Federal Register

Tuesday,
January 13, 2009

Part II

Department of Transportation

Pipeline and Hazardous Materials Safety Administration

49 CFR Parts 171, 172, et al.

Hazardous Materials: Improving the Safety of Railroad Tank Car Transportation of Hazardous Materials; Final Rule

DEPARTMENT OF TRANSPORTATION

Pipeline and Hazardous Materials Safety Administration

49 CFR Parts 171, 172, 173, 174 and 179

[Docket No. FRA–2006–25169]

RIN 2130–AB69

Hazardous Materials: Improving the Safety of Railroad Tank Car Transportation of Hazardous Materials

AGENCY: Pipeline and Hazardous Materials Safety Administration (PHMSA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The Pipeline and Hazardous Materials Safety Administration (PHMSA), in coordination with the Federal Railroad Administration (FRA), is amending the Hazardous Materials Regulations to prescribe enhanced safety measures for rail transportation of poison inhalation hazard (PIH) materials, including interim design standards for railroad tank cars. Pending validation and implementation of the crashworthiness performance standard proposed in the NPRM issued under this docket on April 1, 2008, the rule mandates commodity-specific improvements in safety features and design standards for newly manufactured DOT specification tank cars. The rule also adopts a 50 mph speed restriction for loaded rail tank cars transporting PIH materials; an improved top fittings performance standard; an allowance to increase the gross weight of tank cars that meet the enhanced standards; and adoption of the industry standard for normalized steel in certain tank cars. The interim standards established in this rule will enhance the accident survivability of PIH tank cars when compared to existing regulations while providing tank car owners continued flexibility in car selection. Adoption of this interim standard will ensure the ongoing availability of tank cars while PHMSA and FRA complete research and testing on advanced tank car design to validate and implement a more stringent performance standard.

DATES: *Effective Date:* March 16, 2009. The incorporation by reference of the publication listed in the rule is approved by the Director of the Federal Register as of March 16, 2009.

Incorporation by Reference Date: The incorporation by reference of the publications adopted in § 171.7 of this final rule has been approved by the Director of the Federal Register as of March 16, 2009.

FOR FURTHER INFORMATION CONTACT: William Schoonover, (202) 493–6229, Office of Safety Assurance and Compliance, Federal Railroad Administration; Lucinda Henriksen, (202) 493–1345, Office of Chief Counsel, Federal Railroad Administration; or Michael Stevens, (202) 366–8553, Office of Hazardous Materials Standards, Pipeline and Hazardous Materials Safety Administration.

SUPPLEMENTARY INFORMATION:

Abbreviations and Terms Used in This Document

AAR—Association of American Railroads
ASLRRA—American Short Line and Regional Railroad Association
BNSF—BNSF Railway Company
BLET—Brotherhood of Locomotive Engineers and Trainmen
CPC—Casualty Prevention Circular
CI—Chlorine Institute
CP—Canadian Pacific
CPR—Conditional Probability of Release
CSXT—CSXT Transportation
Department—U.S. Department of Transportation
DOW—Dow Chemical Company
DOT—U.S. Department of Transportation
Federal Hazmat Law—Federal hazardous materials transportation law (49 U.S.C. 5101 *et seq.*)
FRA—Federal Railroad Administration
HMR—Hazardous Materials Regulations
NGRTCP—Next Generation Rail Tank Car Project
NPRM—Notice of Proposed Rulemaking
NTSB—National Transportation Safety Board
OMB—Office of Management and Budget
PHMSA—Pipeline and Hazardous Materials Safety Administration
PIH—Poison Inhalation Hazard
R&D—Research and Development
RSAC—Railroad Safety Advisory Committee
RSI—Railway Supply Institute
SAFETEA–LU—Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users, Public Law 109–59
SBA—Small Business Administration
Tank Car Manual—Association of American Railroads Tank Car Committee Tank Car Manual
TCC—Association of American Railroads Tank Car Committee
TFI—The Fertilizer Institute
TIH—Toxic Inhalation Hazard
TSA—Department of Homeland Security, Transportation Security Administration
Trinity—Trinity Industries, Inc.
UTU—United Transportation Union
Union Tank—Union Tank Car Company
UP—Union Pacific Railroad Company
Volpe—Volpe National Transportation Systems Center

Table of Contents for Supplementary Information

I. Background

On April 1, 2008, PHMSA published a notice of proposed rulemaking (NPRM) proposing revisions to the Hazardous Materials Regulations (HMR; 49 CFR Parts 171–180) to improve the crashworthiness protection of railroad tank cars designed to transport materials that are poisonous, or toxic, by inhalation (referred to as PIH or TIH materials). 73 FR 17818. The NPRM proposed enhanced tank car performance standards for head and shell impacts; operational restrictions for trains hauling tank cars containing PIH materials; interim operational restrictions for trains hauling tank cars used to transport PIH materials, but not meeting the enhanced performance standards; and an allowance to increase the gross weight on rail of tank cars that meet the enhanced tank-head and shell puncture-resistance systems.

