



U.S. Department of Transportation
**Pipeline and Hazardous Materials
Safety Administration**

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

MAY 12 2010

Mr. Andrew Abrams
761 West Sproul Road #208
Springfield, PA 19064

Ref. No.: 09-0245

Dear Mr. Abrams:

This responds to your October 21, 2009 letter requesting clarification of the requirements for Design Certifying Engineers (DCE's) under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically, you ask about DCE certification of a design for an emergency discharge control system for a cargo tank motor vehicle in liquefied compressed gas service in accordance § 173.315(n). Your questions are paraphrased and answered as follows:

Q1: A hose system designed to automatically shut off the flow of product without human intervention in accordance with § 173.315(n)(2) may be intended for a specific application and, thus, may include components, such as pressure-specific rubber, metal, or PTFE hose material, or metallurgic fittings, that are unique for the intended application. For such unique designs, may the DCE elect to issue a certification utilizing specific serial numbers with contemporaneous hose test dates rather than a more general design certification?

A1: Yes. The DCE may issue a unique certification that would apply to a single hose system rather than a more general certification for a hose system design. In that circumstance, the certification could identify, by serial number and test date, the specific hose system to which the certification applies.

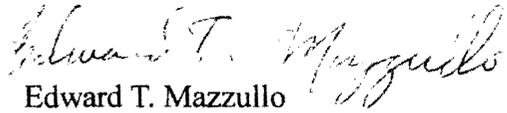
Q2: If the above design certification process is appropriate, may a facility continue to issue date and hose specific certifications bearing the DCE's signature when the DCE is no longer employed at the facility? Or would PHMSA expect the facility to retain a new DCE?

A2: The DCE certification remains effective for the service and parameters cited in the certification with or without the consent of the DCE and even in the event that the DCE dies. The DCE certification, however, applies only to the specific design described in the certification. A new DCE certification is required if the previously-approved design is

modified. In the event a DCE issues a unique certification for a single hose system, the certification may not be used for a different hose system.

I trust this satisfies your inquiry. Please contact us if we can be of further assistance.

Sincerely,

A handwritten signature in cursive script that reads "Edward T. Mazzullo".

Edward T. Mazzullo
Director, Office of Hazardous Materials Standards

Andrew Abrams
761 West Sproul Road Unit 208
Springfield, PA 19064

Nickels
§ 173.315
Cargo Tanks
09-0245

Wednesday, October 21, 2009

Mr. Edward T. Mazzullo
Director – Office of Hazardous Materials Standards
Pipeline and Hazardous Materials Administration
US Department of Transportation
1200 New Jersey Avenue, SE Building 2nd Floor
Washington, DC 20590

Re: Letter of Interpretation – 49 CFR 173.315- *Follow-Up -3*

Dear Mr. Mazzullo

I am writing to follow-up on my January 22 2009 letter, and my correspondence with Ms. Susan Gorsky, related to the above-captioned inquiry to ask for further and more specific clarification of the regulations as they relate to the role of a Design Certifying Engineer (“DCE”) in the assembly and installation of specific passive shut-off devices. Based upon our previous conversation, you indicated that the January 22 letter was not inputted into your system, so I am sending it as an attachment to this letter.

Ms. Gorsky previously opined about the role of a DCE as it relates to the historic class of systems that are typically certified. I regret that we were not more specific in our inquiry to her, as the system in question poses a unique situation. Ms. Gorsky’s opined after on July 18, 2008, when the DOT conducted a compliance review at Zena to determine its compliance with federal regulations. During the review, the DOT determined that Zena had violated the regulatory scheme with respect to the hose certifications bearing Joseph Abrams’ signature after his termination. Specifically, the DOT determined that Zena had violated federal regulations because “The Company’s Design Certifying Engineer (DCE) was terminated on 3/3/08. The company continued to use the terminated DCE name on test certifications after 3/3/08.” As a result, the DOT subsequently served Zena with a “Notice of Claim” in the amount of \$21,480 as a fine for its violations. A copy of the findings are attached to the enclosed letter.

To reiterate the fundamental regulatory provisions: 49 C.F.R. Section 173.315(n)(2)(ii) provides that a certification must “consider any specification of the original component manufacturer” and must explain how the passive means to shut off the flow of product operates. It must also outline the “parameters (e.g., temperature, pressure, types of product) within which the passive means to shut off the flow is designed to operate” and that a copy of the design certification must be provided to the owner of the cargo tank motor vehicle on which the equipment will be installed.

