Once on the elevator, the controls shall be neutralized, power shut off, and the brakes set.
- 133.49.16.** Motorized hand trucks must enter an elevator or other confined areas with load end forward.
- 133.49.17.** Running over loose objects on the roadway surface shall be avoided.
- 133.49.18.** While negotiating turns, speed shall be reduced to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion. Except when maneuvering at a very low speed, the hand steering wheel shall be turned at a moderate, even rate.
- 133.50.** Loading
 - 133.50.1.** Only stable or safely arranged loads shall be handled. Caution shall be exercised when handling off-center loads which cannot be centered.
 - 133.50.2.** Only loads within the rated capacity of the truck shall be handled.
 - 133.50.3.** The long or high (including multiple-tiered) loads which may affect capacity shall be adjusted.
 - 133.50.4.** Trucks equipped with attachments shall be operated as partially loaded trucks when not handling a load.
 - 133.50.5.** A load engaging means shall be placed under the load as far as possible; the mast shall be carefully tilted backward to stabilize the load.
 - 133.50.6.** Extreme care shall be used when tilting the load forward or backward, particularly when high tiering. Tilting forward with load engaging means elevating shall be prohibited except to pick up a load. An elevated load shall not be tilted forward except when the load is in a deposit position over a rack or stack. When stacking or tiering, only enough backward tilt to stabilize the load shall be used.

133.51. Operation of the Truck

- 133.51.1.** If at any time a powered industrial truck is found to be in need of repair, defective, or in any way unsafe, the truck shall be taken out of service until it has been restored to safe operating condition.
- 133.51.2.** Fuel tanks shall not be filled while the engine is running. Spillage shall be avoided.
- 133.51.3.** Spillage of oil or fuel shall be carefully washed away or completely evaporated and the fuel tank cap replaced before restarting the engine.
- 133.51.4.** No truck shall be operated with a leak in the fuel system until the leak has been corrected.
- 133.51.5.** Open flames shall not be used for checking electrolyte level in storage batteries or gasoline level in fuel tanks.

133.52. Maintenance of Industrial Trucks

- 133.52.1.** Any power-operated industrial truck not in safe operating condition shall be removed from service. All repairs shall be made by authorized personnel.
- 133.52.2.** No repairs shall be made in Class I, II, and III locations.
- 133.52.3.** Those repairs to the fuel and ignition systems of industrial trucks which involve fire hazards shall be conducted only in locations designated for such repairs.
- 133.52.4.** Trucks in need of repairs to the electrical system shall have the battery disconnected prior to such repairs.
- 133.52.5.** All parts of any such industrial truck requiring replacement shall be replaced only by parts equivalent as to safety with those used in the original design.
- 133.52.6.** Industrial trucks shall not be altered so that the relative positions of the various parts are different from what they were when originally received from the manufacturer, nor shall they be altered either by the addition of extra parts not provided by the manufacturer or by the elimination of any parts, except as provided in section 1910.178 (q)(12) (OSHA, Materials Handling and Storage, 2020). Additional counterweighting of fork trucks shall not be done unless approved by the truck manufacturer.
- 133.52.7.** Industrial trucks shall be examined before being placed in service and shall not be placed in service if the examination shows any condition adversely affecting the safety of the vehicle. Such examination shall be made at least daily.
- 133.52.8.** Where industrial trucks are used on a round-the-clock basis, they shall be examined after each shift. Defects when found shall be immediately reported and corrected.

- 133.52.9.** Water mufflers shall be filled daily or as frequently as is necessary to prevent depletion of the supply of water below 75% of the filled capacity. Vehicles with mufflers having screens or other parts that may become clogged shall not be operated while such screens or parts are clogged. Any vehicle that emits hazardous sparks or flames from the exhaust system shall immediately be removed from service, and not returned to service until the cause for the emission of such sparks and flames has been eliminated.
- 133.52.10.** When the temperature of any part of any truck is found to be in excess of its normal operating temperature, thus creating a hazardous condition, the vehicle shall be removed from service and not returned to service until the cause for such overheating has been eliminated.
- 133.52.11.** Industrial trucks shall be kept in a clean condition, free of lint, excess oil, and grease. Noncombustible agents should be used for cleaning trucks. Low flash point (below 100 °F.) solvents shall not be used. High flash point (at or above 100 °F.) solvents may be used. Precautions regarding toxicity, ventilation, and fire hazard shall be consonant with the agent or solvent used.
- 133.52.12.** Industrial trucks originally approved for the use of gasoline for fuel may be converted to liquefied petroleum gas fuel provided the complete conversion results in a truck which embodies the features specified for LP or LPS designated trucks. Such conversion equipment shall be approved.

POWERED PLATFORMS, MANLIFTS AND VEHICLE-MOUNTED WORK PLATFORMS

OSHA standards applying to the use of aerial platforms (manlifts and vehicle-mounted platforms) are 29 CFR 1910.67, 29 CFR 1910.269(p), 29 CFR 1926.21, 29 CFR 1926.453, 29 CFR 1926.502 (OSHA, Regulations (Standards - 29 CFR), 2020). For purposes of this Handbook, powered platforms refers to the following equipment: extendable boom platforms, aerial ladders, articulating boom platforms, vertical towers, or any combination of these. The OSHA Fact Sheet on Aerial Lifts was used to develop this section of the Handbook (OSHA, Aerial Lifts, 2020).

Use of powered platforms on the intermodal facility should include a full understanding of hazards and safety rules described elsewhere in this Handbook to include but not limited to PPE, fall protection, LOTO, electrical safety, and clearance for movement.

- 134.1.** Prior to use of a powered platform, a full safety inspection will be completed, job brief thoroughly discussed, and watchman lookout assigned to help ensure safe movement during use of the equipment.
- 134.2.** Workers who operate aerial lifts will be properly trained in the safe use of the equipment and the training recorded at least triennially.
- 134.3.** Prior to use, the controls will be tested and cycled as part of the daily inspection. All controls will be clearly marked as to their function.
- 134.4.** Never override hydraulic, mechanical, or electrical safety devices. Maintain and operate aerial lifts according to the manufacturer's instructions.
- 134.5.** Workers will always stand firmly on the basket floor. Do not sit or climb on the edge or rails of the basket. Never use planks, boxes, or other items inside the basket to extend reach of the equipment.
- 134.6.** Prior to starting work, position the platform so that all wheels of the lift are on a solid base. Use outriggers, if provided. Set the brakes, and use wheel chocks when on an incline.
- 134.7.** Do not exceed the load limits of the equipment. Allow for the combined weight of the worker(s), tools, and materials.
- 134.8.** De-energize and lockout/tagout aerial lifts before performing any maintenance or repairs.
- 134.9.** Maintain a minimum clearance of at least 10 feet away from the nearest overhead power line. In addition, any conductive object that can be contacted must be maintained at least 10 feet from overhead lines.

- 134.9.1.** Conductive objects could be wires, transformers, ducts, pipes, or other equipment.
- 134.9.2.** Always treat overhead lines as energized, even if they are down or appear to be insulated. Never lose awareness of the overhead hazard.
- 134.10.** Establish and clearly mark a danger zone around the aerial lift support vehicle using traffic cones.
- 134.11.** Never move the equipment with workers in the elevated platform unless the equipment has been specifically designed for this type of operation.
- 134.12.** Do not allow workers to position themselves between overhead hazards, such as joists and beams, and the rails of the basket. If the basket moves, the worker(s) could become trapped and crushed between the rails and the overhead object.
- 134.13.** Do not allow workers to belt off to an adjacent pole, structure, or equipment while working from an aerial lift. Use a body harness or positioning device with a lanyard attached to the boom or basket to prevent the worker from being ejected or pulled from the basket.
- 134.14.** Hazards associated with use of aerial lifts include but are not limited to:
 - 134.14.1.** Falling from an elevated level. Fall protection is required to be worn while energizing or using the platform.
 - 134.14.2.** Objects falling from lifts. All tools and equipment taken aboard the platform will be set securely on the floor of the platform. No worker will place themselves under the work platform of the lift or within 10 feet of the platform work area.
 - 134.14.3.** To prevent a platform tip over, the lift will be parked on level ground and wheels blocked prior to use.
 - 134.14.4.** Electrical shock will be prevented by surveying the work area and ensuring all electrical lines or sources in the work area not energized and LOTO is applied during the period work is being performed.
 - 134.14.5.** Contact with objects, ceilings or other obstacles at height will be avoided by clearing the area or using the watchman lookout prior to commencing work.
- 134.15.** Only trained and authorized persons will operate an aerial lift. Training will include:
 - 134.15.1.** Explanations of electrical, fall, and falling object hazards
 - 134.15.2.** Procedures for dealing with hazards and use of the watchman lookout to ensure movement clearance
 - 134.15.3.** Recognizing and avoiding unsafe conditions in the work setting
 - 134.15.4.** Instructions for correct operation of the lift, including maximum intended load and load capacity
 - 134.15.5.** Demonstrations of the skills and knowledge needed to operate an aerial lift before operating it on the job

