U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue, SE
Washington, D.C. 20590

AUG 2 2 2014

Mr. David L. Thompson
Thompson Tank, Inc.
P.O. Box 790
Lakewood, CA 90714-0790

Ref. No. 14-0042

Dear Mr. Thompson:

This is a response to your February 26, 2014 letter requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) with regard to the manufacture of DOT specification cargo tanks. This letter requests further clarification of a previous interpretation (Reference No. 13-0207R; see enclosed). Specifically, you seek clarification on the design, construction and certification of DOT 412 cargo tanks designed to be loaded by vacuum. You ask if a vacuum loaded DOT 412 cargo tank having a 15 psig external maximum allowable working pressure (MAWP) must be designed, constructed and certified in accordance with the ASME Code and stamped on the ASME name plate.

Specification DOT 412 cargo tanks designed to be loaded by vacuum must have a minimum external MAWP of 15 psig and a minimum internal MAWP of 25 psig in accordance with § 178.348-1(c). A DOT 412 cargo tank designed to be vacuum loaded would be required to be constructed and certified in accordance with Section VIII of the ASME Code, in accordance with § 178.348-1(e)(1) and the name plate must be stamped accordingly. This requirement does not distinguish between internal and external MAWP, therefore a DOT 412 cargo tank designed to be vacuum loaded and manufactured with an internal MAWP greater than 15 psig must be constructed and certified in accordance with the ASME Code, irrespective of the external MAWP.

I hope this information is helpful. If you have any more questions, please do not hesitate to contact this office.

Sincerely,

Robert Benedict
Chief, Standards Development
Standards and Rulemaking Division

THOMPSON TANK, INC.

ASME - D.O.T CERTIFICATION
D.O.T. INSPECTION - TESTING
DESIGN ENGINEERING • CONSTRUCTION

THOMPSON VACUUM-PRESSURE UNITS

Suchak
§178.345-1
§178.348-1
§178.347-1
Cargo Tanks
14-0042

February 26, 2014

U.S. DOT
PHMSA Office of Hazardous Material
Standards
Attn: PHH-10
East building
1200 New Jersey Ave., SE.
Washington, DC 20590-0001

Gentlemen,

Subject: Vacuum Loading Reference No. 13-0207

We received your interpretation Ref No.: 13-0207 and find your statements directed at a DOT 412 Cargo Tank to be very confusing.

The DOT 412 Vacuum-Loaded Cargo Tank is typically designed, constructed and certified in accordance with the ASME Code for 50 PSI **Internal** MAWP and 15 PSI **External** MAWP.

Item No. 1. Must the 15 PSI **External** MAWP be **designed**, **constructed**, and **certified** in accordance with the ASME Code and stamped on the ASME Specification Plate.

Item No. 2. Must the 15 PSI **External** MAWP be **designed** and **constructed** in accordance with the ASME Code, but not **certified**.

Note: If the DOT-412 Vacuum-Loaded Cargo Tank is really **designed** and **constructed** in accordance with the ASME Code for 15 PSI **External** MAWP the additional cost for **Certification** is "ZERO." It is already being ASME Code **Certified** for the **internal** pressure condition. A very small inconvenience for such a large degree of safety.

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Please consider that a DOT 407 Specification Vacuum-Loaded Cargo Tank must comply with Item No. 1 and is in a less severe service.

Also that a DOT 412 cannot haul flammable products without the temperature actuated shut-off system required for a DOT 407.

Enclosed for your evaluation is an email from Truck Trailer Manufacturer Association (TTMA) regarding regulation proposals to PHSMA and e-mail sent by Danny Shelton.

Sincerely,

David L. Thompson
Thompson Tank, Inc.

DLT: rb
Encl (1- email from TTMA
2- email from Danny Shelton)

ompson Tank Inc

rom:
Sent: Wednesday, December 03, 2008 7:55 AM
To: Thompson Tank Inc
Subject: FW: Vacuum tanks
Attachments: vac tanks Recommendation for 218.doc

Mr. Dave
And the saga continues

From: Jeff Sims [mailto:Jeff@ttmanet.org]
Sent: Wednesday, December 03, 2008 6:11 AM
To: Andre Bourgault ; Anthony Van Houdt; Bruce Yakley; Bryan Van De Vyvere; Bryan Yielding ; cfoshe@acrotrailer.com; Chad Betts; Chris Budniak; Daniel Tremblay ; Dave Adams ; Dave Shannon; David Bailey; David Ball; David Burke; David Girard ; David Perry; David Wagoner; Don Lang; Donnie Alford; Duane Plumski ; Ed Mansell ; Gary Christen; Gary Spoelstra; Harvey Wallenstein; Jack Muellner; Jack Rademacher ; Jim Lawler; Jim Pflum; Joe Calonge; Joe House ; Lee Hancock ; Leona Busse; Loy McGee ; Mike Barker; Nathan Roe ; Nick Paulick; Pascal Thibault ; Peter Weis; Ray Heelan; Raymond Schaffer; Rick Connelly; Rick Fahl; Robert Lane; Rosemary Muellner; Russ Hamilton; Scott Hevelone; Sean Andersen; Steven McWilliams ; Thomas Ballon ; Thomas Determan; Timothy Rabe ; Tom Hitchcock ; Vaughn DeVorse ; Wayne Roderick
Subject: Vacuum tanks

Good Morning to all,

The attached wording is being proposed to PHMSA in an attempt to make "loaded by vacuum" and "built to withstand full vacuum" clearer in the regulations.

