DEPARTMENT OF TRANSPORTATION

Research and Special Programs Administration

49 CFR Parts 107, 171, 172, 173, 177, 178, and 180

[Docket No. RSPA–98–3554 (HM–213)]

RIN 2137–AC90

Hazardous Materials: Requirements for Cargo Tanks

AGENCY: Research and Special Programs Administration (RSPA), DOT.

ACTION: Final rule.

SUMMARY: RSPA is adopting a number of revisions to the Hazardous Materials Regulations to update and clarify the regulations on the construction and maintenance of cargo tank motor vehicles. This final rule also addresses three National Transportation Safety Board (NTSB) recommendations and several petitions for rulemaking. These revisions will increase the safety of cargo tanks transporting hazardous materials, provide greater flexibility in design and construction of cargo tanks, and reduce operating burdens for owners, operators, and manufacturers of cargo tank motor vehicles.

DATES: *Effective date:* This final rule is effective October 1, 2003.

Voluntary compliance date: Voluntary compliance is authorized 30 days following publication of this final rule.

Incorporation by reference date: The incorporation by reference of publications listed in this final rule has been approved by the Director of the **Federal Register** as of October 1, 2003.

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SUPPLEMENTARY INFORMATION:

I. Background

On June 12, 1989, the Research and Special Programs Administration (RSPA; we) published a final rule in the **Federal Register** (Docket HM–183, 183A; 54 FR 24982) that revised the Hazardous Materials Regulations (HMR; 49 CFR Parts 171 through 180) pertaining to cargo tank motor vehicles. We further revised the regulations each year from 1990 through 1995 under dockets HM–183, HM–183A, and HM–183C. Several of these dockets made significant changes to the cargo tank regulations to improve safety; other revisions corrected mistakes and made minor changes. Dockets HM–183 and 183A established the DOT 400 series cargo tank specifications, as well as certification requirements for cargo tank manufacturers. Docket HM–183C contained a number of miscellaneous items that clarified and relaxed certain requirements for the manufacture, qualification, and maintenance of cargo tank motor vehicles.

Under 49 CFR 1.73(d), the Federal Motor Carrier Safety Administration (FMCSA) is delegated authority to enforce the Hazardous Materials Requirements (HMR), with particular emphasis on highway transportation, including regulations for construction and maintenance of cargo tank motor vehicles (CTMVs). FMCSA and RSPA work closely with the regulated industry through educational assistance activities and FMCSA's compliance and enforcement program. As a result of these activities, we identified several areas in the current regulations that need updating or clarification. The Cargo Tank Technical Assistant Group, comprised of state enforcement officials along with members of FMCSA and RSPA, also identified areas where cargo tank regulations could be improved for safety or clarified to facilitate compliance. In addition, we received requests for clarification of the regulations and petitions for rulemaking. The National Transportation Safety Board (NTSB) has also made several safety recommendations concerning cargo tanks.

On December 4, 2001, we published a Notice of Proposed Rulemaking (NPRM; 66 FR 63096), proposing revisions that would apply to all cargo tanks and revisions that would apply to certain specification cargo tanks or cargo tanks used to transport certain ladings. This final rule adopts changes proposed in the NPRM as explained in detail below.

II. Revisions Applicable to All Cargo Tanks

Under Docket HM–183, we adopted a number of definitions for DOT 400-series specification CTMVs. The definitions apply to all specification CTMVs used to transport hazardous materials. In the NPRM we proposed to combine the definitions currently in § 178.345–1(c) with the definitions in § 173.320 (a) and make them applicable to all specification CTMVs. We received comments on the following issues:

A. Definitions

Cargo Tank. In the NPRM, we proposed in § 171.8 to add Intermediate Bulk Containers (IBCs) to the list of specifications that are not considered cargo tanks. The North American Transportation Consultants, Inc. (NATC) submitted comments expressing concern that the proposed definition would encourage the use of IBCs as vehicle delivery systems for bulk shipments. NATC asserts that the proposed revisions would permit IBCs to be loaded and unloaded without first being removed from the transport vehicle. NATC asks us to delay adding IBCs to the list of specifications that are not considered cargo tanks until after a safety review of IBC unloading operations permitted under exemption.

NATC is not correct. Section 177.834(h) prohibits discharge of any contents of any container, other than a cargo tank or IM portable tank, prior to the removal from the motor vehicle. The proposed definition does not change this prohibition. Thus, unless authorized under exemption, IBCs may not be loaded or unloaded without first being removed from the transport vehicle. In this final rule, we are

adopting the revised definition, as proposed.

Design Certifying Engineer and *Registered Inspector.* We proposed to change the requirements for Design Certifying Engineers (DCEs) or Registered Inspectors (RIs) to allow experienced persons to act as DCEs or RIs even if they had not registered by the grandfather clause date of December 31, 1995. DCEs and RIs must still meet the registration requirements in Subpart F of Part 107, which include familiarity with all current regulatory requirements and certification. In addition, the proposed definitions for both a DCE and an RI specify that a DCE and RI must have the knowledge and ability to determine whether a cargo tank design and construction meets the applicable specification.

The National Tank Truck Carriers (NTTC) proposed relaxing the RI requirements even further and eliminating the three-year requirement. We disagree. The functions performed by an RI are sufficiently complex that three years' work experience is necessary to assure that an RI has acquired essential knowledge and experience. In this final rule, we are adopting the definitions as proposed, with the addition of language to specify that the work experience requirements refer to cargo tank testing and inspection.

Corroded/abraded. Commenters generally support our proposal in the NPRM to clarify the term ''corroded or abraded.'' However, several commenters suggest that this definition does not provide sufficient clarification and could lead to enforcement problems. Baltimore Cargo Tank comments that enforcement personnel ''* * *will be compelled to deem any kind of surface mark on the cargo tank wall* * *'' as meeting the definition as proposed. The American Trucking Associations suggests citations may be issued as a result of paint scratches and other cosmetic blemishes.

The use of the term ''corroded or abraded'' relates primarily to a requirement to perform an inspection or test, such as those requirements in § 180.407(e) that require that, if a corroded or abraded area is observed by a visual inspection, it must be thickness tested. In this final rule, we are adopting a definition for ''corroded or abraded,'' to address commenters' concerns. Thus, in this final rule, ''corroded or abraded'' is defined to mean any visible reduction in the material thickness of the cargo tank wall or valve due to pitting, flaking, gouging, or chemical reaction to the material surface that affects the safety or serviceability of the cargo tank. The term does not include cosmetic or minor surface degradation that does not affect the safety or serviceability of the cargo tank.

Corrosive to the tank/valve. We proposed to revise the definition of ''corrosive to the tank/valve'' because of the many requests for clarification that we have received. The regulations require additional and more frequent inspections (internal inspection, thickness testing, upper coupler removal and inspection) for CTMVs transporting a lading that may adversely affect tanks or valves, causing leaks and other safety hazards. The reference to § 173.136 (definition of a Class 8 material) in the current definition has caused confusion. We did not intend that lading designated as ''corrosive to the tank/valve'' would be limited to Class 8 materials or to materials that cause corrosion at a rate of 6.25 mm or more per year. Our intent was to include any lading, not just Class 8 materials, that corrodes a tank or valve.

Only two commenters addressed this proposal, and both supported the change. Thus, RSPA will adopt the proposed change to the definition of ''corrosive to the tank/valve'' to specify that test data and experience must be used to determine if a specific lading is corrosive to the cargo tank wall or valve. The removal of the reference to § 173.136 is intended to clarify that ''corrosive to the tank/valve'' is not limited to materials with a corrosion rate of 6.25 mm or more per year. Any test data or experience that indicates any amount of corrosion is sufficient to meet the definition.

Maximum allowable working pressure (MAWP). The Truck Trailer Manufacturers Association (TTMA) submitted a petition for rulemaking (P–1272) suggesting that a cargo tank's MAWP should be dependent on the physical characteristics of the cargo tank rather than the lading carried in the cargo tank or the method of loading or unloading the cargo tank. In its petition, TTMA notes that a cargo tank manufacturer will not always know the characteristics of the lading that will be transported in the cargo tank and that a manufacturer will not always know the pressure at which the tank will be loaded or unloaded.

In its petition, TTMA also asserts that the current regulations have resulted in confusion in the regulated industry as to whether the static head of lading should be included in the MAWP. TTMA notes that § 178.345–1(k) defines MAWP as the largest of: (1) The pressure prescribed for the lading in part 173; (2) the vapor pressure of the most volatile lading at 115° F plus the maximum static pressure exerted by the lading at the maximum lading density plus any pressure exerted by a gas padding; or (3) the maximum pressure in the cargo tank during loading or unloading. TTMA states that it is not clear if the static head is included in the lading pressure prescribed in Part 173 or the loading/unloading pressure.

We agree with TTMA that there should be no ambiguity in the HMR as to the meaning of MAWP. We agree that the MAWP should be based on a cargo tank's physical characteristics, but we believe MAWP should also be linked to the requirements of § 173.33 for use by shippers and carriers. The proper matching of the maximum lading pressure conditions defined in § 173.33(c) with the MAWP of a cargo tank by shippers and carriers is critical to providing safety in cargo tank operations. The maximum lading pressure addresses many factors critical to matching a lading to a cargo tank MAWP, including the static head (pressure) generated by a specific lading or the maximum pressure in a tank during loading or unloading.

For example, § 173.33(c)(iv) requires the sum of the vapor pressure of the lading at 115° F, plus the tank static head exerted by the lading, plus any pressure exerted by a gas padding, including air, in the tank to be less than or equal to the MAWP of the cargo tank. The pressure defined by this summation is the pressure exerted at the bottom of the tank. When a cargo tank is inverted in a rollover, this pressure is applied to the pressure relief devices installed on the top of the cargo tank. Particularly for large diameter tanks and high-density ladings, this resultant pressure could be sufficient to open the cargo tank's pressure relief devices and release the contents of the tank, even if the tank were undamaged.

Thus, it is critical for shippers and carriers to determine that the MAWP of a cargo tank is greater than or equal to maximum lading pressure derived from the conditions specified in § 173.33. Similarly, cargo tank manufacturers should be familiar with the requirements of § 173.33 in order to provide a cargo tank with an MAWP sufficient to meet the needs of shippers and carriers. To strengthen the linkage between § 173.33 and cargo tank MAWP, the NPRM proposed to revise the definition for MAWP to require the MAWP to be greater than or equal to the maximum lading pressure condition prescribed in § 173.33 for each material. The proposal is adopted without change in this final rule.

Minimum thickness. We proposed to add in § 178.320 a definition for

''minimum thickness'' to clarify how the minimum head and shell thickness for specification cargo tanks must be determined. The proposal defined ''minimum thickness'' to mean the least of: (1) The thickness required by the original specification; (2) the thickness required to satisfy the structural integrity and accident damage requirements; or (3) the thickness required to satisfy the requirements of the American Society of Mechanical Engineers (ASME) Code, if applicable. This proposal was intended to eliminate confusion as to whether the minimum thickness tables in § 180.407(i) are the governing factor in determining minimum thickness.

In consultation with members of the Cargo Tank Technical Assistance Group, coordinated through FMCSA, we determined that the proposed definition did not clearly correlate the minimum thickness of the tank with the tank specification requirements. Therefore, in this final rule, we further clarified the definition to read as follows:

Minimum thickness means the minimum required shell and head (and baffle and bulkhead when used as tank reinforcement) thickness needed to meet the specification. The minimum thickness is the *greatest* of the following values:

(1)(i) For MC 330, MC 331, and MC 338 cargo tanks, the specified minimum thickness found in the applicable specification(s) for construction; or

(ii) For DOT 406, DOT 407 and DOT 412 cargo tanks, the specified minimum thickness found in Tables I and II of the applicable specification(s); or

(iii) For MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, and MC 312 cargo tanks, the in-service minimum thickness prescribed in Tables I and II of § 180.407(i)(5), of this subchapter, for the minimum thickness specified by Tables I and II of the applicable specification(s);

(2) The thickness necessary to meet with the structural integrity and accident damage requirements of the applicable specification(s); or

(3) The thickness as computed per the ASME Code requirements (if applicable).

In addition, adding minimum thickness determination criteria for MC 331 and 400 series cargo tanks to § 180.407(i) will increase understanding of the requirements by placing all information concerning the thickness of any cargo tank in one section. Thus, new paragraphs (i)(9) and (i)(10) will be added as follows:

(i)(9) For MC 331 cargo tanks constructed before the date of this final rule, minimum thickness shall be determined by the thickness indicated on the ASME form U1A minus any corrosion allowance. For tanks constructed after the date of this final rule, the minimum thickness will be that which is indicated on the specification plate. If no corrosion allowance is indicated on the ASME form U1A, then the thickness of the cargo tank shall be the thickness of the material of construction indicated on the form, with no corrosion allowance.

(i)(10) For 400-series cargo tanks, minimum thickness is calculated according to tables in each applicable section for that specification: § 178.346–2 for DOT 406 cargo tanks, § 178.347–2 for DOT 407 cargo tanks, and § 178.348–2 for DOT 412 cargo tanks.

Cargo tank design includes calculations using the thickness of the tank shell and heads to determine if the tank would meet the minimum structural design requirements less any corrosion allowance. These calculations include a safety factor of 4 that must be maintained throughout the life of the tank. If corrosion is discovered on the tank and the ASME form U1A of the ASME code indicates the shell is .225 inches thick with no corrosion allowance indicated on the ASME form U1A, then any areas on the tank below that thickness must be repaired prior to placing the tank back in service. Clarifying this will provide test and inspection facilities a specific number to determine the thickness of the tank and should simplify calculating corrosion allowances (if any allowance is indicated).

We had also proposed to make a separate paragraph (d) for the definition of ''minimum thickness.'' We determined that this is not necessary; in this final rule, the definition appears after the term as it is listed in the section. In addition, the wording in § 178.337–3(e) should note that the minimum metal thickness of 0.187 inches for steel and 0.270 inches for aluminum is for tanks with a design pressure of 100 psig. This section outlines regulations for minimum thickness on MC 331 cargo tanks, which are primarily used for the transportation of compressed gasses. Further, we are clarifying that the minimum thickness of the tank shell and heads must be determined using structural design requirements in Section VIII of the ASME Code, or 25% of the tensile strength of the material.

B. Marking of Emergency Shutoff Devices

In response to NTSB recommendation H–93–34, we proposed to amend the HMR in § 172.328 to require all manually activated on-truck remote shutoff devices for closure of the internal valve to be marked ''Emergency Shutoff.'' The requirement would be effective two years after the publication date of a final rule.

Several commenters suggest that we reconsider the size requirement for the marking. TTMA and NTTC recommended that the minimum lettering size should be 0.75″ instead of the proposed 1.5″ height due to the size the overall marking would assume if each letter were 1.5″ high. We agree that the 0.75″ minimum letter height is adequate to communicate the presence of the emergency shutoff. Therefore, this final rule requires the emergency shutoff device marking to be a minimum 0.75″ height.

C. Recertification to Original Specification

There appears to be confusion in the regulated industry as to whether cargo tanks that have been modified for specialized or non-hazardous materials service may be re-certified for hazardous materials service. In the NPRM, we proposed to allow for the re-certification of a cargo tank to its original specification, provided specific requirements are met. These requirements include documentation to verify that the cargo tank was originally manufactured to a DOT specification, verification by a Registered Inspector that the cargo tank is in compliance with the requirements of the specification, and certification that the cargo tank successfully passed all required tests and inspections. In addition, any repairs performed on MC 306, MC 307, or MC 312 cargo tanks after June 30, 1992, must have been performed in accordance with requirements in § 180.413.

An example is an MC 306 cargo tank that has had its internal self-closing stop valve removed so that the cargo tank can be used to transport asphalt. As proposed in the NPRM, § 180.405(b), the cargo tank may be re-certified to its original specification provided an internal shutoff valve is reinstalled, the CTMV meets all other requirements of the specification, and the cargo tank motor vehicle has successfully passed the inspections and tests required in § 180.407(c).

NATC, whose comments are supported by several other commenters, opposes allowing the recertification of cargo tanks. NATC suggests that the proposed change could result in an increase in unsafe cargo tanks and confusion on the part of enforcement personnel who would be unable to verify the cargo tank certifications. In addition, NATC expressed concern that the proposal is unfair to companies that requalified cargo tanks prior to August 31, 1995.

We do not agree that permitting cargo tanks to be re-certified to their original specifications would lead to an increase in unsafe cargo tanks. However, in this final rule we are adding additional language to clarify and ensure a DCE or

RI verifies that the cargo tank conforms to all applicable requirements of the specification in effect at the time the tank was originally constructed and the additional requirements proposed in § 180.405(b)(2).

Neither do we agree that enforcement personnel will be unable to verify the cargo tank certification. A cargo tank that is re-certified to the original specification will have records of the work performed on the tank, certifications from appropriate inspectors, and specification plates on the cargo tank that would reflect the same testing and certification data that a newly constructed cargo tank would have.

The August 31, 1995 date was placed in the regulations in § 180.405 during the rulemaking process under docket HM–183. This was the cut-off date for the manufacture of MC 307, MC 312, MC 331, and MC 338 specification cargo tanks. This date had been extended several times in the rulemaking process in response to petitions and requests by a number of cargo tank industry representatives who stated that the extra years were needed to complete the transition from the older MC specification cargo tanks to the 400 series specifications HM–183 required. None of the companies that commented on the HM–183 time line suggested that removing this date requirement presented an unfair situation. These companies were in the process of manufacturing new cargo tank motor vehicles, and through the HM–183 rulemaking process, we addressed their concerns by extending the compliance date. Removing this date extension in this rule addresses a different concern and does not create an unfair situation.

NATC recommends that RSPA include a provision in § 180.405 to allow a cargo tank to be removed from hazmat service without requiring the de-certification of the cargo tank. A specification cargo tank may be used for non-specification service and remain a specification cargo tank. The plate must be covered or removed only if tests or inspections expire. We do not see a need to further clarify the use of specification cargo tanks outside hazardous materials service.

D. Cargo Tank Qualification and Maintenance

To reduce confusion in the regulated industry, we proposed a number of clarifications to the requirements in Part 180 for cargo tank qualification and maintenance. We have reviewed the comments that we received concerning the variety of proposals under this topic below.

Test and inspection criteria. We proposed to clarify in § 180.407(b) the tests and inspections that must be performed when a cargo tank shows evidence of dents, corroded or abraded areas, or leakage; has sustained damage to an extent that may adversely affect its lading retention capability; or has any other condition that could render it unsafe for the transportation of hazardous materials. Several commenters suggested that this language was too ambiguous and could lead to excessive or unnecessary enforcement. In this final rule, we addressed many of these concerns by further modifying the definition of ''corroded or abraded'' (see discussion under ''Definitions'' above). The proposed language in § 180.407, in conjunction with our revised definition of ''corroded or abraded,'' adds more clarity than the previous language in these sections. This final rule adopts the proposed language for test and inspection criteria.

Thickness testing of ring stiffeners and appurtenances. Consistent with an NTSB recommendation (H–95–14), we proposed to revise § 180.407(d)(1) to require thickness testing of ring stiffeners and appurtenances on cargo tanks that are constructed of mild steel, high-strength, low-alloy steel, or aluminum, when the ring stiffeners and appurtenances are installed in a manner that precludes an external visual inspection. NTSB investigated two catastrophic cargo tank failures where thickness testing of the cargo tanks' ring stiffeners might have detected the corrosion that caused the failures. In this final rule, we are adopting this proposal without modification. NATC and the commenters that supported NATC's comments, asked us to clarify how an RI should determine minimum thickness of the ring stiffener since there is no ready reference. The regulatory text describes this procedure.

Testing normal vents. We proposed changes to the testing of pressure relief devices in § 180.407(g)(1)(ii) to require self-closing pressure relief valves first to open at the required set pressure and, second, to close and seat to a leak-tight condition when the pressure has dropped to 90 percent of the set-to-discharge pressure or the pressure prescribed for the applicable cargo tank specification. Several comments asked us to better define the test requirements for a normal vent that is a self-closing pressure relief device, but is not an emergency relief device that would be tested at the above criteria. In response, we have clarified that normal vents must be tested accordance with the testing criteria established by the valve manufacturer. This assures testing accuracy because the valves will be tested to the specification to which they were built.

Repair, modification, stretching, and rebarrelling. The NPRM proposed to clarify § 180.413 requirements for repair, modification, stretching, or rebarrelling of cargo tanks. We proposed to require facilities to perform repairs, modifications, stretching, or rebarrelling of cargo tanks in conformance with the National Board Inspection Code (NBIC). The NBIC establishes procedures for repairing or modifying pressure vessels. Prior to 1995, the NBIC applied only to tanks with a maximum allowable working pressure (MAWP) of 15 psi or greater. However, in 1995 the applicability of the NBIC was extended to all pressure vessels. In this final rule, we are adopting the clarifications as proposed. Adopting the NBIC requirements for all cargo tank repairs, modifications, stretching, and rebarrelling will provide clarity, consistency, and a greater level of safety. Note, however, that we did not propose and are not adopting requirements for certification by an NBIC Authorized Inspector, completion of the R–1 form, and stamping tanks with the ''R'' stamp for non-ASME cargo tanks.

In the NPRM, we proposed to clarify that modification, stretching, or rebarrelling must be inspected and certified by a DCE. We proposed to change the requirements in § 180.413(d)(1) to require the design of the modified, stretched, or rebarrelled cargo tank motor vehicle be certified in writing by a DCE as meeting the structural integrity and accident damage protection requirements of the applicable specification. Baltimore Cargo Tank comments that the proposal may be too restrictive because it appears that a DCE would be required to sign off on small changes. However, the definition of ''modification'' includes only those changes that affect a cargo tank or cargo tank motor vehicle's structural integrity or lading retention capability. Such modifications should be approved by a DCE.

Supplemental specification plate. We proposed to revise specification plate requirements to reflect the modification, stretching, or rebarrelling of a cargo tank. We proposed to require a supplemental specification plate to be installed adjacent to the original specification plate. Changes to the original specification plate would not be allowed. The information on the original specification plate should be permanent and not altered, even if modifications are performed by the

original manufacturer. This final rule adopts the revisions as proposed.