- 134.15.6.** When and how to perform inspections, and manufacturer's requirements for maintenance and operations
- 134.16.** Retraining is required for workers if any of the following conditions occur:
 - 134.16.1.** An accident occurs during aerial lift use.
 - 134.16.2.** Workplace hazards involving an aerial lift are discovered.
 - 134.16.3.** Workers being observed operating an aerial lift improperly or who do not perform equipment inspections or are found to be using a lift that is not in serviceable condition.
 - 134.16.4.** Pre-job inspections will include verifying component serviceability of:
 - 134.16.4.1.** Vehicle components, including fluid levels (oil and hydraulic), leaks, tire inflation and serviceability, lower level controls, horns and gauges, steering, and brakes.
 - 134.16.4.2.** Lift components will be tested to ensure they are operable for the job to be performed. This includes:
 - 134.16.4.2.1.** Operating and emergency controls, PPE, hydraulic, air, and electrical systems
 - 134.16.4.2.2.** Insulating components, placard and warning signs and stickers, mechanical fasteners, and locking pins
 - 134.16.4.2.3.** Cable and wiring harnesses, outriggers and stabilizers, and the guardrail system in the lift basket
- 134.17.** Work zones will be inspected for hazards and corrective action taken prior to commencing work.
 - 134.17.1.** Items to look for include an aerial lift or any vehicle-mounted device used to elevate personnel, including extendable boom platforms, aerial ladders, articulating (jointed) boom platforms, vertical towers, and any combination of the above.
 - 134.17.2.** Inspect the work area for drop-offs, holes, or unstable surfaces such as loose dirt, slopes, ditches, or bumps; debris and ground obstructions; overhead electric power lines and communication cables; other overhead obstructions; high wind and other severe weather conditions such as ice; and the presence of others in close proximity to the work.
- 134.18.** While operating the lift the following precautions will be taken:
 - 134.18.1.** Don and wear fall protection using a body harness or restraining belt with lanyard attached to the platform or bucket. Do not belt off or attach to adjacent structures or poles.
 - 134.18.2.** Ensure that access gates or openings are closed.
 - 134.18.3.** Stand firmly on the floor of the bucket or lift platform.

- 134.18.4.** Do not climb on or lean over guardrails or handrails.
- 134.18.5.** Do not use planks, ladders, or other devices as a working position.
- 134.19.** While operating or traveling observe the following precautions:
 - 134.19.1.** Do not exceed the load-capacity limits. Take the combined weight of the worker(s), tools, and materials into account when calculating the load.
 - 134.19.2.** Do not use the aerial lift as a crane or attempt to carry objects larger than the platform.
 - 134.19.3.** Do not drive with the lift platform raised (unless the manufacturer's instructions allow this).
 - 134.19.4.** Do not operate lower-level controls unless permission is obtained from the worker(s) in the lift (except in emergencies).
 - 134.19.5.** Do not exceed vertical or horizontal reach limits.
 - 134.19.6.** Do not operate an aerial lift in high winds above those recommended by the manufacturer.
 - 134.19.7.** Do not override hydraulic, mechanical, or electrical safety devices.

PRE-SHIFT BRIEFING

The OSHA requirement for job briefs is found in 29 CFR 1926.952 (OSHA, Electric Power Transmission and Distribution, 2020). The job briefing is a crew participation discussion that identifies recognized hazards prior to commencing work along with how the hazards will be controlled during the shift. Performing a job brief prior to the shift is mandatory on the intermodal facility because it creates a safer and healthier work environment.

- 135.1.** Job briefings will be held prior to commencing work during a shift, and if working conditions change, and the crew needs to be aware of those changes to operate safely.
- 135.2.** The intermodal facility will provide all information necessary to include work expectations for the shift, hazards associated with work to be performed, special precautions, weather conditions, PPE, and other factors impacting safety on the facility.
- 135.3.** If the work or operations to be performed during the workday or shift are repetitive and similar, at least one job briefing shall be conducted before the start of the first job of each day or shift.
- 135.4.** An employee working alone need not conduct a job briefing. However, the intermodal facility shall ensure that the tasks to be performed are planned as if a briefing were required.
- 135.5.** The senior leader responsible for performance and productivity during the shift will conduct the job brief.
- 135.6.** Employees shall be trained for all tasks assigned unless performing under the supervision of another employee while on-the-job training.
- 135.7.** All employees will participate in mandatory pre-shift job briefs to ensure awareness of operational and environmental conditions.
- 135.8.** If tasks to be performed include fouling a track or working rail cars on a rail track, the protection to be established for that work will be discussed and known by all (locked switch, derailer, blue signal, etc.)
- 135.9.** If tasks involve operating intermodal equipment, spotters, or trucks the leader will require equipment inspections for all equipment prior to operating them to perform work during the shift.
- 135.10.** A sample job brief is provided in Table 1 below.

Table 1 Sample Pre-Shift Job Brief

<p>Safe Start</p>	<ul style="list-style-type: none"> · Announce pre-shift brief starts now. · Ensure all crew are present and wearing or have PPE on their person. · Ensure hardhat, eye protection, hearing protection, CL 2 ANSI vest, and company-approved boots are all serviceable and present during the job brief.
<p>Weather</p>	<ul style="list-style-type: none"> · Weather impacts during the shift? · If adverse, discuss how the risk will be managed by the crew.
<p>Safety Rule for Review and Network Accidents Last 24 Hours</p>	<ul style="list-style-type: none"> · Discuss safety rule selected for the day. · How does it apply to the crew on their shift? · Discuss accidents reported on the network. · What is the application to the crew working the shift today?
<p>Vendor Work on Terminal</p>	<ul style="list-style-type: none"> · Discuss vendor/contractor work scheduled during the shift. What do we need to watch out for? · Ensure vendors check in with manager or foreman and a radio announcement is made regarding their arrival on terminal.
<p>Work Assignments and Risk Management</p>	<ul style="list-style-type: none"> · Assign work for each craft and person on the shift. · Question/Discussion – Identify one risk each task group will face during their shift and how the risk will be managed. · Lift equipment operators (RMG, RTG, Fixed Mast Equipment) · Spotter truck operators · Ground persons
<p>Equipment</p>	<ul style="list-style-type: none"> · Conduct inspection of equipment prior to first use during the shift. · Equipment identified with safety concerns/discrepancies will be locked out/tagged out and the duty manager notified of the issue. · Equipment with known issues will not be operated until cleared by maintenance.

RADIO RULES

OSHA has no regulations related to use of radios for business purposes. Radio communication across intermodal facilities is vital to accident response and ensuring work instructions across a wide area are clearly communicated and understood.

- 136.1.** Radios on intermodal facilities will only be used to perform company business and/or contribute to safe operations.
- 136.2.** Workers on intermodal facilities must not knowingly transmit any:
 - 136.2.1.** Obscene, indecent, or profane remarks,
 - 136.2.2.** Unnecessary, irrelevant, or unidentified communication, or
 - 136.2.3.** Communication that is prejudicial to good order, derogatory, or does not positively contribute to work processes being conducted on the facility.
- 136.3.** Do not use radio communications to convey instructions that would have the effect of overriding the indication of a fixed signal if present.
- 136.4.** Employees issued a radio for communication while performing their duties must keep the radio in the ON position with volume adjusted to receive communications on the correct channel.
- 136.5.** If non-intermodal facility communication interferes with radio or other wireless communications, the employee must attempt to determine the origin or identity of the interference and report the occurrence to the proper authority (facility operator). The report must include exact date and time, nature of the interference, and origin or identification of the interference.
- 136.6.** Only persons authorized by the Federal Communications Commission (FCC) may make internal adjustments to a radio.
- 136.7.** Employees must permit FCC representatives to inspect radio equipment and required FCC documents.
- 136.8.** Each employee must have access to a radio (vehicle or handheld) while working on track locations or intermodal container processing areas.
- 136.9.** Test each radio and wireless voice communication device prior to beginning a work assignment by initiating a voice transmission with another radio and receiving a confirmation of clarity.
- 136.10.** When a radio or wireless voice communication device fails a required test, the employee must remove the device from service, report the failure to the appropriate facility leader, and establish other means of communication to ensure safety and reduce delay.

136.11. Positive Identification

136.11.1. When required to provide positive identification, the employee must provide the name or initials of their employer, location, and unique identifier for the radio transmitting. Additionally, individual's title and name may be required.

136.11.2. Employees performing operations and tasks related to operating equipment to include intermodal lift equipment and railroad equipment to include locomotives will comply with radio rules published by the facilities operator.

136.12. Before transmitting by radio, listen to ensure the channel is not being used, use positive identification procedures to identify the station calling from and to, and receive acknowledgment before proceeding with the transmission.

136.13. To clarify pronunciation, use the appropriate procedure below:

136.13.1. Words - pronounce then spell, and if needed, spell again using the phonetic alphabet table.

Letter	Phonetic Word	Letter	Phonetic Word	Letter	Phonetic Word	Letter	Phonetic Word
A	Alpha	H	Hotel	O	Oscar	V	Victor
B	Bravo	I	India	P	Papa	W	Whiskey
C	Charlie	J	Juliet	Q	Quebec	X	X-ray
D	Delta	K	Kilo	R	Romeo	Y	Yankee
E	Echo	L	Lima	S	Sierra	Z	Zulu
F	Foxtrot	M	Mike	T	Tango		
G	Golf	N	November	U	Uniform		

136.14. State numbers by digit, decimal point by the word point or dot, and exact multiples of hundreds and thousands.

136.15. Receiving, Acting Upon, and Ending Radio Transmissions – Do not act on a radio communication if misunderstood, not completed, or not in compliance with operating rules.

136.16. Promptly acknowledge radio transmissions by using positive identification unless doing so would interfere with safety. Repeat the transmission not clearly understood or questioned.

136.17. End all radio transmissions with the following: the word “over” when a response is required, or positive identification followed by the word “out” when a response is not required.