The NPRM provided detailed background information on the need to enhance the crashworthiness protection of railroad tank cars, government and industry efforts to improve the safety of hazardous materials transportation via railroad tank car, and the Department's research efforts focused on tank car safety. As we explained in the NPRM, although rail transportation of hazardous materials is a safe method for moving large quantities of hazardous materials over long distances, rail tank cars used to contain these materials have not been designed to withstand the force of high-speed derailments and collisions. In the last several years, rail tank cars have been breached in numerous accidents, resulting in large releases of hazardous materials. Of particular concern, three of these accidents involved PIH materials: (1) The January 18, 2002, derailment of a Canadian Pacific (CP) train in Minot, North Dakota which resulted in a catastrophic release of anhydrous ammonia; (2) the June 28, 2004 collision between trains operated by Union Pacific Railroad Company (UP) Burlington Northern and Santa Fe Railway Company (now known as BNSF Railway Company) in Macdona, Texas, involving a breach of a loaded tank car containing chlorine; and (3) the January 6, 2005 collision between two Norfolk Southern Railway Company (NS) trains in Graniteville, South Carolina, also involving the catastrophic rupture of a loaded chlorine tank car. As noted in the NPRM, although none of these accidents was caused by the hazardous materials tank cars, the failure of the tank cars involved led to fatalities, injuries, evacuations, and property and environmental damage.

In response to these accidents, related NTSB recommendations, and the Congressional mandate for tank car safety improvements in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, Public Law 109–59 (SAFETEA–LU), PHMSA and FRA initiated a comprehensive review of design and operational factors that affect rail tank car safety. As noted in the NPRM, DOT's on-going and multi-faceted strategy to enhance the safety of rail tank cars and transportation of hazardous materials by rail tank cars utilizes a risk-based, system-wide approach that addresses: (1) Tank car design and manufacturing; (2) railroad operational issues such as human factors, track conditions and maintenance, wayside hazardous detectors, signals and train control systems; and (3) improved planning and training for emergency response.

Subsequent to publication of the NPRM, DOT hosted a two-day technical symposium on tank car crashworthiness and held a series of public meetings to solicit feedback on the NPRM. Although participants at both the technical symposium and public meetings generally agreed with DOT's goal of improving the accident survivability of tank cars, commenters expressed practical concerns regarding DOT's specific proposals.

Also subsequent to publication of the NPRM, the Association of American Railroads (AAR) renewed the effectiveness of its previously suspended interchange standard for tank cars transporting PIH materials (Casualty Prevention Circular 1187 or CPC–1187). AAR's CPC–1187 implements interchange standards for the shell, head, and top fittings of PIH tank cars. Specifically, AAR's CPC–1187 interchange standard contains tank car head and shell design standards and an alternate performance standard based on the metric AAR terms ''conditional probability of release.'' The head and shell requirements of CPC–1187 can be met by using DOT specification tank cars of higher tank classes than required by DOT standards; however, tank cars built to meet the CPC–1187 standard would not meet the standards DOT proposed in the NPRM. CPC–1187 also requires tank cars used to transport PIH materials be equipped with top fittings protection systems designed to withstand, without loss of lading, a rollover with a linear velocity of 9 mph and that the top fittings protection system to be attached to the tank by welding.

In addition, in response to the NPRM, the overwhelming majority of industry commenters have expressed the view that the standards proposed in the NPRM are ''technology-forcing'' and that the tank car industry currently lacks the technological and engineering ability to manufacture tank cars meeting the proposed standards. According to commenters, the net effect of these ''competing'' standards in CPC–1187 and the NPRM has been that shippers and tank car purchasers (e.g., tank car lessors) cannot currently purchase PIH tank cars with any assurance that the cars will have a reasonable economic life.[1] Accordingly, commenters indicate that shippers and tank car owners are being forced to forego the phasing out of aging tank cars that they would normally retire and replace with new cars, potentially resulting in a shortage of cars needed for the transportation of PIH materials in the short term. While commenters generally express support for the development of a performance standard related to tank car puncture resistance, they recommend that DOT provide an interim solution to ensure the availability of PIH tank cars in the time period before DOT's proposed performance standards are finalized and tank cars can be built to meet those standards.

