



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

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

NOV - 9 2010

Mr. Danny Shelton
Hazmat Resources, Inc.
10104 Creedmoor Road
Raleigh, NC 27615

Ref. No. 09-0306

Dear Mr. Shelton,

This responds to your letter dated December 15, 2009 requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to cargo tanks. Specifically, you describe three scenarios and ask several specific questions for each scenario. The scenarios and questions are paraphrased and answered as follows:

Scenario 1

A motor carrier offers an MC 331 cargo tank motor vehicle to a facility and requests that it perform the required annual tests.

Q1) Is the CT facility required to open the tank and inspect the inside of the cargo tank for evidence that the tank has transported lading corrosive to the tank?

A1) No. The CT facility may rely on information provided by the owner/user of the cargo tank to determine if the cargo tank was used to transport material corrosive to the tank. However, the CT facility may elect to perform examinations or tests to determine if the tank transported materials that are corrosive to the tank and/or valves.

Q2) If a motor carrier advised a CT facility that its tank (MC 331 NQT cargo tank motor vehicle constructed of SA 612 material) was used to transport compressed gas that contained hydrogen sulfide, would an internal inspection be required annually and would a thickness test be required every two years?

A2) Yes. The phrase "corrosive to the tank or valve" means that the lading has been shown through experience or test data to reduce the thickness of the material of construction of the tank wall or valve (*see* § 180.403). Experience and test data have shown that hydrogen sulfide is corrosive to carbon steel.

Q3) If a product causes stress corrosion cracking on the cargo tank wall is that considered corrosive to the tank? If the answer is "yes," does that mean that an

internal inspection is required annually and thickness testing is required every two years?

A3) Yes, stress corrosion cracking on the cargo tank wall is considered a condition that results from material that is corrosive to the tank. All tests and inspections for cargo tanks that transport materials “corrosive to the tank” must be performed in accordance with the schedule specified in Part 180.

Scenario 2

A motor carrier offers a DOT 407 unlined cargo tank constructed of 316L Stainless to a CT facility for an annual inspection. The tank was cleaned and purged and all placards were removed before transporting the tank to the facility and it has been determined this tank transports a material that is classified as a corrosive material.

Q1) If a material is classed as a Class 8 (Corrosive) material, does this mean the material is corrosive to the material of construction of the cargo tank wall and the material of construction of the valve?

A1) No. The phrase “corrosive to the tank” is explicitly defined in § 180.403 and is not related to the definition of a Class 8 (Corrosive) material in § 173.136.

Q2) Who is responsible for making the determination that the cargo tank was transporting a material that was corrosive to the tank or valve?

A2) It is the owner and/or user’s responsibility to ensure that the cargo tank is periodically tested and inspected in accordance with Part 180. Thus, it is the responsibility of the owner and/or user to determine if the cargo tank transports material corrosive to the tank for the purpose of testing and inspection.

Q3) What tests are required to be performed to confirm the tank was transporting a material corrosive to the tank or valve? If the cargo tank was designed to transport corrosive material without a liner, is that sufficient to make the determination that the material is not corrosive to the cargo tank wall or valve?

A3) The HMR do not require the performance of specific tests to confirm that a cargo tank has transported a material corrosive to the tank or valve. The fact that a cargo tank was designed to be used without a liner does not provide enough information to conclusively determine whether the tank has been used to transport material corrosive to the tank as defined by the HMR.

Scenario 3

A welded repair is performed on a cargo tank. Section 180.413(b) states “The suitability of each repair affecting the structural integrity or lading retention capability of the cargo tank must be determined by the testing required either in the applicable manufacturing specification or in § 180.407(g)(1)(iv). Each repair of a cargo tank involving welding on the shell or head must be certified by a Registered Inspector.”

Q1) What is meant by the phrase “certified by a Registered Inspector” in § 180.413(b)?

A1) The phrase “certified by a Registered Inspector” in § 180.413(b) means that a Registered Inspector has verified the suitability of the repairs and has determined that the repaired cargo tank meets the prescribed specification through testing required in either the applicable manufacturing specification or in § 180.407(g)(1)(iv) and has stated his findings in writing.

Q2) What training must a Registered Inspector have in order to certify a welded repair on a cargo tank?

A2) A Registered Inspector who certifies a welded repair on a cargo tank must meet the minimum qualifications for inspectors and testers in § 180.409 and the knowledge and ability requirements in the definition of a Registered Inspector (see definition in § 171.8).

Q3) What information must be included on the certification?

A3) A test and inspection report must include the information specified in § 180.417(b) and/or (c), as appropriate, including the location of defects found; method of repair; and dated signatures of both the Registered Inspector and the cargo tank owner.

Q4) How long must these certification documents be maintained and who is required to maintain these certification documents?

A4) Each owner of a cargo tank motor vehicle must retain at the owner's principal place of business all records of repair, modification, stretching, or rebarrelling, including notation of any tests conducted to verify the suitability of the repair, modification, stretching or rebarrelling made to each cargo tank during the time the cargo tank motor vehicle is in service and for one year thereafter. Copies of these records must be retained by a motor carrier, if not the owner of the cargo tank motor vehicle, at its principal place of business during the period the cargo tank motor vehicle is in the carrier's service.

