



Best Practices for Transporting & Handling of Pipe

Introduction:

The transporting & handling of pipe consists of 4 main functions:

- Loading
- Securement
- Transporting
- Unloading

This document provides safety guidance for each of these functions for drivers and others involved in transporting and handling pipe used in the construction of pipelines. Employers are responsible for ensuring that drivers and other workers are properly trained and provided with safe vehicles and other equipment.

Background on FMCSA and OSHA Requirements:

Federal Motor Carrier Safety Administration (FMCSA) regulations state that a driver must not operate a commercial motor vehicle (CMV) if the load isn't properly secured. The regulations also state that a motor carrier must not allow a driver to transport a load that isn't properly secured.

The following are some of the key provisions of the (FMCSA) regulations in title 49 of the Code of Federal Regulations:

- 391.13: Requires that drivers know how to properly locate, distribute and secure their cargo.
- 392.9: Requires that drivers not drive the vehicle until the cargo is properly distributed and secured, all vehicle equipment and securement devices are

properly secured, and cargo does not interfere with the driver's ability to drive safely. Also requires periodic en route inspections.

- 393.100 – 393.114: Contains the “general” cargo securement requirements.
- 393.136: Contains the “commodity-specific” cargo securement requirements.

Under the FMCSA's Compliance, Safety, and Accountability (CSA) program, violations for improperly secured cargo are recorded in the CSA scores of both the driver and the carrier.

Companies that employ truck drivers are also covered under Section 5(a)(1) of the OSH Act of 1970 (OSHA's General Duty Clause) which states that:

“Each employer shall furnish to each of his 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 his employees. “ Specific OSHA regulations may also apply during the loading/unloading process.

The OSHA law also includes a whistleblower protection provision that prohibits employers from retaliating (taking adverse action) against employees for exercising their rights under the OSHA law (including the right to raise a health and safety concern or report an injury). Employees that work in the transportation industry are protected from retaliation under other laws for reporting certain violations. For more information, see www.whistleblowers.gov.

Loading:

Secure the vehicle after arriving at the loading area. No vehicle should ever be left unattended until you are confident it is secure from movement.

Inspect all equipment and hardware used to load the pipe before use.

You may be involved in loading the pipe onto the trailer but sometimes trailers are pre-loaded at the pickup point. Remember that once you sign for the pipe it becomes your responsibility, even if it was damaged or loaded improperly. Improperly loaded pipe or improperly secured pipe can cause damage, injuries, roadside violations and claims against the driver and company.

If present as the pipe is being loaded:

- Avoid parking under or in close proximity to overhead power lines.
- Park equipment and set brakes, chock wheels and be sure area to load pipe is clear and free of obstructions
- Keep your personal safety in mind while participating in any part of the loading process and follow all safety requirements and company procedures.
- Personnel on the ground should stay clear of the loading zone, including all sides of the truck and trailer. Ensure that the area is clear of all personnel except those that are involved in the loading process.
- Wear proper safety equipment such as hard hats, safety glasses, gloves, safety-toed footwear and reflective vest if appropriate.
- Before loading begins, review the shipping information to determine the type and weight of pipe you will be hauling. This will enable you to plan for how the weight will be distributed, types and number of tie downs needed, and where those tie downs will be placed.
- Inspect all pipes before they are loaded to assess their condition. Establish that a spotter is available if needed.
- Ensure that no damaged pipe is put on the trailer and all piping is listed on the bill of lading. The piping you sign for must be accurately counted and securely and safely loaded on the trailer.
- Establish that a spotter is available if needed.
- As pipe is loaded, ensure that the distribution of weight is appropriate and height of the load will not create a center-of-gravity problem.
- Don't stand under suspended pipe when pipe is being loaded.
- Nobody should stand on the trailer or back of the truck during the loading process.

Securement of the Pipe:

The Federal Motor Carrier Safety Administration (FMCSA) regulations set the minimum standards for cargo.

According to the regulations, each commercial motor vehicle must, when transporting cargo on public roads, be loaded and equipped in such a manner as to prevent the cargo from:

- Leaking, spilling, blowing or falling from the motor vehicle; or
- Shifting to such an extent that it adversely affects the vehicle's stability or maneuverability.

Using the key concepts of “working load limit” and “aggregate working load limit”, determine the minimum number of tiedowns you'll need to secure the pipe.

Key Concepts:

Proper pipe securement depends on knowing some key concepts from the regulations. Two of these concepts are “**working load limit**” and “**aggregate working load limit**” which help you comply with the regulations for determining the minimum number of tiedowns needed.

Working load limit:

This is the maximum load that may be applied to a component of a cargo securement system (such as tiedowns, binders, ropes, winches, attachment points, etc.) during normal service.

Aggregate working load limit:

The combined restraining capability of a group of securement devices, and the regulations specify a minimum aggregate working load limit to secure a given weight of pipe. Determining the aggregate working load limit depends on how the devices are used to secure the load, using either an “indirect” or “direct” tie down method.

The aggregate working load limit of the device(s) used to secure an article or group of articles of cargo must equal at least 50% of the weight of the cargo being secured.

Length and placement considerations:

Once you determine the aggregate working load limit of the securement device is at least half of the weight of the cargo, you must make sure there are enough tiedowns based on the cargo length and its placement.

Length: Long pieces of pipe may require additional tiedowns adequate to provide securement along the entire length.

Placement: Pipe that is not blocked against forward movement may require additional tiedowns to help prevent them from sliding forward.