- 136.18.** Emergency transmissions have priority over all other transmissions. Employees not involved in transmitting or responding to emergency transmissions must keep the channel clear for the duration of the emergency communications.
- 136.19.** When making an emergency transmission, transmit the words "emergency, emergency, emergency", and provide instruction for emergency channel. Describe the situation and location, and if no response is received, take necessary actions to ensure safety.
- 136.20.** Use emergency transmissions to report accidents, impending weather events, or any other unsafe condition that affects safe rail operations.
- 136.21.** The station transmitting the emergency message must broadcast the words "emergency message terminated" when normal radio communications can resume.
- 136.22.** Protocols for Two Way Radio Use on intermodal facilities
- 136.22.1.** Key Definitions
 - 136.22.1.1.** Over – A way of communicating that the sender has finished their message and is expecting a response.
 - 136.22.1.2.** Out – A way of communicating that a transmission has been terminated.
 - 136.22.2.** Hazards Associated with Use of Two-Way Radios
 - 136.22.2.1.** When using two-way radios from your vehicle, the vehicle must be in a safe position, placed in park, and warning devices (i.e., strobe light) on if dictated by intermodal facility rules.
 - 136.22.2.2.** If you are out in your workplace, you must be in a safe position, away from vehicle traffic, and aware of vehicle movement operations and any other activity that can render harm to you.
 - 136.22.2.3.** When carrying two-way radios out in your workplace, make sure that any attachment is properly secured to prevent it from catching onto an object.

ROPES, CHAINS, AND SLINGS (INSPECT, REPAIR, REPLACE)

OSHA references for ropes, chains, and slings are found in 29 CFR 1915.112 and 1910.184 (OSHA, Regulations (Standards - 29 CFR), 2020). The use of ropes, chains, and slings within intermodal facilities present special hazards. The types of slings are those made from alloy steel chain, wire rope, metal mesh, natural or synthetic fiber rope, and synthetic web.

- 137.1.** All employees should stay clear of loads about to be lifted and suspended loads.
 - 137.1.1.** Suspended loads should be kept clear of obstructions and never move a load over people or place yourself in a red (danger) zone.
 - 137.1.2.** Hands or fingers shall not be placed between the sling and its load while the sling is being tightened.
- 137.2.** Slings that are damaged or defective should not be used.
- 137.3.** Slings should not be shortened with knots or bolts or other homemade devices.
 - 137.3.1.** Makeshift links or fasteners formed from bolts or rods or other such attachments shall not be used.
- 137.4.** Sling legs should not be kinked.
- 137.5.** Slings should not be loaded in excess of their rated capacities.
 - 137.5.1.** Employees must not load a sling in excess of its recommended safe working load as prescribed by the sling manufacturer on the identification marking permanently affixed to the slings.
 - 137.5.2.** Employees must not use slings without affixed and legible identification marking.
 - 137.5.3.** Alloy steel chains slings shall have permanently affixed durable identification stating size, grade, rated capacity, and reach.
 - 137.5.4.** Hooks, rings, oblong links, pear-shaped links, welded or mechanical coupling links, or other attachments shall have a rated capacity at least equal to that of the alloy steel chain with which they are used or the sling shall not be used in excess of the rated capacity of the weakest component.
 - 137.5.5.** Never remove or alter manufactures tags.
- 137.6.** Slings used in a basket hitch shall have the loads balanced to prevent slippage.
- 137.7.** Slings shall be securely attached to their loads.
- 137.8.** Slings shall be padded or protected from the sharp edges of their loads.
- 137.9.** Shock loading is prohibited.

- 137.10.** Inspections – Each day before being used, the sling and all fastening and attachments shall be inspected for damage or defects by a competent person. Additional inspections shall be performed during sling use where service conditions change. Damaged or defective slings shall be immediately removed from service.
- 137.10.1.** In addition to the daily inspection, a thorough periodic inspection of alloy steel chain slings in use shall be made on a regular basis to be determined on the basis of frequency of sling use, severity of service conditions, nature of lifts being made, and the service lift of slings used in similar circumstances. Such inspections shall not be made in intervals greater than once every 12 months.
- 137.10.2.** Employer shall make and maintain a record of the most recent inspection.
- 137.10.3.** The inspection shall be performed by a competent person designated by the employer and shall include inspection for wear, defective welds, and deformation. Slings shall be removed immediately if defects are found.
- 137.11.** Slings shall be removed from service if hooks are cracked, have been opened more than 15% of the normal throat opening, or twisted more than 10 degrees from the plane of the unbent hook.
- 137.12.** Inspections of chains, ropes, and slings will include checking for the following:
- 137.12.1.** Bent links
- 137.12.2.** Worn links
- 137.12.3.** Cracks, nicks, and gouges
- 137.12.4.** Corrosion
- 137.12.5.** Elongation
- 137.12.6.** Kinked chains.
- 137.13.** Chains and other sling equipment must not be dragged over the floor or the ground.
- 137.14.** Store chains sling arms on racks in assigned areas.
- 137.14.1.** Storage area is to be dry, clean, and free of contaminants.

SAFE START - EMPLOYEE ORIENTATION

Safety on intermodal facilities should have commitment and passion to ensure that all employees understand risks and hazards along with safe practices that protect them while performing their duties. To help attain alignment and set expectations, all new employees or employees returning from a furlough of over 30 days should receive a Safe Start Employee Orientation that at minimum covers the information listed below.

The Safe Start Orientation does not take the place of regular operational, SOP, regulatory, equipment, securement, and safety training. The Safe Start Orientation provides basic safety expectations for new and returning employees. All regulatory and other training must be completed within the directed timeframes.

- 138.1.** New or returning employees will be provided:
 - 138.1.1.** New hire hardhat (orange in color to denote new employee)
 - 138.1.2.** Issue of Class 2 reflective vest and company approved protective lenses
 - 138.1.3.** Issue of hearing protection and other facility-provided PPE
 - 138.1.4.** Inspection of safety boots to ensure they are serviceable and meet company requirements
 - 138.1.5.** Safety Rule Book and copy of Standard Operating Procedures for the intermodal facility
 - 138.1.6.** Facility-specific Standard Operating Procedures
 - 138.1.7.** Emergency contact list
 - 138.1.8.** Appointment of a safety mentor/buddy
 - 138.1.9.** Directions for calling 911 and address of the nearest medical facility
- 138.2.** One-on-one meeting with facility leader or their designee will be conducted with discussion on these topics:
 - 138.2.1.** Facility safety plan, safety principles, and mission statement
 - 138.2.2.** Facility safety culture
 - 138.2.3.** Facility safety metrics and leading indicators
 - 138.2.4.** PPE requirements
 - 138.2.5.** New hire hardhat policy
 - 138.2.6.** Terminal emergency response plan
 - 138.2.7.** Mishap reporting procedures and responsibilities
 - 138.2.8.** Facility drug and alcohol policy
 - 138.2.9.** Terminal spill plan in case of spill or leak of hazardous materials

- 138.2.10.** Training program and performance expectations
- 138.2.11.** Policy on personal electronic devices
- 138.3.** New and returning furloughed employees will be given a tour of the terminal that highlights the following features:
 - 138.3.1.** Emergency exits to all buildings
 - 138.3.2.** Location of spill kits
 - 138.3.3.** Fire extinguishers
 - 138.3.4.** First-aid stations and location of AED
 - 138.3.5.** Facility speed limits and traffic travel directions/flow
 - 138.3.6.** Lot names
 - 138.3.7.** Restricted zones
 - 138.3.8.** Discussion on location and use of switches, derails, and blue signals used to provide protection for employees working on or around rail tracks

SCAFFOLDS, LADDERS, AND OTHER STAGING SURFACES

In addition to the rules below, OSHA provides [a scaffolding etool](#) (OSHA, Ladder Jack, 2020). Other helpful information on [the Scaffolds, Ladders and Other Working Surfaces](#) is available (OSHA, Scaffolds, Ladders, and Other Working Surfaces, 2020).

139.1. Scaffolds and Other Staging Surfaces

139.1.1. Definitions

- 139.1.1.1. Scaffold – Any temporary elevated platform (supported or suspended) and its supporting structure (including points of anchorage), used for supporting employees or materials or both.
- 139.1.1.2. Scaffold Competent Person – Person who oversees the training of personnel that build, remove, and use the scaffold, is responsible for inspecting the scaffold before each work shift, and has authority to take corrective actions to resolve issues as needed.
- 139.1.1.3. Scaffold Qualified Person – Person with a background that makes them an expert in the structures of scaffolding.

139.1.2. Scaffold Training

- 139.1.2.1. The designated Scaffold Competent Person(s) must ensure that scaffold users are trained and authorized for using a scaffold prior to use.
- 139.1.2.2. Scaffold training must cover, at a minimum, the nature of fall and falling object hazards, electrical hazards associated with proximity to electrical sources such as power lines, how to mitigate these hazards, when and how to use fall protection systems, proper use of scaffolds, and scaffold load limits.

139.1.3. Scaffold Inspection

- 139.1.3.1. Scaffolds must be inspected before use by a Scaffold Competent Person. If changes or alterations are found, the Scaffold Qualified Person must be informed.
- 139.1.3.2. Defective scaffolds must be marked with “DANGER: Do Not Use” tags or equivalent and not used until properly repaired.

139.1.4. Scaffold Use

- 139.1.4.1. Scaffolds must be used in accordance with the training and any additional guidance or requirements specified by the Scaffold Qualified Person.

139.1.4.2. Scaffolds must not be ridden on while rolling, except as specified below. A rolling scaffold can only be moved manually under the following conditions:

139.1.4.2.1. The floor or surface is level which will not cause scaffold to tip or lose balance, and it must be free from pits, holes, or obstructions.