Hose testing. We proposed, in § 180.413(c)(1), to require leak testing when any pipe, valve, hose, or fitting on a cargo tank is repaired or replaced in a process that does not involve welding. We proposed that the test must be done in accordance with § 180.407(g)(1). As noted by the National Propane Gas Association (NPGA), the proposal did not take into account existing exceptions from hose maintenance requirements for cargo tanks in dedicated compressed gas (except for carbon dioxide) service. In this final rule, we revised the proposal to include exceptions for cargo tanks in dedicated compressed gas (except for carbon dioxide) service, requiring them to be tested in accordance with the new or repaired delivery hose assemblies requirements in § 180.416(f), since any repair or replacement falling under § 180.413(c)(1) would also fall under this section.

Cleaning and purging before repairs. Because persons have suffered severe injuries or death while performing repairs to cargo tanks that were not properly cleaned and purged, we also proposed in § 180.413(a)(2) to clarify and emphasize that the entire CTMV, including void spaces, piping, and vapor recovery systems, must be cleaned and purged before doing repairs, modifications, stretchings, rebarrellings, or mountings on cargo tanks that transport toxic or flammable lading. NPGA suggests that we specify such cleaning and purging would apply only for welded repairs, not for repairs such as replacement of a valve or fitting located downstream of the primary valves or fittings. Replacing a fitting that does not require welding is not a repair as defined in § 180.403 and therefore would not, under this section, require cleaning and purging of the cargo tank. We are adopting our proposal without changes.

NTTC asks us to clarify the terms ''cleaned'' and Apurged.'' This terminology is taken from § 173.29(b)(2)(ii) which discusses conditions that may make a packaging ''empty.'' In this final rule, we added the wording from this paragraph to § 180.413(a)(2) to clarify that all hazardous material must be removed from the cargo tank before repairs are performed.

III. Revisions Applicable to DOT 400-Series Cargo Tanks

In the NPRM, we proposed several revisions to the specifications applicable to the DOT 400-series cargo tanks. These proposals included revisions to: (1) Structural integrity requirements; (2) manhole marking requirements; (3) road clearance allowances; (4) bottom accident protection; (5) specification plate marking; (6) leak testing alternatives; and (7) weld joints. In addition to these changes, which are described below, we also proposed revisions to the DOT 400-series specifications to make the requirements easier to understand and follow.

A. Structural Integrity Requirements

In the NPRM, we proposed to add structural support members to the list of attachments to which the structural integrity requirements apply for new construction of DOT–400-series CTMVs in § 178.345–3(f). In addition, the proposal included requiring mounting pads for the installation of structural members, attachments and appurtenances.

We received a number of comments on this proposal, with most commenters suggesting that the proposal would impose significant costs on the industry without significantly enhancing safety. Additionally, several commenters note that excessive welding could damage the tank wall, and that there is no indication that lightweight appurtenances account for accident situations that breach the cargo tank wall.

TTMA states that there is no data showing lightweight attachments to be a concern for shell damage, and that ''* * * a typical aluminum DOT 406 cargo tank trailer would require over 5,000 inches of additional welding * * *'' and would increase vehicle weight ''* * * by approximately 350 lbs.'' In addition, TTMA cites several safety issues that could result from excessive welding, including creating cavities that could trap hazardous ladings, creating more heat-affected zones, and possible distortion of the cargo tank wall.

We have considered the commenters concerns and are not adding structural support members to the list of attachments to which the structural integrity requirements apply. However, this final rule does include minor editorial clarifications that otherwise do not change the requirements in this section.

B. Manhole Marking

Under § 178.345–5, the HMR currently require manhole covers to be permanently marked with the manufacturer's name, the test pressure, and a certification that the manhole cover meets HMR requirements. This marking enables cargo tank owners, RIs, and enforcement personnel to verify that the manhole conforms to applicable regulatory requirements. In the NPRM, we proposed to require manhole assemblies to be marked on the outside, where the marking can be seen without opening the manhole cover or fill opening and exposing persons to hazardous materials inside the cargo tank.

Two commenters addressed the topic, the Fertilizer Institute and Farmland Industries, Inc. Both supported the proposal. This final rule adopts the proposal as presented in the NPRM. This requirement will become effective one year after the effective date of this final rule. The revised marking requirements apply to newly manufactured cargo tanks and to replacement manhole assemblies on existing cargo tanks.

C. Road Clearance

In a petition for rulemaking (P–1325), TTMA requested that we lower the minimum road clearance requirements in § 178.345–8 to permit greater flexibility in the design of landing gear, tire carriers, cabinets, and other components near axles. TTMA suggested that such a revision would permit lowering the center of gravity for some CTMVs, which would improve dynamic stability. TTMA stated that it is aware of no situations in which a landing gear failure has punctured a cargo tank.

We agreed with TTMA that reducing the center of gravity for CTMVs would be beneficial. Thus, in the NPRM, we proposed to revise the requirements for minimum road clearance for landing gear within 10 feet of an axle to be no less than 10 inches. We proposed to maintain the current clearance requirements for the middle area between axles. The proposed revision would allow landing gear to be lowered by two inches, but would not compromise clearances in the area of a CTMV most vulnerable to contact with the ground—that is, the area midway between a tractor's rear axle and the CTMV rear suspension.

In its comments on this issue, TTMA suggests that the ten-inch clearance should be measured when there is no lading in the cargo tank. We disagree, because we are identifying the minimum road clearance. This final rule adopts a ten-inch road clearance, and requires it to be calculated when the tank is fully loaded with its maximum lading.

D. MAWP Specification Plate Marking

In a petition for rulemaking (P–1212), TTMA asked us to eliminate the

maximum loading and unloading pressure marking on the specification plate. We included the proposal in the NPRM. TTMA noted that the volume change of liquids transported in DOT 406, DOT 407, and DOT 412 cargo tanks is small and that the maximum loading and unloading rate is calculated in the design of the cargo tank and identified on the specification plate. We agree that the maximum loading and unloading pressure marking is unnecessary because the maximum loading/unloading pressure is reflected in the MAWP. However, in no situation can the actual pressure in the tank exceed the MAWP. This final rule adopts the provision as proposed.

In addition, in § 180.405(k), we proposed to require owners of MC 300, MC 301, MC 302, MC 303, MC 305, MC 306 and MC 312 cargo tanks that have a pressure relief system set at 3 psig to mark or remark the cargo tank with an MAWP or design pressure of not less than 3 psig. NATC says that its field staff found approximately 11% of the MC 306 cargo tanks inspected at one location had no design pressure marked on the specification plates. This revision to the marking requirements will help reduce the number of cargo tanks without a marked design pressure.

E. Leak Testing Using EPA Method 27

In the NPRM, we proposed to clarify the parameters in § 178.346–5, 180.407(h)(2), and 180.415(b)(3) for testing and marking cargo tanks used to transport petroleum distillate fuels and equipped with vapor recovery equipment. Such cargo tanks may be tested in accordance with the Environmental Protection Agency (EPA) ''Method 27—Determination of Vapor Tightness of Gasoline Delivery Tank Using Pressure-Vacuum Test'' as set forth in Appendix A to 40 CFR part 60. This annual certification test includes both the Method 27 test for vapor tightness of a cargo tank and a pressure test of the tank's internal vapor valve. The revision proposed in the NPRM specified that cargo tanks equipped with vapor collection equipment that are used to transport petroleum distillate fuels may be tested in accordance with 40 CFR 63.425(e) instead of the annual leakage test required under § 180.407 of the HMR. In addition, we proposed that, if the EPA annual certification test in 40 CFR 63.425(e) is used to satisfy the annual leak test requirement, the Method 27 test must be conducted using air. Performing the test using liquid, an alternative allowed by EPA, may mask leakage below the liquid level at the pressure level specified for the test. The EPA Method 27 air test will more accurately detect small leaks in a cargo tank. Therefore, we proposed to prohibit use of alternative procedures in section 6 of Method 27 that allow the use of water.

We proposed a special marking to designate cargo tanks that have been tested in conformance with EPA's annual certification test for cargo tanks equipped with vapor recovery equipment and used to transport petroleum distillate fuels. The proposed marking is ''K–EPA27.'' The marking would replace the ''K'' marking on a cargo tank if the EPA vapor tightness test methods and procedures as set forth in 40 CFR 63.425(e) are used in place of the leak test. If a cargo tank is tested using both the leak test specified in the HMR and the vapor tightness tests specified in the EPA regulations, it would be marked with both ''K'' and ''K–EPA27.'' This proposal would establish a national, uniform marking requirement for cargo tanks tested for vapor tightness in accordance with EPA regulations instead of, or in addition to, the leak test procedures specified in the HMR. This marking would be applied to cargo tanks that are tested for vapor tightness under EPA procedures beginning one year after the effective date of the final rule.

Several commenters addressed this proposal. Baltimore Cargo Tank asks why the test would only be permitted for petroleum products. The Method 27 test is performed at 0.6 psig for gasoline cargo tanks. The test pressure is not sufficient to detect leaks on a cargo tank used to transport other types of hazardous materials. We will consider allowing the EPA Method 27 test for other cargo tank ladings that are subject to EPA vapor recovery system requirements in a future rulemaking.

In addition, several commenters question the need for a special marking. The marking requirement will allow an inspector to know the tank was tested using the EPA Method 27 test and also standardize the marking for tanks undergoing this test throughout the United States. RSPA's marking requirement will preempt state marking requirements for cargo tanks tested with the EPA Method 27 test, eliminating possible confusion by enforcement personnel attempting to verify that a cargo tank has met the HMR leak test requirements.

A representative of Tank Truck Service suggests we omit the provision since the EPA requirements are less stringent than the DOT leakage test. The HMR already permit the test. This final rule clarifies that the test may be used only for petroleum fuel service. Further, this final rule specifies that the test may not be performed using liquid, but must be performed with air. This provision strengthens the EPA Method 27 test as an alternative to the leakage test. This final rule adopts the EPA Method 27 test provisions as proposed in the NPRM.

F. Weld Joints on DOT 407 Cargo Tanks

In a petition (P–1333), TTMA requested that we adopt a weld joint efficiency of 0.85 for head seams in bulkheads on DOT 407 cargo tanks. Based on a review of the TTMA petition and additional information, we proposed that the strength of a weld seam in a bulkhead without radiographic examination of the weld must be 0.85 of the strength of the bulkhead. The welded seam must be a full penetration butt weld, no more than one seam may be used per bulkhead, and the welded seam must be completed before forming the dish radius and knuckle radius.

In its petition, TTMA also requested that we permit spot radiographic examination of weld joints every six months as an alternative to the periodic test. We do not agree with TTMA on this issue. Instead, we proposed that two test specimens of the same material and thickness and joined by the same welding procedures as those to be used in manufacturing the bulkhead must be tested to failure in tension. The ratio of the actual tensile stress of the weld joint to the actual tensile strength of the adjacent material of both samples must be greater than 0.85. Under the proposal, the test specimens may represent all the tanks that are manufactured in the same facility within six months after the tests are completed.

In its comments to the NPRM, TTMA agrees with the provisional 85% weld joint efficiency for DOT 407 heads with butt-welded seams. However, TTMA suggests that we include the requirements of Part UW–12 of the ASME Code to the list of excepted requirements in § 178.347–1(d)(8). We agree. In this final rule, we are adding Part UW–12 of the ASME Code to the list of excepted requirements.

IV. Revisions Applicable to MC 331 and MC 338 Cargo Tanks

The NPRM proposed several revisions to the HMR specifications applicable to MC 331 and MC 338 cargo tanks. The proposals include: (1) Revisions to make the specifications consistent with the DOT 400-series cargo tank specification requirements; (2) retrofit requirements for cargo tanks not currently equipped with remote shutoff devices; (3) a new requirement for thermal activation devices on MC 338 CTMVs; (4) revisions

to the internal inspection requirements; and (5) revisions to leakage test requirements for cargo tanks in anhydrous ammonia service. In addition to these changes, which are discussed below, we are also adopting revisions to the MC 331 and MC 338 specifications to make the requirements easier to understand and follow.

A. Consistency With DOT 400-Series Specification

We proposed a number of changes to the MC 331 and MC 338 specifications to make them consistent with specifications applicable to DOT 400-series CTMVs. The DOT 400-series cargo tank specifications are more contemporary regulations that reflect current industry practices. In addition, the DOT 400-series specifications are performance standards, and, thus, provide greater flexibility to cargo tank designers and manufacturers to meet the DOT requirements. As proposed in the NPRM, we are not imposing additional requirements for MC 331 and MC 338 CTMVs; rather we are increasing flexibility in meeting the requirements by proposing performance standards and additional alternatives.

General design, construction and installation requirements. Under Docket HM–183C (60 FR 17398), we modified the structural integrity requirements for MC 331 and MC 338 CTMVs to conform with the DOT 400-series specification requirements. At that time, however, the related requirements for attachments were not changed. Thus, in the NPRM we proposed to make requirements for the design, construction, and installation of attachments, appurtenances, structural support members, or accident protection devices on MC 331 and MC 338 CTMVs consistent with the requirements for DOT 400-series CTMVs.

In Section IIA of this preamble, we discuss the proposal in the NPRM that required mounting pads for structural support members. A number of commenters opposed this addition in the structural integrity requirements for the DOT 400-series cargo tank requirements. In light of the comments received, we reconsidered this proposal and are not adopting requirements for mounting pads for structural supports. Similarly, the requirements adopted in this final rule for the MC 331 and MC 338 CTMVs will not include requirements for mounting pads for structural supports. This final rule does include minor editorial clarifications that otherwise do not change the requirements in this section.

Rear-end tank protection. The NPRM proposed to revise long-standing requirements for rear-end tank protection devices on MC 331 and MC 338 CTMVs (in §§ 178.337–10 and 178.338–10, respectively) to authorize the DOT 400-series rear-end tank protection provisions as an alternative to the current requirements for both MC 331 and MC 338 CTMVs. As several commenters note, the NPRM included regulatory language that differed from the original MC 331 and MC 338 rear-end tank protection requirements. Apart from the reorganization and editorial clarifications, the original MC 331 and MC 338 rear-end tank protection requirements have been preserved in this final rule, and we are adding a provision to allow rear-end tank protection devices to conform with § 178.345–8(d) if desired.

Support and anchoring. We also proposed changes to the MC 331 and MC 338 specifications for cargo tank support and anchoring for consistency with the DOT 400-series requirements. When the structural integrity requirements for the MC 331 and MC 338 CTMVs were modified under HM–183, the closely related requirements for support and anchoring were not changed. This was an inadvertent error that we proposed to correct. This would apply to newly constructed MC 331 and MC 338 CTMVs. We did not receive any comments on this proposal; they are adopted in this final rule as they appear in the NPRM.

Name and specification plate markings. In the NPRM, we proposed to require essential information (required in § 178.337–17 and § 178.338–18) to be marked on metal specification and name plates on MC 331 and MC 338 CTMVs, respectively, to be consistent with requirements for DOT 400-series CTMVs found in section § 178.345–14. We proposed to require that all of the information be marked on a single plate. In an effort to be more flexible and to prevent the replacement of existing name and specification plates, in this final rule we are clarifying that the marking requirements for name plates and specification plates may be on either two separate plates or on a single plate. Thus, the name and specification plate can be one single plate. We will also allow the specification plate to be attached to the cargo tank motor vehicle chassis, with additional marking requirements, to allow the specification plate to be attached without welding directly to the cargo tank wall.

In addition, based on comments submitted by the National Propane Gas Association, we are clarifying that any information marked on a plate required by the ASME code that is also required on either the name or specification plate need not be marked twice on the tank.

Further, this final rule clarifies that the cargo tank motor vehicle certification date (CTMV cert. date) is the date used to determine subsequent maintenance testing time periods. There has been confusion as to whether testing requirements start from the original test date (Orig. Test Date), the cargo tank certification date (CT cert. date) or the cargo tank motor vehicle certification date (CTMV cert. date).

For MC 331 and MC 338 cargo tanks, the name plate must display the following information:

(1) DOT-specification number MC 331 or MC 338 (DOT MC 331 or DOT MC 338).

(2) Original test date (Orig, Test Date).

(3) MAWP in psig.

(4) Cargo tank test pressure (Test P), in psig.

(5) Cargo tank design temperature (Design Temp. Range) ____%F to ____%F.

(6) Nominal capacity (Water Cap.), in pounds.

(7) Maximum design density of lading (Max. Lading density), in pounds per gallon.

(8) Material specification number—shell (Shell matl, yyy* * *), where ''yyy'' is replaced by the alloy designation and ''* * *'' is replaced by the alloy type.

(9) Material specification number—heads (Head matl. Yyy* * *), where '';yyy'' is replaced by the alloy designation and ''* * *'' by the alloy type. NOTE: When the shell and heads materials are the same thickness, they may be combined, (Shell&head matl, yyy* * *).

(10) Weld material (Weld matl.).

(11) Minimum Thickness—shell (Min. Shell-thick), in inches. When minimum shell thicknesses are not the same for different areas, show (top ____, side ____, bottom ____, in inches).

(12) Minimum thickness—heads (Min heads thick.), in inches.

(13) Manufactured thickness—shell (Mfd. Shell thick.), top ____, side ____, bottom ____, in inches. (Required when additional thickness is provided for corrosion allowance.)

(14) Manufactured thickness—heads (Mfd. Heads thick.), in inches. (Required when additional thickness is provided for corrosion allowance.)

(15) Exposed surface area, in square feet.

The specification plate on MC 331 cargo tanks must contain the following information:

(1) Cargo tank motor vehicle manufacturer (CTMV mfr.).

(2) Cargo tank motor vehicle certification date (CTMV cert. date).

(3) Cargo tank manufacturer (CT mfr.).
(4) Cargo tank date of manufacture (CT date of mfr.), month and year.
(5) Maximum weight of lading (Max. Payload), in pounds
(6) Maximum loading rate in gallons per minute (Max. Load rate, GPM), at maximum unloading pressure ____ psig.
(7) Maximum unloading rate in gallons per minute (Max. Unload rate, GPM), at maximum unloading pressure ____ psig.
(8) Lining materials (Lining), if applicable.
(9) Heating system design pressure (Heating sys, press.), in psig, if applicable.
(10) Heating system design temperature (Heating sys, temp.), in °F, if applicable.
(11) Cargo tank serial number, assigned by cargo tank manufacturer (CT serial), if applicable.

The specification plate on MC 338 cargo tanks would contain the following information:
(1) Cargo tank motor vehicle manufacturer (CTMV mfr.).
(2) Cargo tank motor vehicle certification date (CTMV cert. date).
(3) Cargo tank manufacturer (CT mfr.).
(4) Cargo tank date of manufacture (CT date of mfr.), month and year.
(5) Maximum weight of lading (Max. Payload), in pounds
(6) Maximum loading rate in gallons per minute (Max. Load rate, GPM), at maximum unloading pressure ____ psig.
(7) Maximum unloading rate in gallons per minute (Max. Unload rate, GPM), at maximum unloading pressure ____ psig.
(8) Lining materials (Lining), if applicable.
(9) ''Insulated for Oxygen Service'' or ''Not Authorized for Oxygen Service,'' as appropriate.
(10) Marked rated holding time for at least one cryogenic liquid, in hours, and the name of that cryogenic liquid (MRHT ____ hrs, name of cryogenic liquid). MRHT marking for additional cryogenic liquids may be displayed on or adjacent to the specification plate.
(11) Cargo tank serial number, assigned by the cargo tank manufacturer (CT serial), if applicable.

This requirement would apply to new construction and changes on these CTMVs.

Shortages. For MC 331 CTMVs, we proposed to require certificates for a CTMV that is manufactured in two or more stages. We proposed that each manufacturer who performs a manufacturing function on the incomplete CTMV must provide the succeeding manufacturer with a certificate that states the function that was performed and must also provide certificates received from previous manufacturers, Registered Inspectors, and Design Certifying Engineers. Further, we proposed to clarify the roles of the original manufacturer of a cargo tank and the assembler of a CTMV in documenting on the certificate those areas of the specification that are not met or specification shortages, including valves, piping, and fittings. The person who installs the components that bring the CTMV into full compliance with the specification would be required to stamp the certification date on the specification plate and issue a Certificate of Compliance. We are adopting the proposals without change in this final rule.

B. Remote Shutoffs

On December 28, 1988, in Ashland, Virginia, a pipe fitting on an MC 331 cargo tank transporting sulfur dioxide failed during a delivery operation. The driver of the CTMV suffered a fatal injury while attempting to close the cargo tank's internal valve. The CTMV was not equipped with a remote mechanical means to close the internal valve. As a result of its investigation, NTSB recommended that RSPA require MC 330, MC 331, and MC 338 CTMVs to be equipped with on-truck remote mechanical means to close the internal valve (NTSB # H–90–91).

In a final rule published November 3, 1994 (HM–183C; 50 FR 55162), we adopted a requirement for MC 331 and MC 338 CTMVs constructed after January 1, 1995, to be equipped with on-truck remote shutoff devices. For CTMVs constructed prior to January 1, 1995, we required each MC 330 and MC 331 CTMV used to transport flammable gas; flammable liquid; hydrogen chloride, refrigerated liquid; or anhydrous ammonia, and each MC 338 CTMV used to transport flammable ladings to be retrofitted with an on-truck remote shutoff device. These requirements are found in § 178.338–11. The NPRM proposed two revisions to these requirements, as discussed below.

On-truck remote mechanical shut-off. In the NPRM, we proposed to require all MC 330, MC 331, and MC 338 CTMVs to be retrofitted with an on-truck remote mechanical shutoff device that meets the requirements for the applicable specification. Under the proposal, the retrofit would be accomplished within three years from the effective date of a final rule. Under this proposal, CTMVs used to transport only argon, carbon dioxide, helium, krypton, neon, nitrogen, or xenon or mixtures thereof are excepted from the requirement for on-truck remote shutoff. The Compressed Gas Association (CGA) requested that we maintain the original grandfather clause excepting cargo tank motor vehicles certified before January 1, 1995, unless intended for use to transport flammable ladings. We agree with the NTSB recommendation setting out the safety concerns for the proposed retrofit, and therefore, adopt the proposal in this final rule.