They are attempting to get this into 218f a non-significant regulation that will not have a comment period, so if we have any heartburn with the wording now is time to discuss it.

Have a great day!

Jeff Sims
TTMA - Engineering Manager
703-549-3010 phone
703-549-3014 Fax
www.ttmanet.org

178.347-1 (c) states that "Any cargo tank built to this specification with a MAWP greater than 35 psig and each tank designed to be loaded by vacuum must be constructed and certified in conformance with Section VIII of the ASME Code (IBR, see §171.7 of this subchapter). The external design pressure for a cargo tank loaded by vacuum must be at least 15 psi."

178.347-4(b) goes on to say that vacuum relief devices are not required for cargo tanks designed to be loaded by vacuum or built to withstand full vacuum.

This wording is confusing and creates the appearance that a cargo tank motor vehicle designed to be loaded by vacuum referenced in 178.347-1(c) and cargo tank motor vehicles built to withstand full vacuum referenced in 178.347-4(b) are not required to have vacuum relief devices because they are required to be constructed and certified in accordance with the ASME Code. One can reach this conclusion because in both cases the "loaded by vacuum and built to withstand full vacuum" mean that the cargo tank wall must meet the structural integrity requirements to withstand an external pressure of 15 psi.

There is a clear distinction and intent between the phrase "designed to be loaded by vacuum" and "built to withstand full vacuum". We believe that if a cargo tank manufacturer designs a cargo tank "to withstand full vacuum" that this tank is not required to be certified in conformance with Section VIII of the ASME Code but we also believe that a cargo tank that is loaded by vacuum is required to be constructed and certified in accordance with Section VIII of the ASME Code. The intent of the final user of the equipment will determine whether a tank will be vacuum loaded and required to be a "U" stamped vessel versus a cargo tank that is designed to withstand full vacuum to ensure the tank is not sucked in because of product cooling or during unloading and as a result of the cooling of the product suck in moisture from the air and contaminate the products being transported.

We believe it was also the intent of the Department to allow for cargo tanks that are designed to withstand full vacuum but are not "U" stamped vessels to be able to take advantage of the exception in 178.347-4(b). The enforcement community can easily determine by inspecting the accessory equipment installed on the cargo tank motor vehicle and determine if this cargo tank motor vehicle is being loaded by vacuum. Once that has been determined simply verify that the cargo tank motor vehicle has a "U" stamp and compliance with the requirements have been verified. If , however the cargo tank motor vehicle is not a "U" stamped vessel then non-compliance has also been verified and the intent of the Department is also clear and concise.

Because of the confusion we intend to clarify section 178.347-1(c) and 178.347-4(b) as follows.

§178.347–1 General Requirements

178.347-1 (c) Any cargo tank motor vehicle built to this specification with a MAWP greater than 35 psig or each tank motor vehicle designed be loaded by vacuum must be constructed and certified in conformance with Section VIII of the ASME Code (IBR, see §171.7 of this subchapter). The external design pressure for a cargo tank loaded by vacuum must be at least 15 psi.

(d) Each cargo tank motor vehicle built to this specification with MAWP of 35 psig or less or designed to withstand full vacuum but not be loaded by vacuum must be "constructed in accordance with Section VIII of the ASME Code" except as modified.

§178.347–4 Pressure Relief

(b) Type and construction. Vacuum relief devices are not required for cargo tank motor vehicles designed to be loaded by vacuum in accordance with 178.347-1(c) or built to withstand full vacuum in accordance with 178.347-1(d).

D.L. Thompson

From: Danny Shelton <shelton10104@gmail.com>
Sent: Wednesday, February 26, 2014 11:24 AM
To: 'Peter Weis'; Duane Plumski; John Cannon ; anthony.vanhoudt@bealltrailers.com; Jack Rademacher
Cc: Tom A. Rogers (Work); Mike Pitts; D. L. Thompson
Subject: Cargo tanks Designed to be loaded by Vacuum
Attachments: Certified ASME Vacuum 13-0207 2.18.2014.pdf

Please see the attached interpretation from PHMSA dated February 18, 2014 in response to Dave Thompson's inquiry. Based on this interpretation it is my professional opinion that a cargo tank motor vehicle that is designed to loaded by vacuum must be constructed and certified in accordance with the ASME Code. I believe that also means that the ASME Data Plate must be marked with a minimum external pressure of 15 because that is a design consideration and if it is a design consideration then the ASME Data Plate must be marked.

Regards