

**May 2010**

**CARGO TANK DRIVER ROLLOVER PREVENTION  
Closed-Captioning Script**

RON: And when I came up on the car, I hit the brakes really hard.

LATONYA: When I felt it lean a little bit, I kinda looked in the rearview mirror and I could actually see the trailer leaning.

WAYNE: Rolling that truck over was not even part of my mindset at that point.

RON: I lost control of the vehicle and it started to roll.

WAYNE: Because rolling over meant possible death, burning up...

LATONYA: I just kinda got scared and didn't want to look at it anymore, and I wanted to concentrate on everything around me.

WAYNE: All my focus went into what was in front of me, what was to the left, to the right, ahead of me...

RON: So it flipped over onto the side, then over to the top, and then back over four times, all the way back to the wheels.

WAYNE: It was all about how am I going to get out of this alive.

LATONYA: It was very scary, it was very scary.

RON: It could've been my family in that car, you know, or anybody's family.

NARRATOR: So ... what causes a rollover?

The answer you get most often is, "Driving too fast for road and weather conditions." And that's true. Sometimes. But that's not the only reason. We want to go beyond that general answer to look at all the different factors that contribute to rollovers. By the time we're finished you'll know how they happen, why they happen and how you can avoid them.

Rollovers can happen anywhere. You probably think most tank truck rollovers happen at exit and entrance ramps. The driver misjudges the curve and takes it too fast. But no. Rollovers actually happen more often on straight roadways.

Why do you think that is?

It's probably because you're more focused on the road when you approach that exit or entrance ramp. Not so much on the straight roads.

So our job here is to help you maintain that focus on all roadways. To do that, we'll look at several issues that affect the potential for a rollover.

They include vehicle design and performance. Load effects. Highway factors. And driver factors.

Let's start with the design and performance of cargo tank trailers. The first thing you need to know is the impact of a high center of gravity. Everything has a center of gravity. It's the place where an object is balanced in all directions.

Anything with a high center of gravity relative to its width is less stable. And cargo tank units have a high center of gravity. That means the unit will lean when it enters a turn. How much it leans depends on the vehicle's speed, the sharpness and banking of the turn, and the unit's center of gravity.

So the truck starts to lean. And what happens? Its center of gravity shifts toward the outside of the curve. When it does that, the liquid in the tank moves sideways. We call that sloshing. If this happens too suddenly and too strongly, it can roll the vehicle.

If you hit the brakes suddenly, the liquid will surge forward. That can also cause you problems.

What's the key word here? Suddenly. If you do things more slowly, you reduce the risk of problems.

WAYNE: Anytime you speed up, you're subject to mess up.

LATONYA: As I was going down the hill, I kinda felt the trailer tilting a little bit because of the speed that I was going.

JAY: And you come around the curve, and it's sharper than you anticipate, and you just won't be able to slow down. And you can rollover the truck.

LATONYA: It made me very alert of all of my surroundings, and looking ahead instead of, you know, being too comfortable, you can never be too comfortable.

NARRATOR: All drivers should understand the design and performance of their vehicles. But as a cargo tank driver, you also have to understand how your liquid payload can and will contribute to rollovers.

So let's talk about load effects.

Drivers who've rolled over will often tell you their load shifted. They'll say the load shift caused the rollover. But the load – especially a fluid load – will always shift. It's responding to the way you as the driver are handling the trailer's movements.

How much load you're carrying affects how your vehicle handles. With a tank full of liquid, one wrong move can mean a rollover. The most important thing you can do to keep the vehicle and the load under control is manage your speed. Manage your speed to adapt to driving conditions. When the road and the weather call for it, slow down.

As difficult as it can be to drive a full tank of liquid, partial loads are even more challenging because there's more room for the liquid to move. Over 94 percent of rollovers occur in trucks with a partial load.

Liquid slosh and surge are a big factor in those rollovers. Slosh and surge are caused by speed. By turning radius. By sudden braking or taking off. By sudden maneuvers. And by load distribution.

WAYNE: You have to pay particular attention anytime you're hauling a liquid as to how much you're hauling, how high is—what the level is in your tank.

JAY: If you hit the brakes suddenly, that product is gonna move forward. And when it does and it hits that bulkhead at the end of the trailer, all that weight now is thrown forward at you. It just makes it harder to stop.

NARRATOR: Surges also occur in a tanker following a sudden maneuver. This could be something like sudden braking to avoid an obstacle. Trying to get back on the road after you drift off the pavement. Moving the tractor too quickly for conditions. Or shifting, or missing a shift, on a turn.

JAY: And if you're not careful and you just kinda release your foot off the brake for a moment, at that wrong moment you could be thrown into an intersection. And you don't want that.

NARRATOR: We should also take a look at several vehicle maintenance issues. Things like poor brake performance. A damaged suspension. Under-inflated tires. And load dynamics. They could all contribute to a rollover.

You could eliminate some of them with an adequate pre-trip inspection. If you have any questions about your vehicle, tell someone in maintenance or at dispatch. Don't leave with a vehicle that you aren't confident will perform safely.

RON: I mean it takes just a few extra minutes to check all these things, and it could be your life if you don't.

NARRATOR: Now let's look at potential highway factors. These include sharp curves. Steep downhill grades. Soft shoulders. Berms, mounds and curbs. Narrow driveway entrances or exits. And limited visibility areas that can reduce eye lead-time for turns or hills.

It's important to survey and identify high-risk sections of regularly traveled routes. If at all possible, survey routes to unfamiliar destinations in advance to identify and avoid high-risk areas. And proceed cautiously until you know and are comfortable with the route.