Thermal activation self-closing stop valve. The NPRM proposed to require MC 338 CTMVs to be equipped with a means of thermal activation for closing the internal self-closing stop valve. On June 4, 1998 (63 FR 30572), RSPA established a negotiated rulemaking committee under Docket RSPA–97–2718 (HM 225A). During the negotiated rulemaking process, the committee discussed the safety benefits of fusible elements, which provide a heat-activated means for closing a valve. Fusible elements melt when subjected to sufficiently high temperatures, thereby closing the valve to which they are affixed. The HMR currently require installation of on-truck remote closures with a means of thermal activation on MC 331 cargo tanks. Consistent with the committee's recommendation, we proposed that internal self-closing stop valves be equipped with a means of thermal activation on all MC 338 cargo tanks. This requirement would not apply to tanks transporting only argon, carbon dioxide, helium, krypton, neon, nitrogen, or xenon. Commenters did not address this proposal. It is adopted without change in this final rule.

C. Inlet and Outlet Fittings on MC 331 Cargo Tanks

Currently, § 178.337–9 of the HMR requires the use of malleable metals for the construction of valves and fittings on MC 331 cargo tanks. NPGA petitioned for a change to § 178.337–9 to require liquid filling and vapor equalization fittings on MC 331 cargo tanks to be constructed of malleable steel or ductile iron only (P–0935). In its petition, NPGA stated that this change would help to prevent the occurrence of piping failures when fittings made of soft metals, such as brass or copper, are struck by an outside force. We agreed, and proposed to require new or replacement primary valves and fittings used in liquid filling or vapor equalization on MC 331 cargo tanks to be constructed of malleable steel or ductile iron. This proposal is consistent with the National Fire Protection Association (NFPA) Standard 58 and is currently the standard industry practice.

We received two comments on this proposal from NPGA. NPGA asked for an exception from this requirement for

sacrificial devices to be consistent with existing regulations applicable to sacrificial devices. We agree and made that change in this final rule.

NPGA also suggested that we add stainless steel to the materials that are authorized for new or replacement primary valves or fittings. In addition, NPGA asks that we clarify that these metals are to comprise the body of the valve and not internal components such as shutoff disks, springs, etc. We agree that stainless steel should be added and will clarify that the requirement is for the body of the valve and does not apply to internal components.

D. Internal Visual Inspections of Insulated Tanks

The HMR provide an exception for insulated MC 330 and MC 331 cargo tanks from the requirement to undergo an internal visual inspection in conjunction with the annual external visual inspection. The exception was included in the HMR to facilitate inspection of insulated MC 330 and MC 331 cargo tanks that did not have manholes or inspection openings, making it impossible to enter the cargo tank to perform an internal visual inspection. Because insulation precludes a visual inspection of the exterior of the cargo tank, and there is no means to inspect the interior of the tank we determined that the only way to verify the structural integrity of the cargo tank was to subject it to a hydrostatic or pneumatic pressure test at one-year intervals.

The exception applies to insulated MC 330 and MC 331 cargo tanks, irrespective of whether the cargo tank is equipped with a manhole or inspection opening. However, many of these cargo tanks are, in fact, equipped with manholes or inspection openings. We believe that operators should be permitted the option of verifying the structural integrity of these cargo tanks with an internal visual inspection rather than a more costly pressure test. Therefore, we proposed to permit the owner of an insulated cargo tank that is equipped with manholes or inspection openings to perform either an internal visual inspection in conjunction with the external visual inspection or a hydrostatic or pneumatic pressure-test of the cargo tank. As appropriate, these tanks would continue to be required to undergo a complete internal visual inspection and pressure test at the intervals specified in § 180.407(c).

In its comments, CGA requests that we permit MC 330 and MC 331 cargo tanks in carbon dioxide or nitrous oxide service and all MC 338 cargo tanks to be hydrostatically or pneumatically tested in place of an internal visual inspection, even if there is access to the inside of the tank. We disagree with this suggestion because an internal visual inspection provides a higher level of safety. However, we agree with CGA that in § 180.407(d)(2)(i), language should be added to clarify how the exception from an external inspection requirement should be applied. In this final rule, we are adding language to clarify that those items on the cargo tank that can be externally inspected must be inspected and noted in a written report.

E. Leakage Tests for Cargo Tanks in Anhydrous Ammonia Service

The Fertilizer Institute (TFI) filed a petition (P–1255) requesting that we allow anhydrous ammonia cargo tanks to be included in the exception for MC 330 and MC 331 cargo tanks in liquefied petroleum gas (LPG) service that permits them to be leakage tested at not less than 414 kPa (60 psig) in § 180.407(h). TFI stated that, because changes in ambient temperatures result in substantial changes in the normal operating pressure for cargo tanks in anhydrous ammonia service, a cargo tank in anhydrous ammonia service would need to be leakage tested on the hottest day of each year to ensure that it is not operated at pressures exceeding the leakage test pressure. TFI stated that this causes ''extreme hardship'' for companies transporting anhydrous ammonia in cargo tanks. TFI further stated that anhydrous ammonia is a compressed gas with properties that are similar to those of LPG.

RSPA recognized the difficulty described by TFI and, on August 23, 1996, granted an exemption, DOT E–11551, to allow cargo tanks in anhydrous ammonia service to be leakage tested at a lower pressure. However, due to differences in the vapor pressures of LPG and anhydrous ammonia, the exemption permits leakage testing of cargo tanks in dedicated anhydrous ammonia service at not less than 483 kPa (70 psig), rather than 414 kPa (60 psig) as is currently permitted for LPG.

In the NPRM we proposed to incorporate the provisions of DOT E–11551 into the HMR. Farmland Industries, Inc. and TFI, the only commenters addressing this issue, both support this proposal. It is adopted without change in this final rule.

V. Section-by-Section Review

Part 107

In this final rule, we are revising the title of Subpart F to clarify that the registration requirements apply to cargo tank facilities that test, inspect, and repair cargo tanks, and to manufacturers, assemblers, and Design Certifying Engineers.

Section 107.502

This final rule revises the definition of ''assembly'' to include the installation of linings or coatings to the inside wall of a cargo tank wall and the installation of equipment or components during the manufacturing process that are necessary to conform to the specification requirements. This definition clarifies that the term ''assembler'' is not limited to a person who mounts cargo tanks on motor vehicle suspension parts, but also includes a person who installs equipment or components during the manufacturing process.

In addition, RSPA is changing the address to which persons submit cargo tank registration statements in accordance with 49 CFR Part 107, subpart F. Persons subject to the cargo tank registration requirements in this part will now submit these statements to the Federal Motor Carrier Safety Administration's Hazardous Material Division.

Section 107.503

In this final rule, we are adopting a requirement for information on the registration statement for cargo tank manufacturing, assembling, and repair facilities to indicate whether a facility is conducting tests and inspections at a location other than the address listed in the registration form. The purpose of this provision is to identify registered facilities that are using mobile inspection/testing equipment.

Part 171

Section 171.7

This final rule incorporates by reference the June 1, 1998 edition of Truck Trailer Manufacturers Association (TTMA) RP No. 61–98 ''Performance of Manhole and/or Fill Opening Assemblies on MC 306, DOT 406, Non-ASME MC 312 and Non-ASME DOT 412 Cargo Tanks;'' the July 1, 1997 edition of TTMA RP No. 81–97 ''Performance of Spring Loaded Pressure Relief Valves on MC 306, MC 307, MC 312, DOT 406, DOT 407, and DOT 412 Tanks;'' and the June 1, 1998 edition of TTMA TB No. 107, ''Procedure for Testing In-Service Unmarked, and/or Uncertified MC 306 and Non-ASME MC 312 Type Cargo Tank Manhole Covers.'' In addition, this final rule incorporates by reference the American Petroleum Institute Recommended Practice 1604 ''Closure of Underground Petroleum

Storage Tanks,'' Third Edition, dated March 1996.

Section 171.8

This final rule revises the definition of ''Cargo tank'' to include intermediate bulk containers (IBCs) in the list of specifications that are not considered cargo tanks. In addition, we are revising the definition of ''Maximum Allowable Working Pressure'' to include a new section reference.

This final rule also revises the definitions of ''Design Certifying Engineer (DCE)'' and ''Registered Inspector (RI)'' to permit an individual who does not meet the educational requirements in the definitions to be recognized as a DCE or RI if the person was performing those functions for three years prior to September 1, 1991, and meets all other qualifications. In addition, this final rule eliminates a requirement for an individual to have registered with the DOT before December 31, 1995.

Part 172

Section 172.101

This final rule modifies the Hazardous Materials Table by adding a new Special Provision 144 in Column (7) for the following proper shipping names: Diesel fuel; Fuel, aviation, turbine engine; Fuel oil (no. 1, 2, 4, 5, or 6); Gas oil; Gasohol gasoline mixed with ethyl alcohol, with not more than 20 percent alcohol; Gasoline; Hydrocarbons, liquid, n.o.s.; Kerosene; Petroleum crude oil; Petroleum distillates, n.o.s. or Petroleum products, n.o.s; and Petroleum oil. Special Provision 144 clarifies that underground storage tanks (USTs) may be shipped as unregulated materials if they meet the definition of ''empty'' in § 173.29 or if they are cleaned, purged, or made inert in accordance with the American Petroleum Institute Standard 1604 for USTs.

Section 172.102

We are revising paragraph (c)(1) to add Special Provision 144 concerning the transportation of empty USTs, as detailed above.

Section 172.328

In this final rule, we are adding new paragraph (d) to require all manually activated, on-vehicle remote shutoff devices for closure of a cargo tank's internal shutoff valve to be marked ''Emergency Shutoff.'' This requirement is effective two years after the effective date of this final rule. The marking must be at least 0.75″ high.

Part 173

Section 173.33

The minimum design requirements for cargo tanks used to transport Packing Group I and II liquid ladings in current paragraph (g) are re-designated as new paragraph (c)(6) and paragraph (h) is re-designated as paragraph (g). Paragraph headings are added for new paragraphs (c)(6) and new paragraph (g).

Section 173.150

We are removing the references to §§ 173.21, 173.24, 173.24a, and §§ 173.24b in paragraph (f)(3)(viii). Current paragraph (f)(3)(vii) requires compliance with Subpart B of part 173, so these references are redundant.

We are also revising paragraph (f)(3) by adding a new paragraph (ix) to clarify that hazardous materials (HM) training requirements apply to persons involved with the transportation of a combustible liquid that is either in a bulk package or is also a hazardous substance, a hazardous waste, or a marine pollutant in any packaging. In 1992, RSPA reviewed the costs and safety benefits of the training requirement (Docket HM–126F; 57 FR 20952) and found HM training to be justified. However, the training requirement was inadvertently omitted from this section.

Part 177

Section 177.817

A final rule under Docket HM–207B (67 FR 46123; 07/12/2002) revised § 177.817(a). In that final rule, we changed § 177.817(a) to read; ''A carrier may not transport a hazardous material unless it is accompanied by a shipping paper prepared in accordance with part 172 of this subchapter.'' This revision inadvertently eliminated the shipper's certification exception for carriers consolidating multiple shipments of hazardous materials. In this final rule, we are revising paragraph (a) to clarify that only the initial carrier of a hazardous materials shipment is required to have a shipping paper that includes the shipper certification.

Section 177.834

This final rule revises paragraph (j) of this section that specifies that all manhole closures must be closed and secured on cargo tanks containing hazardous materials or residues of hazardous materials to add a reference that cargo tanks that have been cleaned and purged may be transported with open manhole closures.

Part 178

Section 178.320

We are revising paragraph (a) to add definitions applicable to cargo tanks that are currently in § 178.345–1(c). In addition, we are revising and moving the definition of ''maximum allowable working pressure (MAWP)'' from § 178.345–1(k) to paragraph (a). Finally, we are replacing the term ''stop-valve'' with ''stop valve'' in paragraph (a) each place it appears.

In addition, we are revising paragraph (b) to state specifically that accident damage protection devices must be certified by a DCE. FMCSA has found that there is a misunderstanding among assemblers installing cargo tanks onto a motor vehicle chassis as to whether the rear-end tank protection devices must be certified by a DCE. Because rear-end tank protection devices are required by the specification to meet specific structural integrity requirements, the design of these devices must be certified by a DCE.

We had proposed to create a new paragraph (d) for the definition of ''minimum thickness.'' Instead of creating a separate paragraph for this term, we are including this definition in the listing of other definitions in this section.

Section 178.337–3

We are making an editorial change in paragraph (b) by breaking this paragraph into two paragraphs. In order to further clarify the minimum thickness definition and requirements, in this final rule we are altering the wording in paragraph (e) to indicate that the minimum metal thickness of 0.187 inches for steel and 0.270 inches for aluminum is for tanks with a design pressure of at least 100 psig. In addition, this final rule clarifies that, in all cases, the minimum thickness of the tank shell and head shall be determined using structural design requirements in Section VIII of the ASME Code or 25% of the tensile strength of the material used.

This final rule revises paragraph (g) as follows: (1) Groups all requirements for mounting pads in § 178.337–3(g)(2); (2) deletes an unnecessary requirement that mounting pads be the same material as the cargo tank and, instead, allows the pad material to be selected by the DCE; (3) achieves conformity with relevant requirements for DOT 400-series cargo tanks in § 178.345–3; and (4) eliminates the exception for a small gap in the continuous weld around mounting pads while permitting continued use of weep holes or telltale holes as currently allowed.

Section 178.337–8

We are revising paragraph (a)(5)(iii) to remove an expired compliance date.

Section 178.337–9

In paragraph (b)(2), we proposed a revision to require the use of malleable steel or ductile iron in the construction of inlet and outlet fittings on MC 331 cargo tanks. The proposal is adopted in this final rule and we have added stainless steel. Sacrificial devices are excepted from this requirement.

For clarity, we are moving paragraph (b)(5), which addresses requirements for grouping piping and fittings, to § 178.337–10 as new paragraph (e). This change consolidates all of the requirements for accident damage protection into one section.

Section 178.337–10

This final rule revises the section heading from ''Protection of fittings'' to ''Accident damage protection.'' In addition, we are re-designating chlorine tank requirements in current paragraph (c) as paragraph (d) and re-designating the rear-end tank protection requirements in current paragraph (d) as paragraph (c). Redesignated paragraph (c) has been revised to incorporate the requirements for MC 338 cargo tanks and authorize the DOT 400 series rear-end tank protection provisions as an alternative to existing requirements for MC 331 cargo tank motor vehicles.

In addition, this final rule re-designates § 178.337–9(b)(5) as new § 178.337–10(e) and moves requirements concerning shear sections in current '' 178.337–12 to new § 178.337–10(f).

Section 178.337–12

This section is removed and reserved. The current requirements are designated as new paragraph (f) in § 178.337–10, thereby consolidating all accident damage protection requirements in one section.

Section 178.337–13

In this final rule, we are revising this section to be more consistent with the DOT 400-series requirements for cargo tank support and anchoring. In addition, we are modifying the requirement for mounting pads to be the same material as the cargo tank material of construction by allowing the pad material to be selected by the DCE. This is achieved by referencing requirements in § 178.337–3.

Section 178.337–17

This final rule revises paragraph (a) to require essential information marked on MC 331 CTMV metal identification plates to be consistent with the requirements for DOT 400-series CTMVs. The information may be displayed on either a separate name and specification plate, or on a single plate that would serve as both the name and specification plate to allow for maximum flexibility. In addition, the specification plate may be attached to the chassis rail so that cargo tank motor vehicles assembled without welding will not require welding the specification plate onto the cargo tank. If this option is chosen, however, the cargo tank serial number, assigned by the cargo tank manufacturer, must appear on the specification plate. The same information that is required on 400 series tanks, in the same order, is required on MC 331 cargo tanks, in addition to information specific to MC 331 cargo tank motor vehicles. This requirement becomes effective one year from the date of publication of this final rule and is applicable to new construction only.

Section 178.337–18

We are re-designating paragraphs (a)(3) and (a)(4) as (a)(5) and (a)(6), respectively. We are adding new paragraphs (a)(3) and (a)(4) detailing requirements for certifying cargo tanks manufactured in stages by two or more manufacturers.

Section 178.338–2

We are revising paragraph (c) to except certain steel alloys from impact test requirements for consistency with exceptions allowed in the ASME Code. Section 178.338–1(c) states that each tank must be designed and constructed to the ASME Code. Therefore, because the HMR specify that these tanks should be constructed of materials authorized by the ASME Code, exceptions in the ASME Code from impact testing for certain steel alloys should also be recognized in the HMR.

Section 178.338–3

We are revising this section to incorporate more flexible, performance language consistent with structural integrity requirements permitted for DOT 400-series CTMVs. In addition, we are making an editorial change to paragraph (b) by breaking this paragraph into two paragraphs for clarity.

Section 178.338–10

This final rule revises the section heading to read ''Accident damage protection'' instead of ''Collision damage protection.'' In addition, we are revising paragraph (c) to authorize the DOT 400-series cargo tank rear-end protection provisions as an alternative to existing requirements for MC 338 cargo tank motor vehicles.

Section 178.338–11

In this final rule, we are revising paragraph (c) to require internal self-closing stop valves to be equipped with a means of thermal activation or other remote closure method. Additional editorial revisions are made for clarity.

Section 178.338–13

This section incorporates requirements for supports and anchoring that are consistent with requirements of the DOT 400-series cargo tanks. In addition, we are revising this section to permit material used for mounting pads to be selected by the Design Certifying Engineer. This is achieved by referencing requirements in § 178.337–3.

We are deleting current paragraph (a) and re-designating current paragraphs (b) and (c) as paragraphs (a) and (b), respectively. References to ''Appendix G'' in each of these paragraphs are revised to read: ''(* * * Appendix G of Section VIII, Division 1 of the ASME Code).''

Section 178.338–18

Paragraph (a) is revised to require essential information marked on MC 338 CTMV metal identification plates to be consistent with the requirements for DOT 400-series CTMVs so that this essential information is readily available to operators and enforcement officials. The information may be displayed on either a separate name and specification plate, or on a single plate that would serve as both the name and specification plates. In addition, the specification plate may be attached to the chassis rail so that cargo tank motor vehicles assembled without welding will not require welding the specification plate onto the cargo tank. If this option is chosen, however, the cargo tank serial number, assigned by the cargo tank manufacturer, must appear on the specification plate. The same information that is required on 400 series tanks, in the same order, will be required on MC 338 cargo tanks, plus information specific to MC 338 tanks. This requirement becomes effective one year from the date of publication of final rule and is applicable to new construction only.

Section 178.345–1

For consistency, we are revising paragraph (c) by removing the definitions and placing them in alphabetical order in § 178.320(a). In addition, we are removing paragraph (k) and moving the definition of ''maximum

allowable working pressure'' to § 178.320(a).

Section 178.345–2

We revised paragraph (b) to address the requirements for minimum thickness as specified in § 178.320(a).

Section 178.345–3

Paragraph (b) is revised by adding a new paragraph (b)(3) to require that all cargo tank designers and manufacturers must consider all conditions specified in § 173.33(c) when matching the performance characteristic of the cargo tank to the characteristics of the lading being transported.

We are revising paragraph (f) for clarity and consistency. In addition, in paragraph (f)(3), the references to paragraphs (g)(1) and (g)(2) are corrected to read (f)(1) and (f)(2).

Section 178.345–5

In this final rule, we are revising paragraph (e) to specify that manhole markings must be placed on the outside of the manhole assembly where they can be seen without opening the manhole cover or fill opening.

Section 178.345–8

This final rule revises paragraph (a)(5) to specify minimum road clearance requirements for landing gear within 10 feet of an axle. In paragraph (d), we are clarifying that manufacturers must comply with applicable requirements in the Federal Motor Carrier Safety Regulations at 49 CFR 393.86 and with paragraph (b) of this section.

Section 178.345–10

In paragraph (a), we are adding a sentence to clarify that pressure relief vents are not required to conform to the ASME Code. The requirement for a cargo tank to be ''constructed in accordance with the ASME Code'' or ''constructed and certified in conformance with the ASME Code'' applies to the construction of the cargo tank walls and closure devices. Certification to the ASME Code may be done without the installation of pressure relief devices. Sections 178.345–10, 178.346–3, 178.347–4, and 178.348–4 set forth requirements for pressure relief systems for DOT 400-series cargo tanks. These requirements are different from and supersede the ASME Code venting requirements.

Section 178.345–13

In § 178.345–13, we are correcting out-of-date section references.

Section 178.345–14

This final rule revises paragraph (b)(1) to require that the words ''See variable specification plate'' be added to the name plate on cargo tanks built to more than one specification. This requirement is consistent with industry practice.

We are also revising paragraphs (c)(6) and (c)(7) to eliminate the maximum loading and unloading pressure marking requirement from the specification plate.

Section 178.346–1

In paragraph (d)(6), the reference ''§ 178.345–10'' is corrected to read ''§ 178.346–3''; and in paragraph (d)(7) the reference ''§ 178.345–13 is corrected to read ''§ 178.346–5.''

Section 178.346–2

We are revising the text and table titles to be consistent with the minimum thickness requirements in § 178.320(a).

Section 178.346–5

This final rule revises paragraph (c) to clarify the parameters for testing cargo tanks that are used to transport petroleum distillate fuels and are equipped with vapor recovery equipment. These cargo tanks may be tested in accordance with EPA's annual certification test requirements as set forth in 40 CFR 63.425(e). To satisfy the leakage test requirements, however, the Method 27 test must be performed using air and not liquid.

Section 178.347–1

We are making a minor editorial correction in paragraph (c) to change the word ''accordance'' to ''conformance.'' We are also adding paragraph (d)(9) to provide for a weld joint efficiency of 0.85 for head seams in bulkheads on DOT 407 CTMVs.

