



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

JUN 23 1993

Mr. Donald W. Vierimaa
Vice President-Engineering
Truck Trailer Manufacturers Association
1020 Princess Street
Alexandria, VA 22314

Dear Mr. Vierimaa:

This is in response to your letter concerning rollover protection requirements for a specification DOT 406 cargo tank. Specifically, you asked if a manufacturer, who uses two full length parallel overturn protection rails (inverted V rails), can design the rails so that each withstands one-half of the loads specified in 49 CFR 178.345-8(c)(1).

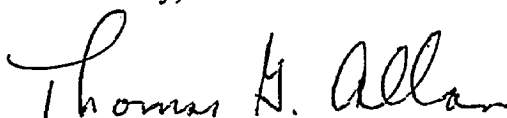
The answer is no. In the case of inverted V rails that run along each side of the top of the cargo tank (not in the center), a rollover will cause a sudden impact of the ground with only one of the rails, then, if and when the tank rolls to 180 degrees, which seldom occurs, the second rail comes into contact with the ground and experiences a different kind of loading. Then, if the tank continues to roll, the first railing will be suddenly released of all loading and the total load will shift entirely to the second rail. In such a rollover scenario, it is not reasonable for a designer to distribute the required loading between the two railings.

However, a designer could provide for two inverted V railings to share the distribution of the transverse loading, by providing for transverse bracing to connect the two railings and to treat the entire design as a single device for the purpose of handling the transverse loading. Without transverse bracing, inverted V railings should be considered separate non-load-sharing devices.

Other devices, such as "tombstones" are considered load sharing devices and are symmetrically located along the centerline of the top of the cargo tank, so that in a normal overturn scenario, the devices strike the ground simultaneously and each device receives a sudden loading of similar magnitude. In such a case, it is reasonable to distribute the required design loading among all the devices.

If you need further assistance, please contact us.

Sincerely,

A handwritten signature in black ink that reads "Thomas G. Allan". The signature is written in a cursive style with a large, stylized 'T' and 'A'.

Thomas G. Allan

Senior Transportation Regulations Specialist
Office of Hazardous Materials Standards

karim
File: 178.345-8
SC: 333, 310

Truck Trailer Manufacturers Association
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TANK CONFERENCE

Richard P. Bowling, President

January 15, 1997

Edward T. Mazzullo
Director
Office of Hazardous Materials Standards
Research & Special Programs Administration
U.S. Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

Subject: Request for an Interpretation of Rollover Protection
of 178.345-8(c)(1)

Dear Mr. Mazzullo:

Typically, two full length parallel overturn protection rails are installed on DOT 406 cargo tanks. If each of these overturn rails is designed to withstand one-half of the loads specified in 178.345-8(c)(1), will the pair of overturn rails comply with 178.345-8(c)(1)?

Sincerely,



Donald W. Vierimaa
Vice President-Engineering

DWV/mm

cc: Stephen Keppler
Office of Motor Carriers, HSA-10
Federal Highway Administration
Tank Conference Engineering Committee

No, Each rail must be
designed to withstand
the full loads specified
in 178.345-8(c)(1).
Don Vierimaa