Preventing Dump Truck Tip-Overs



Safety Talk

What's at Stake?

As end-dump truck bodies and/or semi-trailer dump rigs get longer, instability of the vehicle gets higher and higher. With high instability comes more of a chance of trucks tipping over. This risk is greater in semi-trailer rigs than in straight trucks due to the length of the semi-trailer rig.

So, what can happen after a dump truck tips over? In early May of 2017 an El Paso worker suffered life-threatening injuries after being trapped inside a tipped over dump truck. Luckily for him, first responders were notified almost immediately, yet it still took over an hour to free the man and he had to be treated for serious injuries.

What's the Danger?

Stability is the main issue in cases of tip-overs, and stability can come into play in many ways.

First, there are concerns with the vehicles. The trucks' design can be a problem when the box is in a raised position; if the center of gravity isn't between the frame rails, the truck may become imbalanced and be at risk to tip over. Also, the vehicles' working conditions may be a problem, such as the suspension system needing repair, uneven or low tire pressure, or faulty lifting system parts and cylinders.

Second, there can be increased risk for tip overs when working with certain materials, or with amounts of materials. For instance, when dumping materials that don't flow out of the top portion of the box, or when there is a large amount of material in the upper portion of the box, the truck becomes uneven and unstable. This can be further problematic if the wheels settle unevenly during the dumping process.

The third concern is with the working environment. Wind, especially if the box is long as is found in end-dump semi-trailers, can cause risk for tipping. Additionally, the ground or working surface can be a risk. If the truck is not on a level surface to begin with, as dumping processes continue, the risk for imbalance becomes greater and greater.

How to Protect Yourself

One of the most effective way to prevent tipping is in controlling risk factors with the vehicles.

1. When possible, choose the right type of dump truck. For example, using belly-dump semi-trailers for spreading aggregate for road construction, or using straight trucks or pup trailers instead of semi-trailers in areas where surfaces are uneven.
2. Maintenance and inspection of all vehicles is a must! For example, tire pressure should be checked daily and should be equal on all sides of the truck. Check and lubricate pins and bushings. Check hoist cylinders regularly and when needed replace with cylinders of the same size and operating pressure. Inspect suspension systems to make sure they work properly and have even suspension. Report damaged components and don’t use the equipment until all components have been fixed.
3. Always follow all procedures and safety policies from your organization and use manufacturer recommendations and instructions for maintenance.

Additionally, making good decisions when loading and dumping can greatly reduce risks for tipping.

1. When loading, always stay within regulated weight limits.
2. If working with poorly flowing materials, be sure to lighten the load in the top end of the box, use a smaller load instead of a full load, and use box liners if possible.
3. Recognize dumping site hazards such as soft or uneven surfaces, or inadequately compacted fill, and check that the vehicle is on an even surface before dumping.
4. When spreading material by dumping from a moving truck, the entire length of travel should be level.
5. Avoid dumping when trucks are parked side-by-side.

Final Word

Recognizing the risks associated with tipping hazards is key in prevention. Trucks must be properly maintained and risk factors that cause imbalance to vehicles must be avoided to have a healthy and safe work environment.