139.1.4.2.2. The minimum dimension of the scaffold base is half the height or more. Outriggers may be used to increase the base dimension to meet the minimum requirement and if used must be on both sides of the scaffold.

139.1.4.2.3. The wheels must support the scaffold and four times the rated load. All wheels must be locking, and two must swivel.

139.1.4.2.4. The manual force used to move the scaffold must be applied as close to the base as practicable, but not more than 5 feet (1.5 meters) above the supporting surface of the scaffold.

139.1.4.2.5. Before a scaffold is moved, each user on the scaffold must be made aware of the move, and each user on the scaffold must remove themselves from the scaffold before manual movement of the scaffold is performed.

139.1.4.2.6. No person may be on any part of the scaffold that extends outward beyond the wheels, casters, or other supports.

139.1.4.2.7. A rolling scaffold may be moved by the person riding provided the platform is 4 feet or less high, the platform is 20 inches or greater in width, and the scaffold meets all of the conditions outlined above.

139.2. Ladders

139.2.1. Definitions

139.2.1.1. Ladder – A device with rungs, steps, or cleats used to gain access to a different elevation.

139.2.1.2. Maximum Weight Capacity – The amount of total weight a ladder can safely support (Person's weight + Weight of clothing and protective equipment + Weight of tools and supplies carried + Weight of tools and supplies stored on the ladder).

- 139.2.2.** Selection of Ladders
 - 139.2.2.1.** Personnel must use ladders that meet OSHA CFR 29 1910.23 (OSHA, Walking-Working Surfaces, 2020) requirements and are ANSI approved.
 - 139.2.2.2.** Personnel must make sure they choose the correct ladder to use for the job along with the right weight capacity to have the proper support.
- 139.2.3.** Ladder Training
 - 139.2.3.1.** Designated personnel will ensure that ladder users are trained and authorized for using a ladder prior to use.
 - 139.2.3.2.** Training will cover, at a minimum, the selection, inspection, maintenance, and safe use of ladders.
- 139.2.4.** Ladder Inspection
 - 139.2.4.1.** Ladders must be inspected before each use, and more frequently as necessary.
 - 139.2.4.2.** Ladder inspection should consist of the following:
 - 139.2.4.2.1.** Manufacturer labels that are present and legible (manufacture, month/year of manufacture, maximum rated load)
 - 139.2.4.2.2.** Indication that the ladder should not be in service (DO NOT USE sign/tag)
 - 139.2.4.2.3.** Evidence of unusual damage, wear, deterioration, corrosion, sharp edges, burrs
 - 139.2.4.2.4.** Loose bolts, nuts, or connections and properly secured steps, rungs, and hardware
 - 139.2.4.2.5.** Steps that are free of obstacles, grease, oil, or dirt
 - 139.2.4.2.6.** Safety or nonskid feet that are functional
 - 139.2.4.2.7.** Rungs or steps that are slip resistant (knurled, corrugated)
 - 139.2.4.2.8.** Cracks in welds or other metal parts
 - 139.2.4.2.9.** Missing or damaged truss block supports, reinforcing rods, or knee braces
 - 139.2.4.2.10.** Delamination (peeling), blisters, or visible cracks, splits in rungs, rails, or other structural parts
 - 139.2.4.2.11.** Spreader or locking devices that are not fully functional
 - 139.2.4.2.12.** Damage or defective pulley, rung locks, or rope
 - 139.2.4.2.13.** Ladders that are not completely stable (wobbling, resting on an uneven surface or on slippery surfaces)

- 139.2.4.3.** Defective ladders must be marked with “DANGER: Do Not Use” tags or equivalent and not used until properly repaired.
- 139.2.5.** Ladder Use
- 139.2.5.1.** While ascending or descending, personnel must always face the ladder, maintain 3 points of contact, and not carry any objects or loads.
- 139.2.5.2.** Ladders must only be used for their designed purpose.
- 139.2.5.3.** Make sure step ladders are fully open and locked before climbing them.
- 139.2.5.4.** Place the ladder on a hard, flat, and secure surface.
- 139.2.5.5.** The ladder must be on a nonmoveable base and must not move when a person is on it.
- 139.2.5.6.** Ladders must not be placed in front of a door.
- 139.2.5.7.** Ladders must be mounted from the center, not the side.
- 139.2.5.8.** Do not step on the top rung of a ladder.
- 139.2.5.9.** Personnel must work facing the ladder and not overreach, always keeping the torso centered on the ladder.
- 139.2.5.10.** Ladders must not be used when high winds are present, such that falling or tipping hazard exists. Ladders over 4 feet high shall not be used when wind gusts are 40 mph or more.
- 139.2.5.11.** Never use step ladders or a-frame ladders leaned against a wall/ other surface.
- 139.2.6.** Ladder Storage
- 139.2.6.1.** Ladders must be stored properly and maintained in good working condition.
- 139.2.6.2.** Ladders and must be stored in a dry place where they will be protected from damaging effects of weather.
- 139.2.6.3.** When ladders are not in use, they must be stored in a designated location out of direct sunlight and not exposed to harmful interior/exterior elements that may cause decay or damage.
- 139.2.6.4.** Never store materials on a ladder.
- 139.2.6.5.** Make sure ladders are secured when in transit; vibration and bumping against objects may cause damage.

SERVICING MULTI-PIECE OR SINGLE-PIECE RIM WHEELS

An inflated tire contains explosive energy. The sudden release of this energy by a tire blowout or rim/ring separation can cause serious injury or death. Never stand directly in front of an inflated tire. The trajectory of exploding parts is usually, but not always, perpendicular to the sidewall of the tire.

These procedures should be followed by workers trained and instructed in correct procedures. Anyone repairing or maintaining tires is responsible to comply with all OSHA and local regulations regarding safe work practices. Handle tires with respect, and don't take shortcuts.

For additional information on safety practices and technical data, refer to your facilities'/ company's most recent instructions and OSHA guidance provided in the links below:

- [OSHA 1910/1910.177](#) (OSHA, Materials Handling and Storage, 2020)
- [Servicing Single-Piece and Multi-Piece Rim Wheels](#) (OSHA, Servicing Single-Piece and Multi-Piece Rim Wheels, 2020)
- [Demounting And Mounting Procedures Demounting And Mounting Procedures For Tubeless Truck And Bus Tires For Tubeless Truck And Bus Tires](#) (OSHA, Demounting and Mounting Procedures for Tubeless Truck and Bus Tires, 2020)
- [Demounting And Mounting Procedures For Tube-Type Truck And Bus Tires](#) (OSHA, Demounting And Mounting Procedures For Tube-Type Truck And Bus Tires, 2020)
- [Multi-Piece Rim Matching Chart](#) (OSHA, Multi-Piece Rim Matching Chart, 2020)

140.1. Any person who repairs, maintains, or services rim wheels will have completed a training program covering the hazards involved in servicing those rim wheels and the safety procedures to be followed. The program will at a minimum cover the safety operating procedures identified in 29 CFR 1910.177 (OSHA, Materials Handling and Storage, 2020).

140.2. Contractors will ensure that each employee demonstrates the ability to service rim wheels safely including the tasks identified in 29 CFR.1910.177(c)(2)(i) through (viii) (OSHA, Materials Handling and Storage, 2020).

140.3. The contractor will provide a serviceable restraining device for inflating tires on multi-piece wheels and restraining device or barrier for inflating tires on single-piece wheels unless the rim wheel will be bolted onto a vehicle during inflation.

140.4. Restraining devices and barriers used in tire servicing will be inspected daily for serviceability and will have the capacity to withstand the maximum force that would be transferred to it during a rim wheel separation occurring at 150% of the maximum tire specification pressure for the type of rim wheel being serviced.

140.5. Processes

- 140.5.1.** Tires (both tires of a dual assembly) mounted on multi-piece wheels must be completely deflated before removal from the axle. When deflating any tire, stand to the side; use a valve stem “wrench” to remove valve core and deflate tire.
- 140.5.2.** A restraining device (cage) must be used when inflating tires on multi-piece rims.
- 140.5.3.** A restraining device (cage) or barrier must be used for inflating tires on single-piece rims unless the rim/tire assembly is securely bolted to the chassis during inflation.
- 140.5.4.** Air lines used for inflating tires must have a clip-on chuck, an inline valve with pressure gage or regulator, and a sufficient length of hose between the clip-on chuck and the inline valve to keep persons servicing tires away from the front of the rim (commonly referred to as a standoff).
- 140.5.5.** Persons servicing tires shall stay out of the trajectory anytime a tire is being inflated. Trajectory is defined as any potential path or route a rim wheel component may travel during an explosive separation or sudden release of pressurized air.
- 140.5.6.** During the airing of tires, listen for any popping or cracking sounds. If you hear any type of noise, stop airing tire and deflate and inspect.
- 140.5.7.** Once the tire has reached the correct operating pressure, install a metal valve cap.

SERVICING RUBBER-TIRED AND RAIL-MOUNTED GANTRY CRANES & LOADED CONTAINER HANDLING EQUIPMENT

Loaded container handling equipment are large complicated pieces of equipment with multiple interrelated systems. Completing proper preventative and corrective maintenance is critical to ensuring reliable and proper operation.

These precautions and processes help ensure equipment can be safely maintained and avoid equipment damage or personnel injury or death while servicing is in progress.

