



U.S. Department  
of Transportation

**Pipeline and Hazardous  
Materials Safety  
Administration**

1200 New Jersey Avenue, SE  
Washington, DC 20590

**DEC 06 2019**

Robert Sech  
Wells Fargo Rail  
9377 West Higgins Road  
Suite 600  
Rosemont, IL 60018

Reference No. 19-0094

Dear Mr. Sech:

This letter is in response to your July 22, 2019, email requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to the inspection and testing requirements for tank car internal linings and coatings.

We have paraphrased and answered your questions as follows:

- Q1. You ask whether the tank car owner or the internal lining/coating owner must maintain at its principal place of business a written procedure for collecting and documenting the performance of the coating or lining applied within the tank car for its service life, in accordance with § 180.509(i)(2).
- A1. The requirement applies to the internal lining/coating owner.
- Q2. You note that § 180.509(i)(3) states that the owner of the internal lining/coating is only required to provide the test method and acceptance criteria to the tank car owner and person responsible for the qualification of that internal lining/coating. You ask why the frequency of inspection was not included and whether the internal lining/coating owner is responsible for providing the full qualification and maintenance plan to the tank car owner or person responsible for qualification and maintenance of the internal lining/coating.
- A2. Section 180.509(i)(3) is specific to persons performing inspection and testing of the internal lining/coating and the criteria therein. The requirement ensures that the tank car facility performing the test and inspection of the internal lining/coating is doing so in accordance with the internal lining/coating owner's determined requirements for service life, inspection and testing requirements.
- Q3. You ask whether the requirement in § 180.511(e) applies to the tank car owner or the internal lining/coating owner.

- A3. The requirement applies to the internal lining/coating owner.
- Q4. You ask who is required to audit the person responsible for the qualification of the internal lining/coating.
- A4. In accordance with § 180.509(a), each tank car owner must ensure that a tank car facility evaluates each item according to the acceptable results of inspections and test specified in § 180.511. Section 180.511 includes inspection and testing requirements for an internal lining/coating, if applicable. Therefore, a tank car owner must ensure that a tank car facility is performing the inspection and test requirements specified by the internal lining/coating owner.

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,



Dirk Der Kinderen  
Chief, Standards Development Branch  
Standards and Rulemaking Division

Cuccarone

19-0094

**Dodd, Alice (PHMSA)**

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**To:** Baker, Yul (PHMSA)  
**Subject:** RE: Lining Plans

**From:** Baker, Yul (PHMSA) <yul.baker@dot.gov>  
**Sent:** Monday, July 22, 2019 4:31 PM  
**To:** Dodd, Alice (PHMSA) <Alice.Dodd@dot.gov>; January, Ikeya CTR (PHMSA) <ikeya.january.ctr@dot.gov>  
**Cc:** DerKinderen, Dirk (PHMSA) <Dirk.DerKinderen@dot.gov>; Foster, Glenn (PHMSA) <Glenn.Foster@dot.gov>  
**Subject:** FW: Lining Plans

Alice / Ikeya,

Please submit this e-mail as a request for interpretation.

V/r

*Mr. Yul Brenner Baker Jr.*

*Transportation Specialist (Standards and Rulemaking Division)*

*Office of Hazardous Materials Safety (OHMS)*

*Pipeline and Hazardous Materials Safety Administration (PHMSA)*

*E21-350*

*Office number: 202-493-0867*

**From:** [rob.sech@wellsfargo.com](mailto:rob.sech@wellsfargo.com) <[rob.sech@wellsfargo.com](mailto:rob.sech@wellsfargo.com)>  
**Sent:** Monday, July 22, 2019 4:20 PM  
**To:** Baker, Yul (PHMSA) <[yul.baker@dot.gov](mailto:yul.baker@dot.gov)>  
**Cc:** Strouse, Larry (FRA) <[larry.strouse@dot.gov](mailto:larry.strouse@dot.gov)>; [Loman@Alltranstek.com](mailto:Loman@Alltranstek.com)  
**Subject:** FW: Lining Plans

Yul,

Wells Fargo Rail (WFR) is urgently requesting a PHMSA official interpretation regarding tank car owner and tank car lining owner regulatory requirements. Please provide interpretations on the following items:

1. In 49 CFR Part 180.509(i)(2), the fourth sentence states *'The owner must maintain at its principal place of business a written procedure for collecting and documenting the performance of the coating or lining applied with the tank car for its service life.'* In section (2), the preceding three sentences clearly state the owner of the coating or lining; however, the following fourth sentence omits the whether the subject is the owner of the tank car or the owner of the coating or lining (or both). Please advise if WFR is interpreting this section correctly. Currently, WFR's interpretation of the Federal Regulations do not require the owner of the coating or lining to provide a controlled copy of their coating or lining Qualification and Maintenance Plan to the tank car owner. Therefore, the tank car owner and tank car facility must obtain a new copy of the owner of the coating and lining's qualification and maintenance plan every time a tank car is shopped to ensure the correct revision level of that document has been provided. Similar to shipper's gasket/o-ring material specifications and their commodity SDS (Safety Data Sheet), these documents are typically provided at time of shopping due to this document control issue.
2. In 49 CFR Part 180.509(i)(3), the owner of the coating or lining is required only to provide the test method and acceptance criteria to the tank car owner and the person responsible for the qualification of that coating/lining. This sentence eludes that this information is only a portion of the owner of the coating or

lining's qualification and maintenance plan? Why was the frequency of inspection not included? Do the tank car owner and the person responsible for the qualification of that coating/lining require to have the owner of the coating or lining's full qualification and maintenance plan? If so, does that plan required to be a controlled document? I have included the PHMSA letter to Ken Dorsey as section X provides some previous PHMSA interpretations.

