**Introduction:**

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

1. Loading
2. Securement
3. Transporting
4. Unloading

**Pre-trip Inspection:**

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, chocks and any other equipment.

**Loading:**

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.

**When pipe is being loaded**:

* Avoid parking under or near 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
* 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
* falling from the motor vehicle
* Shifting to such an extent that it adversely affects the vehicle’s stability or maneuverability.

**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 helps you comply with the regulations for determining the minimum number of tiedowns needed.

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

**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.

**Best practices:**

* Use proper appropriate 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 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 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 makes 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).

**Inspections:**

* Look for pipe that may have shifted. If pipe has shifted
* denied the load

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.

**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.

 **Best practices:**

Avoid parking under, or near, 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 processes.

**Needs to be reviewed include:**

1. Has the load shifted?
2. Is it safe to loosen cargo securement devices?
3. Have the load stakes or chocks been damaged in transport?
4. Are load stakes and chocks properly positioned and pined?
5. Has an unloading procedure been identified and communicated to those?
* 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.