141.1. Maintenance Preparation

- 141.1.1. Coordinate maintenance with terminal operations. Ensure any maintenance being conducted outside of designated maintenance areas is specifically coordinated.
- 141.1.2. Remove equipment from the vicinity of rail tracks. If the equipment cannot be removed from rail tracks, ensure the tracks are properly protected with a switch or derail and a maintenance lock applied (Blue Signal Protection).
- 141.1.3. Secure the work area with cones, barriers, and/or chains.
- 141.1.4. Wear required PPE for the job being completed. Minimum requirements are steel-toed boots, safety glasses, reflective vest, and hardhat.

141.2. Maintenance Processes

- 141.2.1. Ensure all Lockout/Tagout procedures of section 125 are followed and equipment is placed out of service before starting any equipment maintenance. Chock wheels to ensure equipment does not move while maintenance is in progress.
- 141.2.2. Follow fall protection requirements when working in a man basket or at heights above 4 feet.
- 141.2.3. All container-handling equipment has hazardous stored energy sources that must be discharged prior to starting maintenance. Items include pressurized hydraulic cylinders, raised hoists/spreaders, stored electrical energy in charged capacitors or batteries, etc. Release all stored energy sources per the manufacturer's procedures prior to starting maintenance on the applicable system.

- 141.2.4.** Follow all specific manufacturer maintenance guidelines and safety requirements.
- 141.2.5.** Keep all equipment walking surfaces and handrails clear of ice, grease, oil, or other materials that could cause or contribute to a slip, trip, or fall.
- 141.2.6.** Never work or stand under a suspended load.
- 141.2.7.** Always test every repair prior to releasing a machine back to service. Stay clear of moving parts when testing systems.
- 141.2.8.** Stay clear of overhead electrical lines when moving equipment.

SERVICING VEHICLES (RAMP AND MOBILE SERVICE)

All vendors should maintain their vehicles in safe and serviceable condition to meet performance requirements on the intermodal facility. This is to be accomplished through a program that consists of scheduled service, inspections, and vehicle repairs.

- 142.1.** Vehicle Inspection Report (VIR) is to be completed prior to operating vehicle each shift. The VIR includes, but is not limited to, the below list. Issues discovered during the VIR will be reported and corrected. Bad order or safety discrepancies require the vehicle to be placed out of service and the corrected lockout/tagout applied until repaired.
 - 142.1.1.** Confirm all vehicle fluids are at proper levels, including coolant. Check for leaks.
 - 142.1.2.** Start vehicle; check dashboard warning systems.
 - 142.1.3.** With engine running, listen for unusual engine sounds, exhaust leaks.
 - 142.1.4.** Inspect tires and wheels; report and correct issues noted.
 - 142.1.5.** Check windows and mirrors.
 - 142.1.6.** Check safety components – horn, seatbelts, wipers, parking brake, fire extinguishers, first-aid kits and safety appliances.
 - 142.1.7.** Record body defects – cuts, scrapes, dents.
 - 142.1.8.** Check lights, lamps, and signals.
 - 142.1.9.** Perform housekeeping – dash is clear, no trash in cab or bed, tools properly stored
- 142.2.** Scheduled Preventative Maintenance (PM) – Intervals and frequency can vary due to vehicle operating conditions. Regular scheduled PM is the key to a successful program and might include
 - 142.2.1.** Engine oil and filter changes
 - 142.2.2.** Belts and hoses
 - 142.2.3.** Coolant system
 - 142.2.4.** Transmission fluid
 - 142.2.5.** Braking system
 - 142.2.6.** Tires and wheels
 - 142.2.7.** Tune ups
 - 142.2.8.** Exhaust system
 - 142.2.9.** Undercarriage and frame
 - 142.2.10.** Steering and suspension system
 - 142.2.11.** Electrical system

- 142.3.** Unscheduled Breakdowns and Repairs
 - 142.3.1.** Unsafe vehicles are to be removed from service immediately.
 - 142.3.2.** Follow lockout/tagout policy until repairs are made by qualified technician.
- 142.4.** Service vehicles will be clearly marked with the name of the owning/operating company and assigned a serial number for tracking while aboard the intermodal facility.
- 142.5.** Vehicles must not be left with the engine running unattended (no person in driver's seat, more than 25 feet away or out of sight). Vehicle keys will be removed from unattended vehicles and protected against unauthorized use or theft.
- 142.6.** Avoid parking any vehicles, equipment, chassis, or containers in a position that fouls any track or crane path.
- 142.7.** Conduct an inspection of all vehicles and lift equipment prior to use and document findings and discrepancies for that shift. Ensure fire suppression systems or fire extinguishers are operable, if applicable.
- 142.8.** Ensure beacon or four-way flashers are in use when vehicles and equipment are operating/traveling on the intermodal facility. Safety cones must be displayed in front and behind any vehicle performing work on the terminal, as well in adjacent parking bays.
- 142.9.** Headlights must be used at all times while operating on the terminal.
- 142.10.** Ensure equipment is clean, windows are clear, and cab and components are free of trash.
- 142.11.** Prior to operating vehicles or equipment with onboard camera recording devices, operators will ensure lens are clear and unobstructed.
- 142.12.** Operators of vehicles and equipment will not interfere or tamper with the onboard recording device nor will the vehicle be operated if the equipment is knowingly obscured, positioned, or blocked from operating as designed.
- 142.13.** All vehicles and equipment on property must be properly procured, indemnified, and authorized for use. Personal vehicles may not be used in operational areas without approval from the intermodal facility manager.
- 142.14.** Operate all vehicles and equipment within manufacturer and operational guidelines.
- 142.15.** A valid state driver's license is required to operate all vehicles and equipment.
- 142.16.** When using onboard computers, mobile electronic devices of any kind on the intermodal facility, or any time an operator takes their hands off the steering mechanism, the vehicle must be stationary or in park.

SLIPS, TRIPS, AND FALLS

Slips, trips, and falls are #1 on OSHA's Top 10 most cited violations almost every year. The duty to provide safe, strong, and structurally sound [walking surfaces](#) is noted by OSHA. (OSHA, Final Rule to Update General Industry Walking-Working Surfaces and Fall Protection Standards, 2020).

- 143.1.** To prevent slips, trips, and falls, employees must:
 - 143.1.1.** Remain alert and mindful of surroundings at all times.
 - 143.1.2.** Use designated walkways, crosswalks, handholds, and railings when available.
 - 143.1.3.** Plan and choose routes that afford the safest walking conditions.
 - 143.1.4.** Keep a clear view of where you are walking.
 - 143.1.5.** Avoid carrying objects that block your view.
 - 143.1.6.** Use appropriate PPE during times of poor weather or unusual conditions.
 - 143.1.7.** Keep equipment and/or vehicle cab floors clear of obstructions, water, mud, slush, or any tripping hazards.
 - 143.1.8.** Wear company-approved anti-slip boots with spikes when walking in ice and/or snow.
- 143.2.** Personnel will ensure areas where they are working and moving are free of ice, debris, material, tools, and equipment.
- 143.3.** Personnel will look where they are planning to step; choose the safest route; and use designated walkways, handholds, and handrails.
- 143.4.** Personnel will not jump from equipment, stairs, or elevated surfaces.
- 143.5.** Personnel will not use electronic devices or examine hand-held items that distract attention while walking.
- 143.6.** Personnel will keep desk drawers, file drawers, and locker doors closed when not in use. Avoid overloading the top drawers of filing cabinets; open one drawer at a time.
- 143.7.** Personnel will not use a chair for anything other than its intended purpose. Sit squarely in the middle of the chair, keep both feet on the floor, and keep chair legs and casters on the floor.

STRETCHING PROGRAMS (RECOMMENDATIONS AND BENEFITS)

Pre-shift and during shift stretching and warm-up exercises prepare employees for assigned duties in a collegial, team associated activity that builds upon discussion of the work to be performed, risk associated with the work, and how the work will be managed by individual employees during their shift.

144.1. Stretching Program Recommendations

- 144.1.1. Personnel should check with their physicians before beginning a new exercise program, or if they have had recent joint trouble, muscle problems, or surgery.
- 144.1.2. Stretching is recommended at the start of each shift, before any physical exertion, and periodically throughout the shift as needed to relieve muscle tension.
- 144.1.3. Stretching exercises should cover all major body areas, using techniques that should be both convenient and effective.
- 144.1.4. Do not bounce during stretches. Keep the stretch mild, steady, and comfortable.
- 144.1.5. Relax the muscles while stretching.
- 144.1.6. Breathe during stretching; do not hold your breath.
- 144.1.7. One should never feel pain during or after a stretch.
- 144.1.8. Do not forget to stretch both sides of the body when stretching.
- 144.1.9. Hold stretches until tension releases, and then go further into another mild stretch.
- 144.1.10. Tension from an initial stretch should release within 60 seconds. If it does not, reduce the intensity of the stretch slightly.

144.2. Stretching Program Benefits

- 144.2.1. Stretching is a safe and useful activity for healthy adults that can help improve overall flexibility, neuromuscular coordination, balance, and postural awareness, which reduces the risk of sprains, strains, and other musculoskeletal injuries.
- 144.2.2. Regular stretching keeps muscles flexible, strong, long, and lean, putting less strain on the muscle itself during exertion and improving range of motion in the joints, reducing risk of injury near joint limits.
- 144.2.3. Stretching at the start of a shift can improve brain activity, decrease body aches and pains, and increase energy level throughout the day.