3. In 49CFR Part 180.511(e), 'A tank car successfully passes the lining and coating inspection and test when the lining or coating conforms to the owner's acceptance criteria.' Is the regulation referring to the owner of the coating or lining, the owner of the tank car or both? WFR is current interpreting this as the owner of the coating or lining only.
4. Who has the responsibility to audit the person responsible for the qualification of that coating/lining? Is it the owner of the coating/lining, the tank car owner, or both? 49 CFR Part 180.509(a) states the tank car owner. However, this would require that the owner of the coating or lining must ensure both the tank car owner and the tank car facilities have controlled lining qualification and maintenance plans.

Robert Sech

AVP - Engineering

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**(i) Internal coating and lining inspection and test.** (1) At a minimum, the owner of an internal coating or lining applied to protect a tank used to transport a material that is corrosive or reactive to the tank must ensure an inspection adequate enough to detect defects or other conditions that could reduce the design level of reliability and safety of the tank is performed. In addition, the owner of a coating or lining of tank cars used to transport hazardous materials must ensure the lining complies with §173.24(b)(2) and (b)(3) of this subchapter.

(2) The owner of the internal coating or lining must establish and maintain a record of the service life of the coating or lining and commodity combination, that is, the specific hazardous materials that were loaded into a tank and the coating or lining in place at the time of loading. The owner of the internal coating or lining must use its knowledge of the service life of each coating or lining and commodity combination to establish an appropriate inspection interval for that coating or lining and commodity combination. This interval must not exceed eight (8) years, unless the coating or lining owner can establish, document, and show that the service history or scientific analysis of the coating or lining and commodity pairing supports a longer inspection interval. The owner must maintain at its principal place of business a written procedure for collecting and documenting the performance of the coating or lining applied within the tank car for its service life. The internal coating or lining owner must provide this documentation, including inspection and test, repair, removal, and application procedures, to the FRA or car owner upon request. Further, the offeror must provide commodity information to the car owner and the owner of the internal coating or lining upon request.

(3) The owner of the internal coating or lining must provide the test method and acceptance criteria to the tank car owner and to the person responsible for qualifying the coating or lining. The tank car facility inspecting and testing the internal coating or lining must follow the inspection and test procedure, including the acceptance requirements, established by the internal coating or lining owner.



U.S. Department  
of Transportation

**Federal Railroad  
Administration**

1200 New Jersey Avenue, SE  
Washington, DC 20590

**MAY 22 2013**

Mr. Ken Dorsey  
Executive Director, Tank Car Safety  
Association of American Railroads  
425 Third Street SW  
Washington, DC 20024

Dear Mr. Dorsey:

On June 25, 2012, the Pipeline and Hazardous Materials Safety Administration (PHMSA), in close consultation with the Federal Railroad Administration (FRA), published a final rule, "Hazardous Materials: Incorporating Rail Special Permits into the Hazardous Materials Regulations," under Docket Number PHMSA-2010-0018 (HM-216B; 77 FR 37962). The rule amended the Hazardous Materials Regulations to incorporate provisions contained in certain widely used or longstanding rail Special Permits that have general applicability and established safety records.

FRA and PHMSA received questions, comments, and requests for clarification about this final rule from Watco Compliance Services, GE Capital, Trinity Rail, Union Tank Car Company, and American Railcar Industries. In the enclosure to this letter, PHMSA and FRA address these questions, requests for clarification, and suggestions for editorial change. The questions have been summarized to the extent possible. We ask that you distribute the letter and enclosure to interested industry parties in a Casualty Prevention Circular.

PHMSA and FRA appreciate and welcome feedback from the regulated community to ensure that new regulations are effective in practice and in principle. If you have additional questions or comments, please contact Mr. Karl Alexy, Staff Director, FRA Hazardous Materials Division, at (202) 493-6245 or [Karl.Alexy@dot.gov](mailto:Karl.Alexy@dot.gov).

Sincerely,

Michael J. Logue  
Acting Associate Administrator for Railroad Safety/Chief Safety Officer

Enclosure

## Enclosure

### Responses to Questions, Comments, and Requests for Clarification Regarding the Final Rule Published June 25, 2012 (77 FR 37962; HM-216B) Incorporating Rail Special Permits into the Hazardous Materials Regulations<sup>1</sup>

#### I. § 173.314 (*Compressed gases in tank cars and multi-unit tank cars*)

**Comment:** In § 173.314, PHMSA should consider consolidating Paragraphs (e)(2)(i) and (e)(2)(ii) to remove the discrepancy with respect to the number of tank cars that require measurement by a magnetic gauging device. Paragraph (e)(2)(i) could be read as requiring every tank car tank; whereas, Paragraph (e)(2)(ii) is one out of every 10 tank car tanks.

**Response:** Per Paragraph (e)(2)(i) of this Section, the outage of each tank car tank loaded through a metering device can be measured using a magnetic gauging device to ensure that the minimum outage is not exceeded. Paragraph (e)(2)(ii) requires that for one of every 10 tank car tanks loaded with a magnetic gauging device per Paragraph (e)(2)(i), the outage measurement must be used to calculate the volume of commodity in the tank car tank, and to verify the volume indicated by the metering device. These measurements are needed so that the volume will not exceed the minimum outage at the appropriate reference temperature for the commodity. In other words, the calculations required by Paragraph (e)(2)(ii) are intended to verify the actual outage the tank car tank was loaded with and must be maintained as a part of recordkeeping (See § 173.314(e)(2)(iii)).

#### II. § 180.503 (*Definitions*)

A. **Tank Car Tank** (defined as “the shell, heads, tank shell, and head weld joints, attachment welds, sumps, nozzles, flanges, and all other components welded thereto that are either in contact with the lading or contain the lading”).