In this connection, in a petition dated July 3, 2008 (Joint Petition), the American Chemistry Council (ACC), American Short Line and Regional Railroad Association (ASLRRA), the Association of American Railroads (AAR), Chlorine Institute (CI), and Railway Supply Institute requested that the Department authorize interim standards for tank cars transporting PIH materials. In a separate petition filed on July 7, 2008, The Fertilizer Institute (TFI) made a similar request.[2] Each of these petitions is discussed in more detail below.

Based on comments received in response to the NPRM and the two petitions for rulemaking, in this rule FRA and PHMSA are adopting interim standards for tank cars used to transport PIH materials. This rule is an interim response based on current engineering judgments within the affected market sector. DOT intends to continue working with the industry to complete research and testing on advanced tank car design. Accordingly, we anticipate additional regulatory proceedings as the results of continuing government and private sector research and development are validated and the resulting technology is successfully implemented by industry. DOT intends that the standards set forth in this rule shall apply in the meantime, pending the development and commercialization of more stringent performance standards.

II. Statutory Authority, Congressional Mandate, and NTSB Recommendations

Federal hazmat law authorizes the Secretary of DOT (Secretary) to ''prescribe regulations for the safe transportation, including security, of hazardous material in intrastate, interstate, and foreign commerce.'' The Secretary has delegated this authority to PHMSA. 49 CFR 1.53(b). The HMR, promulgated by PHMSA under the authority provided in Federal hazmat law, are designed to achieve three goals: (1) To ensure that hazardous materials are packaged and handled safely and securely during transportation; (2) to provide effective communication to transportation workers and emergency responders of the hazards of the materials being transported; and (3) to minimize the consequences of an incident should one occur. The hazardous material regulatory system is a risk management system that is prevention-oriented and focused on identifying a safety or security hazard and reducing the probability and quantity of a hazardous material release.

Under the HMR, hazardous materials are categorized by analysis and experience into hazard classes and packing groups based upon the risks that they present during transportation. The HMR specify appropriate packaging and handling requirements for hazardous materials, and require a

[1] The NPRM proposed the complete phase-out within eight years of all PIH tank cars not meeting the proposed performance standards. As noted above, cars built to meet the requirements of CPC–1187 would not meet the standards proposed in the NPRM and because of weight restrictions, it is possible that cars built to meet CPC–1187 might not be retrofitable to meet any portion of the final performance standard promulgated in this rulemaking.

[2] PHMSA assigned petition numbers P–1525 and P–1524 to the Joint Petition and TFI petition, respectively. On July 23, 2008, PHMSA published a notice soliciting public comment on the petitions under docket number PHMSA–2008–0182. 73 FR 42765.

shipper to communicate the material's hazards through the use of shipping papers, package marking and labeling, and vehicle placarding. The HMR also require shippers to provide emergency response information applicable to the specific hazard or hazards of the material being transported. Finally, the HMR mandate training requirements for persons who prepare hazardous materials for shipment or who transport hazardous materials in commerce. The HMR also include operational requirements applicable to each mode of transportation.

The Secretary also has authority over all areas of railroad transportation safety (Federal railroad safety laws, 49 U.S.C. 20101 *et seq.*), and has delegated this authority to FRA. 49 CFR 1.49. Pursuant to its statutory authority, FRA promulgates and enforces a comprehensive regulatory program (49 CFR parts 200–244) to address railroad track; signal systems; railroad communications; rolling stock; rear-end marking devices; safety glazing; railroad accident/incident reporting; locational requirements for the dispatch of U.S. rail operations; safety integration plans governing railroad consolidations; merger and acquisitions of control; operating practices; passenger train emergency preparedness; alcohol and drug testing; locomotive engineer certification; and workplace safety. FRA inspects railroads and shippers for compliance with both FRA and PHMSA regulations. FRA also conducts research and development to enhance railroad safety. In addition, both PHMSA and FRA are working with the emergency response community to enhance its ability to respond quickly and effectively to rail transportation accidents involving hazardous materials.

As noted above, on August 10, 2005, Congress passed SAFETEA–LU, which added section 20155 to the Federal hazmat law. 49 U.S.C. 20155. In part, section 20155 required FRA to (1) validate a predictive model quantifying the relevant dynamic forces acting on railroad tank cars under accident conditions, and (2) initiate a rulemaking to develop and implement appropriate design standards for pressurized tank cars.