Remember, you're the professional on the roads you travel. If there's a road design condition that makes you feel uneasy, report it to your company. Changes in dispatch, or additional warning signs at locations like that, could help prevent rollovers.

You see this sign? This information is not for you. It's for passenger cars traveling in good weather. Fleet safety experts say that when you enter this curve, you should drop your speed to at least 10 miles per hour below what you see here.

We all know that long downhill grades can lead to excessive speed. So ... are your brakes properly adjusted? Have you shifted to a lower gear? The only acceptable time to deal with downhill grades is before you start down them. Don't rely on the feel to estimate your speed. Remember that the larger the vehicle, the slower the driver thinks it's moving. So always check your speedometer before you enter curves, ramps, or downhill grades. And remember, newer trucks don't have the same engine retarding as older models. Be sure to set your Jake brake properly.

Be aware of the shoulder conditions on any roadway. Dropping off onto a soft shoulder may cause the outside wheels to sink and trip the whole unit on its side.

Tripping happens a lot on entrance or exit ramps that have a curb on the inside of the curve. When you're traveling a little too fast, the tanker wheels will track inside of the tractor wheels. So even though the tractor takes the turn just fine, the trailer tires may swing in a little closer. They'll hit the curb and trip the unit.

A good rule of thumb is to allow about 3 to 4 feet of clearance between the tractor's tires and the curb. That way the trailer tires should be clear of the curb even if off-tracking occurs.

An improper recovery can lead to a reverse tripping condition. Let's say you go off the roadway and you try to bring the tractor back onto the roadway too quickly. And at too fast a speed. This could trip the unit when the tires hit the shoulder berm or the pavement on the return.

Wide intersections may cause you to be too confident when you're turning. Always gear down and slow down before the turn. Generally you're taught to 'square the turn' at slow speeds to reduce the impact of off-tracking. But loads with a high center of gravity have to be driven differently through intersection turns. You should 'round the turn' to make sure the trailer doesn't have a sudden change in direction.

Cutting short on a turn is one of the most common errors. Be aware of soft berms and narrow culverts. Wet weather may soften berms, and narrow culverts may allow the rear tandem to slip off the driveway into the ditch. And that could overturn the unit. When traffic conditions allow for it, making a left turn into a driveway is safer than making a right. It gives the rear tandem more room to track the tractor's path.

Okay. We've talked about vehicle design, load effects and highway factors. Now we come to the last area. In many ways the most important. It's you. The driver. You're the one that controls your unit. Before you leave the yard, make sure you know it like the back of your hand.

Begin by conducting a thorough pre-trip inspection. Learn as much as you can from dispatch and from other drivers about road and weather conditions. Remember, a safe journey depends on your actions. So avoid unsafe behaviors. Encourage others to avoid them, too.

And by unsafe behaviors we're talking about things like speeding, whether that's going beyond the posted speed, or just too fast for the road and conditions. Distractions, like talking on your cell phone, or worse, texting. Complacency. Fatigue. And driving under the influence. About physical and mental conditions, like diabetes or divorce. Even something as simple as eating. Or daydreaming.

Driving too fast for the vehicle and road conditions is a factor in most rollovers. Remember that speed limits are set for small vehicles driving in good weather during the daytime. Adjust your speed accordingly for the type of unit you're driving, especially at night and during bad weather.

Tailgating, road rage, and failure to plan in advance can lead to sudden, radical lane changes. And that can cause your unit to rollover.

One of the most dangerous driver behaviors is complacency.

JOHNNY: In the 23 years that I've driven a tank truck, I always keep in my mind that I'm hauling hazardous material and it's very dangerous.

LATONYA: Well, a driver should never get too comfortable being behind the wheel, especially the wheel of a big rig.

WAYNE: When you get so comfortable and think that you've been driving so long and you have so much experience that you just—it all becomes natural to you, you're gonna mess up. Because something is gonna get you that you're not expecting.

NARRATOR: It only takes a second. Adjusting the radio ... answering a cell phone ... reaching for a drink. That little bit of inattention is enough to slide off the side of the road. Or miss the beginning of a curve. Or possibly enough to cause a rollover.

Driver fatigue is another factor. Maybe you didn't get enough rest during your time off. Maybe you're working too many hours ... or you're having trouble adjusting to rotating shifts. There are many warning signs of fatigue while driving. You may have trouble focusing. You may have frequent yawning ... blinking ... or heavy eyelids and head bobbing. You may have trouble remembering the last few miles. Or you may miss an exit or traffic sign. You may even find yourself drifting from your lane ... tailgating ... or hitting the shoulder rumble strip.

If you show any of these warning signs, get off the road. Get out of the cab and move around to get the blood circulating again.

If you're too tired to keep driving safely, find a safe, well-lit area to park and rest a few minutes. Caffeine, energy pills, loud radios, opening the windows, and other tricks to stay awake ... don't work. Don't try them. Instead, follow the hours of service regulations and get plenty of rest during your off hours.

Obviously, driving under the influence of drugs or alcohol is not permitted. But it could be a major factor in a rollover. Even over-the-counter drugs can impair your driving. Read and follow all precautions anytime you're using medication.

Well, there you have it. Rollovers happen too often in the cargo tank industry. They can be severe, and they can mean the release of hazardous materials. And they can happen because of the design and performance of the trucks ... because of the characteristics of the roadway ... and because of the actions and behavior of the driver.

In most rollovers, speed too fast for the conditions is a major contributor. And it's one that's entirely under your control.

We hope that you now have a better understanding of the factors that can lead to a rollover. And we hope that you're better prepared as you head out on the road.

The bottom line is simple: Rollover crashes are preventable. Rollover crashes are unacceptable. And you are the key to eliminating them.