**Comment:** Some commenters expressed concern about the inclusion of the definition of “tank car tank” adopted in the final rule. Commenters noted that the definition was not explicitly included in the Notice of Proposed Rulemaking (NPRM), and questioned the implications of the new definition on the manufacturing, maintenance, and qualification of tank car tanks. They also cite the definition of “tank car tank” in the Association of American Railroads’ (AAR) “Tank Car Manual” (TCM), and proposed revisions to the definition.

**Response:** As discussed in the preamble to the final rule, in response to the NPRM, PHMSA received a request to change the term “tank car” as it was used in the NPRM to “tank and components subject to this subchapter” throughout the regulatory text of Part 180. The stated rationale for this request was to ensure

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<sup>1</sup>All “Part” and “Section” references in this document refer to Title 49 of the Code of Federal Regulations (CFR).

consistency with the scope of existing regulatory provisions and clarify that certain components of a tank car are subject to FRA's rail safety regulations (e.g., safety appliances and running gear), but not the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180).

As explained in the preamble to the final rule (77 FR 37976), PHMSA and FRA agreed in principle with the commenters' concerns regarding consistency and clarity within the HMR, but we concluded that the specific regulatory language suggested would be misleading and not consistent with safety. Accordingly, in response to the commenters' concerns, we added a definition of "tank car tank" in the final rule to provide clarity and promote consistency within the HMR.

The definition of "tank car tank" in the final rule was intended to include all features on the tank car tank that contain the lading and/or pressure, including nozzles and flanges, and the welds attaching these features to the remaining portion of the tank. In other words, the term "attachment welds" as used in the final rule's definition of "tank car tank" is limited to welds associated with lading-containment features.

PHMSA and FRA's intent in including the tank car tank definition is twofold: to ensure adequate inspection of all lading-containing features (including nozzles and flanges, as well as welds associated with lading-containment features) on a tank car tank, and to provide clarity in response to concerns expressed by comments to the NPRM. This definition was not intended to require modification of current, generally accepted industry practices regarding the welding of the following lading-containment features:

- Visual gauge bar welded to the nozzle.
- Jacket flashing welded to the nozzle.
- Hinged and bolted manway cover hinge and eyebolt tabs welded to the nozzle.
- Siphon pipe guide pad welded to the tank interior.

Years of successful manufacturing, repair, and inspection have demonstrated the effectiveness of these current practices. Therefore, PHMSA and FRA believe that the industry should modify the language in the AAR TCM to address any inconsistencies that the new definition in the HMR may have caused between current practices and the industry requirements (e.g., Appendix W requirements for post-weld heat treatment). FRA and PHMSA believe that inclusion of the objective and accurate definition of a tank car tank in the HMR is necessary to ensure a thorough and effective inspection of all lading-containment welds on tank car tanks.

**B. Corrosive to Tank or Service Equipment** (defined as "a material identified in Appendix D to [Part 180] or a material that, when in contact with the inner shell



of the tank or service equipment, has a corrosion rate on steel greater than 2.5 mpy (0.0025 inch per year)).

1. **Question:** Industry questioned whether such variables as temperature of the commodity and concentration, for example, will affect the rate of corrosion and whether it is FRA's expectation that the car owner will make reasonable assumptions regarding these variables and create a list of commodities that meet the new definition based on a tank car tank's service history and internal inspection data.

**Answer:** Yes, such variables as commodity temperature and concentration may affect a commodity's corrosion rate. Accordingly, it is imperative that a tank car owner and/or interior coating/lining owner understand the service conditions to which any tank car and/or coating/lining that they own may be exposed, and how such conditions affect the commodity's corrosiveness. If there is a range of conditions that affect the corrosivity of a material, the tank car and/or coating/lining owner must select the appropriate interior coating/lining based on factors that pose the greatest risk to the reliability of the coating/lining and tank.

2. **Question:** Citing caustic soda as an example, industry noted that certain commodities may have a corrosion rate between 2 mpy and 3 mpy. Tank car tanks used to transport these commodities are lined for product purity purposes and have no service history to show that the corrosion rate may be close to 2.5 mpy. Industry questioned what kind of burden there is to determine, if the corrosion rate is actually greater than 2.5 mpy, who bears that burden, and whether shippers of these commodities need to develop coating/lining plans.

**Answer:** Shippers need to develop coating/lining plans only if they are the owner of a particular coating/lining. See § 180.509(i)(2). Although there is no absolute requirement to test a commodity to determine if it meets the definition of corrosive or reactive, in accordance with § 180.509(i), coating/lining owners have a duty to ensure inservice reliability of all owned interior coating/linings based on the service history of the coating/lining. In other words, if appropriate industry literature or analysis indicates that a commodity meets (or may be close to meeting) the definition of corrosive, but a coating/lining owner has a history of transporting the material without issue, in accordance with § 180.509(l), the owner has the option to request approval of alternative inspection and test procedures or intervals related to that coating/lining. Data, along with analysis of the data demonstrating the reliability of the interior coating/lining when in immersion service of a commodity that exceeds (or is thought to potentially exceed) the minimum corrosion rate can be used to justify an alternative inspection procedure or interval.

**C. Railworthy, Railworthiness** (defined for a tank car to mean “that the tank, service equipment, safety systems, and all other components [subject to the HMR] conform to the HMR, are otherwise suitable for continued service, and capable of performing their intended function until their next qualification”).

1. **Question:** What does a tank car owner need to do to comply with the broad definition of “railworthy” and the broad acceptance criteria set forth in §§ 180.509(d) and 180.511(d) and (h) (e.g., “shows no indication of a defect that may reduce reliability” before the next qualification interval) to avoid being in violation of Part 180 every time a tank car tank, component, service equipment, or safety system requires repair prior to the next qualification deadline?