In paragraph (d)(5) the reference to ''§§ 178.345–5 and 178.347–5,'' is revised to read ''§ 178.347–3.'' In addition, in paragraph (d)(6) the reference to ''§ 178.345–10,'' and the reference in paragraph (d)(7) to ''§ 178.345–13,'' are revised to read ''§ 178.347–4'' and ''§ 178.347–5,'' respectively.

Section 178.347–2

Paragraph (a) and the table titles are revised for consistency with the minimum thickness requirements in § 178.320(a).

Section 178.348–1

We are removing the reference to ''§ 178.348–5,'' in paragraph (e)(2)(v). We are also changing the reference to ''§ 178.348–10,'' in paragraph (e)(2)(vi), to read ''§ 178.348–4.'' In addition, the second reference to ''§ 178.348–13,'' in paragraph (e)(2)(vii), is revised to read ''§ 178.348–5.''

Section 178.348–2

Paragraph (a) and the table titles are revised for consistency with the minimum thickness requirements in § 178.320(a).

Part 180

Section 180.403

We are revising the term ''corroded or abraded'' to mean any visible reduction in the material thickness of the cargo tank wall or valve due to pitting, flaking, gouging, or chemical reaction to the material surface. In addition, we are modifying the definition of ''corrosive to the tank or valve'' to clarify its meaning that the lading has been shown through experience or test data to reduce the thickness of the tank wall or valve.

Section 180.405

We are revising paragraph (b) to allow a cargo tank motor vehicle that was originally built to a standard authorized by an exemption to be marked and certified to the applicable MC 306, MC 307, MC 312, MC 331, or MC 338 specification after August 31, 1995. Although the cargo tanks should have been marked and certified before August 31, 1995, we believe there may be a number of cargo tanks in operation that have not been certified to the appropriate specification. The practice of certifying these cargo tanks to the applicable MC 300-series specification was previously authorized. Continuing to permit these tanks to be marked and certified does not decrease the current level of safety. This change does not authorize these tanks to be used in DOT-specification service, after the expiration of the exemption under which they were manufactured, unless the necessary changes have been made and the tank is certified.

In addition, we are allowing a cargo tank manufactured to the MC 306, MC 307, or MC 312 specification, and that has not been stretched, rebarrelled, or modified, to be re-certified to its original specification. A set of criteria must be met to assure that re-certified cargo tanks conform to all applicable standards and maintain the same level of safety required of a new or continually maintained cargo tank.

Paragraph (g)(3) is removed. The period for retrofitting manholes has expired and the regulation is obsolete.

This final rule revises paragraph (k) to require MC 300-series cargo tanks that have a pressure relief system set at 3 psig and that have no MAWP or design pressure marked on the specification plate, or that have an MAWP or design pressure of less than 3 psig marked on the specification plate, to be marked or

re-marked with an MAWP or design pressure of not less than 3 psig. This provision is currently allowed, but not required.

We are revising paragraph (l)(2)(iii), which prescribes the load that a rear-end tank protection device or rear bumper is required to withstand, to be consistent with the requirements for rear-end tank protection devices in § 178.345–8(d)(3). The change requires the rear bumper or rear-end tank protection device to withstand the horizontal load at an angle not exceeding 10 degrees to the longitudinal axis of the vehicle. This change aligns the angle of load application with the rear-end damage protection devices installed on new DOT 400-series CTMVs, as revised on November 3, 1994 (Docket HM–183C; 59 FR 55167).

We are adding a new paragraph (o) to require MC 330, MC 331, and MC 338 cargo tanks that are not equipped with on-truck remote shutoff devices to be retrofitted with on-truck remote shutoff devices that meet the requirements of the applicable specification. Existing cargo tanks not equipped with an on-truck remote shutoff feature must be retrofitted. We are allowing three years for completion of this retrofit.

Section 180.407

Paragraph (a)(2) is revised to remove the phrase ''or during loading or unloading'' to limit the maximum pressure in the tank to the MAWP, except when the tank is undergoing a pressure test only.

We are revising paragraphs (b)(1) and (b)(2) to clarify the tests and inspections that must be conducted when a cargo tank shows evidence of dents, corroded or abraded areas, leakage, has sustained damage to an extent that may adversely affect its lading retention capabilities, or any other condition that might render it unsafe for transportation in hazardous materials service.

In addition, paragraph (b)(4) is removed because the inspection and testing requirements for cargo tanks that have been modified from their original design specifications are currently outlined in § 180.413 and are redundant in this section.

We are adding language to paragraph (c) to clarify that the testing interval starts from the CTMV certification date. In addition, we are adding Note 4 to the chart to allow insulated cargo tanks with manholes or inspection openings to perform either a visual internal inspection in conjunctions with the external visual inspection or a hydrostatic or pneumatic pressure-test of the cargo tank.

We are revising paragraph (d)(1) to provide the correct references for hydrostatic and pneumatic testing of cargo tanks where a visual inspection is precluded because the cargo tank is lined, coated, insulated or designed so as to prevent access for external inspection.

In response to NTSB recommendation H–95–14, we are revising paragraph (d)(4) to require thickness testing of ring stiffeners and appurtenances on cargo tanks constructed of mild steel or high-strength, low-alloy steel and aluminum that are installed in a manner that precludes an external visual inspection of the cargo tank.

We are revising paragraph (g) to replace the term ''re-closing pressure relief valve'' with ''self-closing pressure relief valve.'' This change clarifies that loading and unloading vents that open and close mechanically during loading and unloading operations are not subject to the bench testing requirements. The revision specifies that self-closing pressure relief devices, such as normal vents (1 psig vents) installed on MC 306 and DOT 406 cargo tanks and emergency relief vents, must be removed from the cargo tank for inspection and testing or replaced in conjunction with the pressure test. However, normal vents are to be tested in according to criteria established by the vent manufacturer, while we specify in this section the test for emergency relief vents. As well, we are revising paragraph (g)(1)(iv) to clarify that, during required pressure tests, a cargo tank may not be subjected to pressures that exceed those identified in the table in paragraph (g)(1)(iv). In addition, paragraph (g)(1)(v) is removed because the 5-year phase in period has expired.

We are revising paragraph (g)(4) as requested in petitions (P–1199) and (P–1262) from NTTC and TTMA, respectively. NTTC members who own and operate DOT-specification CTMVs with external heating systems have found that these systems often cannot withstand 1.5 times the design pressure as currently specified in paragraph (g)(4). The most vulnerable parts of the typical external heating system are the flexible connectors (rubber or elastomeric) that are used to interconnect heat exchanger panels. Because these heating systems are covered with insulation, a test failure can cause expensive, time-consuming repairs. Evidently, before the adoption of Part 180 periodic testing, system designers made no provision for testing at 1.5 times operational conditions, a level that is routinely recognized in the design of conventional piping systems. For these reasons, NTTC and TTMA asked RSPA to reduce the test pressure to the maximum operating pressure of each system.

We are revising paragraph (h)(1) to require internal and external self-closing stop valves to be tested during the leak test, adjacent tanks in a multi-compartment CTMV to be separately tested, and cargo tanks in liquefied compressed gas service to be externally inspected for leaks during leakage tests by a means other than using a pressure gauge.

This final rule adds paragraph (h)(1)(iv) to require MC 330 or MC 331 cargo tanks in dedicated service for anhydrous ammonia to be leakage tested at not less than 414 kPa (60 psig). In addition, we are adding paragraph (h)(1)(v) to require non-specification cargo tanks subject to testing under § 173.8(d)(6) to be leak tested at a pressure of 16.5 kPa (2.4 psig). Section 173.8 requires non-specification cargo tanks authorized by that section to be tested and inspected in the same manner as required for an MC 306 CTMV. Many non-specification cargo tanks are not marked with a MAWP or design pressure. This requirement ensures that these cargo tanks are leakage tested in the same manner as MC 306 CTMVs.

We are revising paragraph (h)(2) to clarify the parameters for testing cargo tanks used to transport petroleum distillate fuels that are equipped with vapor recovery systems. These cargo tanks may be tested in accordance with EPA's annual certification test requirements as set forth in 40 CFR 63.425(e). To satisfy the leakage test requirements, however, the Method 27 test must be performed using air. We believe that the pneumatic test is a better test method for detecting leaks in low pressure tests.

We are revising paragraph (i) and the titles of the tables in § 180.407(i)(5) by adding wording that is consistent with the proposed minimum thickness requirements in § 178.320(a).

Also, this final rule revises paragraph (i)(6) to change the wording ''maximum lading density'' to ''maximum weight of lading or reduced maximum working pressure, or combinations thereof,'' and to make other relevant editorial revisions. This change is consistent with cargo tank design practices that evaluate both the weight of lading carried by the cargo tank and the pressure on the cargo tank wall as determining factors for minimum in-service thickness.

To clarify the minimum thickness requirements, we are adding paragraphs (i)(9) and (i)(10). Paragraph (i)(9) specifies the minimum thickness for MC 331 cargo tanks and paragraph (i)(10)

references the minimum thickness tables for DOT 400 series CTMVs to clarify the correct test criteria.

Section 180.409

We are revising paragraph (a) to add a reference to the definition of ''Registered Inspector'' in § 171.8 to clarify that a person must meet the minimum qualifications set forth in the definition in order to be qualified to perform tests and inspections required by § 180.407(c).

Section 180.413

This final rule revises paragraph (a) requirements for performing repairs, modifications, stretching, rebarrelling, or remounting a cargo tank to explicitly state that a facility repairing any specification cargo tanks must adhere to the quality control procedures (*e.g.* welder qualifications and approved welding procedures) in the National Board Inspection Code (NBIC) except requirements for inspection by an Authorized Inspector, preparation of an R–1 Form, or stamping of the ''R'' stamp on the cargo tank. This was our intent in 1989 when, under Docket HM–183, we changed the regulations to require that repair facilities hold either a valid National Board Certificate of Authorization for use of the National Board ''R'' stamp or a valid ASME Certificate of Authorization for use of the ASME ''U'' stamp. FMCSA has discovered numerous instances where, although a facility holds a valid ''U'' or ''R'' stamp, the quality control procedures used to obtain the stamp were not utilized during the repair. One example is the use of ''lap patches,'' which are prohibited under the NBIC. This revision will prohibit this and other un-safe practices being discovered during repairs of non-ASME stamped cargo tanks.

The cleaning and purging requirements are moved from paragraphs (b)(4) and (d)(8) to paragraph (a)(2). The cleaning and purging requirements have been clarified to emphasize the requirements for cargo tanks to be empty and safely purged before repairs. In addition, we are revising paragraph (b) for clarity.

In paragraph (c), we require leak testing for non-welded repairs or the replacement of hoses, pipes, valves, or fittings. In response to comments from NPGA, we also include provisions for cargo tanks in liquefied compressed gas service to be tested in accordance with applicable regulations in § 180.416(f).

In paragraph (d), we are revising the requirements for stretching, modifying, or rebarrelling a cargo tank to clarify the intent of the regulation. Specifically, we are eliminating the need for testing in accordance with § 180.407, which is currently required by § 180.413(d)(4)(iv). Testing the adequacy of a modification, stretching, or rebarrelling must be accomplished by performing the tests specified in paragraph (d)(3)(iv) of this section (formerly § 180.413(d)(10)). In paragraph (d), we are clarifying that a modification, stretching, or rebarrelling must be certified by a DCE.

We are revising paragraph (d)(3)(v), to require a supplemental specification plate to be installed adjacent to the original specification plate. This change eliminates the provision that currently allows changes to the original specification plate. In addition, paragraph (d)(4), in its entirety, is re-designated as paragraph (d)(3). The provisions of paragraph (d)(5) are re-worded and moved to (d)(4).

The provisions contained in paragraphs (d)(6) and (7) to a new paragraph (e) are moved to eliminate confusion about what is required when a cargo tank is re-mounted onto a new chassis. New paragraph (e) is based on a petition (P–1322) from TTMA and clarifies requirements for certification of mounting by a DCE and supervision of the mounting by a Registered Inspector. Current paragraph (e) is re-designated as paragraph (f).

Section 180.415

We are revising paragraph (b)(3)(vi) to require a special marking, ''K–EPA27,'' on cargo tanks that have been tested in accordance with EPA requirements for testing cargo tank vapor tightness. This change provides a nationally uniform marking for cargo tanks that pass the annual certification test in accordance with EPA requirements.

Section 180.417

This final rule requires additional information to be provided on inspection and test reports to enable owners and operators of cargo tanks to more effectively review the results of the test or inspection. The information required by the revised paragraph (b)(1) provides important data about the cargo tank and its service that may affect the type and method of test to be performed. The cargo tank owner or carrier must provide this information to the re-qualification or maintenance facility. In addition, current paragraph (b)(2) is re-designated as paragraph (b)(3).

We are revising paragraph (d) to clarify what documents must accompany the cargo tank when ownership changes. This change would consolidate these requirements into one section.

VI. Rulemaking Analyses and Notices

A. Executive Order 12866 and DOT Regulatory Policies and Procedures

This final rule is not considered a significant regulatory action under section 3(f) of Executive Order 12866 and was not reviewed by the Office of Management and Budget. We have prepared a Regulatory Evaluation assessing potential costs, benefits and savings of the revisions adopted in the final rule. The Regulatory Evaluation is available for review in the public docket on the DOT Docket Management System Web site, *http://dms.dot.gov.*

In assessing how best to update and clarify the construction and maintenance requirements for CTMVs, we considered three alternatives: (1) Taking no regulatory action; (2) clarifying and updating the regulations, responding to several petitions for rulemaking, and addressing three NTSB recommendations; and (3) responding to NTSB recommendations only. We chose Alternative 2 because it increases safety, reduces compliance costs, and provides greater flexibility in design and construction of cargo tanks.

We estimate the total annual cost savings to the industry resulting from implementation of this final rule would be $3,230,400 per year. At the same time the industry would incur increased costs of compliance totaling $3,136,770 the first year and $1,449,270 each following year. The overall net benefits are $93,630 the first year and $2,081,130 each subsequent year.

Increasing clarity and, therefore, understanding of the regulations, facilitates compliance, and reduces risks to the public and environment. While provisions of this final rule result in costs and safety benefits, others would result in savings while not sacrificing safety. Overall, the estimated savings that will result from this final rule are greater than the estimated costs. The provisions with the highest associated costs are based on safety concerns and NTSB recommendations, that are based serious accidents. The provisions in this final rule will reduce risks to people, property, and the environment.

B. Executive Order 13132

This final rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13132 (''Federalism''). This final rule preempts state, local, and Indian tribe requirements but does not propose any regulation that has substantial direct effects on the states, the relationship between the national government and the states, or the distribution of power and responsibilities among the various

levels of government. Therefore, the consultation and funding requirements of Executive Order 13132 do not apply.

The Federal hazardous materials transportation law, 49 U.S.C. 5101–5127, contains an express preemption provision (49 U.S.C. 5125(b)) that preempts state, local, and Indian tribe requirements on certain covered subjects. Covered subjects are:

(1) The designation, description, and classification of hazardous materials;

(2) The packing, repacking, handling, labeling, marking, and placarding of hazardous materials;

(3) The preparation, execution, and use of shipping documents related to hazardous materials and requirements related to the number, contents, and placement of those documents;

(4) The written notification, recording, and reporting of the unintentional release in transportation of hazardous material; or

(5) The design, manufacture, fabrication, marking, maintenance, recondition, repair, or testing of a packaging or container represented, marked, certified, or sold as qualified for use in transporting hazardous material.

This final rule addresses covered subject item (5) above and preempts state, local, and Indian tribe requirements not meeting the ''substantively the same'' standard.

Federal hazardous materials transportation law provides at § 5125(b)(2) that, if DOT issues a regulation concerning any of the covered subjects, DOT must determine and publish in the **Federal Register** the effective date of Federal preemption. The effective date may not be earlier than the 90th day following the date of issuance of the final rule and not later than two years after the date of issuance. The effective date of Federal preemption is 90 days from the date of publication of this final rule.

C. Executive Order 13175

This final rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13175 (''Consultation and Coordination with Indian Tribal Governments''). Because this final rule does not have tribal implications, does not impose substantial direct compliance costs on Indian tribal governments, and does not preempt tribal law, the funding and consultation requirements of Executive Order 13175 do not apply and a tribal summary impact statement is not required.

D. Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601–612) requires each agency to analyze proposed regulations and assess their impact on small businesses and other small entities to determine whether the proposed rule is expected to have a significant impact on a substantial number of small entities. Based on the assessment in the regulatory evaluation, and information generally available on the number and size of potentially affected entities, we find that:

- All small entities that engage in the manufacture, operation, testing or inspection of certain DOT specification cargo tank motor vehicles would be subject to some or all of the provisions of this final rule;
- In each instance where regulatory provisions require a new or increased cost to a regulated party, the cost is a modest $100 or less per cargo tank; and
- Small entities will be able to take advantage of the relaxations in the final rule, resulting in a net reduction of regulatory costs.

We estimate that most of the approximately 3,700 interstate and 5,500 intrastate motor carriers that would be subject to the requirements of this rule are small businesses. There are also approximately 7,000 cargo tank inspection/testing facilities subject to the requirements that are estimated to be small businesses. We estimate that operators of existing fleets of cargo tank motor vehicles would incur costs of approximately $75 per year for each of the approximately 5,000 affected series 307, 312, 407 and 412 cargo tank motor vehicles in corrosive material service, and $100 every two years for thickness testing of appurtenances on the estimated 15,000 cargo tanks in that same series. In neither case is the additional cost likely to have a significant economic impact on the operator's net income or ability to remain competitive.

Although there are other provisions in this rule that would present an added cost to these small businesses, there are also safety benefits that have the potential to save money and protect the viability of small businesses by lowering the risk of a catastrophic accident. Most of the provisions of the rule are directed toward individual cargo tanks. Since small businesses operate fewer cargo tanks, most of the cost of this final rule would affect larger businesses.

The final rule includes several provisions that will provide savings to small businesses by allowing experienced Registered Inspectors and Design Certifying Engineers to continue to perform functions for which they were previously qualified, allowing recertification of certain cargo tanks to their original specification, and relaxing requirements for leakage testing of cargo tanks in anhydrous ammonia service that are operated almost exclusively by entities that are small businesses (including small farms).

In addition, a number of other provisions of this final rule allow for a potential net reduction in regulatory costs. For example, owners of cargo tanks may re-certify their cargo tanks to the original specification. Manufacturers of MC 338 cargo tanks may take advantage of the relaxation of mounting requirements, which will save engineering and construction costs. Likewise, the revisions for bottom damage protection devices create further possible reductions in compliance costs. These and other relaxations offset the additional requirements, while maintaining current safety standards.

In consideration of the above, while the final rule applies to a substantial number of small entities, I certify that the economic impact on those small entities is not significant.

E. Paperwork Reduction Act

RSPA has a current information collection approval under OMB No. 2137–0014, Cargo Tank Specification Requirements, with 102,021 burden hours and $4,088,350 annual costs, which includes $1,595,000 in one-time start-up costs. This final rule identifies information collection that RSPA submitted to OMB for approval based on the requirements in the proposed rule. OMB approved the information collection on January 10, 2002. The approved information collection and recordkeeping burden is as follows:

OMB No.: 2137–0014.
Number of Respondents: 41,366.
Total Annual Responses: 132,600.
Total Annual Burden Hours: 102,021.
Total Annual Burden Cost: $4,088,350.
One Time Start Up Cost: $1,595,000.

Requests for a copy of the information collection should be directed to Deborah Boothe, Office of Hazardous Materials Standards (DHM–10), Research and Special Programs Administration, Room 8102, 400 Seventh Street, SW., Washington, DC 20590–0001, Telephone (202) 366–8553.

F. Regulation Identifier Number (RIN)

A regulation identifier number (RIN) is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each

year. The RIN number contained in the heading of this document can be used to cross-reference this action with the Unified Agenda.

G. Unfunded Mandates Reform Act

This final rule does not impose unfunded mandates under the Unfunded Mandates Reform Act of 1995. It does not result in costs of $100 million or more to either state, local, or Tribal governments, in the aggregate, or to the private sector, and is the least burdensome alternative that achieves the objective of the rule.

H. Environmental Assessment

The National Environmental Policy Act of 1969 (NEPA) requires that Federal agencies consider the consequences of major federal actions and that they prepare a detailed statement on actions significantly affecting the quality of the human environment. RPSA has prepared an Environmental Assessment that is available for review in the public docket on the DOT Docket Management System Web site, *http://dms.dot.gov.* Based on the assessment, RSPA has determined that this final rule does not have any significant negative impacts to the environment and may result in a small net benefit from the proposal to allow the recertification of cargo tanks that allows older cargo tanks to be used rather than discarded. Therefore, we find that there are no significant environmental impacts associated with this final rule.

List of Subjects

49 CFR Part 107

Administrative practice and procedure, Hazardous materials transportation, Penalties, Reporting and recordkeeping requirements.

49 CFR Part 171

Exports, Hazardous materials transportation, Hazardous waste, Imports, Incorporation by reference, Reporting and recordkeeping requirements.

49 CFR Part 172

Hazardous materials transportation, Hazardous waste, Incorporation by reference, Labels, Markings, Packaging and containers, Reporting and recordkeeping requirements.

49 CFR Part 173

Hazardous materials transportation, packaging and containers, Radioactive materials, reporting and recordkeeping requirements, Uranium.

49 CFR Part 177

Hazardous materials transportation, Motor carriers, Radioactive materials, Reporting and recordkeeping requirements.

49 CFR Part 178

Hazardous materials transportation, Incorporation by reference, Motor vehicle safety, Packaging and containers, Reporting and recordkeeping requirements.

49 CFR Part 180

Hazardous materials transportation, Incorporation by reference, Motor carriers, Motor vehicle safety, Packaging and containers, Reporting and recordkeeping requirements.

■ In consideration of the foregoing, we are amending 49 CFR Chapter I as follows:

PART 107—HAZARDOUS MATERIALS PROGRAM PROCEDURES

■ 1. The authority citation for part 107 continues to read as follows:

Authority: 49 U.S.C. 5101–5127, 44701; Section 212–213, Pub. L. 104–121, 110 Stat. 857; 49 CFR 1.45, 1.53.