- 144.2.4.** Stretching warms muscles, reduces internal friction, and “resets” discs prior to activity.
- 144.2.5.** Stretching helps muscles relax and reduces soreness after activity.
- 144.3.** Stretching Leadership Recommendations

 - 144.3.1.** When starting a new stretching program, discuss with everyone that we have a new stretching routine to start using, highlighting the health benefits listed in the previous section.
 - 144.3.2.** Discuss the fact that we are in an industry where we are constantly engaged in physical activity, and it is important to prepare our bodies for that activity, similar to how athletes do.
 - 144.3.3.** The leader should engage the group in positive conversation during stretching to relieve any tension or awkwardness and relax the mood. Over time, the routine will become more normal to the group.
 - 144.3.4.** Remind people that stretching is not a competition to see who can do the most or go the farthest. People have different levels of flexibility, and we need to respect these differences in ourselves, allowing each person to experience benefits at their own pace. It took your whole life to reach the level of flexibility (or inflexibility) you now have, so you should expect benefits to be gradual as you stretch regularly over time.
 - 144.3.5.** When leading group stretches, be sure no one is bouncing or using extreme twisting motions as they stretch.
 - 144.3.6.** The leader may want to diplomatically provide some corrective suggestions to people who seem to be having trouble understanding or performing any of the stretches.
 - 144.3.7.** When the leader continually speaks to the benefits stretching has provided them personally, it can help garner buy-in from the group.
 - 144.3.8.** Rotating different personnel to lead stretches encourages ownership, keeps the routine fresh, and helps break down any barriers.

WELDING & CUTTING METAL

OSHA references for Welding, Cutting and Brazing are found in 49-CFR-1910.252 (OSHA, Welding, Cutting and Brazing, 2020). The intermodal facility operator is providing information on basic precautions for fire protection and prevention for welders and cutters.

- 145.1.** Fire Hazards – If the object to be welded or cut cannot readily be moved, all movable fire hazards in the vicinity shall be taken to a safe place.
- 145.2.** If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards shall be used to confine the heat, sparks, and slag, and to protect the immovable fire hazards.
- 145.3.** Wherever there are floor openings or cracks in the flooring that cannot be closed, precautions shall be taken so that no readily combustible materials on the floor below will be exposed to sparks which might drop through the floor. The same precautions shall be observed with regard to cracks or holes in walls, open doorways, and open or broken windows.
- 145.4.** Suitable fire extinguishing equipment shall be maintained in a state of readiness for instant use. Such equipment may consist of pails of water, buckets of sand, hose, or portable extinguishers depending upon the nature and quantity of the combustible material exposed.
- 145.5.** Fire watchers shall be required whenever welding or cutting is performed in locations where other than a minor fire might develop, or any of the following conditions exist:
 - 145.5.1.** Appreciable combustible material, in building construction or contents, closer than 35 feet (10.7 m) to the point of operation.
 - 145.5.2.** Appreciable combustibles are more than 35 feet (10.7 m) away but are easily ignited by sparks.
 - 145.5.3.** Wall or floor openings within a 35-foot (10.7 m) radius expose combustible material in adjacent areas, including concealed spaces in walls or floors.
 - 145.5.4.** Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.
- 145.6.** Fire watchers shall have fire extinguishing equipment readily available and be trained in its use. They shall be familiar with facilities for sounding an alarm in the event of a fire. They shall watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm. A fire watch shall be maintained for at least a half hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires.
- 145.7.** Before cutting or welding is permitted, the area shall be inspected by the individual responsible for authorizing cutting and welding operations.

- 145.8.** Where combustible materials such as paper clippings, wood shavings, or textile fibers are on the floor, the floor shall be swept clean for a radius of 35 feet (10.7 m). Combustible floors shall be kept wet, covered with damp sand, or protected by fire-resistant shields. Where floors have been wet down, personnel operating arc welding or cutting equipment shall be protected from possible shock.
- 145.9.** Prohibited Areas – Cutting or welding shall not be permitted in the following situations:
- 145.9.1.** In areas not authorized by management.
 - 145.9.2.** In sprinklered buildings while such protection is impaired.
 - 145.9.3.** In the presence of explosive atmospheres (mixtures of flammable gases, vapors, liquids, or dusts with air), or explosive atmospheres that may develop inside uncleaned or improperly prepared tanks or equipment which have previously contained such materials, or that may develop in areas with an accumulation of combustible dusts.
 - 145.9.4.** In areas near the storage of large quantities of exposed, readily ignitable materials such as bulk sulfur, baled paper, or cotton.
- 145.10.** Where practicable, all combustibles shall be relocated at least 35 feet (10.7 m) from the work site. Where relocation is impracticable, combustibles shall be protected with flame-proofed covers or otherwise shielded with metal or asbestos guards or curtains.
- 145.11.** Ducts and conveyor systems that might carry sparks to distant combustibles shall be suitably protected or shut down.
- 145.12.** Where cutting or welding is done near walls, partitions, ceilings, or roofs of combustible construction, fire-resistant shields or guards shall be provided to prevent ignition.
- 145.13.** If welding is to be done on a metal wall, partition, ceiling, or roof, precautions shall be taken to prevent ignition of combustibles on the other side, due to conduction or radiation, preferably by relocating combustibles. Where combustibles are not relocated, a fire watch on the opposite side from the work shall be provided.
- 145.14.** Welding shall not be attempted on a metal partition, wall, ceiling, or roof having a combustible covering or on walls or partitions of combustible sandwich-type panel construction.
- 145.15.** Cutting or welding on pipes or other metal in contact with combustible walls, partitions, ceilings, or roofs shall not be undertaken if the work is close enough to cause ignition by conduction.
- 145.16.** Management shall recognize its responsibility for the safe usage of cutting and welding equipment on its property and:
- 145.16.1.** Based on fire potentials of intermodal facilities, establish areas for cutting and welding, and establish procedures for cutting and welding, in other areas; and
 - 145.16.2.** Require that cutters or welders and their supervisors are suitably trained in the safe operation of their equipment and the safe use of the process.

- 145.17.** Supervisors shall be responsible for the safe handling of the cutting or welding equipment and the safe use of the cutting or welding process. They shall determine the combustible materials and hazardous areas present or likely to be present in the work location.
- 145.17.1.** Supervisors shall protect combustibles from ignition by the following:
- 145.17.1.1.** Supervisors shall have the work moved to a location free from dangerous combustibles. If the work cannot be moved, have the combustibles moved to a safe distance from the work or have the combustibles properly shielded against ignition.
 - 145.17.1.2.** Supervisors shall see that cutting and welding are so scheduled that intermodal facility operations that might expose combustibles to ignition are not started during cutting or welding.
 - 145.17.1.3.** Supervisors shall determine that fire protection and extinguishing equipment are properly located at the site.
 - 145.17.1.4.** Where fire watches are required, supervisor shall see that they are available at the site.
- 145.18.** Cutting or welding shall be permitted only in areas that are or have been made fire safe. When work cannot be moved practically, as in most intermodal facility work, the area shall be made safe by removing combustibles or protecting combustibles from ignition sources.
- 145.19.** When working with used containers, no welding, cutting, or other hot work shall be performed on used drums, barrels, tanks, or other containers until they have been cleaned so thoroughly as to make absolutely certain that there are no flammable materials present or any substances such as greases, tars, acids, or other materials which, when subjected to heat, might produce flammable or toxic vapors. Any pipelines or connections to the drum or vessel shall be disconnected or blanked.
- 145.20.** All hollow spaces, cavities, or containers shall be vented to permit the escape of air or gases before preheating, cutting, or welding. Purging with inert gas is recommended.
- 145.21.** When working in confined spaces and when arc welding is to be suspended for any substantial period of time, such as during lunch or overnight, all electrodes shall be removed from the holders and the holders carefully located so that accidental contact cannot occur and the machine be disconnected from the power source.
- 145.22.** When using a torch valve, to eliminate the possibility of gas escaping through leaks or improperly closed valves, when gas welding or cutting, the torch valves shall be closed and the gas supply to the torch positively shut off at some point outside the confined area whenever the torch is not to be used for a substantial period of time, such as during lunch hour or overnight. Where practicable, the torch and hose shall also be removed from the confined space.

- 145.23.** A welder or helper working on platforms, scaffolds, or runways shall be protected against falling. This may be accomplished by the use of railings, safety belts, lifelines, or some other equally effective safeguards.
- 145.24.** Welders shall place welding cable and other equipment so that it is clear of passageways, ladders, and stairways.
- 145.25.** Helmets or hand shields shall be used during all arc welding or arc cutting operations, excluding submerged arc welding. Helpers or attendants shall be provided with proper eye protection.
- 145.26.** Goggles or other suitable eye protection shall be used during all gas welding or oxygen cutting operations. Spectacles without side shields, with suitable filter lenses are permitted for use during gas welding operations on light work, for torch brazing, or for inspection.
- 145.27.** All operators and attendants of resistance welding or resistance brazing equipment shall use transparent face shields or goggles, depending on the particular job, to protect their faces or eyes, as required.
- 145.28.** Eye protection in the form of suitable goggles shall be provided where needed for brazing operations.
- 145.29.** Specifications for Protection
- 145.29.1.** Helmets and hand shields shall be made of a material which is an insulator for heat and electricity. Helmets, shields, and goggles shall be not readily flammable and shall be capable of withstanding sterilization.
- 145.29.2.** Helmets and hand shields shall be arranged to protect the face, neck, and ears from direct radiant energy from the arc.
- 145.29.3.** Helmets shall be provided with filter plates and cover plates designed for easy removal.
- 145.29.4.** All parts shall be constructed of a material which will not readily corrode or discolor the skin.
- 145.29.5.** Goggles shall be ventilated to prevent fogging of the lenses as much as practicable.
- 145.29.6.** All glass for lenses shall be tempered, substantially free from streaks, air bubbles, waves, and other flaws. Except when a lens is ground to provide proper optical correction for defective vision, the front and rear surfaces of lenses and windows shall be smooth and parallel.
- 145.29.7.** Lenses shall bear some permanent distinctive marking by which the source and shade may be readily identified.
- 145.29.8.** Filter lenses must meet the test for transmission of radiant energy prescribed by any of the consensus standards listed in 29 CFR 1910.133(b)(1) (OSHA, Personal Protective Equipment, 2020).