**Answer:** Pursuant to § 180.501, a tank car owner must develop a qualification program that identifies where to inspect, how to inspect, and the acceptance criteria. The focus of a qualification program must be areas of a tank car tank or its appurtenances that, if found to be defective, may reduce the reliability of the tank car and, in turn, could render the tank car unsafe for transportation. It is expected that a qualified tank car will perform to the design level of reliability and safety throughout the inspection interval. Therefore, if maintenance is required to repair a feature that is qualified during the inspection interval, the owner must determine the cause of the failure and adjust the qualification program accordingly. This may consist of decreasing the inspection interval per § 180.509(b), requiring a more sensitive inspection and test method to promote earlier detection of a defect, and/or modifying the acceptance criteria to be commensurate with the new inspection method.

2. **Question:** Can a tank car owner delegate to a lessee the owner’s obligation under Part 180 to determine the railworthiness of a car on lease?

**Answer:** Yes, as a private business decision, a tank car owner may delegate to a lessee the responsibility to determine the railworthiness of a tank car being leased. In such circumstances, however, for purposes of compliance and enforcement of the HMR, the Department may hold either the tank car owner or lessee, or both, liable if the car is subsequently found to not be railworthy. As explained above, in developing a qualification program, in addition to the minimum requirements of the HMR, a tank car owner must identify the conditions that could potentially reduce the reliability of a tank car (i.e., an owner’s qualification program must clearly identify the areas/features of the car that require regular inspection and testing, the methods of inspection and test, the interval on which the inspection and test is to be performed, and the acceptance criteria, such that the party the owner delegates the qualification and maintenance of the tank car to is clearly informed of the conditions that affect the tank car’s railworthiness.

- D. **Qualification** (defined to mean “the car and its components conform to the specification to which it was designed, manufactured, or modified to the requirements of [the HMR], to the applicable requirement of the AAR Tank Car Manual . . . , and to the owner’s acceptance criteria. Qualification is accomplished by careful and critical examination that verifies conformance using inspections and tests based on a written program approved by the tank car owner followed by a written representation of that conformance. A tank car that passes the appropriate tests for its specification, has a signed test report, is marked to denote this passage, and is considered qualified for hazardous materials transportation”) under the HMR.

**Comment:** Industry suggested that in § 180.503, PHMSA should consider amending the definition “qualification” to define the term “components,” including the tank car tank, safety systems, and service equipment, and by removing the term “hazardous materials,” since a tank car marked “DOT” must conform to the specification regardless of whether the tank car is used to transport hazardous materials. In addition, industry suggested that the table following the term “qualification” should be removed as suggested in the June 25, 2012, preamble (77 FR 37961, 37975).

**Response:** PHMSA and FRA disagree with the suggested amendment to the definition of the term “qualification.” To define the term “components” would limit the applicability of the requirements for qualification. The term “components” is defined by the standards guiding qualification (i.e., the HMR and the AAR TCM), including a tank car owner’s acceptance criteria. Defining “components” to include only the tank car tank, safety systems, and service equipment would preclude a tank car owner from defining other features of tank cars, such as those outside of the tank, safety systems, and service equipment that have been identified as areas requiring inspection as part of the qualification program (e.g., stub sills or reinforcement pads for various attachments to the tank car tank). The agencies agree that when a tank car is marked “DOT” it is a representation that the car conforms to the specification regardless of the commodity, but disagree with the suggestion to remove the term “hazardous materials.” A tank car marked “DOT” is permitted to transport certain hazardous materials, depending on the specification, but may also be used to transport materials that are not regulated hazardous materials under the HMR. However, including the term “hazardous materials” in the definition reinforces the intent of the specification requirements—that a car marked with a DOT specification must meet that specification that is specifically intended for purposes of transporting a regulated hazardous material.

In response to a comment requesting either removal of the table or removal of the leakage pressure test from the table since the leakage test is required to be performed after service equipment is applied to the tank, in the preamble to the HM-216B final rule, PHMSA and FRA expressed agreement and indicated that the table would be removed. However, the statement that the table would be

removed was errant in that we believe that the table provides a useful reference to the various regulatory provisions applicable to a tank car tank's qualification, but agree that the reference to the pressure test should have been removed. PHMSA and FRA removed the leakage pressure test from this table in the HM-216B final rule (See 77 FR 37974–37975).

- E. Representation** (defined as “attesting through documenting, in writing, or by marking on the tank (or jacket) that a tank car is qualified and railworthy. See also §§ 180.511 and 180.517(b)).

**Comment:** Commenters suggested that PHMSA consider revising the definition of “representation” for consistency with Part 180. Specifically, commenters suggested that the revised definition reference the specific components of tank cars (e.g., safety systems or service equipment) that are railworthy and qualified for continued use.

**Response:** Although PHMSA and FRA agree that the definition of “representation” should be clarified for consistency with Part 180, we do not believe that referencing specific components of a tank car in the definition accurately reflects the intent of the definition. The qualification of a tank car is not limited to the qualification and condition of individual components of the car. Instead, the qualification of a car should reflect the overall status and railworthiness of the car as a whole.

However, PHMSA and FRA do note a technical drafting error in the definition of “representation” in the final rule. Specifically, we did not intend that a tank car's qualification status could be either attested to in writing or marked on the car. Instead, as the plain language of §§ 180.511 and 180.517(b) requires, it is PHMSA and FRA's intent that a car's qualification status be recorded both in writing in report form, and marked on the car's tank or jacket. We will consider amending the specific regulatory language noted to make this editorial change in a future rulemaking.

- F. Service Equipment Owner** (defined to mean “the party responsible for bearing the cost of the maintenance of the service equipment”).

**Comment:** In § 180.503, PHMSA should consider amending the definition of “service equipment owner” to be consistent with the term “coating/lining owner.”