In her letter dated December 5, 2008 (a response to my October 8 2008 letter, both of which are enclosed), Ms. Gorsky indicated that the DCE certification process is intended

to be a "one-time" process as it was historically developed for cargo tank and unchanging standard passive shut-off technology systems.

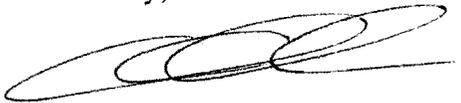
What we neglected to ask Ms. Gorsky, and the questions that require clarification, are the following:

1. If a DCE, when "consider[ing] any specification of the original component manufacturer," determines that a "one-time" certification is not appropriate because the passive device hose system that he is certifying requires the combination of various components, such as pressure specific rubber, metal or PTFE hose materials with the proper metallurgic fittings (and other additional components), all considered in the context of the application to which the hose will be put, can he more appropriately choose to issue a date and hose specific certification, utilizing hose specific serial numbers with contemporaneous hose test dates?¹ *(A copy of the date and hose specific form of certification that Smart-Hose Technologies Inc. and then Zena Associates LLC d/b/a Smart-Hose Technologies has used is attached hereto.) Note: the attached New Hose Certification was issued on 4/1/08 after the DCE was employed at Smart-Hose and part of the aforesaid DOT investigation .*

2. If the aforesaid design certification process is appropriate, would it be compliant for a facility to continue issuing date and hose specific certifications bearing the DCE's signature when the DCE is no longer employed at the facility or would you expect them to retain a new DCE?

Thank you for your consideration.

Sincerely,



Andy Abrams

¹ , "Date and hose specific" meaning that each time a hose is sold a certification is prepared attesting that the specific technology incorporated in the specific hose being sold is appropriate for use at a certain working pressure in a specific application, and when installed on specified equipment will satisfy the passive shut-down feature required by 49 C.F.R. 173.315.

**SMART HOSE
TECHNOLOGIES**

**New Hose
Test Certification**

The **Smart-Hose™** technology is a proven hose technology designed to counteract the hazardous effect of hose rupture or failure during fluid or gaseous transfer operations. All **Smart-Hose™** designs, **Smart-Hose™ I**, **Smart-Hose™ I with breakaway**, **Smart-Hose™ II** and **Smart-Hose™ III** utilize the unique, patented and patent pending designs which eliminates the potential for disaster through the use of an internal cable connected to specially designed, normally unseated valve "wedges or plungers" located on each end of the cable. In the event of **hose separation, stretching** to the point of an unsafe condition or **coupling-to-hose separation**, the valve "wedges or plungers or flappers" are released and instantly seat **stopping the flow in both directions.** (Operating temp. -40°F to 180°F)

I certify that this hose assembly meets all the requirements of the DOT and when installed on any MC330, MC331 or authorized non-specification compressed gas cargo tank will satisfy the requirements for the passive shut down feature required for these cargo tanks by 49CFR 173.315 US DOT.

Certified By: Smart-Hose Technologies

CT# 7953

Design Certifying Eng:  **Joseph Abrams**

TEST Date: 4/1/08

On the above date, Smart-Hose Technologies has inspected and tested the hose assembly listed by serial number below.

Visual Inspection: **Accepted**

Test Pressure: **700 PSIG Passed**

Working Pressure: **350 PSIG Passed**

Hose Type: **Hose, NH3- LL 3-2" X 18.6 316-SS, FNPT- MNPT
rebuild end-fitting**

SERIAL# 416971

SO#4520

Registered Inspector 

Company Owner of Hose: _____

Company Representative Signature: _____

This test only represents that the hose has passed the defined test on the date tested, no other warranty express or implied is granted as a result of this certificate. It is important that all hose be inspected and tested on a regular basis in accordance with Smart-Hose Technologies Form #1999-1 "Proper Hose Use, Care and Maintenance."

2538 S 59th St., Philadelphia, PA 19143

Toll Free (877) 356-6278 Fax (215) 730-0558

Test Cert. Form #99-9 Rev.6 (March 2001)



U.S. Department
of Transportation

Pipeline and Hazardous Materials
Safety Administration

1200 New Jersey Ave., SE
Washington, DC 20590

DEC 5 2008

Mr. Andrew Abrams
761 West Sproul Road Unit 208
Springfield, PA 19064

Ref. No.: 08-0273

Dear Mr. Abrams:

This is in response to your October 28, 2008 letter requesting clarification of the requirements for Design Certifying Engineers (DCEs) and Registered Inspectors (RIs) under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). We provided you with a letter (Ref. No.: 08-0205; copy enclosed) on October 21, 2008 addressing the roles performed by the DCE and RI during the assembly and installation of Smart-Hose Passive Devices. This letter provides additional clarification, as requested by your October 28, 2008 letter. Your questions are restated and answered as follows:

Q1: Is the DCE's certification intended to be a "one-time" certification? What if the DCE dies or does not provide consent for the company to use the certification?