■ 2. The title of Subpart F is revised to read as follows:

Subpart F—Registration of Cargo Tank and Cargo Tank Motor Vehicle Manufacturers, Assemblers, Repairers, Inspectors, Testers, and Design Certifying Engineers

* * * * *

■ 3. In § 107.502, paragraphs (a)(1) and (d) are revised to read as follows:

§ 107.502 General registration requirements.

(a) * * *

(1) *Assembly* means the performance of any of the following functions when the function does not involve welding on the cargo tank wall:

(i) The mounting of one or more tanks or cargo tanks on a motor vehicle or to a motor vehicle suspension component;

(ii) The installation of equipment or components necessary to meet the specification requirements prior to the certification of the cargo tank motor vehicle; or

(iii) The installation of linings, coatings, or other materials to the inside of a cargo tank wall.

* * * * *

(d) Registration statements must be in English, contain all of the information required by this subpart, and be submitted to: FMCSA Hazardous Materials Division—MC-ECH, Room 8310, 400 7th Street SW, Washington, DC 20590.

* * * * *

■ 4. In § 107.503, paragraphs (a)(3), (a)(4), (a)(5), (a)(6), and (a)(7) are redesignated as paragraphs (a)(4), (a)(5), (a)(6), (a)(7), and (a)(8) respectively, and new paragraph (a)(3) is added to read as follows:

§ 107.503 Registration statement.

(a) * * *

(3) A statement indicating whether the facility uses mobile testing/inspection equipment to perform inspections, tests, or repairs at a location other than the address listed in paragraph (a)(2) of this section.

* * * * *

PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

■ 5. The authority citation for part 171 continues to read as follows:

Authority: 49 U.S.C. 5101–5127; 49 CFR 1.53.

■ 6. In § 171.7, in paragraph (a)(3), a new entry for ''American Petroleum Institute'' is added in appropriate alphabetical order and under ''Truck Trailer Manufacturers Association,'' the entries ''TTMA TB No. 81'' and ''TTMA RP No. 61–94'' are removed, the entry ''TTMA TB No. 107'' is revised and two new entries are added in appropriate alpha-numeric order, to read as follows:

§ 171.7 Reference material.

(a) * * *

* * * * *

(3) * * *

Source and name of material	49 CFR reference
* * * * * * *	
American Petroleum Institute, 1220 L Street, NW, Washington, D.C. 20005–4070:	
API Recommended Practice 1604 Closures of Underground Petroleum Storage Tanks, 3rd Edition, March 1996	172.102

Source and name of material	49 CFR reference
* * * * * * *	*
TTMA RP No. 61–98, Performance of manhole and/or Fill Opening Assemblies on MC 306, DOT 406, Non-ASME MC 312 and Non-ASME DOT 412 Cargo Tanks, June 1, 1998	180.405(g)
TTMA RP No. 81–97, Performance of Spring Loaded Pressure Relief Valves on MC 306, MC 307, MC 312, DOT 406, DOT 407, and DOT 412 Tanks, July 1, 1997 Edition	178.345–10
TTMA TB No. 107, Procedure for Testing In-Service Unmarked and/or Uncertified MC 306 and Non-ASME MC 312 Type Cargo Tank Manhole Covers, June 1, 1998. Edition	180.405(g)
* * * * * * *	*

* * * * *

7. In § 171.8, the definitions for ''Cargo tank, ''Design Certifying Engineer'', and ''Registered Inspector'' are revised and the definition for ''MAWP'' is removed and a definition for ''Maximum allowable working pressure or MAWP'' is added in it's place to read as follows:

§ 171.8 Definitions and abbreviations.

* * * * *

Cargo tank means a bulk packaging that:

(1) Is a tank intended primarily for the carriage of liquids or gases and includes appurtenances, reinforcements, fittings, and closures (for the definition of a tank, *see* 49 CFR 178.320, 178.337–1, or 178.338–1, as applicable);

(2) Is permanently attached to or forms a part of a motor vehicle, or is not permanently attached to a motor vehicle but which, by reason of its size, construction or attachment to a motor vehicle is loaded or unloaded without being removed from the motor vehicle; and

(3) Is not fabricated under a specification for cylinders, intermediate bulk containers, multi-unit tank car tanks, portable tanks, or tank cars.

* * * * *

Design Certifying Engineer means a person registered with the Department in accordance with subpart F of part 107 of this chapter who has the knowledge and ability to perform stress analysis of pressure vessels and otherwise determine whether a cargo tank design and construction meets the applicable DOT specification. A *Design Certifying Engineer* meets the knowledge and ability requirements of this section by meeting any one of the following requirements:

(1) Has an engineering degree and one year of work experience in cargo tank structural or mechanical design;

(2) Is currently registered as a professional engineer by appropriate authority of a state of the United States or a province of Canada; or

(3) Has at least three years' experience in performing the duties of a Design Certifying Engineer prior to September 1, 1991.

* * * * *

Maximum allowable working pressure or *MAWP:* For DOT specification cargo tanks used to transport liquid hazardous materials, *see* § 178.320(c) of this subchapter.

* * * * *

Registered Inspector means a person registered with the Department in accordance with subpart F of part 107 of this chapter who has the knowledge and ability to determine whether a cargo tank conforms to the applicable DOT specification. A *Registered Inspector* meets the knowledge and ability requirements of this section by meeting any one of the following requirements:

(1) Has an engineering degree and one year of work experience relating to the testing and inspection of cargo tanks;

(2) Has an associate degree in engineering and two years of work experience relating to the testing and inspection of cargo tanks;

(3) Has a high school diploma (or General Equivalency Diploma) and three years of work experience relating to the testing and inspection of cargo tanks; or

(4) Has at least three years' experience performing the duties of a Registered Inspector prior to September 1, 1991.

* * * * *

PART 172—HAZARDOUS MATERIALS TABLE, SPECIAL PROVISIONS, HAZARDOUS MATERIALS COMMUNICATIONS, EMERGENCY RESPONSE INFORMATION, AND TRAINING REQUIREMENTS

■ 8. The authority citation for part 172 continues to read as follows:

Authority: 49 U.S.C. 5101–5127; 49 CFR 1.53.

■ 9. In the § 172.101 Hazardous Materials Table, the following entries are revised to read as follows:

§ 172.101 Purpose and use of hazardous materials table.

* * * * *

§ 172.101 HAZARDOUS MATERIALS TABLE

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or division	Identification numbers	PG	Label codes	Special provisions	(8) Packaging (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage	
							Exceptions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo aircraft only	Location	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
		*	*		*	*	*	*	*	*			
D	Diesel fuel	3	NA1993	III	None	144, B1, IB3, T4, TP1, TP29.	150	203	242	60 L	220 L	A	
I	Diesel fuel	3	UN 1202	III	3	144, B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
		*	*		*	*	*	*	*	*			
	Fuel, aviation, turbine engine.	3	UN1863	I	3	144, T11, TP1, TP8 ...	150	210	243	1 L	30 L	E	
				II	3	144, IB2, T4, TP1, TP8.	150	202	242	5 L	60 L	B	
				III	3	144, B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
D	Fuel Oil (*No. 1, 2, 4, 5, or 6*).	3	NA 1993	III	3	144, B1, IB3, T4, TP1, TP29.	150	203	242	60 L	220 L	A	
		*	*		*	*	*	*	*	*			
	Gas oil	3	UN1203	III	3	144, B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
		*	*		*	*	*	*	*	*			
D	Gasohol *gasoline mixed with ethyl alcohol, with not more than 20 percent alcohol*.	3	NA1203	I	3	144	150	202	242	5 L	60 L	E	
	Gasoline	3	UN1203	II	3	144, B33, IB2, T4, TP1.	150	202	242	5 L	60 L	3	
		*	*		*	*	*	*	*	*			
	Hydrocarbons, liquid, n.o.s.	3	UN3295	I	3	144, T11, TP1, TP8 ...	150	201	243	1 L	30 L	E	
		3	UN3295	II	3	144, IB2, T7, TP1, TP8, TP28.	150	202	242	5 L	60 L	B	
		3	UN3295	III	3	144, B1, IB3, T4, TP1, TP29.	150	203	242	60 L	220 L	A	
		*	*		*	*	*	*	*	*			
	Kerosene	3	UN1223	III	3	144, B1, IB3, T2, TP2	150	203	242	60 L	220 L	A	
		*	*		*	*	*	*	*	*			
	Petroleum crude oil	3	UN1267	I	3	144, T11, TP1, TP8 ...	None	201	243	1 L	39 L	E	
				II	3	144, IB2, T4, TP1, TP8.	150	202	242	5 L	60 L	B	
				III	3	144, B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	Petroleum distillates, n.o.s *or* Petroleum products, n.o.s.	3	UN1268	I	3	144, T11, TP1, TP8 ...	150	201	243	1 L	30 L	E	
				II	3	144, IB2, T7, TP1, TP8, TP28.	150	202	242	5 L	60 L	B	
				III	3	144, B1, IB3, T4, TP1, TP29.	150	203	242	60 L	220 L	A	
		*	*		*	*	*	*	*	*			
D	Petroleum oil	3	NA1270	I	3	144, T11, TP1, TP9 ...	None	201	243	1 L	30 L	E	
				II	3	144, IB2, T7, TP1, TP8, TP28.	150	202	242	5 L	60 L	B	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or division	Identification numbers	PG	Label codes	Special provisions	(8) Packaging (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage	
							Exceptions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo aircraft only	Location	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
				III	3	144, B1, IB3, T4, TP1, TP29.	150	203	242	60 L	220 L	A	
		*	*		*	*	*	*		*			

■ 10. In § 172.102, in paragraph (c)(1), special provision 144 is added in numerical order to read as follow:

§ 172.102 Special provisions.

* * * * *

(c) * * *

(1) * * *

Code/Special Provisions

* * * * *

144 If transported as a residue in an underground storage tank (UST), as defined in 40 CFR 180.12, that has been cleaned and purged or rendered inert according to the American Petroleum Institute (API) Standard 1604 (incorporated by reference; see § 171.7 of this subchapter), then the tank and this material are not subject to any other requirements of this subchapter. However, sediments remaining in the tank that meet the definition for a hazardous material are subject to the applicable regulations of this subchapter.

* * * * *

■ 11. In § 172.328, a new paragraph (d) is added to read as follows:

§ 172.328 Cargo tanks.

* * * * *

(d) After October 3, 2005, each on-vehicle manually-activated remote shutoff device for closure of the internal self-closing stop valve must be identified by marking ''Emergency Shutoff'' in letters at least 0.75 inches in height, in a color that contrasts with its background, and located in an area immediately adjacent to the means of closure.

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

■ 12. The authority citation for part 173 continues to read as follows:

Authority: 49 U.S.C. 5101–5127, 44701; 49 CFR 1.45, 1.53.

■ 13. In § 173.33, paragraphs (g) and (h) are redesignated as paragraphs (c)(6) and (g), respectively, and paragraph headings for new paragraph (c)(6) and redesignated paragraph (g) are added to read as follows:

§ 173.33 Hazardous materials in cargo tank motor vehicles.

* * * * *

(c) * * *

(6) *Substitute packagings.** * *.

* * * * *

(g) *Remote control of self-closing stop valves—MC 330, MC 331 and MC 338 cargo tanks.** * *.

■ 14. In § 173.150, paragraphs (f)(3)(vii) and (f)(3)(viii) are revised and paragraph (f)(3)(ix) is added to read as follows:

§ 173.150 Exceptions for Class 3 (flammable) and combustible liquids.

* * * * *

(f) * * *

(3) * * *

(vii) Packaging requirements of subpart B of this part and, in addition, non-bulk packagings must conform to the requirements of § 173.203;

(viii) The requirements of §§ 173.1, 174.1, 177.804, 177.817, and 177.834 of this subchapter, except § 177.834(i)(3); and

(ix) The training requirements of subpart H of part 172 of this subchapter.

* * * * *

PART 177—CARRIAGE BY PUBLIC HIGHWAY

■ 15. The authority citation for part 177 continues to read as follows:

Authority: 49 U.S.C. 5101–5127; 49 CFR 1.53.

■ 16. In § 177.817, paragraph (a) is revised to read as follows:

§ 177.817 Shipping papers.

(a) *General requirements.* A person may not accept a hazardous material for transportation or transport a hazardous material by highway unless that person has received a shipping paper prepared in accordance with part 172 of this subchapter or the material is excepted from shipping paper requirements under this subchapter. A subsequent carrier may not transport a hazardous material unless it is accompanied by a shipping paper prepared in accordance with part 172 of this subchapter, except for § 172.204, which is not required.

* * * * *

■ 17. In § 177.834, paragraph (j) introductory text is revised to read as follows:

§ 177.834 General requirements.

* * * * *

(j) Except for a cargo tank conforming to § 173.29(b)(2) of this subchapter, a person may not drive a cargo tank motor vehicle containing a hazardous material regardless of quantity unless:

* * * * *

PART 178—SPECIFICATIONS FOR PACKAGINGS

■ 18. The authority citation for part 178 continues to read as follows:

Authority: 49 U.S.C. 5101–5127; 49 CFR 1.53.

■ 19. In § 178.320, paragraphs (a) and (b)(1) are revised to read as follows:

§ 178.320 General requirements applicable to all DOT-specification cargo tank motor vehicles.

(a) *Definitions.* For the purpose of this subchapter:

Appurtenance means any attachment to a cargo tank that has no lading retention or containment function and provides no structural support to the cargo tank.

Baffle means a non-liquid-tight transverse partition device that deflects, checks or regulates fluid motion in a tank.

Bulkhead means a liquid-tight transverse closure at the ends of or between cargo tanks.

Cargo tank means a bulk packaging that:

(1) Is a tank intended primarily for the carriage of liquids or gases and includes appurtenances, reinforcements, fittings and closures (for *tank, see* §§ 178.345–1(c), 178.337-1, or 178.338–1, as applicable);

(2) Is permanently attached to or forms a part of a motor vehicle, or is not permanently attached to a motor vehicle but that, by reason of its size, construction or attachment to a motor vehicle is loaded or unloaded without being removed from the motor vehicle; and

(3) Is not fabricated under a specification for cylinders, intermediate bulk containers, multi-unit tank car tanks, portable tanks, or tank cars.

Cargo tank motor vehicle means a motor vehicle with one or more cargo tanks permanently attached to or forming an integral part of the motor vehicle.

Cargo tank wall means those parts of the cargo tank that make up the primary lading retention structure, including shell, bulkheads, and fittings and, when closed, yield the minimum volume of the cargo tank assembly.

Charging line means a hose, tube, pipe, or a similar device used to pressurize a tank with material other than the lading.

Companion flange means one of two mating flanges where the flange faces are in contact or separated only by a thin leak-sealing gasket and are secured to one another by bolts or clamps.

Connecting structure means the structure joining two cargo tanks.

Constructed and certified in accordance with the ASME Code means a cargo tank is constructed and stamped in accordance with the ASME Code, and is inspected and certified by an Authorized Inspector.

Constructed in accordance with the ASME Code means a cargo tank is

constructed in accordance with the ASME Code with authorized exceptions (see §§ 178.346, 178.347, and 178.348) and is inspected and certified by a Registered Inspector.

Design type means one or more cargo tanks that are made—

(1) To the same specification;

(2) By the same manufacturer;

(3) To the same engineering drawings and calculations, except for minor variations in piping that do not affect the lading retention capability of the cargo tank;

(4) Of the same materials of construction;

(5) To the same cross-sectional dimensions;

(6) To a length varying by no more than 5 percent;

(7) With the volume varying by no more than 5 percent (due to a change in length only); and

(8) For the purposes of § 178.338 only, with the same insulation system.

External self-closing stop valve means a self-closing stop valve designed so that the self-stored energy source is located outside the cargo tank and the welded flange.

Extreme dynamic loading means the maximum loading a cargo tank motor vehicle may experience during its expected life, excluding accident loadings resulting from an accident, such as overturn or collision.

Flange means the structural ring for guiding or attachment of a pipe or fitting with another flange (companion flange), pipe, fitting or other attachment.

Inspection pressure means the pressure used to determine leak tightness of the cargo tank when testing with pneumatic pressure.

Internal self-closing stop valve means a self-closing stop valve designed so that the self-stored energy source is located inside the cargo tank or cargo tank sump, or within the welded flange, and the valve seat is located within the cargo tank or within one inch of the external face of the welded flange or sump of the cargo tank.

Lading means the hazardous material contained in a cargo tank.

Loading/unloading connection means the fitting in the loading/unloading line farthest from the loading/unloading outlet to which the loading/unloading hose, pipe, or device is attached.

Loading/unloading outlet means a cargo tank outlet used for normal loading/unloading operations.

Loading/unloading stop valve means the stop valve farthest from the cargo tank loading/unloading outlet to which the loading/unloading connection is attached.

Maximum allowable working pressure or *MAWP* means the maximum pressure allowed at the top of the tank in its normal operating position. The *MAWP* must be calculated as prescribed in Section VIII, Division 1 of the ASME Code (incorporated by reference; see § 171.7 of this subchapter). In use, the *MAWP* must be greater than or equal to the maximum lading pressure conditions prescribed in § 173.33 of this subchapter for each material transported.

Maximum lading pressure. See § 173.33(c).

Minimum thickness means the minimum required shell and head (and baffle and bulkhead when used as tank reinforcement) thickness needed to meet the specification. The minimum thickness is the *greatest* of the following values: (1)(i) For MC 330, MC 331, and MC 338 cargo tanks, the specified minimum thickness found the applicable specification(s); or

(ii) For DOT 406, DOT 407 and DOT 412 cargo tanks, the specified minimum thickness found in Tables I and II of the applicable specification(s); or

(iii) For MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, and MC 312 cargo tanks, the in-service minimum thickness prescribed in Tables I and II of § 180.407(i)(5) of this subchapter, for the minimum thickness specified by Tables I and II of the applicable specification(s); or

(2) The thickness necessary to meet with the structural integrity and accident damage requirements of the applicable specification(s); or

(3) The thickness as computed per the ASME Code requirements (if applicable).

Multi-specification cargo tank motor vehicle means a cargo tank motor vehicle equipped with two or more cargo tanks fabricated to more than one cargo tank specification.

Normal operating loading means the loading a cargo tank motor vehicle may be expected to experience routinely in operation.

Nozzle means a subassembly consisting of a pipe or tubular section with or without a welded or forged flange on one end.

Outlet means any opening in the shell or head of a cargo tank, (including the means for attaching a closure), except that the following are not *outlets:* a threaded opening securely closed during transportation with a threaded plug or a threaded cap, a flanged opening securely closed during transportation with a bolted or welded blank flange, a manhole, a gauging device, a thermometer well, or a pressure relief device.

Outlet stop valve means the stop valve at a cargo tank loading or unloading outlet.

Pipe coupling means a fitting with internal threads on both ends.

Rear bumper means the structure designed to prevent a vehicle or object from under-riding the rear of another motor vehicle. *See* § 393.86 of this title.

Rear-end tank protection device means the structure designed to protect a cargo tank and any lading retention piping or devices in case of a rear end collision.

Sacrificial device means an element, such as a shear section, designed to fail under a load in order to prevent damage to any lading retention part or device. The device must break under strain at no more than 70 percent of the strength of the weakest piping element between the cargo tank and the sacrificial device. Operation of the *sacrificial device* must leave the remaining piping and its attachment to the cargo tank intact and capable of retaining lading.

Self-closing stop valve means a stop valve held in the closed position by means of self-stored energy, that opens only by application of an external force and that closes when the external force is removed.

Shear section means a sacrificial device fabricated in such a manner as to abruptly reduce the wall thickness of the adjacent piping or valve material by at least 30 percent.

Shell means the circumferential portion of a cargo tank defined by the basic design radius or radii excluding the bulkheads.

Stop valve means a valve that stops the flow of lading.

Sump means a protrusion from the bottom of a cargo tank shell designed to facilitate complete loading and unloading of lading.

Tank means a container, consisting of a shell and heads, that forms a pressure tight vessel having openings designed to accept pressure tight fittings or closures, but excludes any appurtenances, reinforcements, fittings, or closures.

Test pressure means the pressure to which a tank is subjected to determine structural integrity.

Toughness of material means the capability of a material to absorb energy represented by the area under a stress strain curve (indicating the energy absorbed per unit volume of the material) up to the point of rupture.

Vacuum cargo tank means a cargo tank that is loaded by reducing the pressure in the cargo tank to below atmospheric pressure.

Variable specification cargo tank means a cargo tank that is constructed in accordance with one specification,

but that may be altered to meet another specification by changing relief device, closures, lading discharge devices, and other lading retention devices.

Void means the space between tank heads or bulkheads and a connecting structure.

Welded flange means a flange attached to the tank by a weld joining the tank shell to the cylindrical outer surface of the flange, or by a fillet weld joining the tank shell to a flange shaped to fit the shell contour.

(b) * * * (1) Each cargo tank or cargo tank motor vehicle design type and each accident damage protection device design must be certified to be in conformance with the specification requirements by a Design Certifying Engineer who is registered in accordance with subpart F of part 107 of this title.

* * * * *

■ 20. In § 178.337–3, paragraphs (b), (e) and (g) are revised to read as follows:

§ 178.337–3 Structural integrity.

* * * * *

(b) *Static design and construction.* (1) The static design and construction of each cargo tank must be in accordance with Section VIII, Division 1 of the ASME Code (incorporated by reference; *see* § 171.7 of thus subchapter). The cargo tank design must include calculation of stresses generated by design pressure, the weight of lading, the weight of structure supported by the cargo tank wall, and the effect of temperature gradients resulting from lading and ambient temperature extremes. When dissimilar materials are used, their thermal coefficients must be used in calculation of thermal stresses.

(2) Stress concentrations in tension, bending, and torsion that occur at pads, cradles, or supports must be considered in accordance with Appendix G of Section VIII, Division 1 of the ASME Code.