**Response:** PHMSA and FRA agree that there is an inconsistency between the definition of “service equipment owner” and “coating/lining owner.” However, we believe that the definition of “coating/lining owner” should be amended for consistency with industry practice, as opposed to the definition of “service equipment owner.” PHMSA and FRA will consider amending the specific regulatory language noted to make this change in a future rulemaking proceeding.

**G. Train Consist** (defined to mean “a written record of the contents and location of each rail car in a train”).

**Comment:** The definition of “train consist” should be removed from the regulation because it is not used in Part 180 and is already defined in § 171.8 (*Definitions and abbreviations*).

**Response:** PHMSA and FRA agree that this definition is not necessary in Part 180. We will consider removal of the definition in a future rulemaking proceeding.

### **III. § 180.509 (Requirements for qualification of specification tank cars)**

**A. Question:** How can a tank car owner establish its compliance with qualification requirements in a situation where a tank, component, service equipment, or safety system needs repair prior to its next qualification deadline?

**Answer:** A tank car owner can establish compliance with the qualification requirements when a tank car or a component of a tank car subject to the HMR or the owner’s qualification program needs repair prior to its next qualification date by authorizing a qualified repair facility to perform the necessary repairs, ensuring that the repairs are completed per the tank car owner’s written instructions, meeting the owner’s acceptance criteria, and requalifying and testing the tank or component in accordance with § 180.513, if required. In this regard, § 180.513(b) requires a repair facility to obtain permission of the equipment owner before performing work that affects the qualification of the owner’s equipment, or have written confirmation that the owner is allowing them to use the instructions furnished by another party. Tank car facilities performing work affecting the qualification of the equipment without the owner’s procedures or without expressed permission to do otherwise could face civil penalties.

**B. Question:** What is the standard of predictability that tank car owners should measure in order to determine how likely it is that a component will require repairs prior to the next qualification interval?

**Answer:** A standard of predictability is “reliability,” which is defined in § 180.503 as “the quantified ability of an item or structure to operate without failure for a specified period of its design life or until its next qualification.” Reliability is calculated using data from the population for which you wish to determine reliability. As such, historical experience (service history) is necessary. In this case, failure is the point at which maintenance is required. In § 180.503, maintenance is defined as the “upkeep, or preservation, including repairs necessary and proper to ensure an in-operation tank car’s specification until its next qualification.” Accordingly, if the tank car tank or its appurtenances require repair between qualification events, the reliability of that item is reduced. “Normal wear and tear” must not reduce reliability. It is up to the tank car,

service equipment, and/or interior coating/lining owner to adjust qualification programs to account for the effects of normal wear and tear, so that the tank and its appurtenances maintain reliability throughout the inspection interval.

**C. Question:** What types of behavior and standards will PHMSA and FRA rely upon to define "compliance" with § 180.509, and how will FRA enforce these standards?

**Answer:** PHMSA and FRA will consider how data, such as nonaccidental releases (NAR), one-time movement approvals, repair records, etc., have been collected, analyzed, and accounted for in the current inspection intervals. For example, if an owner has tank cars in the same service involved in five NARs in 1 year, FRA would request the root cause analysis for these events, as well as service reliability data for the remaining tank cars in the fleet, to understand how the owner has modified its qualification program (e.g., inspection methods, intervals, acceptance criteria) to prevent recurrences.

**D. Question:** What is the obligation of a repair facility, shipper, or railroad to identify "unsafe" conditions?

**Answer:** A tank car repair facility, shipper, and carrier all have obligations under the HMR to identify unsafe conditions. The following list is an illustrative, but not exhaustive, list of major responsibilities of tank car repair facilities, shippers, and railroads related to tank cars under the HMR:

- A repair facility is required to adhere to the owner's qualification program in which the identified conditions that may make the tank car unsafe are identified, along with the methods to detect them. The repair facility may, if approved in writing by the tank car owner, use its own procedures. If a tank car owner approves a facility's use of its own procedures, the tank car owner is responsible for reviewing the procedures to ensure that they will identify all identified unsafe conditions.
- A shipper is required to properly select and inspect a hazardous materials tank car before shipping. Section 173.31(d) requires, at a minimum, that a shipper conduct an external visual inspection of the car before shipping, and to tighten all closures to ensure that no hazardous materials are released during transportation. The HMR lists the features that must, at a minimum, be examined, but it is also incumbent upon the shipper to develop acceptance criteria for inspections required by § 173.31 that are at least as stringent as the owner's criteria in the qualification program.
- Section 174.3 prohibits carriers from accepting for transport packages/packagings (including railroad tank cars) that do not conform to the HMR. Section 174.9 requires carriers to conduct ground-level visual inspections of hazardous materials packages, including tank cars, to ensure

compliance with the HMR. Section 174.50 prohibits carriers from forwarding nonconforming or leaking packages. Carriers are also held to the AAR interchange rules that cover features of the tank car outside the scope of the HMR.

**IV. § 180.509(b) (Conditions requiring qualification of tank cars)**

- A. Question:** Section 180.509(b)(1) requires the qualification of a tank car, without regard to the compliance date, “if the tank car shows evidence of abrasion, corrosion, cracks, dents, distortions, defects in welds, or any other condition that may make the tank car unsafe for transportation.” What does “may make the tank car unsafe for transportation” mean?

**Answer:** As used in § 180.509(b)(1), the phrase “other condition that may make the tank car unsafe for transportation” means any condition that could potentially reduce or has been demonstrated to reduce the design level of reliability of the tank car. It is the responsibility of tank car owners to identify all such conditions (through damage tolerance analysis, service reliability data, or any other scientifically accepted test or inspection method) and to appropriately address the identified conditions during each qualification event. The list of conditions may increase with the collection of inservice data, and a problem or defect that is not originally anticipated may be discovered after years of service. This defect must then be accounted for in the owner’s qualification program.