- 145.30.** Where the work permits, the welder should be enclosed in an individual booth painted with a finish of low reflectivity such as zinc oxide (an important factor for absorbing ultraviolet radiations) and lamp black or shall be enclosed with noncombustible screens similarly painted. Booths and screens shall permit circulation of air at floor level. Workers or other persons adjacent to the welding areas shall be protected from the rays by noncombustible or flameproof screens or shields or shall be required to wear appropriate goggles.
- 145.31.** Protective Clothing – General Requirements – Employees exposed to the hazards created by welding, cutting, or brazing operations shall be protected by personal protective equipment in accordance with the requirements of 1910.132 (OSHA, Personal Protective Equipment, 2020). Appropriate protective clothing required for any welding operation will vary with the size, nature, and location of the work to be performed.
- 145.32.** Work in Confined Spaces – Confined space is intended to mean a relatively small or restricted space such as a tank, boiler, pressure vessel, or small compartment of a piece of equipment.
- 145.33.** Ventilation is a prerequisite to work in confined spaces. For ventilation requirements, see paragraph (c) of 1910.132 (OSHA, Personal Protective Equipment, 2020).
- 145.34.** Securing Cylinders and Machinery – When welding or cutting is being performed in any confined spaces, the gas cylinders and welding machines shall be left on the outside. Before operations are started, heavy portable equipment mounted on wheels shall be securely blocked to prevent accidental movement.
- 145.35.** Where a welder must enter a confined space through a manhole or other small opening, means shall be provided for quickly removing him in case of emergency. When safety belts and lifelines are used for this purpose, they shall be so attached to the welder's body so that his body cannot be jammed in a small exit opening. An attendant with a preplanned rescue procedure shall be stationed outside to observe the welder at all times and be capable of putting rescue operations into effect.
- 145.36.** When arc welding is to be suspended for any substantial period of time, such as during lunch or overnight, all electrodes shall be removed from the holders and the holders carefully located so that accidental contact cannot occur, and the machine shall be disconnected from the power source.
- 145.37.** To eliminate the possibility of gas escaping through leaks of improperly closed valves, when gas welding or cutting, the torch valves shall be closed and the fuel-gas and oxygen supply to the torch positively shut off at some point outside the confined area whenever the torch is not to be used for a substantial period of time, such as during lunch hour or overnight. Where practicable, the torch and hose shall also be removed from the confined space.
- 145.38.** After welding operations are completed, the welder shall mark the hot metal or provide some other means of warning other workers.

145.39. The requirements in this paragraph have been established on the basis of the following factors in arc and gas welding which govern the amount of contamination to which welders may be exposed:

- 145.39.1.** Dimensions of space in which welding is to be done (with special regard to height of ceiling).
- 145.39.2.** Possible evolution of hazardous fumes, gases, or dust according to the metals involved.
- 145.39.3.** When welding must be performed in a space entirely screened on all sides, the screens shall be so arranged that no serious restriction of ventilation exists. It is desirable to have the screens so mounted that they are about 2 feet (0.61 m) above the floor unless the work is performed at so low a level that the screen must be extended nearer to the floor to protect nearby workers from the glare of welding.
- 145.39.4.** Maximum Allowable Concentration – Local exhaust or general ventilating systems shall be provided and arranged to keep the amount of toxic fumes, gases, or dusts below the maximum allowable concentration as specified in 49 CFR 1910.1000 (OSHA, Toxic and Hazardous Substances, 2020).

145.40. The employer shall include the potentially hazardous materials employed in fluxes, coatings, coverings, and filler metals, all of which are potentially used in welding and cutting, or are released to the atmosphere during welding and cutting, in the program established to comply with the Hazard Communication Standard (HCS) (section 1910.1200) (OSHA, Toxic and Hazardous Substances, 2020). The employer shall ensure that each employee has access to labels on containers of such materials and safety data sheets and is trained in accordance with the provisions of section 1910.1200 (OSHA, Toxic and Hazardous Substances, 2020). Potentially hazardous materials shall include but not be limited to the materials itemized in paragraphs (c)(5) through (c)(12) of this section.

145.41. Additional considerations for hazard communication in welding, cutting, and brazing are:

- 145.41.1.** The suppliers shall determine and shall label in accordance with section 1910.1200 (OSHA, Toxic and Hazardous Substances, 2020) any hazards associated with the use of their materials in welding, cutting, and brazing.
- 145.41.2.** In addition to any requirements imposed by section 1910.1200 (OSHA, Toxic and Hazardous Substances, 2020), all filler metals and fusible granular materials shall carry the following notice, as a minimum, on tags, boxes, or other containers:
 - 145.41.2.1.** Do not use in areas without adequate ventilation. See ANSI Z49.1-1967 (ANSI, AWS IBR Standards, 2020) Safety in Welding, Cutting, and Allied Processes published by the American Welding Society for specifics on ventilation requirements.

- 145.41.2.2.** Where brazing (welding) filler metals contain cadmium in significant amounts, the labels shall indicate the hazards associated with cadmium, including cancer, lung and kidney effects, and acute toxicity effects.
- 145.41.2.3.** Where brazing and gas welding fluxes contain fluorine compounds, the labels shall indicate the hazards associated with fluorine compounds, including eye and respiratory tract effects.
- 145.42.** Brazing (welding) filler metals containing cadmium in significant amounts shall carry the following notice on tags, boxes, or other containers:
- 145.42.1.** WARNING CONTAINS CADMIUM—POISONOUS FUMES MAY BE FORMED ON HEATING. Do not breathe fumes. Use only with adequate ventilation such as fume collectors, exhaust ventilators, or air-supplied respirators. If chest pain, cough, or fever develops after use, call physician immediately.
- 145.42.2.** Brazing and gas welding fluxes containing fluorine compounds shall have a cautionary wording to indicate that they contain fluorine compounds. One such cautionary wording recommended by the American Welding Society for brazing and gas welding fluxes reads as follows: CAUTION CONTAINS FLUORIDES. This flux when heated gives off fumes that may irritate eyes, nose, and throat. Avoid fumes—use only in well-ventilated spaces. Avoid contact of flux with eyes or skin. Do not take internally.
- 145.43.** Mechanical ventilation shall be provided when welding or cutting is done on metals in a space of less than 10,000 cubic feet (284 m³) per welder, in a room having a ceiling height of less than 16 feet (5 m), in confined spaces or where the welding space contains partitions, balconies, or other structural barriers to the extent that they significantly obstruct cross ventilation.
- 145.43.1.** Such ventilation shall be at the minimum rate of 2,000 cubic feet (57 m³) per minute per welder, except where local exhaust hoods and booths as per paragraph (c)(3) of this section, or airline respirators approved by the U.S. Bureau of Mines for such purposes are provided. Natural ventilation is considered sufficient for welding or cutting operations where the restrictions in the ANSI reference are not present.
- 145.44.** Local Exhaust Hoods and Booths – Mechanical local exhaust ventilation may be by means of either of the following:
- 145.44.1.** Freely movable hoods intended to be placed by the welder as near as practicable to the work being welded and provided with a rate of air-flow sufficient to maintain a velocity in the direction of the hood of 100 linear feet (30 m) per minute in the zone of welding when the hood is at its most remote distance from the point of welding.

- 145.44.2.** A fixed enclosure with a top and not less than two sides which surround the welding or cutting operations and with a rate of airflow sufficient to maintain a velocity away from the welder of not less than 100 linear feet (30 m) per minute.
- 145.45.** Ventilation in confined spaces will ensure air replacement and all welding and cutting operations carried on in confined spaces shall be adequately ventilated to prevent the accumulation of toxic materials or possible oxygen deficiency. This applies not only to the welder but also to helpers and other personnel in the immediate vicinity. All air replacing that withdrawn shall be clean and respirable.
- 145.45.1.** Airline Respirators – In circumstances for which it is impossible to provide such ventilation, airline respirators or hose masks approved for this purpose by the National Institute for Occupational Safety and Health (NIOSH) under 42 CFR part 84 must be used (NIOSH, NIOSH Guide to the Selection and Use of Particulate Respirators, 2020).
- 145.45.2.** Self-Contained Units – In areas immediately hazardous to life, a full-face piece, pressure-demand, self-contained breathing apparatus or a combination full-face piece, pressure-demand supplied-air respirator with an auxiliary, self-contained air supply approved by NIOSH under 42 CFR part 84 must be used (NIOSH, NIOSH Guide to the Selection and Use of Particulate Respirators, 2020).
- 145.46.** A watchman lookout worker shall be stationed on the outside of confined spaces to insure the safety of those working within under the following circumstances: (1) Where welding operations are being performed in confined spaces and where welders and helpers are provided with hose masks, hose masks with blowers or self-contained breathing equipment approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health.
- 145.47.** Oxygen shall never be used for ventilation.
- 145.48.** In confined spaces, welding or cutting involving fluxes, coverings, or other materials which contain fluorine compounds shall be done per paragraph only per 49 CFR 1910.252 (c)(4) (OSHA, Welding, Cutting and Brazing, 2020). A fluorine compound is one that contains fluorine, as an element in chemical combination, not as a free gas.
- 145.49.** Maximum Allowable Concentration – The need for local exhaust ventilation or airline respirators for welding or cutting in other than confined spaces will depend upon the individual circumstances. However, experience has shown such protection to be desirable for fixed-location production welding and for all production welding on stainless steels. Where air samples taken at the welding location indicate that the fluorides liberated are below the maximum allowable concentration, such protection is not necessary.