Q5) Under the HMR, the testing may be in accordance with either the applicable manufacturing specification or § 180.407(g)(1)(iv). Does this mean that one can test the repair of an MC 331 QT tank at 2 times the design pressure as required by § 178.337-16(a)?

A5) Yes. Testing an MC 331(QT) cargo tank at 2 times the design pressure is in accordance with the manufacturing specification.

Q6) If the answer to Q5 is “yes,” and if a person tests the repair on an MC 331 QT tank with a MAWP of 265 psi at 530 psi, is this procedure a violation of §§ 180.407(a)(2) and 180.407(g)(1)(iv)?

A6) No. The regulations offer the option of either performing the test in accordance with the applicable manufacturing specification or § 180.407(g)(1)(iv). Section 180.407(a)(2) is not relevant to the question since testing the repair requires a pressure test.

I hope this information is helpful. If you have further questions, please contact this Office.

Sincerely,

A handwritten signature in black ink that reads "Ben Supko". The signature is written in a cursive style with a long horizontal stroke extending to the right.

Ben Supko
Acting Chief, Standards Development
Office of Hazardous Materials Standards

HazMat Resources, Inc.

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Raleigh, N.C. 27615

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Definitions/
Cargo Tanks
09-0306

December 15, 2009

Mr. Edward Mazzullo
Office Director, Office of Hazardous Materials Standards
U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration
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Washington, DC 20590

Mr. Mazzullo,

Please accept this letter as our request for an interpretation of the following phrases used frequently to define what tests, inspections or procedures are required to be performed on specification cargo tanks. Those phrases or terms are as follows:

1. "Corrosive to the tank"
2. "Corrosive to the valve"
3. "Certified by a registered inspector"

As an example the phrase "corrosive to the tank" is used in the following scenarios:

- 180.407(c) – Compliance Dates for Tests and Inspections
 - Internal Visual Inspection – All cargo tanks transporting lading "*corrosive to the tank*".
 - Lining Inspection – All lined cargo tanks transporting lading "*corrosive to the tank*".
 - Thickness Test – All unlined cargo tanks transporting material "*corrosive to the tank*".
- 180.407(d)(2)(ix) – External Visual Inspection Requirements
 - For cargo tanks transporting lading "*corrosive to the tank*", areas covered by the upper coupler (fifth wheel) assembly must be inspected at least once in each two year period for corroded and abraded areas, dents, distortions, defects in welds, and any other condition that might render the tank unsafe for transportation service. The upper coupler (fifth wheel) assembly must be removed from the cargo tank for this inspection.

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- 180.407(g)(1)(iii) – Pressure Test Requirements
 - Except for cargo tanks carrying lading “*corrosive to the tank*”, areas covered by the upper coupler (fifth wheel) assembly must be inspected for corroded and abraded areas, dents, distortions, defects in welds, and any other condition that might render the tank unsafe for transportation service. The upper coupler (fifth wheel) assembly must be removed from the cargo tank for this inspection.
- 180.407(h)(5)(1) – Thickness Test Requirements
 - The shell and head thickness of all unlined cargo tanks used for the transportation of materials “*corrosive to the tank*” must be measured at least once every 2 years, except that cargo tanks measuring less than the sum of the minimum prescribed thickness, plus one-fifth of the original corrosion allowance, must be tested annually.
- 180.403 – Definitions
 - “*Corrosive to the tank*” or valve means that the lading has been shown through experience or test data to reduce the thickness of the material of construction of the tank wall or valve.
- 180.417(b)(1)(vii) – Test or Inspection Reporting
 - Indication of special service of the cargo tank (e.g., transports material “*corrosive to the tank*”, dedicated service, etc.)

As an example the phrase “corrosive to the valve” is used in the following scenario:

- 180.407(d)(3) – External Visual Inspection
 - All reclosing pressure relief valves must be externally inspected for any corrosion or damage which might prevent safe operation. All reclosing pressure relief valves on cargo tanks carrying lading “*corrosive to the valve*” must be removed from the cargo tank for inspection and testing.

Based on the above information and the fact this information is located in the section for Continuing Qualification and Maintenance of Packages it certainly appears that it is the intent of the Department to require those persons who perform tests and inspections on cargo tank motor vehicles to be responsible for making the determination that a lading was transported in a cargo tank motor vehicle and this lading was either corrosive to the tank or corrosive to the valve. Unless the cargo tank facility is also the motor carrier and absent physical evidence which indicates the cargo tank is corroding or the pressure relief device is corroding, it is physically impossible for a cargo tank facility to make the determination that a product was transported in a cargo tank motor vehicle that was either corrosive to the tank or corrosive to the valve. In addition this appearance of intent is inconsistent with the reading of 49 CFR 180.2(b)(2) which states: Reintroduces into commerce a packaging that bears markings indicating compliance with this part. Only motor carriers enter cargo tanks into commerce, not CT Facilities.

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Please provide responses to the following questions:

Scenario 1

A motor carrier offers an MC 331 cargo tank motor vehicle to a facility and requests they perform the tests that are required on an annual bases.