- B. Question:** Often tank cars are leased and the car owner is not in possession of the car or in a position to identify evidence of abrasion, corrosion, cracks, dents, distortions, defects in welds, or other conditions that may make the tank car unsafe for transportation. How can a tank car owner identify the need for qualification inspections in accordance with § 180.509(b)(1) when it does not have possession of the car? Can this obligation be delegated to the shippers or lessees? Is an “unsafe condition” based on the car owner’s service history?

**Answer:** An unsafe condition can be based on the car’s service history, but as noted in the immediately preceding answer, it does not have to be. Damage tolerance analysis or any other scientifically accepted test or inspection method, or even real-world observations of the effect of operating conditions or other factors on a tank car, can be an indicator of an unsafe condition. As noted above, a tank car owner is responsible for identifying all conditions that could potentially reduce or that have been demonstrated to reduce the design level of reliability of a tank car. Assuming that the owner’s qualification program addresses these issues and includes processes and procedures to ensure that the qualification program is appropriately updated and revised in response to service reliability data, and the tank car owner ensures that repair facilities are given adequate instruction on its qualification program, the owner should be well aware of the condition of the car at all times. As a private business decision, a tank car owner may delegate the responsibility to determine whether a car is required to be qualified because of a

condition identified in § 180.509(b) (or any other condition that may make the car unsafe for transportation) to a lessee or a shipper. However, for purposes of compliance and enforcement of the HMR, the Department may hold either the tank car owner or lessee, or both, liable if either or both parties are found to have known or should have known about an unsafe condition of the car necessitating the car's qualification under § 180.509(b).

**V. § 180.509(c) (*Frequency of inspection and tests*)**

**Comment:** In § 180.509(c)(3), PHMSA should amend the table by removing the maximum interval note "see § 180.509(k)" with respect to service equipment, and replacing the term with "10 years." The 10-year interval stated in § 180.509(k), with respect to service equipment, should be revised accordingly.

**Response:** As a matter of clarity and technical drafting, PHMSA and FRA agree with this comment. For consistency with the remainder of § 180.509, we will consider in a future rulemaking removing the existing note, replacing it with the phrase "10 years," and deleting the first sentence of § 180.509(k) that would become redundant with the table.

**VI. § 180.509(d) (*Visual inspection*)**

**A. Comment:** In § 180.509(d), PHMSA should amend the introductory paragraph to align the responsibility from tank car facility to tank car owner for consistency with other paragraphs. In addition, Paragraphs (d)(1), (2), (3), and (5) of this section should be revised to use the term "defects" as defined in § 180.503.

**Response:** PHMSA and FRA agree with the substance of this suggestion. We will consider appropriate revisions in a future rulemaking proceeding.

**VII. § 180.509(e) (*Structural integrity inspections and tests*)**

**A. Comment:** In the preamble to the final rule (77 FR 37977), PHMSA and FRA expressed agreement with Union Tank Car Company's (UTLX) recommendation to change the reference in § 180.509(e)(4)(v) to list visual testing as "VT" and remote visual testing as "RVT" to agree with AAR's TCM, which defines these terms separately. In the final rule, however, PHMSA did not revise the regulatory language consistent with this statement in the preamble.

**Response:** PHMSA and FRA agree that a technical drafting error occurred and that the regulatory language of § 180.509(e)(4)(v) was not revised as we intended. We will consider amending the specific regulatory language noted to make this editorial change in a future rulemaking.

**B. Comment:** For consistency with other paragraphs, in § 180.509(e), PHMSA should consider revising the introductory text of Paragraph (e)(1) to specify that



tank car owners are responsible for ensuring that inspections and tests of the structural elements on a tank car comply with the HMR.

**Response:** PHMSA and FRA agree with the substance of this suggestion. We will consider appropriate revisions in a future rulemaking proceeding.

**VIII. § 180.509(f) (*Thickness tests*)**

- A. **§ 180.509(f)(6)** (requiring a thickness test after “repairs, alterations, conversions, modifications, or blasting of tank car that results in a reduction of the tank’s thickness).

**Comment:** Commenters suggested that PHMSA consider revising the language of § 180.509(f)(6) to clarify when a thickness test must be performed. Specifically, comments expressed concern about the practical implications of § 180.509(f)(6)’s requirement to measure the thickness of a tank car’s shell “after repairs, alterations, conversions, modifications, or blasting . . . that results in a reduction of the tank’s thickness, and anytime a tank car coating/lining is removed.” Commenters expressed the view that, particularly with regard to blasting, this requirement creates an ongoing cycle of blasting and qualification because in order to perform ultrasonic thickness testing to confirm thickness, a gel is placed on the tank shell. Once the test is complete, the shell must be blasted to remove this gel. Since the measurement accuracy of thickness test equipment is  $\pm 0.002$ -inch, there must be metal loss greater than  $\pm 0.002$  to detect metal loss. Blasting the interior of the tank does not necessarily result in measurable metal loss, unless there is a mishap, which should become apparent from the surface profile. According to this commenter, in this situation, because the car has been blasted, the regulation would require that an additional thickness test be performed. Commenters suggested that the language of § 180.509(f)(6) be revised to require a thickness test when “repairs, alterations, conversions, modifications, or blasting of a tank car . . . results in a visible and measurable reduction” of tank thickness. Commenters expressed the same concern related to § 180.509(f)(3), which requires that a thickness test be performed after certain localized repairs to an internal coating or lining, and asked what a tank car owner would need to do to avoid being caught in this apparent cycle. Citing § 180.509(f)(2) and Paragraph (f)(2)(i) of Special Permit 12095, commenters noted that generally, current practice is to take thickness measurements at the time of the blast (before coating removal or after coating application).