A1: The DCE's certification indicates that the design and construction meets the applicable DOT specification. This is a "one-time" process; once the DCE approves the design and provides the necessary documentation there is no need for the manufacturer to have the design recertified. The DCE certification remains effective with or without the consent of the DCE and even in the event that the DCE dies. A new DCE certification is only required if the previously approved design is modified. As defined in § 180.403, a "modification" means any change to the original design and construction of a cargo tank or cargo tank motor vehicle that affects its structural integrity or lading retention capability, including changes to equipment certified as part of an emergency discharge control system required under § 173.315(n)(2). Excluded are the replacement of components of similar design and of the same size.

Q2: Is the RI's supervision required for the installation of a hose-based system that provides the required passive shut-down capability?

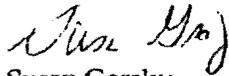
A2: No. As explained in our October 21, 2008 letter and provided in § 173.315(n)(2)(iii), RI supervision is not required for the installation of emergency discharge control equipment that is installed and removed as part of regular operation of the cargo tank motor vehicle (e.g., a hose). It is the responsibility of the DCE to certify that the emergency discharge control system is designed to automatically shut off product flow without the need for human

intervention within 20 seconds of an unintentional release caused by a complete separation of a liquid delivery hose (§ 173.315(n)(2)(ii)). Given that the DCE approves the design of the emergency discharge control equipment and it is attached to a cargo tank motor vehicle in the same way as an ordinary hose, RI supervision is not necessary.

In addition, if you are aware of an operator that is using a new or modified hose design that has not been approved by a DCE you may file a complaint at <http://www.phmsa.dot.gov/hazmat/enforcement> or contact our enforcement office directly at (202) 366-4700.

I hope this information is helpful. Please contact us if you require additional assistance.

Sincerely,



Susan Gorsky
Regulations Officer
Office of Hazardous Materials Standards

Andrew Abrams
761 West Sproul Road Unit 208
Springfield, PA 19064

Supko
3173.315
Cargo Tanks
08-0273

Tuesday, October 28, 2008

Ms. Susan Gorsky
Acting Chief, Standards Development
Office of Hazardous Materials Technology
US Department of Transportation PHMSA
1200 New Jersey Avenue, SE Building 2nd Floor
Washington, DC 20590

Re: Letter of Interpretation – 49 CFR 173.315- *Follow-Up*

Dear Ms. Gorsky

I am writing to follow-up on your October 21 letter in connection with the above captioned inquiry to ask for an additional clarification of the regulations as it relates to the role of a DCE and Registered Inspector in the assembly and installation of certain passive devices.

In your letter you indicated that (1) The DCE is only required to certify that the design confirms to the performance standard and that there is no requirement to review each component throughout the manufacturing process.

Issue: if the regulations indicate that "All components of the discharge system that are integral to the design must be included in the certification." and these components have certain inconsistency such as sources of material or metallic composition, is the DCE's certification intended to be a "one-time" certification?

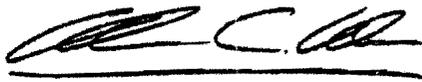
- Can there be a certification issued by a now deceased DCE?
- Does the DCE's certification need to specifically identify each of the components, sources of material, bills of material that they are certifying and if the manufacturer changes these components, a new DCE certification might be required? If so, what would happen if the DCE issued a generic system certification and then was no longer employed by the company – could the company continue to use the certification without his/her consent?

Issue: In your reply you indicated that the Emergency Discharge Control Equipment must "be installed under the supervision of a Registered Inspector" but you identified an ambiguity regarding hoses. We believe that the regulations were promulgated in connection with systems such as RF devices that are manufactured by one company but ultimately both assembled and installed by the end-user (ie truck assembler) and not the manufacturer. Therefore, the requirement for a Registered Inspector was to **assure that the system was correctly installed** and not put together by some unknowledgeable party.

- Since the Smart-Hose system (or any fully installed hose based passive device) has its final installation completed by its own employees and not the end-user, is the intent of the regulations to not require any supervision while this type of passive device is installed? Why would we require a Registered Inspector to install an RF system but require no supervision either by the manufacturer or the end user in the case of a hose based system?
- Do you agree that since the hose is installed merely by threading it onto the appropriate connection, if we define installed for hoses it would have been impractical to have every truck driver become a RI. If however we define "installed" for hose based passive device systems to be when the passive device is installed within the hose, would it not make sense for an RI to oversee this installation and therefore be consistent with the intent of the regulations?
- Was the intent of the language "under the supervision of a Registered Inspector" to require the system to Registered Inspector to look carefully at or over; view closely and critically or examine formally or officially the installation of the passive device and therefore must this function be performed contemporaneously with the installation of the system? More succinctly, can this function be performed by someone who is not present during the installation?

Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Abrams', written over a horizontal line.

Andy Abrams

Andrew Abrams
761 West Sproul Road Unit 208
Springfield, PA 19064

January 22 2009

Ms. Susan Gorsky
Acting Chief, Standards Development
Office of Hazardous Materials Technology
US Department of Transportation PHMSA
1200 New Jersey Avenue, SE Building 2nd Floor
Washington, DC 20590

Re: Letter of Interpretation – 49 CFR 173.315- *Follow-Up -2*

Dear Ms. Gorsky

I am writing to follow-up on your December 5 2009 letter in connection with the above captioned inquiry to ask for a formal meeting to discuss your reply regarding your clarification of the regulations as it relates to the role of a DCE and Registered Inspector in the assembly and installation of certain passive devices.

Since the exchange of information has not been expressed properly and your explanation is directly in contradiction to the discussions that formed the basis of the internal Smart-Hose certification in 2001, I believe it would be prudent to meet.

I have discussed your answers with Mr. Alan Roberts who expressed his strong disagreement with your conclusion. As the former RSPA Administrator and the overseer of these regulations, I believe that a meeting to further clarify your interpretation would be helpful to all.

Under your basis, you can be assured that no one would certify a system in perpetuity exposing themselves to liability should there be a malfunction even if they had no oversight regarding the system at hand. Moreover, having been specifically involved in the regulatory process that spawned these regulations, the hose based Registered Inspector “carve out” only related to the actual attachment of the hose and not its assembly/installation in the system.

If we follow your interpretation, you would sanction a dead DCE and no inspector assemble “Passive Devices”. How can we reconcile this interpretation against the companies previously adhered to **two primary SOPs - Production Inspection Points and Quality Control Critical Inspections** that specifically identify safe and proper operations? Should they be changed to accommodate the above missing safety personnel that the entire process clearly sought?

During Joseph Abrams' tenure after we consolidated the in-house DCE with the QC Inspector's role, he performed these duties on a regular basis. The Certification was

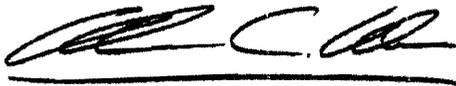
developed as a **hose specific certification** identifying "*this hose assembly.*" not all assemblies. Was this erroneous and should his signature identifying a contemporaneous date with this language be acceptable. Could he continue to certify "*this hose assembly...*" as of this _____ date if he were no longer alive?

As of now, despite clearly established procedures identifying a continuous need for "*the above designated inspections [to be] performed by a Quality Control Inspector*", there has been a four month period without any of these procedures being adhered to. Moreover, the absolute need for such inspection is highlighted in internal procedures that specifically call for "*random spot checks by the Q.C. Inspector*". In the absence of any registered (or Q.C.) Inspector, how might this procedure be complied with? Procedures developed based upon safe practice and the regulatory process that

The certification developed, based upon the regulatory process and procedures sought to meet the intentions of the law and common safety practice. With all due respect, we believe that your personal interpretation is erroneous, not consistent with this type of hose based Passive Device and request a formal hearing to discuss this matter further.

Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read 'A. Abrams', written over a horizontal line.

Andy Abrams

Drakeford, Carolyn (PHMSA)

From: Mazzullo, Ed (PHMSA)
Sent: Wednesday, October 28, 2009 9:10 AM
To: Gorsky, Susan (PHMSA); Drakeford, Carolyn (PHMSA)
Subject: FW: Clarification
Attachments: edward t. mazullo- oct 21 2009.pdf

Carolyn: Please assign for response.

Susan: He may have a valid point. What do you "opine"?

Ed

From: Andy Abrams [mailto:acabrams@comcast.net]
Sent: Tuesday, October 27, 2009 4:55 PM
To: Mazzullo, Ed (PHMSA)
Subject: Clarification

Dear Mr. Mazzullo

Enclosed please find the information inquiry we discussed. A separate copy is being sent via courier today.

In light of the importance of this issue, we would respectfully request an expedite evaluation of this request. I am happy to visit your office and meet with you and your colleagues if this will assist in this process and expedite the reply.

Thank you in advance for your consideration.

Warmest regards.

Andy Abrams
267-307-0949