Securement Considerations:

During the pipe securement process, special care must be taken to ensure proper securement of the pipe while also guarding your personal safety. The goal is to immobilize the pipe so that it can't shift in any direction.

Here are some best practices:

- Use proper attachment points
- Use edge protection to protect the securement device from the pipe or the pipe from the securement device.
- Know how to operate and tighten all the devices that you will be using to secure the pipe.
- When tightening straps, and chains, pull down on the lever rather than pushing.
- Ensure that the binders you are using are rated at the same strength as or higher than the chain.
- Operate all securement devices while standing on the ground.
- Ensure that all straps or chains are properly secured.
- Be aware of the potential for recoil and never be in a position where you could be struck by a securement device.
- Be aware of pinch points.
- Always wear hard hat, gloves, safety-toed shoes and safety glasses during the securement process.
- If tarps are required, have the forklift operator position them on top of the pipe.
- Avoid walking on the trailer deck when possible. If necessary to walk on the trailer deck, make sure you have solid footing.
- Always use "three points of contact" whenever climbing up or down on the vehicle (such as two feet and one hand, or two hands and one foot).

Transporting:

Pre-trip Inspection:

After the pipe is secured – the regulations call for a final inspection before the vehicle is driven.

The pre-trip inspection should include all the basics:

1. Inspect each tiedown.
2. Adjust the cargo or securement devices if necessary.
3. Add additional load-protective equipment as needed, such as tarps, dunnage (wood), tools, straps, chains and any other equipment.

En route inspections:

After you begin a trip the pipe needs to be inspected within the first 50 miles and after the cargo has had a chance to settle. After the first inspection at 50 miles, another inspection is required every time you stop or every 3 hours or 150 miles whichever comes first.

When conducting en route inspections:

- Conduct the inspection off the road and in a safe location.
- Wear a high-visibility safety vest so you're visible to other drivers.
- Never turn your back to on-coming traffic while inspecting pipe and securement devices. If you must turn your back, do so only on the non-traffic side of the vehicle.
- Stay alert while on the traffic side of the vehicle.
- Look for pipe that may have shifted. If pipe has shifted, use extra caution to guard your personal safety while making any attempts to properly re-secure the pipe.
- Be prepared to adjust the tiedowns or add additional tiedowns to ensure that the pipe cannot move. Use caution and ensure it is safe to adjust any tie downs by loosening it during this process.
- Look for tiedowns that have become loose or may have become damaged by rubbing or vibration.
- If the stability of the load has become unstable due to shifting or securement failure, do not proceed until corrections have been made. Some examples – pipe extended over the side or rear, unable to secure the pipe from further movement, Tie down points broke, and not having enough or proper securement devices.
- Properly stow all equipment including winch bars and dunnage boards before continuing.

You're responsible for transporting the pipe and your key responsibility is ensuring it is secured in a way that protects you, the pipe, the vehicle and the public.

Unloading:

Once you arrive at your destination you must now unload the pipe in a safe manner to ensure that no injuries occur to personnel or property (pipe).

Proper unloading procedures should be established by each site, communicated to all personnel involved and strictly enforced.

Employers must ensure that employees are trained on the procedures and aware of the potential hazards of falling pipe.

Heavy equipment operators must be properly trained in the use of the equipment and the handling of pipe.

The following are some best practices:

- Avoid parking under, or in close proximity to, overhead power lines.
- Park on a flat surface whenever possible, set brakes, chock wheels and be sure that the work area to unload the pipe is clear and free of obstructions. If parking on a slope because a flat surface is unavailable, personnel should remain on the uphill side of the truck and trailer.
- Ensure that the area is clear of all personnel except those that are involved in the unloading process.
- All personnel involved with the unloading activity should assess the potential hazards (JSA) before the unloading operation begins. Possible issues that may need to be reviewed include:
 - Has the load shifted?
 - Is it safe to loosen cargo securement devices?
 - Have the load stakes or chocks been damaged in transport?
 - Are load stakes and chocks properly positioned?
 - Has an unloading procedure been identified and communicated to those working around the load?
- Establish that a spotter is available, is properly trained, and appropriate communication is established with the operator unloading the pipe.

- Securement devices shall be removed carefully and only on pieces of pipe that are being removed. Pipe that isn't removed should be re-secured prior to moving. Pipe that is not properly secured is capable of movement and personnel could be injured.
- All equipment and hardware utilized to unload the pipe shall be inspected prior to use.
- Proceed slowly and carefully to unload the pipe.
- Nobody should stand on the trailer or back of the truck while unloading the pipe.
- Hard hats, safety-toed shoes, gloves, safety glasses and a high-visibility vest should be worn.
- All personnel in the unloading zone and ground should maintain a safe distance from the truck and trailer, particularly the sides of the trailer, and be in clear view of the equipment operator.
- When unloading is complete, store all securement devices, remove chock devices, and slowly leave the unloading area.

Under the Occupational Safety and Health Act, [employers are responsible](#) for providing a safe and healthy workplace and [workers have rights](#). OSHA can help answer questions or concerns from employers and workers. Contact your [regional or area OSHA office](#) or call 1-800-321-OSHA (6742). OSHA also provides help to employers. [Add link on “help to employers” to new Employer Portal page.] OSHA's [On-site Consultation Program](#) offers free and confidential advice to small and medium-sized businesses, with priority given to high-hazard worksites.

Through the OSHA and American Pipeline Contractors Association (APCA) Alliance, APCA developed this Best Practices for informational purposes only. It does not necessarily reflect the official views of OSHA or the U.S. Department of Labor. 11/2012