**Response:** The intent of § 180.509(f)(6) is to require that after work is performed that may reduce the thickness of the tank, measurements are taken to ensure that the thickness has not been reduced below a condemning limit. Data indicating the negligible effect on the tank thickness of a brush blast to remove the couplant (needed for the ultrasonic thickness test) can be used to justify not performing a thickness test subsequent to removal of the couplant. As such, the suggested change in the wording of the regulations is not necessary.

**B. § 180.509(f)(2)(iii)(A) (*Requiring a thickness test measurement at least every 5 years for a tank without an internal coating/lining when used to transport a corrosive or reactive material*)**

**Comment:** As discussed in the preamble to the final rule, in response to the NPRM, some commenters recommended that the reference to “reactive” materials be removed from this paragraph. Generally, these commenters expressed the view that the new definition of “corrosive to the tank or service equipment” is sufficient such that any commodity that will produce a reduction of thickness to the tank that can be observed in a thickness test should fit the new definition of “corrosive to the tank” and thus, a thickness test would be required at least once every 10 years. These commenters argue the final rule’s requirement that tank car tanks that transport reactive (e.g., produce heat, gas, or pressure), but not corrosive materials, as defined in the final rule, have a thickness test at least once every 5 years, which effectively requires tank thickness qualification twice as often as tank car tanks that do not transport corrosive or reactive materials are, even though this examination will not provide any benefit. These commenters reiterate the request to remove the reference to “reactive materials” in § 180.509(f)(2)(iii)(A) that PHMSA and FRA already addressed in the final rule.

**Response:** The intent of § 180.509(f)(2)(iii)(A) is to require the determination of the thickness of a tank shell and head when the tank car is used to transport commodities that are corrosive or reactive to the tank materials. There may be commodities that meet the definition of reactive to the tank but that do not meet the definition of corrosive to the tank. These commodities may, as a result of a reaction with the tank car, affect the structure and mechanical properties of the tank steel. Expanding the requirement to include commodities reactive, in addition to those corrosive to the tank, encompasses a wider range of commodities that may affect the reliability of the tank car tank. Industry is reminded that per § 180.509(l), tank car owners that believe products transported in their tank cars that are reactive to the tank, but do not result in a thinning of the tank material, can apply for an alternative inspection and test procedure.

**C. § 180.509(f)(2)(iii)(B) (*Setting forth thickness qualification frequencies*)**

**Comment:** On pages 37,976 and 37,977 of the final rule, PHMSA indicates that the agency agrees with one commenter’s request to revise the title of the figure following that paragraph to read “Tank Shell or Head Thickness Qualification Frequencies” as opposed to “Tank and Shell Thickness Qualification Frequencies” as proposed in the NPRM. As stated in the preamble of the final rule, PHMSA and FRA agree that this suggested editorial change would clarify what is covered in this paragraph and the figure. Accordingly, in the preamble to the final rule, PHMSA and FRA indicated their intent to make such a change, but failed to make this change in the final regulatory language.

**Response:** As noted in the preamble to the final rule, PHMSA and FRA agree with this recommended revision. We will consider amending the specific regulatory language noted to make this editorial change in a future rulemaking.

**D. § 180.509(f)(3) (*Requiring a thickness test when a localized repair of an internal coating or lining is performed as a result of a corrosive material contacting a tank car tank or its service equipment*)**

**Comment:** PHMSA should consider clarifying Paragraph (f)(3) to make clear that the thickness test required when a localized repair is made to an internal coating or lining where a corrosive material has contacted the tank or its service equipment is intended to verify the remaining tank thickness, not to verify the internal coating or lining thickness.

**Response:** PHMSA and FRA agree that this provision may warrant clarification because the thickness test required by Paragraph (f)(3) is intended to relate to the thickness of the tank head or shell in the area of the localized repair. We will consider appropriate revisions in a future regulatory proceeding.

**E. § 180.509(f)(4) (*Prohibiting operation of a tank car below applicable condemning limits*)**

**Comment:** PHMSA should consider revising Paragraph (f)(4) to active voice for clarity and consistency within the HMR.

**Response:** PHMSA and FRA agree that the proposed revision may be beneficial. We will consider appropriate revisions in a future regulatory proceeding.

**IX. § 180.509(h) (*Requiring that tank car owners ensure the qualification of tank car safety systems*)**

**Comment:** PHMSA should consider revising Paragraph (h) by specifying that tank car tank owners are required to ensure the qualification, inspection, and test of tank car tank safety systems.

**Response:** PHMSA and FRA do not believe such a revision is necessary. The term “qualification” includes inspection and testing, as well as written representation of compliance with applicable requirements. See the definition of “qualification” in § 180.503.

**X. § 180.509(i) (*Internal coating and lining inspection and test*)**

**A. Question:** Does § 180.509(i)(1) require a coating/lining inspection plan for all coatings/linings that are applied to tank car tanks used to transport commodities that meet § 180.503’s definition of “corrosive to tank or service equipment?”

**Answer:** Yes. The interior coating/lining owner must develop an interior coating/lining qualification program. The qualification program must include the inspection methods, frequency of inspection, and acceptance criteria. These three aspects are based on the coating/lining owner's knowledge of the compatibility and service history of the coating/lining. The owner must continue to collect and analyze inspection or performance data to ensure that the inspection methods, intervals, and acceptance criteria are appropriate to ensure the design level of reliability and safety of the coating/lining.

1. **Question:** A number of shippers/tank car lessees transport commodities that are not identified in Appendix D to Part 180, but that meet the new definition of "corrosive to tank or service equipment" in tank car tanks that are coated/lined to protect product purity. Are these shippers now required to create coating/lining inspection plans even though the coatings/linings were not originally "applied to protect the tank?"