* * * * *

(e) The minimum metal thickness for the shell and heads on tanks with a design pressure of 100 psig or more must be 4.75 mm (0.187 inch) for steel and 6.86 mm (0.270 inch) for aluminum, except for chlorine and sulfur dioxide tanks. In all cases, the minimum thickness of the tank shell and head shall be determined using structural design requirements in Section VIII of the ASME Code or 25% of the tensile strength of the material used. For a cargo tank used in chlorine or sulfur dioxide service, the cargo tank must be made of steel. A corrosion allowance of 20 percent or 2.54 mm (0.10 inch), whichever is less, must be added to the thickness otherwise required for sulfur dioxide and chlorine tank material. In chlorine cargo tanks, the wall thickness must be at least 1.59 cm (0.625 inch), including corrosion allowance.

* * * * *

(g) The design, construction, and installation of an attachment, appurtenance to the cargo tank, structural support member between the cargo tank and the vehicle or suspension component, or accident protection device must conform to the following requirements:

(1) Structural members, the suspension sub-frame, accident protection structures, and external circumferential reinforcement devices must be used as sites for attachment of appurtenances and other accessories to the cargo tank, when practicable.

(2) A lightweight attachment to the cargo tank wall such as a conduit clip, brake line clip, skirting structure, lamp mounting bracket, or placard holder must be of a construction having lesser strength than the cargo tank wall materials and may not be more than 72 percent of the thickness of the material to which it is attached. The lightweight attachment may be secured directly to the cargo tank wall if the device is designed and installed in such a manner that, if damaged, it will not affect the lading retention integrity of the tank. A lightweight attachment must be secured to the cargo tank shell or head by a continuous weld or in such a manner as to preclude formation of pockets which may become sites for corrosion. Attachments meeting the requirements of this paragraph are not authorized for cargo tanks constructed under part UHT, Section VIII, Division 1 of the ASME Code.

(3) Except as prescribed in paragraphs (g)(1) and (g)(2) of this section, the welding of any appurtenance to the cargo tank wall must be made by attachment of a mounting pad so that there will be no adverse effect upon the lading retention integrity of the cargo tank if any force less than that prescribed in paragraph (b)(1) of this section is applied from any direction. The thickness of the mounting pad may not be less than that of the shell wall or head wall to which it is attached, and not more than 1.5 times the shell or head thickness. However, a pad with a minimum thickness of 0.25 inch may be used when the shell or head thickness is over 0.25 inch. If weep holes or tell-tale holes are used, the pad must be drilled or punched at the lowest point before it is welded to the tank. Each pad must—

(i) Be fabricated from material determined to be suitable for welding to both the cargo tank material and the material of the appurtenance or structural support member; a Design Certifying Engineer must make this determination considering chemical and physical properties of the materials and must specify filler material conforming to the requirements of the ASME Code (incorporated by reference; see § 171.7 of this subchapter).

(ii) Be preformed to an inside radius no greater than the outside radius of the cargo tank at the attachment location.

(iii) Extend at least 2 inches in each direction from any point of attachment of an appurtenance or structural support member. This dimension may be measured from the center of the attached structural member.

(iv) Have rounded corners, or otherwise be shaped in a manner to minimize stress concentrations on the shell or head.

(v) Be attached by continuous fillet welding. Any fillet weld discontinuity may only be for the purpose of preventing an intersection between the fillet weld and a tank or jacket seam weld.

21. In § 178.337–8, paragraph (a)(5)(iii) is revised to read as follows:

§ 178.337–8 Openings, inlets, and outlets.

(a) * * *

(5) * * *

(iii) A cargo tank motor vehicle used to transport refrigerated liquids such as argon, carbon dioxide, helium, krypton, neon, nitrogen, and xenon, or mixtures thereof.

* * * * *

■ 22. In § 178.337–9, (b)(2) is revised and paragraph (b)(5) is removed and reserved, to read as follows:

§ 178.337–9 Pressure relief devices, piping, valves, hoses, and fittings.

* * * * *

(b) * * *

(2) Pipe joints must be threaded, welded, or flanged. If threaded pipe is used, the pipe and fittings must be Schedule 80 weight or heavier. Except for sacrificial devices, malleable steel, stainless steel, or ductile iron must be used in the construction of primary valves and fittings used in liquid filling or vapor equalization; however, stainless steel may not be used for internal components such as shutoff discs and springs. Where copper tubing is permitted, joints must be brazed or be of equally strong metal union type. The melting point of the brazing material may not be lower than 538 °C (1000 °F). The method of joining tubing may not reduce the strength of the tubing.

* * * * *

(5) [Reserved]

* * * * *

■ 23. In § 178.337–10, the section heading and paragraphs (c) and (d) are revised, and paragraphs (e) and (f) are added, to read as follows:

§ 178.337–10 Accident damage protection.

* * * * *

(c) *Rear-end tank protection.* Rear-end tank protection devices must:

(1) Consist of at least one rear bumper designed to protect the cargo tank and piping in the event of a rear end collision. The bumper design must transmit the force of the collision directly to the chassis of the vehicle. The rear bumper and its attachments to the chassis must be designed to withstand a load equal to twice the weight of the loaded cargo tank and attachments, using a safety factor of four based on the tensile strength of the materials used, with such load being applied horizontally and parallel to the major axis of the cargo tank. The rear bumper dimensions must meet the requirements of § 393.86 of this title and extend vertically to a height adequate to protect all valves and fittings located at the rear of the cargo tank from damage that could result in loss of lading; or

(2) Conform to the requirements of § 178.345–8.

(d) *Chlorine tanks.* A chlorine tank must be equipped with a protective housing and a manway cover to permit the use of standard emergency kits for controlling leaks in fittings on the dome cover plate. The housing and manway cover must conform to the Chlorine Institute's standards as follows:

(1) Tanks manufactured on or before December 31, 1974: Dwg. 137–1, dated November 7, 1962, or Dwg. 137–2, dated September 1, 1971.

(2) Tanks manufactured on or after January 1, 1975: Dwg. 137–2, dated September 1, 1971.

(e) *Piping and fittings.* Piping and fittings must be grouped in the smallest practicable space and protected from damage as required in this section.

(f) *Shear section.* Shear sections or sacrificial devices are required on the following attachments:

(1) A section that will break under undue strain must be provided adjacent to or outboard of each valve specified in § 178.337–8(a)(3) and (4).

(2) Internal self-closing stop valves, excess flow valves and check valves must be protected by a shear section or other sacrificial device. The sacrificial device must be located in the piping system outboard of the stop valve and within the accident damage protection to prevent any accidental loss of lading. The device must break at no more than 70 percent of the load that would be required to cause the failure of the protected lading retention device, part or cargo tank wall. The failure of the sacrificial device must leave the protected lading retention device and its attachment to the cargo tank wall intact and capable of retaining product.

§ 178.337–12 [Removed and reserved]

■ 24. Section 178.337–12 is removed and reserved.

■ 25. Section 178.337–13 is revised to read as follows:

§ 178.337–13 Supporting and anchoring.

(a) A cargo tank that is not permanently attached to or integral with a vehicle chassis must be secured by the use of restraining devices designed to prevent relative motion between the cargo tank and the vehicle chassis when the vehicle is in operation. Such restraining devices must be readily accessible for inspection and maintenance.

(b) On a cargo tank motor vehicle designed and constructed so that the cargo tank constitutes in whole or in part the structural member used in place of a motor vehicle frame, the cargo tank must be supported by external cradles. A cargo tank mounted on a motor vehicle frame must be supported by external cradles or longitudinal members. Where used, the cradles must subtend at least 120 degrees of the shell circumference.

(c) The design calculations of the support elements must satisfy the requirements of § 178.337–3, (a), (b), (c), and (d).

(d) Where any cargo tank support is attached to any part of a cargo tank head, the stresses imposed upon the head must be provided for as required in paragraph (c) of this section.

■ 26. Section 178.337–17, is revised to read as follows:

§ 178.337–17 Marking.

(a) *General.* Each cargo tank certified after October 1, 2004 must have a corrosion-resistant metal name plate (ASME Plate) and specification plate permanently attached to the cargo tank by brazing, welding, or other suitable means on the left side near the front, in a place accessible for inspection. If the specification plate is attached directly to the cargo tank wall by welding, it must be welded to the tank before the cargo tank is postweld heat treated.

(1) The plates must be legibly marked by stamping, embossing, or other means of forming letters into the metal of the plate, with the information required in paragraphs (b) and (c) of this section, in addition to that required by the ASME Code, in characters at least 3/16 inch high (parenthetical abbreviations may be used). All plates must be maintained in a legible condition.

(2) Each insulated cargo tank must have additional plates, as described, attached to the jacket in the location specified unless the specification plate is attached to the chassis and has the information required in paragraphs (b) and (c) of this section.

(3) The information required for both the name and specification plate may be displayed on a single plate. If the information required by this section is displayed on a plate required by the ASME, the information need not be repeated on the name and specification plates.

(4) The specification plate may be attached to the cargo tank motor vehicle chassis rail by brazing, welding, or other suitable means on the left side near the front head, in a place accessible for inspection. If the specification plate is attached to the chassis rail, then the cargo tank serial number assigned by the cargo tank manufacturer must be included on the plate.

(b) *Name plate.* The following information must be marked on the name plate in accordance with this section:

(1) DOT-specification number MC 331 (DOT MC 331).

(2) Original test date (Orig, Test Date).

(3) MAWP in psig.

(4) Cargo tank test pressure (Test P), in psig.

(5) Cargo tank design temperature (Design Temp. Range) ____ °F to ____ °F.

(6) Nominal capacity (Water Cap.), in pounds.

(7) Maximum design density of lading (Max. Lading density), in pounds per gallon.

(8) Material specification number-shell (Shell matl, yyy * * *), where ''yyy'' is replaced by the alloy designation and ''* * *'' is replaced by the alloy type.

(9) Material specification number-heads (Head matl. Yyy * * *), where ''yyy'' is replaced by the alloy designation and ''* * *'' by the alloy type.

Note: When the shell and heads materials are the same thickness, they may be combined, (Shell & head matl, yyy * * *).

(10) Weld material (Weld matl.).

(11) Minimum Thickness-shell (Min. Shell-thick), in inches. When minimum shell thicknesses are not the same for different areas, show (top ____, side ____, bottom ____, in inches).

(12) Minimum thickness-heads (Min heads thick.), in inches.

(13) Manufactured thickness-shell (Mfd. Shell thick.), top ____, side ____, bottom ____, in inches. (Required when additional thickness is provided for corrosion allowance.)

(14) Manufactured thicknessBheads (Mfd. Heads thick.), in inches. (Required when additional thickness is provided for corrosion allowance.)

(15) Exposed surface area, in square feet.

(c) *Specification plate.* The following information must be marked on the specification plate in accordance with this section:

(1) Cargo tank motor vehicle manufacturer (CTMV mfr.).

(2) Cargo tank motor vehicle certification date (CTMV cert. date).

(3) Cargo tank manufacturer (CT mfr.).

(4) Cargo tank date of manufacture (CT date of mfr.), month and year.

(5) Maximum weight of lading (Max. Payload), in pounds

(6) Maximum loading rate in gallons per minute (Max. Load rate, GPM).

(7) Maximum unloading rate in gallons per minute (Max Unload rate, GPM).

(8) Lining materials (Lining), if applicable.

(9) Heating system design pressure (Heating sys, press.), in psig, if applicable.

(10) Heating system design temperature (Heating sys, temp.), in °F, if applicable.

(11) Cargo tank serial number, assigned by cargo tank manufacturer (CT serial), if applicable.

Note 1 to paragraph (c): See '' 173.315(a) of this chapter regarding water capacity.

Note 2 to paragraph (c): When the shell and head materials are the same thickness, they may be combined (Shell & head matl, yyy * * *).

(d) The design weight of lading used in determining the loading in §§ 178.337(3)(b), 178.337–10(b) and (c), and 178.337–13(a) and (b) must be shown as the maximum weight of lading marking required by paragraph (c) of this section.

■ 27. In § 178.337–18, paragraphs (a)(3) and (a)(4) are redesignated as paragraphs (a)(5) and (a)(6) respectively, and new paragraphs (a)(3) and (a)(4) are added to read as follows:

§ 178.337–18 Certification.

(a) * * *

(3) When a cargo tank motor vehicle is manufactured in two or more stages, each manufacturer who performs a manufacturing function or portion thereof on the incomplete cargo tank motor vehicle must provide to the succeeding manufacturer, at or before the time of delivery, a certificate that states the function performed by the manufacturer, including any certificates received from previous manufacturers, Registered Inspectors, and Design Certifying Engineers.

(4) *Specification shortages.* When a cargo tank motor vehicle is manufactured in two or more stages, the manufacturer of the cargo tank must attach the name plate and specification plate as required by § 178.337–17(a) and (b) without the original date of certification stamped on the specification plate. Prior manufacturers must list the specification requirements that are not completed on the Certificate of Compliance. When the cargo tank motor vehicle is brought into full compliance with the applicable specification, the cargo tank motor vehicle manufacturer must have a Registered Inspector stamp the date of certification on the specification plate and issue a Certificate of Compliance to the owner of the cargo tank motor vehicle. The Certificate of Compliance must list the actions taken to bring the cargo tank motor vehicle into full compliance. In addition, the certificate must include the date of certification and the person (manufacturer, carrier or repair organization) accomplishing compliance.

* * * * *

■ 28. In § 178.338–2, paragraph (c) is revised to read as follows:

§ 178.338–2 Material.

* * * * *

(c) Impact tests are required on all tank materials, except materials that are excepted from impact testing by the ASME Code, and must be performed using the procedure prescribed in the ASME Code (incorporated by reference; see § 171.7 of this subchapter).

* * * * *

■ 29. In § 178.338–3, paragraphs (b) and (g) are revised to read as follows:

§ 178.338–3 Structural integrity.

* * * * *

(b) *Static design and construction.* (1) The static design and construction of each tank must be in accordance with Appendix G of Section VII, Division 1 of the ASME Code (incorporated by reference; see § 171.7 of this subchapter). The tank design must include calculation of stress due to the design pressure, the weight of lading, the weight of structures supported by the tank wall, and the effect of temperature gradients resulting from lading and ambient temperature extremes. When dissimilar materials are used, their thermal coefficients must be used in calculation of the thermal stresses.

(2) Stress concentrations in tension, bending, and torsion which occur at pads, cradles, or other supports must be considered in accordance with Appendix G of Section VII, Division 1 of the ASME Code.

* * * * *

(g) The design, construction and installation of an attachment, appurtenance to the cargo tank or structural support member between the cargo tank and the vehicle or suspension component or accident protection device must conform to the following requirements:

(1) Structural members, the suspension subframe, accident protection structures and external circumferential reinforcement devices must be used as sites for attachment of appurtenances and other accessories to the cargo tank, when practicable.

(2) A lightweight attachment to the cargo tank wall such as a conduit clip, brakeline clip, skirting structure, lamp mounting bracket, or placard holder must be of a construction having lesser strength than the cargo tank wall materials and may not be more than 72 percent of the thickness of the material to which it is attached. The lightweight attachment may be secured directly to the cargo tank wall if the device is designed and installed in such a manner that, if damaged, it will not affect the lading retention integrity of the tank. A lightweight attachment must be secured to the cargo tank shell or head by a continuous weld or in such a manner as to preclude formation of pockets that may become sites for corrosion. Attachments meeting the requirements of this paragraph are not authorized for cargo tanks constructed under part UHT, Section VIII, Division 1 of the ASME Code.

(3) Except as prescribed in paragraphs (g)(1) and (g)(2) of this section, the welding of any appurtenance the cargo tank wall must be made by attachment of a mounting pad so that there will be no adverse effect upon the lading retention integrity of the cargo tank if any force less than that prescribed in paragraph (b)(1) of this section is applied from any direction. The thickness of the mounting pad may not be less than that of the shell or head to which it is attached, and not more than 1.5 times the shell or head thickness. However, a pad with a minimum thickness of 0.187 inch may be used when the shell or head thickness is over 0.187 inch. If weep holes or tell-tale holes are used, the pad must be drilled

or punched at the lowest point before it is welded to the tank. Each pad must:

(i) Be fabricated from material determined to be suitable for welding to both the cargo tank material and the material of the appurtenance or structural support member; a Design Certifying Engineer must make this determination considering chemical and physical properties of the materials and must specify filler material conforming to the requirements of the ASME Code (incorporated by reference; see § 171.7 of this subchapter).

(ii) Be preformed to an inside radius no greater than the outside radius of the cargo tank at the attachment location.

(iii) Extend at least 2 inches in each direction from any point of attachment of an appurtenance or structural support member. This dimension may be measured from the center of the attached structural member.

(iv) Have rounded corners, or otherwise be shaped in a manner to minimize stress concentrations on the shell or head.

(v) Be attached by continuous fillet welding. Any fillet weld discontinuity may only be for the purpose of preventing an intersection between the fillet weld and a tank or jacket seam weld.

■ 30. In § 178.338–10, the section heading and paragraph (c) are revised to read as follows:

§ 178.338–10 Accident damage protection.

* * * * *

(c) *Rear-end tank protection.* Rear-end tank protections devices must:

(1) Consist of at least one rear bumper designed to protect the cargo tank and piping in the event of a rear-end collision. The rear-end tank protection device design must transmit the force of the collision directly to the chassis of the vehicle. The rear-end tank protection device and its attachments to the chassis must be designed to withstand a load equal to twice the weight of the loaded cargo tank and attachments, using a safety factor of four based on the tensile strength of the materials used, with such load being applied horizontally and parallel to the major axis of the cargo tank. The rear-end tank protection device dimensions must meet the requirements of § 393.86 of this title and extend vertically to a height adequate to protect all valves and fittings located at the rear of the cargo tank from damage that could result in loss of lading; or

(2) Conform to the requirements of § 178.345–8.

* * * * *

■ 31. In § 178.338–11, paragraph (c) is revised as follows:

§ 178.338–11 Discharge control devices.

* * * * *

(c) Except for a cargo tank that is used to transport argon, carbon dioxide, helium, krypton, neon, nitrogen, xenon, or mixtures thereof, each liquid filling and liquid discharge line must be provided with an on-vehicle remotely controlled self-closing shutoff valve.

(1) If pressure from a reservoir or from an engine-driven pump or compressor is used to open this valve, the control must be of fail-safe design and spring-biased to stop the admission of such pressure into the cargo tank. If the jacket is not evacuated, the seat of the valve must be inside the tank, in the opening nozzle or flange, or in a companion flange bolted to the nozzle. If the jacket is evacuated, the remotely controlled valve must be located as close to the tank as practicable.

(2) Each remotely controlled shut off valve must be provided with on-vehicle remote means of automatic closure, both mechanical and thermal. One means may be used to close more than one remotely controlled valve. Cable linkage between closures and remote operators must be corrosion resistant and effective in all types of environment and weather. The thermal means must consist of fusible elements actuated at a temperature not exceeding 121 °C (250 °F), or equivalent devices. The loading/unloading connection area is where hoses are connected to the permanent metal piping. The number and location of remote operators and thermal devices shall be as follows:

(i) On a cargo tank motor vehicle over 3,500 gallons water capacity, remote means of automatic closure must be installed at the ends of the cargo tank in at least two diagonally opposite locations. If the loading/unloading connection at the cargo tank is not in the general vicinity of one of these locations, at least one additional thermal device must be installed so that heat from a fire in the loading/unloading connection area will activate the emergency control system.

(ii) On a cargo tank motor vehicle of 3,500 gallons water capacity or less, at least one remote means of automatic closure must be installed on the end of the cargo tank farthest away from the loading/unloading connection area. At least one thermal device must be installed so that heat from a fire in the loading/unloading connection area will activate the emergency control system.

■ 32. Section 178.338–13 is revised to read as follows:

§ 178.338–13 Supporting and anchoring.

(a) On a cargo tank motor vehicle designed and constructed so that the cargo tank constitutes in whole or in part the structural member used in place of a motor vehicle frame, the cargo tank or the jacket must be supported by external cradles or by load rings. For a cargo tank mounted on a motor vehicle frame, the tank or jacket must be supported by external cradles, load rings, or longitudinal members. If cradles are used, they must subtend at least 120 degrees of the cargo tank circumference. The design calculations for the supports and load-bearing tank or jacket, and the support attachments must include beam stress, shear stress, torsion stress, bending moment, and acceleration stress for the loaded vehicle as a unit, using a safety factor of four, based on the tensile strength of the material, and static loading that uses the weight of the cargo tank and its attachments when filled to the design weight of the lading (see Appendix G of Section VIII, Division 1 of the ASME Code), multiplied by the following factors. The effects of fatigue must also be considered in the calculations. Minimum static loadings must be as follows:

(1) For a vacuum-insulated cargo tank—

(i) Vertically downward of 2;

(ii) Vertically upward of 2;

(iii) Longitudinally of 2; and

(iv) Laterally of 2.

(2) For any other insulated cargo tank—

(i) Vertically downward of 3;

(ii) Vertically upward of 2;

(iii) Longitudinally of 2; and

(iv) Laterally of 2.

(b) When a loaded tank is supported within the vacuum jacket by structural members, the design calculations for the tank and its structural members must be based on a safety factor of four and the tensile strength of the material at ambient temperature. The enhanced tensile strength of the material at actual operating temperature may be substituted for the tensile strength at ambient temperature to the extent recognized in the ASME Code for static loadings. Static loadings must take into consideration the weight of the tank and the structural members when the tank is filled to the design weight of lading (see Appendix G of Section VIII, Division 1 of the ASME Code), multiplied by the following factors. When load rings in the jacket are used for supporting the tank, they must be designed to carry the fully loaded tank at the specified static loadings, and external pressure. Minimum static loadings must be as follows:

(1) Vertically downward of 2;

(2) Vertically upward of 1½;

(3) Longitudinally of 1½; and, (4) Laterally of 1½.

■ 33. Section 178.338–18, is revised to read as follows:

§ 178.338–18 Marking.