- 145.50.** Zinc – In confined spaces, welding or cutting involving zinc-bearing base or filler metals or metals coated with zinc-bearing materials shall be done per 49 CFR 1910.252 (c)(4) (OSHA, Welding, Cutting and Brazing, 2020) of this section. Indoors – Indoors, welding or cutting involving zinc-bearing base or filler metals coated with zinc-bearing materials shall be done in accordance with paragraph per 49 CFR 1910.252 (c)(3) (OSHA, Welding, Cutting and Brazing, 2020).
- 145.51.** Lead – In confined spaces, welding involving lead-base metals (erroneously called lead-burning) shall be done per 49 CFR 1910.252 (c)(4) (OSHA, Welding, Cutting and Brazing, 2020) of this section.
- 145.52.** Indoors, welding involving lead-base metals shall be done per 49 CFR 1910.252 (c)(3) (OSHA, Welding, Cutting and Brazing, 2020).
- 145.53.** Local Ventilation – In confined spaces or indoors, welding or cutting operations involving metals containing lead, other than as an impurity, or metals coated with lead-bearing materials, including paint, must be done using local exhaust ventilation or airline respirators. Such operations, when done outdoors, must be done using respirators approved for this purpose by NIOSH under 42 CFR part 84 (NIOSH, NIOSH Guide to the Selection and Use of Particulate Respirators, 2020). In all cases, workers in the immediate vicinity of the cutting operation must be protected by local exhaust ventilation or airline respirators.
- 145.54.** Welding or cutting indoors, outdoors, or in confined spaces involving beryllium-containing base or filler metals shall be done using local exhaust ventilation and airline respirators unless atmospheric tests under the most adverse conditions have established that the workers' exposure is within the acceptable concentrations defined by 1910.1000 (OSHA, Toxic and Hazardous Substances, 2020) of this part. In all cases, workers in the immediate vicinity of the welding or cutting operations shall be protected as necessary by local exhaust ventilation or airline respirators.
- 145.55.** In confined spaces or indoors, welding or cutting operations involving cadmium-bearing or cadmium-coated base metals must be done using local exhaust ventilation or airline respirators unless atmospheric tests under the most adverse conditions show that employee exposure is within the acceptable concentrations specified by 29 CFR 1910.1000 (OSHA, Toxic and Hazardous Substances, 2020). Such operations, when done outdoors, must be done using respirators, such as fume respirators, approved for this purpose by NIOSH under 42 CFR part 84 (NIOSH, NIOSH Guide to the Selection and Use of Particulate Respirators, 2020). Welding (brazing) involving cadmium-bearing filler metals shall be done using ventilation as prescribed in paragraph 49 CFR 1910.252 (c)(3) or (c)(4) (OSHA, Welding, Cutting and Brazing, 2020) if the work is to be done in a confined space.

- 145.56.** In confined spaces or indoors, welding or cutting operations involving metals coated with mercury-bearing materials, including paint, must be done using local exhaust ventilation or airline respirators unless atmospheric tests under the most adverse conditions show that employee exposure is within the acceptable concentrations specified by 29 CFR 1910.1000 (OSHA, Toxic and Hazardous Substances, 2020). Such operations, when done outdoors, must be done using respirators approved for this purpose by NIOSH under 42 CFR part 84 (NIOSH, NIOSH Guide to the Selection and Use of Particulate Respirators, 2020).
- 145.57.** In the use of cleaning materials, because of their possible toxicity or flammability, appropriate precautions such as manufacturers' instructions shall be followed.
- 145.58.** Degreasing and other cleaning operations involving chlorinated hydrocarbons shall be so located that no vapors from these operations will reach or be drawn into the atmosphere surrounding any welding operation. In addition, trichloroethylene and perchloroethylene should be kept out of atmospheres penetrated by the ultraviolet radiation of gas-shielded welding operations.
- 145.59.** Oxygen cutting, using either a chemical flux or iron powder or gas-shielded arc cutting of stainless steel, shall be done using mechanical ventilation adequate to remove the fumes generated.
- 145.60.** First-aid equipment shall be available at all times. All injuries shall be reported as soon as possible for medical attention. First aid shall be rendered until medical attention can be provided.
- 145.61.** Field Shop Operations – Where field shop operations are involved for fabrication of fittings, railroad crossings, road crossings, and pumping and compressor stations the requirements of paragraphs (a), (b), and (c) of 49 CFR 1910.252 and 1910.253 and 1910.254 of this part shall be observed (OSHA, Regulations (Standards - 29 CFR), 2020).
- 145.62.** When arc welding is performed in wet conditions, or under conditions of high humidity, special protection against electric shock shall be supplied.
- 145.63.** Pressure Testing – In pressure testing of pipelines, the workers and the public shall be protected against injury by the blowing out of closures or other pressure restraining devices. Also, protection shall be provided against expulsion of loose dirt that may have become trapped in the pipe.
- 145.64.** Personal Protective Equipment When Welding, Cutting, or Braising
- 145.64.1.** Eye Protection – Whenever permissible the welder will be enclosed in a designated welding area booth painted with low reflectivity paint and will be enclosed with noncombustible screens. Protective screens will be located above the ground to provide adequate ventilation. Workers or other persons adjacent to the welding areas will be protected from the rays generated during the welding, cutting, or brazing operation.

- 145.64.2.** Personal Protective Clothing – Cotton uniforms such as long sleeve shirts (minimum protection) and pants without cuffs should be worn to shield all parts of the body from the ultraviolet rays of the arc and from metal splatter. Collars and shirt cuffs should be buttoned to prevent molten metal from being trapped.
- 145.64.3.** Gloves – Leather gloves are required, but fire-resistant gauntlet gloves are recommended for welding and cutting operations.
- 145.64.4.** Aprons – Durable flame-resistant aprons made of leather or other suitable materials will be provided to protect the front of the body when additional protection against sparks and radiant energy is needed.
- 145.64.5.** Leggings – For heavy welding and cutting, flame resistant leggings or other equivalent means shall be provided to give added protection to the legs when necessary.
- 145.64.6.** Capes and Sleeves – Capes, sleeves, or shoulder covers with bibs made of leather or other flame-resistant material will be worn during overhead welding, cutting, or other operations, when necessary.
- 145.64.7.** Hardhat – Hardhats are required in all work areas.
- 145.64.8.** Approved combination hardhat-welding shields will be provided for welding operations.
- 145.64.9.** Sock Hoods – Sock hoods may be used when an employee is unable to access a restricting area during welding operations with a conventional welding hood and shield. Upon completion of the restricting work the welder will revert back to normal welding equipment.
- 145.64.10.** Safety Glasses – Safety glasses are required to be worn under welding helmets during welding operations.
- 145.64.11.** Burning, Brazing Goggles – Goggles are required for all burning and brazing operations.
- 145.64.12.** Traffic Safety Vest – A vest is required if working in vehicular traffic areas and will be made of flame-resistant materials safe for welding, cutting, and brazing.
- 145.64.13.** Respirator – Respirators are strongly recommended for welding, cutting, and brazing operations.
- 145.64.14.** Hearing Protection – Appropriate hearing protection will be worn during welding operations that produce excessive noise levels. Those operations will include carbon gouging and pneumatic chipping (needle gun) slag removal operations.
- 145.64.15.** Fall Protection – All welders working on platforms, scaffolds, etc. will wear the proper fall protection classified for the work being performed.

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APPENDIX A

123 - HOSTLER/SPOTTER TRUCK OPERATOR SAFETY

PRE-SHIFT INSPECTION

COMPANY _____ ADDRESS/LOCATION _____
 DATE _____ TIME _____ AM__ PM__
 TRUCK/UNIT # _____ HOUR METER READING _____

<input type="checkbox"/> Fluid Leaks	<input type="checkbox"/> Body	<input type="checkbox"/> Frame and Assembly
<input type="checkbox"/> Fifth Wheel	<input type="checkbox"/> Boom	<input type="checkbox"/> Engine
<input type="checkbox"/> Oil Pressure	<input type="checkbox"/> Air Pressure	<input type="checkbox"/> Horn
<input type="checkbox"/> Windows/Glass	<input type="checkbox"/> Air Lines	<input type="checkbox"/> Deck Plates
<input type="checkbox"/> Mirrors	<input type="checkbox"/> Lights	<input type="checkbox"/> Work Lights
<input type="checkbox"/> Strobe Light	<input type="checkbox"/> Heat - A/C	<input type="checkbox"/> Hand Rails
<input type="checkbox"/> Rear/Sliding Door	<input type="checkbox"/> Fuel/DEF Tank	<input type="checkbox"/> Rear End Frame
<input type="checkbox"/> Exhaust/Muffler/DPF	<input type="checkbox"/> Front Axle	<input type="checkbox"/> Front Springs
<input type="checkbox"/> Tires	<input type="checkbox"/> Wheels	<input type="checkbox"/> Reflectors
<input type="checkbox"/> Winshield Wipers	<input type="checkbox"/> Steering	<input type="checkbox"/> Transmission

Remarks: _____

Condition of the above vehicle is satisfactory

Driver's Signature: _____

Defects corrected Defects need to be corrected for safe operation

Mechanic's Signature: _____



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