**Answer:** Shippers need to develop a coating/lining qualification program only if they are the owners of the coating/lining. See § 180.509(i)(2). As stated above, in accordance with § 180.509(i)(1), interior coating/lining owners must develop a qualification program, including coating/lining inspection plans. The intent of the regulation is to protect the tank from materials that will reduce the thickness at a rate of 2.5 mpy. This is a requirement regardless of whether the coating/lining was originally applied to the tank for product-purity reasons. Accordingly, the interior coating/lining owner must develop a qualification program that will ensure the design level of reliability and safety of the coating/lining.

2. **Question:** Does it fall to a tank car owner to police the owners of interior coatings or linings applied to an owner's tank car by obtaining and evaluating their lining plans?

**Answer:** If the tank car owner is also the interior coating/lining owner, he or she is responsible for developing the qualification programs, including the coating/lining inspection plan. In certain cases, a tank car owner, by way of service history, may be aware of compatibility issues between a commodity and interior coating specified by a lessor. In these cases, the tank car tank owner is responsible for evaluating the coating/lining qualification program to determine whether the terms of the program will ensure maintaining the design level of reliability of the tank car. Tank car owners must exercise due diligence to determine whether the owner of the coating/lining in the tank car tank has developed a qualification program that will ensure the reliability of the coating/lining throughout the prescribed inspection interval.

3. **Comment:** PHMSA should consider revising Paragraph (i) to clarify that the inspection applies to the "internal coating or lining," and that the inspection method must be adequate to detect defects in the coating or lining, that, if

missed, could result in a reduced design level of reliability and safety of the tank. As written, the language suggests that the inspection of the coating or lining must be adequate to detect defects in the tank, which may not be possible, since the coating or lining covers the tank. See [the commenter's] suggested edits.

**Response:** PHMSA and FRA disagree with this comment. The owner of an interior coating/lining must ensure that an inspection or test is conducted that will detect defects in the interior coating, lining, or other conditions that could reduce the design level of reliability of both the tank car tank and the interior coating/lining. Other conditions would include damage to the tank. The inspection or test procedure should produce results that will identify such defects and inform the inspector of other conditions that can be further inspected or tested by appropriate methods.

**XI. § 180.509(k) (*Service equipment inspection and test*)**

**Comment:** PHMSA should consider revising Paragraph (k)(1) by removing the term “frequency” and replacing it with the term “interval” for consistency. Paragraph (k)(2) should be revised to clarify that the tank car facility must follow the owner’s inspection and test procedures, rather than the AAR TCM for consistency with new § 180.501(b).

**Response:** PHMSA and FRA agree with the proposed revision to Paragraph (k)(2). We will consider appropriate revisions in a future rulemaking proceeding.

**XII. § 180.511 (*Acceptable results of inspections and tests*)**

**Comment:** PHMSA should consider revising the introductory paragraph of § 180.511 to refer to the qualification of a tank car for “continued use” as opposed to just “use” for consistency with the remainder of Part 180.

**Response:** PHMSA and FRA agree with the substance of the proposed revision and will evaluate the suggested language. We will consider appropriate revisions in a future rulemaking proceeding.

**XIII. § 180.513 (*Repairs, alterations, conversions, and modifications*)**

**A. Comment:** The preamble to the final rule states that no comments were received in response to the § 180.513 as proposed in the NPRM. One commenter noted that it did comment on this section by suggesting that the references to the AAR TCM specifically refer to “Appendices A, B, C, D, R, T, and W” of the manual.

This commenter explained that the suggested change would be in agreement with § 180.503’s definition of “qualification,” as well as §§ 180.509(g), 180.509(k)(2),

and 180.511(h), where the references to the AAR TCM are limited to the applicable sections.

**Response:** Appendices A, C, R, and W are already incorporated by reference in the HMR. PHMSA and FRA agree that references to Appendices B, D, and T are necessary to clearly indicate the applicability of these appendices. We will consider appropriate revisions in a future regulatory proceeding.

- B. Comment:** PHMSA should consider revising Paragraph (b) to clarify that the tank car facility must incorporate the owner's "qualification and maintenance" program into its "quality assurance program."

**Response:** PHMSA and FRA agree with the substance of the proposed revision and will consider appropriate revisions in a future rulemaking proceeding.

#### **XIV. Questions Related to § 180.515 (Markings)**

- A. Comment:** Noting that Paragraph (c) of § 180.515, as adopted in the final rule, requires that the "installation date" of a reclosing pressure-relief device (PRD) on a tank car be the test date on which the device is qualified, some commenters asserted that the required method of determining which years are stenciled in the qualification decal for the PRD qualified date and corresponding due dates have changed.

**Response:** Paragraph (c) of § 180.515 states that when pressure tested within 6 months of installation and protected from deterioration, the test date marking of a PRD is the installation date on the tank car. The intent of this requirement is that if a PRD is qualified within 6 months of the date it is installed on a specification tank car, the stenciled qualification date of the PRD is to be the date it is installed on the tank car. If the PRD was qualified more than 6 months prior to the proposed installation date, the PRD must be retested prior to being applied to the tank car.

- B. Comment:** PHMSA should consider revising Paragraph (a) of this Section for clarity. For example, PHMSA should consider removing the allowance to mark a car with one date when a tank car facility performs multiple inspections and tests at the same time, because this practice is inconsistent with that required by the AAR TCM. In addition, the term "consolidated stencil" as used in Paragraph (a) should be revised to read "qualification stencil." A consolidated stencil refers to the air brake, built date, and lube date for freight cars.

**Response:** PHMSA and FRA agree with the substance of this proposed revision. The year of the inspection and due date is required to be marked on the car. We will consider appropriate revisions in a future rulemaking proceeding.

**C. Comment:** PHMSA should consider revising Paragraph (b) of this Section to clarify conversion to a DOT 111 (nonpressure) car.

**Response:** PHMSA and FRA disagree with this suggested amendment because tank car conversion can be from one pressure rating to another within the same class. Tank car conversion is not necessarily from a pressure car to a nonpressure car.