(a) *General.* Each cargo tank certified after October 1, 2004 must have a corrosion-resistant metal name plate (ASME Plate) and specification plate permanently attached to the cargo tank by brazing, welding, or other suitable means on the left side near the front, in a place accessible for inspection. If the specification plate is attached directly to the cargo tank wall by welding, it must be welded to the tank before the cargo tank is postweld heat treated.

(1) The plates must be legibly marked by stamping, embossing, or other means of forming letters into the metal of the plate, with the information required in paragraphs (b) and (c) of this section, in addition to that required by the ASME Code (incorporated by reference; see § 171.7 of this subchapter), in characters at least 3/16 inch high (parenthetical abbreviations may be used). All plates must be maintained in a legible condition.

(2) Each insulated cargo tank must have additional plates, as described, attached to the jacket in the location specified unless the specification plate is attached to the chassis and has the information required in paragraphs (b) and (c) of this section.

(3) The information required for both the name and specification plate may be displayed on a single plate. If the information required by this section is displayed on a plate required by the ASME Code, the information need not be repeated on the name and specification plates.

(4) The specification plate may be attached to the cargo tank motor vehicle chassis rail by brazing, welding, or other suitable means on the left side near the front head, in a place accessible for inspection. If the specification plate is attached to the chassis rail, then the cargo tank serial number assigned by the cargo tank manufacturer must be included on the plate.

(b) *Name plate.* The following information must be marked on the name plate in accordance with this section:

(1) DOT-specification number MC 338 (DOT MC 338).

(2) Original test date (Orig, Test Date).

(3) MAWP in psig.

(4) Cargo tank test pressure (Test P), in psig.

(5) Cargo tank design temperature (Design Temp. Range) ____ °F to ____ °F.

(6) Nominal capacity (Water Cap.), in pounds.

(7) Maximum design density of lading (Max. Lading density), in pounds per gallon.

(8) Material specification number—shell (Shell matl, yyy * * *), where ''yyy'' is replaced by the alloy designation and ''* * *'' is replaced by the alloy type.

(9) Material specification number—heads (Head matl. yyy * * *), where ''yyy'' is replaced by the alloy designation and ''* * *'' by the alloy type.

Note: When the shell and heads materials are the same thickness, they may be combined, (Shell & head matl, yyy * * *).

(10) Weld material (Weld matl.).

(11) Minimum Thickness-shell (Min. Shell-thick), in inches. When minimum shell thicknesses are not the same for different areas, show (top ____, side ____, bottom ____, in inches).

(12) Minimum thickness-heads (Min heads thick.), in inches.

(13) Manufactured thickness-shell (Mfd. Shell thick.), top ____, side ____, bottom ____, in inches. (Required when additional thickness is provided for corrosion allowance.)

(14) Manufactured thickness-heads (Mfd. Heads thick.), in inches. (Required when additional thickness is provided for corrosion allowance.)

(15) Exposed surface area, in square feet.

(c) *Specification plate.* The following information must be marked on the specification plate in accordance with this section:

(1) Cargo tank motor vehicle manufacturer (CTMV mfr.).

(2) Cargo tank motor vehicle certification date (CTMV cert. date).

(3) Cargo tank manufacturer (CT mfr.).

(4) Cargo tank date of manufacture (CT date of mfr.), month and year.

(5) Maximum weight of lading (Max. Payload), in pounds.

(6) Maximum loading rate in gallons per minute (Max. Load rate, GPM).

(7) Maximum unloading rate in gallons per minute (Max Unload rate).

(8) Lining materials (Lining), if applicable.

(9) ''Insulated for oxygen service'' or ''Not insulated for oxygen service'' as appropriate.

(10) Marked rated holding time for at least one cryogenic liquid, in hours, and the name of that cryogenic liquid (MRHT ____ hrs, name of cryogenic liquid). Marked rated holding marking for additional cryogenic liquids may be displayed on or adjacent to the specification plate.

(11) Cargo tank serial number (CT serial), as assigned by cargo tank manufacturer, if applicable.

Note 1 to paragraph (c): See § 173.315(a) of this chapter regarding water capacity.

Note 2 to paragraph (c): When the shell and head materials are the same thickness, they may be combined (Shell & head matl, yyy***).

(d) The design weight of lading used in determining the loading in §§ 178.338–3(b), 178.338–10(b) and (c), and 178.338–13(b) and (c) must be shown as the maximum weight of lading marking required by paragraph (c) of this section.

* * * * *

■ 34. In § 178.345–1, paragraph (c) is revised and paragraph (k) is removed, to read as follows:

§ 178.345–1 General requirements.

* * * * *

(c) *Definitions.* See § 178.320(a) for the definition of certain terms used in §§ 178.345, 178.346, 178.347 and 178.348.

* * * * *

■ 35. In § 178.345–2, paragraph (b) is revised to read as follows:

§ 178.345–2 Material and material thickness.

* * * * *

(b) *Minimum thickness.* The minimum thickness for the shell and heads (or baffles and bulkheads when used as tank reinforcement) must be no less than that determined under criteria for minimum thickness specified in § 178.320(a).

* * * * *

■ 36. In § 178.345–3, paragraph (b)(3) is added and paragraph (f) is revised to read as follows:

§ 178.345–3 Structural integrity.

* * * * *

(b) * * *

(3) Cargo tank designers and manufacturers must consider all of the conditions specified in § 173.33(c) of this subchapter when matching a cargo tank's performance characteristic to the characteristic of each lading transported.

* * * * *

(f) The design, construction, and installation of an attachment, appurtenance to a cargo tank, structural support member between the cargo tank and the vehicle or suspension component must conform to the following requirements:

(1) Structural members, the suspension sub-frame, accident protection structures and external circumferential reinforcement devices must be used as sites for attachment of appurtenances and other accessories to the cargo tank, when practicable.

(2) A lightweight attachment to a cargo tank wall such as a conduit clip, brake line clip, skirting structure, lamp mounting bracket, or placard holder must be of a construction having lesser strength than the cargo tank wall materials and may not be more than 72 percent of the thickness of the material to which it is attached. The lightweight attachment may be secured directly to the cargo tank wall if the device is designed and installed in such a manner that, if damaged, it will not affect the lading retention integrity of the tank. A lightweight attachment must be secured to the cargo tank shell or head by continuous weld or in such a manner as to preclude formation of pockets which may become sites for corrosion.

(3) Except as prescribed in paragraphs (f)(1) and (f)(2) of this section, the welding of any appurtenance to the cargo tank wall must be made by attachment of a mounting pad so that there will be no adverse effect upon the lading retention integrity of the cargo tank if any force less than that prescribed in paragraph (b)(1) of this section is applied from any direction. The thickness of the mounting pad may not be less than that of the shell or head to which it is attached, and not more than 1.5 times the shell or head thickness. However, a pad with a minimum thickness of 0.187 inch may be used when the shell or head thickness is over 0.187 inch. If weep holes or tell-tale holes are used, the pad must be drilled or punched at the lowest point before it is welded to the tank. Each pad must:

(i) Be fabricated from material determined to be suitable for welding to both the cargo tank material and the material of the appurtenance or structural support member; a Design Certifying Engineer must make this determination considering chemical and physical properties of the materials and must specify filler material conforming to the requirements of the ASME Code (incorporated by reference; see § 171.7 of this subchapter).

(ii) Be preformed to an inside radius no greater than the outside radius of the cargo tank at the attachment location.

(iii) Extend at least 2 inches in each direction from any point of attachment of an appurtenance or structural support member. This dimension may be measured from the center of the structural member attached.

(iv) Have rounded corners, or otherwise be shaped in a manner to minimize stress concentrations on the shell or head.

(v) Be attached by continuous fillet welding. Any fillet weld discontinuity may only be for the purpose of preventing an intersection between the fillet weld and the tank or jacket seam weld.

■ 37. In § 178.345–5, paragraph (e) introductory text is revised to read as follows:

§ 178.345–5 Manhole assemblies.

* * * * *

(e) On cargo tank motor vehicles manufactured after October 1, 2004, each manhole assembly must be permanently marked on the outside by stamping or other means in a location visible without opening the manhole assembly or fill opening, with:

* * * * *

■ 38. In ✖ § 178.345–8, paragraphs (a)(5), and (d) introductory text are revised to read as follows:

§§ 178.345–8 Accident damage protection.

(a) * * *

(5) *Minimum road clearance.* The minimum road clearance of any cargo tank motor vehicle component or protection device located between any two adjacent axles on a vehicle or vehicle combination must be at least one-half inch for each foot separating the component or device from the nearest axle of the adjacent pair, but in no case less than twelve (12) inches, except that the minimum road clearance for landing gear or other attachments within ten (10) feet of an axle must be no less than ten (10) inches. These measurements must be calculated at the gross vehicle weight rating of the cargo tank motor vehicle.

* * * * *

(d) *Rear-end tank protection.* Each cargo tank motor vehicle must be provided with a rear-end tank protection device to protect the cargo tank and piping in the event of a rear-end collision and reduce the likelihood of damage that could result in the loss of lading. Nothing in this paragraph relieves the manufacturer of responsibility for complying with the requirements of § 393.86 of this title and, if applicable, paragraph (b) of this section. The rear-end tank protection device must conform to the following requirements:

* * * * *

■ 39. In § 178.345–10, paragraph (a) and the last sentence in paragraph (b)(3)(i) are revised to read as follows:

§ 178.345–10 Pressure relief.

(a) Each cargo tank must be equipped to relieve pressure and vacuum conditions in conformance with this section and the applicable individual specification. The pressure and vacuum relief system must be designed to operate and have sufficient capacity to prevent cargo tank rupture or collapse due to over-pressurization or vacuum resulting from loading, unloading, or from heating and cooling of lading. Pressure relief systems are not required to conform to the ASME Code.

(b) * * *

(3) * * *

(i) * * *. An acceptable method is outlined in TTMA RP No. 81–97 ''Performance of Spring Loaded Pressure Relief Valves on MC 306, MC 307, MC 312, DOT 406, DOT 407, and DOT 412 Tanks'' (incorporated by reference; see § 171.7 of this subchapter).

* * * * *

■ 40. In § 178.345–13, paragraph (a) is revised to read as follows:

§ 178.345–13 Pressure and leakage tests.

(a) Each cargo tank must be pressure and leakage tested in accordance with this section and §§ 178.346–5, 178.347–5, or 178.348–5.

* * * * *

■ 41. In § 178.345–14, paragraphs (b)(1) and (c)(1) through (10) are revised to read as follows:

§ 178.345–14 Marking.

* * * * *

(b) * * *

(1) DOT-specification number DOT XXX (DOT XXX) where ''XXX'' is replaced with the applicable specification number. For cargo tanks having a variable specification plate, the DOT-specification number is replaced with the words ''See variable specification plate.''

* * * * *

(c) * * *

(1) Cargo tank motor vehicle manufacturer (CTMV mfr.).

(2) Cargo tank motor vehicle certification date (CTMV cert. date), if different from the cargo tank certification date.

(3) Cargo tank manufacturer (CT mfr.).

(4) Cargo tank date of manufacture (CT date if mfr.), month and year.

(5) Maximum weight of lading (Max. Payload), in pounds.

(6) Maximum loading rate in gallons per minute (Max. Load rate, GPM).

(7) Maximum unloading rate in gallons per minute (Max Unload rate).

(8) Lining material (Lining), if applicable.

(9) Heating system design pressure (Heating sys. press.), in psig, if applicable.

(10) Heating system design temperature (Heating sys. temp.), in °F, if applicable.

* * * * *

§ 178.346–1 [Amended]

■ 42. In § 178.346–1, the following changes are made:

(a) In paragraph (d)(6), the reference to ''§ 178.345–10'' is revised to read ''§ 178.346–3.''

(b) In paragraph (d)(7), the reference to ''§ 178.345–13'' is revised to read ''§ 178.346–5.''

■ 43. In § 178.346–2, the introductory text and the titles to Table I and Table II are revised to read as follows:

§ 178.346–2 Material and thickness of material.

The type and thickness of material for DOT 406 specification cargo tanks must conform to § 178.345–2, but in no case may the thickness be less than that determined by the minimum thickness requirements in § 178.320(a). The following Tables I and II identify the specified minimum thickness values to be employed in that determination.

Table I.—Specified Minimum Thickness of Heads (or Bulkheads and Baffles When Used as Tank Reinforcement) Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS), or Aluminum (AL)—Expressed in Decimals of an Inch After Forming

* * * * *

Table II.—Specified Minimum Thickness of Shell Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS), or Aluminum (AL)—Expressed in Decimals of an Inch After Forming [1]

* * * * *

[1] Maximum distance between bulkheads, baffles, or ring stiffeners shall not exceed 60 inches.

■ 44. In § 178.346–5, paragraph (c) is revised to read as follows:

§ 178.346–5 Pressure and leakage tests.

* * * * *

(c) *Leakage test.* A cargo tank used to transport a petroleum distillate fuel that is equipped with vapor recovery equipment may be leakage tested in accordance with 40 CFR 63.425(e). To satisfy the leakage test requirements of this paragraph, the test specified in 40 CFR 63.425(e)(1) must be conducted using air. The hydrostatic test alternative permitted under Appendix A to 40 CFR Part 60 (''Method 27—Determination of Vapor Tightness of Gasoline Delivery Tank Using Pressure-Vacuum Test'') may not be used to satisfy the leakage test requirements of this paragraph. A cargo tank tested in accordance with 40 CFR 63.425(e) may be marked as specified in § 180.415 of this subchapter.

■ 45. In § 178.347–1, the following changes are made:

a. Paragraph (c) is revised.

b. In paragraph (d)(5), the reference to ''§§ 178.345–5 and 178.347–5'' is revised to read ''§ 178.347–3''.

c. In paragraph (d)(6), the reference to ''§ 178.345–10'' is revised to read ''§ 178.347-4''.

d. In paragraph (d)(7), the reference to ''§ 178.345–13'' is revised to read ''§ 178.347-5''.

e. Paragraph (d)(9) is added.

The additions and revisions read as follows:

§ 178.347–1 General requirements.

* * * * *

(c) Any cargo tank built to this specification with a MAWP greater than 35 psig and each tank designed to be loaded by vacuum must be constructed and certified in conformance with the ASME Code (incorporated by reference; see § 171.7 of this subchapter). The external design pressure for a cargo tank loaded by vacuum must be at least 15 psi.

(d) * * *

(9) The strength of a weld seam in a bulkhead that has not been radiographically examined shall be 0.85 of the strength of the bulkhead under the following conditions:

(i) The welded seam must be a full penetration butt weld.

(ii) No more than one seam may be used per bulkhead.

(iii) The welded seam must be completed before forming the dish radius and knuckle radius.

(iv) Compliance test: Two test specimens of materials representative of those to be used in the manufacture of a cargo tank bulkhead must be tested to failure in tension. The test specimen must be of the same thickness and joined by the same welding procedure. The test specimens may represent all the tanks that are made in the same facility within 6 months after the tests are completed. Before welding, the fit-up of the joints on the test specimens must represent production conditions that would result in the least joint strength. Evidence of joint fit-up and test results must be retained at the manufacturers' facility for at least 5 years.

(v) Acceptance criteria: The ratio of the actual tensile stress at failure to the actual tensile strength of the adjacent material of all samples of a test lot must be greater than 0.85.

■ 46. In § 178.347–2, paragraph (a) introductory text and the titles to Table I and Table II are revised to read as follows:

§ 178.347–2 Material and thickness of material.

(a) The type and thickness of material for DOT 407 specification cargo tanks must conform to § 178.345–2, but in no case may the thickness be less than that determined by the minimum thickness requirements in § 178.320(a). Tables I and II identify the specified minimum thickness values to be employed in that the determination:

Table I.—Specified Minimum Thickness of Heads (or Bulkheads and Baffles When Used as Tank Reinforcement) Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS), or Aluminum (AL)—Expressed in Decimals of an Inch After Forming

* * * * *

Table II.—Specified Minimum Thickness of Shell Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS), or Aluminum (AL)—Expressed in Decimals of an Inch After Forming

* * * * *

§ 178.348–1 [Amended]

■ 47. In § 178.348–1(e), the following changes are made:

(a) In paragraph (e)(2)(v), the reference to ''§§ 178.345–5 and 178.348–5'' is revised to read ''§ 178.345–5''.

(b) In paragraph (e)(2)(vi), the reference to ''§ 178.345–10'' is revised to read ''§ 178.348–4''.

(c) In paragraph (e)(2)(vii), the reference to ''§ 178.345–13'' is revised to read ''§ 178.348–5''.

■ 48. In § 178.348–2, paragraph (a) introductory text and the titles to Table I and Table II are revised to read as follows:

§ 178.348–2 Material and thickness of material.

(a) The type and thickness of material for DOT 412 specification cargo tanks must conform to § 178.345–2, but in no case may the thickness be less than that determined by the minimum thickness requirements in § 178.320(a). The following Tables I and II identify the ''Specified Minimum Thickness'' values to be employed in that determination.

Table I.—Specified Minimum Thickness of Heads (or Bulkheads and Baffles When Used as Tank Reinforcement) Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS), or Aluminum (AL)—Expressed in Decimals of an Inch After Forming

* * * * *

Table II.—Specified Minimum Thickness of Shell Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS), or Aluminum (AL)—Expressed in Decimals of an Inch After Forming

* * * * *

PART 180—CONTINUING QUALIFICATION AND MAINTENANCE OF PACKAGINGS

■ 49. The authority citation for part 180 continues to read as follows:

Authority: 49 U.S.C. 5101–5127; 49 CFR 1.53.

■ 50. In § 180.403, the definition for ''Corrosive to the tank/valve'' is removed and new definitions for ''Corroded or abraded'' and ''Corrosive to the tank or valve'' are added to read as follows:

§ 180.403 Definitions.

* * * * *

Corroded or abraded means any visible reduction in the material thickness of the cargo tank wall or valve due to pitting, flaking, gouging, or chemical reaction to the material surface that effects the safety or serviceability of the cargo tank. The term does not include cosmetic or minor surface degradation that does not effect the safety or serviceability of the cargo tank

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.

* * * * *

■ 51. In § 180.405 paragraph (g)(3) is removed and reserved, paragraphs (b), (g)(2)(i), (k), and (l)(2)(iii) are revised, and a new paragraph (o) is added, to read as follows:

§ 180.405 Qualification of cargo tanks.

* * * * *

(b) *Cargo tank specifications.*

(1) To qualify as an authorized packaging, each cargo tank must conform to this subpart, the applicable requirements specified in part 173 of this subchapter for the specific lading, and where a DOT specification cargo tank is required, an applicable specification in effect on the date initial construction began: MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, MC 312, MC 330, MC 331, MC 338, DOT 406, DOT 407, or DOT 412 (§§ 178.337, 178.338, 178.345, 178.346, 178.347, 178.348 of this subchapter). However, except as provided in paragraphs (b)(2), (d), (e), (f)(5), and (f)(6) of this section, no cargo tank may be marked or certified after August 31, 1995, to the applicable MC 306, MC 307, MC 312, MC 331, or MC 338 specification in effect on December 30, 1990.

(2) *Exception.* A cargo tank originally manufactured to the MC 306, MC 307, or MC 312 specification that has not been stretched, rebarrelled, or modified may be re-certified to the original specification provided:

(i) Sufficient records are available verifying the cargo tank was originally manufactured to the specification;

(ii) A Design Certifying Engineer or Registered Inspector verifies the cargo tank conforms to all applicable requirements of the original specification and furnishes to the owner written documentation which verifies the tank complies with the original structural design requirements in effect at the time the tank was originally constructed;

(iii) The cargo tank meets all applicable tests and inspections required by § 180.407(c); and

(iv) The cargo tank is re-certified to the original specification in accordance with the reporting and record retention provisions of § 180.417. The certification documents required by § 180.417(a)(3) must include both the date the cargo tank was originally certified to the specification, and the date it was re-certified. The specification plate on the cargo tank or cargo tank motor vehicle must display the date the cargo tank was originally certified to the specification.

* * * * *

(g) * * *

(2) * * *

(i) Manhole assemblies on MC 300, MC 301, MC 302, MC 303, MC 305, MC 306, MC 310, MC 311, and MC 312 cargo tanks that are marked or certified in writing as conforming to § 178.345–5 of this subchapter or TTMA RP No. 61–98 (incorporated by reference; see § 171.7 of this subchapter), or are tested and certified in accordance with TTMA TB No. 107 (incorporated by reference; see § 171.7 of this subchapter).

* * * * *

(k) *DOT-specification cargo tank with no marked design pressure or a marked design pressure of less than 3 psig.* The owner of an MC 300, MC 301, MC 302, MC 303, MC 305, MC 306, or MC 312 cargo tank with a pressure relief system set at 3 psig, must mark or remark the cargo tank with an MAWP or design pressure of not less than 3 psig.

(l) * * *

(2) * * *

(iii) The structure of the bumper must be designed in accordance with § 178.345–8(d)(3) of this subchapter.

* * * * *

(o) *On-truck remote control of self-closing stop valves—MC 330, MC 331, and MC 338.* On or before October 2, 2006—

(1) Each owner of an MC 330 or MC 331 cargo tank motor vehicle marked or certified before January 1, 1995, must equip the cargo tank with an on-vehicle remote means of closure of the internal self-closing stop valve in conformance with § 178.337–8(a)(4) of this subchapter. This requirement does not apply to cargo tanks used only for carbon dioxide and marked ''For carbon dioxide only'' or intended for use in chlorine service only.

(2) Each owner of an MC 338 cargo tank motor vehicle marked or certified before January 1, 1995, must equip each remotely controlled shutoff valve with an on-vehicle remote means of automatic closure in conformance with § 178.338–11(c) of this subchapter. This requirement does not apply to cargo tanks used for the transportation of argon, carbon dioxide, helium, krypton, neon, nitrogen, or xenon, or mixtures thereof.

■ 52. In § 180.407, the following changes are made:

■ (a) Paragraphs (b)(4) and (g)(1)(v) are removed and reserved.

■ (b) Paragraphs (d)(4), (d)(5), and (d)(6) are redesignated as (d)(5), (d)(6), and (d)(7) respectively.