Please provide responses to the following questions:

1. Is the CT Facility required to open the tank and inspect the inside of the cargo tank for evidence that the tank has transported lading corrosive to the tank?
2. If the answer to number 1 is yes then does that mean that an internal inspection is required on an annual basis for all tanks to determine corrosion?
3. What types of tests are required to be performed by a CT Facility to determine if the tank has transported a material that is corrosive to the tank?
4. In most cases a motor carrier is going to tell the CT Facility that their tank does not transport corrosive materials and this assertion provides the motor carrier an economic advantage. The CT Facility has no means available to know what products have been transported in the tank. Is the CT Facility required to perform independent analysis to validate the assertion of the motor carrier that the tank does not transport lading corrosive to the tank or valve or simply take their word for it?
5. If the facility takes the word of the motor carrier is it not true the following additional tests and inspections are not required:
 - a. Internal visual inspection
 - b. Thickness test
 - c. Removal and bench testing of pressure relief devices
 - d. Removal of the upper coupler to inspect those areas of the tank above the upper coupler
6. If the motor carrier advised the CT Facility that their tank (MC 331 NQT cargo tank motor vehicle constructed of SA 612 material) transported compressed gas that contained hydrogen sulfide; would an internal inspection be required annually and would a thickness test be required every two years because it is common knowledge that hydrogen sulfide is corrosive to carbon steel even though hydrogen sulfide is not classified as a corrosive material?
7. If a product causes stress corrosion cracking on the cargo tank wall is that consider corrosive to the tank?
8. If the answer to question 7 is yes, does that mean that an internal inspection is required annually and thickness testing is required every two years?

Scenario 2

A motor carrier offers a DOT 407 unlined cargo tank constructed of 316L Stainless to a CT facility for an annual inspection. The tank was cleaned and purged and all placards were

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removed before transporting the tank to the facility and it has been determined this tank transports a material that is classified as a corrosive material.

Please provide responses to the following questions:

1. If a material is classified as a corrosive material does this mean the material is corrosive to the material of construction of the cargo tank wall and the material of construction of the valve?
2. Who is responsible for making the determination that the cargo tank was transporting a material that was corrosive to the tank or valve?
3. What tests would be required to be performed to confirm the tank was transporting a material corrosive to the tank or valve?
4. If the cargo tank was designed to transport the corrosive material without a liner is that sufficient to make the determination that even though the material meets the definition of a corrosive material, the material is not corrosive to the cargo tank wall or valve because the material of construction of the cargo tank wall and valve is not subject to corrosion while transporting certain corrosive materials?

Scenario 3

A welded repair is performed on a cargo tank. 180.413(b) states the following: The suitability of each repair affecting the structural integrity or lading retention capability of the cargo tank must be determined by the testing required either in the applicable manufacturing specification or in §180.407(g)(1)(iv). Each repair of a cargo tank involving welding on the shell or head must be certified by a Registered Inspector.

Please provide response to the following questions:

1. What is meant by the term “certified by a Registered Inspector” in 180.413(b)?
2. What is the Registered Inspector certifying? Are they certifying the weld procedure used was a qualified weld procedure for the materials being welded; or are they certifying the repair was performed by a certified welder; or are they certifying the repair was tested to a certain test pressure and the repair held; or are they certifying the repair was performed in accordance with CGA Technical Bulletin TB-2 or some combination of these requirements or some other requirement.
3. What training is a registered inspector required to have to certify a welded repair on a cargo tank?
4. What information must be indicated on the certification?
5. How long must these certification documents be maintained and who is required to maintain these certification documents?
6. The testing can be in accordance with either the applicable manufacturing specification or in 180.407(g)(1)(iv). Does this mean that one can test the repair of an MC 331 QT tank at 2 times the design pressure as required by 178.337-16(a)

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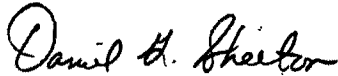
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which states: Inspection and tests. Inspection of materials of construction of the cargo tank and its appurtenances and original test and inspection of the finished cargo tank and its appurtenances must be as required by Section VIII of the ASME Code (IBR, see §171.7 of this subchapter) and as further required by this specification, except that for cargo tanks constructed in accordance with part *UHT in Section VIII of the ASME Code the original test pressure must be at least twice the cargo tank design pressure.*

7. If the answer to question 6 is yes it appears this section is in conflict with 180.407(a)(2) which states: Except during a pressure test, a cargo tank may not be subjected to a pressure greater than its design pressure or MAWP and section 180.407(g)(1)(iv) which states: Each cargo tank must be tested hydrostatically or pneumatically to the internal pressure specified in the following table. At no time during the pressure test may a cargo tank be subject to pressures that exceed those identified in the following table and it identifies the pressure for an MC 331 as 1.5 times either the MAWP or the re-rated pressure, whichever is applicable. If a person tests the repair on an MC 331 QT tank with an MAWP of 265 psi at 530 psi is this procedure a violation of 180.407(a)(2) and 180.407(g)(1)(iv)

Thank you in advance for your timely reply.

Sincerely



Daniel G. Shelton
Vice President
HazMat Resources, Inc.

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