■ (c) Paragraphs (a)(2), (b)(1), (b)(2), (c), (d)(1), (g)(1)(ii), , (g)(1)(iv) introductory text, (g)(4), (h)(1) introductory text, (i)(5) introductory text, titles and column headings to Tables I and II in (i)(5), and (i)(6) are revised.

■ (d) In the table in paragraph (c), the entry under ''Internal Visual Inspection'' for ''All insulated cargo tanks, except MC 330, MC 331, MC 338'' is revised and a New Note 4 to the table is added.

■ (e) Paragraphs (d) introductory text, (d)(4), (h) introductory text, (h)(1)(iv), (h)(1)(v), (i)(9), and (i)(10) are added.

The additions and revisions read as follows:

§ 180.407 Requirements for test and inspection of specification cargo tanks.

(a) * * *

(2) Except during a pressure test, a cargo tank may not be subjected to a pressure greater than its design pressure or MAWP.

* * * * *

(b) * * *

(1) The cargo tank shows evidence of dents, cuts, gouges, corroded or abraded areas, leakage, or any other condition that might render it unsafe for hazardous materials service. At a minimum, any area of a cargo tank showing evidence of dents, cuts, digs, gouges, or corroded or abraded areas must be thickness tested in accordance with the procedures set forth in paragraphs (i)(2), (i)(3), (i)(5), and (i)(6) of this section and evaluated in accordance with the criteria prescribed in § 180.411. Any signs of leakage must be repaired in accordance with

§ 180.413. The suitability of any repair affecting the structural integrity of the cargo tank must be determined either by the testing required in the applicable manufacturing specification or in paragraph (g)(1)(iv) of this section.

(2) The cargo tank has sustained damage to an extent that may adversely affect its lading retention capability. A damaged cargo tank must be pressure tested in accordance with the procedures set forth in paragraph (g) of this section.

* * * * *

(c) *Periodic test and inspection.* Each specification cargo tank must be tested and inspected as specified in the following table by an inspector meeting the qualifications in § 180.409. The retest date shall be determined from the specified interval identified in the following table from the most recent inspection or the CTMV certification date.

COMPLIANCE DATES—INSPECTIONS AND TEST UNDER § 180.407(C)

Test or inspection (cargo tank specification, configuration, and service)	Date by which first test must be completed (see Note 1)	Interval period after first test
* * * * * * *		
Internal Visual Inspection: All insulated cargo tanks, except MC 330, MC 331, MC 338 (see Note 4).	September 1,1991	1 year.
* * * * * * *		

* * * * *

Note 4: Insulated cargo tanks equipped with manholes or inspection openings may perform either an internal visual inspection in conjunction with the external visual inspection or a hydrostatic or pneumatic pressure-test of the cargo tank.

* * * * *

(d) *External visual inspection and testing.* The following applies to the external visual inspection and testing of cargo tanks:

(1) Where insulation precludes a complete external visual inspection as required by paragraphs (d)(2) through (d)(6) of this section, the cargo tank also must be given an internal visual inspection in accordance with paragraph (e) of this section. If external visual inspection is precluded because any part of the cargo tank wall is externally lined, coated, or designed to prevent an external visual inspection, those areas of the cargo tank must be internally inspected. If internal visual inspection is precluded because the cargo tank is lined, coated, or designed so as to prevent access for internal inspection, the tank must be hydrostatically or pneumatically tested in accordance with paragraph (g)(1)(iv) of this section. Those items able to be externally inspected must be externally inspected and noted in the inspection report.

* * * * *

(4) Ring stiffeners or other appurtenances, installed on cargo tanks constructed of mild steel or high-strength, low-alloy steel, that create air cavities adjacent to the tank shell that do not allow for external visual inspection must be thickness tested in accordance with paragraphs (i)(2) and (i)(3) of this section, at least once every 2 years. At least four symmetrically distributed readings must be taken to establish an average thickness for the ring stiffener or appurtenance. If any thickness reading is less than the average thickness by more than 10%, thickness testing in accordance with paragraphs (i)(2) and (i)(3) of this section must be conducted from the inside of the cargo tank on the area of the tank wall covered by the appurtenance or ring stiffener.

* * * * *

(g) * * *

(1) * * *

(ii) All self-closing pressure relief valves, including emergency relief vents and normal vents, must be removed from the cargo tank for inspection and testing.

(A) Each self-closing pressure relief valve that is an emergency relief vent must open at the required set pressure and seat to a leak-tight condition at 90 percent of the set-to-discharge pressure or the pressure prescribed for the applicable cargo tank specification.

(B) Normal vents (1 psig vents) must be tested according to the testing criteria established by the valve manufacturer.

(C) Self-closing pressure relief devices not tested or failing the tests in this paragraph (g)(1)(ii) must be repaired or replaced.

* * * * *

(iv) 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:

* * * * *

(4) All pressure bearing portions of a cargo tank heating system employing a medium such as, but not limited to, steam or hot water for heating the lading must be hydrostatically pressure tested at least once every 5 years. The test pressure must be at least the maximum system design operating pressure and must be maintained for five minutes. A heating system employing flues for heating the lading must be tested to ensure against lading leakage into the flues or into the atmosphere.

* * * * *

(h) *Leakage test.* The following requirements apply to cargo tanks requiring a leakage test:

(1) Each cargo tank must be tested for leaks in accordance with paragraph (c) of this section. The leakage test must include testing product piping with all valves and accessories in place and operative, except that any venting devices set to discharge at less than the leakage test pressure must be removed or rendered inoperative during the test. All internal or external self-closing stop valves must be tested for leak tightness. Each cargo tank of a multi-cargo tank motor vehicle must be tested with adjacent cargo tanks empty and at atmospheric pressure. Test pressure must be maintained for at least 5 minutes. Cargo tanks in liquefied compressed gas service must be externally inspected for leaks during the leakage test. Suitable safeguards must be provided to protect personnel should a failure occur. Cargo tanks may be leakage tested with hazardous materials contained in the cargo tank during the test. Leakage test pressure must be no less than 80% of MAWP marked on the specification plate except as follows:

* * * * *

(iv) An MC 330 or MC 331 cargo tank in dedicated service for anhydrous ammonia may be leakage tested at not less than 414 kPa (60 psig).

(v) A non-specification cargo tank required by § 173.8(d) of this subchapter to be leakage tested, must be leakage tested at not less than 16.6 kPa (2.4

psig), or as specified in paragraph (h)(2) of this section.

(2) Cargo tanks used to transport petroleum distillate fuels that are equipped with vapor collection equipment may be leak tested in accordance with the Environmental Protection Agency's ''Method 27—Determination of Vapor Tightness of Gasoline Delivery Tank Using Pressure-Vacuum Test,'' as set forth in Appendix A to 40 CFR part 60. Test methods and procedures and maximum allowable pressure and vacuum changes are in 40 CFR 63.425(e)(1). The hydrostatic test alternative, using liquid in Environmental Protection Agency's ''Method 27—Determination of Vapor Tightness of Gasoline Delivery Tank Using Pressure-Vacuum Test,'' may not be used to satisfy the leak testing requirements of this paragraph. The test must be conducted using air.

* * * * *

(i) * * *

(5) Minimum thicknesses for MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, and MC 312 cargo tanks are determined based on the definition of minimum thickness found in § 178.320(a) of this subchapter. The following Tables I and II identify the ''In-Service Minimum Thickness'' values to be used to determine the minimum thickness for the referenced cargo tanks. The column headed ''Minimum Manufactured Thickness'' indicates the minimum values required for new construction of DOT 400 series cargo tanks, found in Tables I and II of §§ 178.346–2, 178.347–2, and 178.348–2 of this subchapter. In-Service Minimum Thicknesses for MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, and MC 312 cargo tanks are based on 90 percent of the manufactured thickness specified in the DOT specification, rounded to three places.

TABLE I.—IN-SERVICE MINIMUM THICKNESS FOR MC 300, MC 303, MC 304, MC 306, MC 307, MC 310, MC 311, AND MC 312 SPECIFICATION CARGO TANK CONSTRUCTED OF STEEL AND STEEL ALLOYS

Minimum manufactured thickness (US gauge or inches)	Nominal decimal equivalent for (inches)	In-service minimum thickness reference (inches)

* * * * *

TABLE II.—IN-SERVUCE MINIMUM THICKNESS FOR MC 301, MC 302, MC 304, MC 305, MC 306, MC 307, MC 311, AND MC 312 SPECIFICATION CARGO TANKS CONSTRUCTED OF ALUMINUM AND ALUMINUM ALLOYS

Minimum manufactured thickness	In-service minimum thickness (inches)

* * * * *

(6) An owner of a cargo tank that no longer conforms to the minimum thickness prescribed for the design as manufactured may use the cargo tank to transport authorized materials at reduced maximum weight of lading or reduced maximum working pressure, or combinations thereof, provided the following conditions are met:

(i) A Design Certifying Engineer must certify that the cargo tank design and thickness are appropriate for the reduced loading conditions by issuance of a revised manufacturer's certificate, and

(ii) The cargo tank motor vehicle's nameplate must reflect the revised service limits.

* * * * *

(9) For MC 331 cargo tanks constructed before October 1, 2003, minimum thickness shall be determined by the thickness indicated on the U1A form minus any corrosion allowance. For MC 331 cargo tanks constructed after October 1, 2003, the minimum thickness will be the value indicated on the specification plate. If no corrosion allowance is indicated on the U1A form then the thickness of the tank shall be the thickness of the material of construction indicated on the UIA form with no corrosion allowance.

(10) For 400-series cargo tanks, minimum thickness is calculated according to tables in each applicable section of this subchapter for that specification: § 178.346–2 for DOT 406 cargo tanks, § 178.347–2 for DOT 407 cargo tanks, and § 178.348–2 for DOT 412 cargo tanks.

■ 53. In § 180.409, paragraphs (a)(1) and (a)(2) are revised, and paragraph (a)(3)is added to read as follows:

§ 180.409 Minimum qualifications for inspectors and testers.

(a) * * *

(1) Be registered with the Federal Motor Carrier Safety Administration in accordance with part 107, subpart F of this chapter,

(2) Be familiar with DOT-specification cargo tanks and trained and experienced in use of the inspection and testing equipment needed, and

(3) Have the training and experience required to meet the definition of ''Registered Inspector'' in § 171.8 of this chapter.

* * * * *

■ 54. Section 180.413 is revised to read as follows:

§ 180.413 Repair, modification, stretching, rebarrelling, or mounting of specification cargo tanks.

(a) *General.* Any repair, modification, stretching, rebarrelling, or mounting of a cargo tank must be performed in conformance with the requirements of this section.

(1) Except as otherwise provided in this section, each repair, modification, stretching, or rebarrelling of a specification cargo tank must be performed by a repair facility holding a valid National Board Certificate of Authorization for use of the National Board ''R'' stamp and must be made in accordance with the edition of the National Board Inspection Code in effect at the time the work is performed.

(i) Repairs, modifications, stretchings, and rebarrellings performed on non-ASME stamped specification cargo tanks may be performed by:

(A) A cargo tank manufacturer holding a valid ASME Certificate of Authorization for the use of the ASME ''U'' stamp using the quality control procedures used to obtain the Certificate of Authorization; or

(B) A repair facility holding a valid National Board Certificate of Authorization for use of the National Board ''R'' stamp using the quality control procedures used to obtain the Certificate of Authorization.

(ii) A repair, modification, stretching, or rebarrelling of a non-ASME stamped cargo tank may be done without certification by an Authorized Inspector, completion of the R–1 form, or being stamped with the ''R'' stamp.

(2) Prior to each repair, modification, stretching, rebarrelling, or mounting, the cargo tank motor vehicle must be emptied of any hazardous material lading. In addition, cargo tank motor vehicles used to transport flammable or toxic lading must be sufficiently cleaned of residue and purged of vapors so any potential hazard is removed, including void spaces between double bulkheads, piping and vapor recovery systems.

(3) Each person performing a repair, modification, stretching, rebarrelling or mounting of a DOT specification cargo tank must be registered in accordance with subpart F of part 107 of this chapter.

(b) *Repair.* 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. The following provisions apply to specific cargo tank repairs:

(1) DOT 406, DOT 407, and DOT 412 cargo tanks must be repaired in accordance with the specification requirements in effect at the time of repair;

(2) MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 cargo tanks must be repaired in accordance with either the most recent revision of the original specification or with the DOT 406 specification in effect at the time of repair;

(3) MC 304 and MC 307 cargo tanks must be repaired in accordance with either the most recent revision of the original specification or with the DOT 407 specification in effect at the time of repair;

(4) MC 310, MC 311, and MC 312 cargo tanks must be repaired in accordance with either the most recent revision of the original specification or with the DOT 412 specification in effect at the time of repair;

(5) MC 338 cargo tanks must be repaired in accordance with the specification requirements in effect at the time of repair; and

(6) MC 330 and MC 331 cargo tanks must be repaired in accordance with the repair procedures described in CGA Technical Bulletin TB–2 and the National Board Inspection Code (see § 171.1 of this subchapter). Each cargo tank having cracks or other defects requiring welded repairs must meet all inspection, test, and heat treatment requirements in § 178.337–16 of this subchapter in effect at the time of the repair, except that postweld heat treatment after minor weld repairs is not required. When a repair is made of defects revealed by the wet fluorescent magnetic particle inspection, including those repaired by grinding, the affected area of the cargo tank must again be examined by the wet fluorescent magnetic particle method after hydrostatic testing to assure that all defects have been removed.

(c) *Maintenance or replacement of piping, valves, hoses, or fittings.* After each repair, maintenance or replacement of a pipe, valve, hose, or fitting on a cargo tank, that component must be installed in accordance with the provisions of the applicable specification before the cargo tank is returned to service.

(1) After maintenance or replacement that does not involve welding on the cargo tank wall, the repaired or replaced piping, valve, hose or fitting must be tested for leaks. This requirement is met when the piping, valve, hose or fitting is tested after installation at not less than 80 percent of the design pressure marked on the cargo tank. A hose may be tested before or after installation on the cargo tank.

(2) After repair or replacement of piping, valves, or fittings that involves welding on the cargo tank wall, the cargo tank must be pressure tested in accordance with the applicable manufacturing specification or § 180.407(g)(1)(iv). In addition, the affected piping, valve, or fitting must be tested in accordance with paragraph (c)(1) of this section.

(3) Hoses on cargo tanks in dedicated liquefied compressed gas, except carbon dioxide, service are excepted from these testing requirements, but must be tested in accordance with § 180.416(f).

(d) *Modification, stretching, or rebarrelling.* Modification, stretching or rebarrelling of a cargo tank motor vehicle must conform to the following provisions:

(1) The design of the modified, stretched, or rebarrelled cargo tank motor vehicle must be certified in writing by a Design Certifying Engineer as meeting the structural integrity and accident damage protection requirements of the applicable specification.

(2) Except as provided in paragraph (d)(2)(v) of this section, all new material and equipment affected by modification, stretching, or rebarrelling must meet the requirements of the specification in effect at the time such work is performed, and all applicable structural integrity requirements (§ 178.337–3, § 178.338–3, or § 178.345–3 of this subchapter). The work must conform to the requirements of the applicable specification as follows:

(i) For specification MC 300, MC 301, MC 302, MC 303, MC 305 and MC 306 cargo tanks, the provisions of either specification MC 306 or DOT 406 until August 31, 1995 and, thereafter to specification DOT 406 only;

(ii) For specification MC 304 and MC 307 cargo tanks, the provisions of either specification MC 307 or DOT 407 until August 31, 1995 and, thereafter to specification DOT 407 only;

(iii) For specification MC 310, MC 311, and MC 312 cargo tanks, the provisions of either specification MC 312 or DOT 412 until August 31, 1995 and, thereafter to specification DOT 412 only;

(iv) For specification MC 330 cargo tanks, the provisions of specification MC 331; and

(v) For specification MC 338 cargo tanks, the provisions of specification MC 338. However, structural modifications to MC 338 cargo tanks authorized under § 180.405(d) may conform to applicable provisions of the ASME Code instead of specification MC 338, provided the structural integrity of the modified cargo tank is at least equivalent to that of the original cargo tank.

(3) The person performing the modification, stretching, or rebarrelling must:

(i) Have knowledge of the original design concept, particularly with respect to structural design analysis, material and welding procedures.

(ii) Assure compliance of the rebuilt cargo tank's structural integrity, venting, and accident damage protection with the applicable specification requirements.

(iii) Assure compliance with all applicable Federal Motor Carrier Safety Regulations for all newly installed safety equipment.

(iv) Assure the suitability of each modification, stretching and rebarrelling that affects the lading retention capability of the cargo tank by performing the tests required in the applicable specification or § 180.407(g)(1)(iv).

(v) Any modification that changes information displayed on the specification plate requires the installation of a supplemental specification plate, nameplate, or both containing the information that reflects the cargo tank as modified, stretched or rebarrelled. The plate must include the name of the person or facility doing the work, DOT registration number, date work is completed, retest information, and any other information that differs from the original plate. The supplemental plates must be installed immediately adjacent to the existing plate or plates.

(vi) On a variable specification cargo tank, install a supplemental or new variable specification plate, and replace the specification listed on the original specification plate with the words ''see variable specification plate.''

(4) A Registered Inspector must certify that the modified, stretched, or rebarrelled cargo tank conforms to the requirements of this section and the applicable specification by issuing a supplemental certificate of compliance. The registration number of the Registered Inspector must be entered on the certificate.

(e) *Mounting of cargo tanks.* Mounting a cargo tank on a cargo tank motor vehicle must be:

(1) Performed as required by paragraph (d)(2) of this section and certified by a Design Certifying Engineer if the mounting of a cargo tank on a motor vehicle chassis involves welding on the cargo tank head or shell or any change or modification of the methods of attachment; or

(2) In accordance with the original specification for attachment to the chassis or the specification for attachment to the chassis in effect at the time of the mounting, and performed under the supervision of a Registered Inspector if the mounting of a cargo tank on a motor vehicle chassis does not involve welding on the cargo tank head or shell or a change or modification of the methods of attachment.

(f) *Records.* 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.

■ 55. In § 180.415, paragraph (b) is revised to read as follows:

§ 180.415 Test and inspection markings.

* * * * *

(b) Each cargo tank must be durably and legibly marked, in English, with the date (month and year) and the type of test or inspection performed, subject to the following provisions:

(1) The date must be readily identifiable with the applicable test or inspection.

(2) The markings must be in letters and numbers at least 32 mm (1.25 inches) high, near the specification plate or anywhere on the front head.

(3) The type of test or inspection may be abbreviated as follows:

(i) V for external visual inspection and test;

(ii) I for internal visual inspection;

(iii) P for pressure test;

(iv) L for lining inspection;

(v) T for thickness test; and

(vi) K for leakage test for a cargo tank tested under § 180.407, except § 180.407(h)(2); and

(vii) K-EPA27 for a cargo tank tested under § 180.407(h)(2) after October 1, 2004.

Examples to paragraph (b). The markings ''10–99 P, V, L'' represent that in October 1999, a cargo tank passed the prescribed pressure test, external visual inspection and test, and the lining inspection. The markings ''2–00 K–EPA'' represent that in February 2000, a cargo tank passed the leakage test under § 180.407(h)(2). The markings ''2–00 K, K–EPA'' represent that in February 2000, a cargo tank passed the leakage test under both § 180.407(h)(1) and under EPA Method 27 under § 180.407(h)(2).

* * * * *

■ 55. In § 180.417, paragraphs (b) and (d) are revised to read as follows:

§ 180.417 Reporting and record retention requirements.

* * * * *

(b) *Test or inspection reporting.* Each person performing a test or inspection as specified in § 180.407 must prepare a written report, in English, in accordance with this paragraph.

(1) Each test or inspection report must include the following information:

(i) Owner's and manufacturer's unique serial number for the cargo tank;

(ii) Name of cargo tank manufacturer;

(iii) Cargo tank DOT or MC specification number;

(iv) MAWP of the cargo tank;

(v) Minimum thickness of the cargo tank shell and heads;

(vi) Indication of whether the cargo tank is lined, insulated, or both; and

(vii) Indication of special service of the cargo tank (*e.g.*, transports material corrosive to the tank, dedicated service, etc.)

(2) Each test or inspection report must include the following specific information as appropriate for each individual type of test or inspection:

(i) Type of test or inspection performed;

(ii) Date of test or inspection (month and year);

(iii) Listing of all items tested or inspected, including information about pressure relief devices that are removed, inspected and tested or replaced, when applicable (type of device, set to discharge pressure, pressure at which device opened, pressure at which device re-seated, and a statement of disposition of the device (*e.g.*, reinstalled, repaired, or replaced)); information regarding the inspection of upper coupler assemblies, when applicable (visually examined in place, or removed for examination); and, information regarding leakage and pressure testing, when applicable (pneumatic or hydrostatic testing method, identification of the fluid used for the test, test pressure, and holding time of test);

(iv) Location of defects found and method of repair;

(v) ASME or National Board number of person performing repairs, if applicable;

(vi) Name and address of person performing test;

(vii) Registration number of the facility or person performing the test;

(viii) Continued qualification statement, such as Acargo tank meets the requirements of the DOT-specification identified on this report'' or ''cargo tank fails to meet the requirements of the DOT-specification identified on this report'';

(ix) DOT registration number of the registered inspector; and

(x) Dated signature of the registered inspector and the cargo tank owner.

(3) The owner and the motor carrier, if not the owner, must each retain a copy of the test and inspection reports until the next test or inspection of the same type is successfully completed. This requirement does not apply to a motor carrier leasing a cargo tank for fewer than 30 days.

(c) * * *

(d) *Supplying certificates and reports.* Each person offering a DOT-specification cargo tank for sale or lease must provide the purchaser or lessee a copy of the cargo tank certificate of compliance, records of repair, modification, stretching, or rebarrelling; and the most recent inspection and test reports made under this section. Copies

of such reports must be provided to the lessee if the cargo tank is leased for more than 30 days.

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Samuel G. Bonasso,

Acting Administrator, Research and Special Programs Administration.

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