In response to the accident in Minot, North Dakota, on January 18, 2002, in which a train derailment resulted in the catastrophic release of anhydrous ammonia leading to one death and 11 serious injuries, the NTSB made four safety recommendations to FRA specific to the structural integrity of hazardous material tank cars. The NTSB recommended that FRA analyze the impact resistance of steels in the shells of pressure tank cars constructed before 1989 and establish a program to rank those cars according to their risk of catastrophic failure and implement measures to eliminate or mitigate this risk. The NTSB also recommended that FRA validate the predictive model being developed to quantify the maximum dynamic forces acting on railroad tank cars under accident conditions and develop and implement tank car design-specific fracture toughness standards for tank cars used for the transportation of materials designated as Class 2 hazardous materials under the HMR. In response to the accident in Graniteville, South Carolina, on January 6, 2005, in which a train collision resulted in the breach of a tank car containing chlorine and nine people died from inhalation of chlorine vapors, the NTSB recommended, in part, that FRA "require railroads to implement operating measures such as * * * reducing speeds through populated areas to minimize impact forces from accidents and reduce the vulnerability of tank cars transporting" certain highly-hazardous materials. Each of these NTSB recommendations is discussed in the NPRM.[3]

The Department considers this rule responsive to section 20155's mandate, as well as to the NTSB recommendations. As discussed in more detail in section IV below, however, we recognize that this rule does not directly implement each of the relevant NTSB recommendations. Instead, the interim standards we are adopting in this rule are only the first part of a longer-term strategy to enhance the safety of rail shipments of PIH materials. Improving the safety and security of hazardous materials transportation via railroad tank car is an on-going process. We plan to continue to develop and validate a performance standard to further improve the crashworthiness of PIH tank cars, with a view towards incorporating the improved performance standard into the HMR. Going forward, FRA's hazardous materials research and development program will continue to focus on reducing the rate and severity of hazardous materials releases by optimizing the manufacture, operation, inspection, and maintenance procedures for the hazardous materials tank car fleet. In addition, we plan to continue our holistic approach to rail safety, as discussed in detail in the NPRM, including railroad operating and maintenance practices; railroad routing practices; shipper commodity handling practices; and emergency response procedures.

[3] *See* 73 FR 17818, 17826–28. The NPRM indicated that NTSB classified FRA's responses to Safety Recommendations R–05–15 and R–05–16 stemming from the Graniteville accident as "Open-Response Received." Subsequently, in a letter dated June 7, 2007, however, NTSB classified these recommendations as "Closed-Unacceptable Action" and "Open-Unacceptable Response." A copy of NTSB's June 7, 2007, letter is available in the docket.

III. The Proposed Rule

Generally, the NPRM proposed a two-pronged approach to enhancing the accident survivability of tank cars. First, the NPRM proposed to limit the operating conditions of tank cars transporting PIH materials. Second, the NPRM proposed enhanced tank-head and shell puncture resistance standards.

The NPRM described FRA's research demonstrating that the speed at which a train is traveling has the greatest effect on the closing velocity between cars involved in a derailment or accident situation and that the secondary car-to-car impact speed in such situations is approximately one-half the initial train speed (the speed of the train at the time of the collision or derailment). Based on this research, the Department recognized that limiting the operating speed of tank cars transporting PIH materials is one potential method to impose a control on the forces experienced by railroad tank cars. Accordingly, we proposed two operational speed restrictions:

(1) A maximum speed limit of 50 mph for all trains transporting railroad tank cars containing PIH materials; and

(2) A maximum speed limit of 30 mph in non-signaled (*i.e.*, dark) territory for all trains transporting railroad tank cars containing PIH materials, unless the material is transported in a tank car meeting the enhanced tank-head and shell puncture-resistance systems performance standards of this proposal.

As an alternative to the maximum speed limit of 30 mph in dark territory, we proposed submission for FRA approval of a complete risk assessment and risk mitigation strategy establishing that operating conditions over the subject track provide at least an equivalent level of safety as that provided by signaled track.

In conjunction with these speed restrictions, we also proposed improved tank-head and shell puncture-resistance standards. The enhanced standards proposed to require tank cars that transport PIH materials in the United States to be designed and manufactured with a shell puncture-resistance system capable of withstanding impact at 25 mph and with a tank-head puncture resistance system capable of withstanding impact at 30 mph. To ensure timely replacement of the PIH tank car fleet, we proposed an eight-year implementation schedule, contemplating design, development, and manufacturing ramp-up in the first two years, replacement of 50% of the fleet within the next three years, and replacement of the remaining 50% of the fleet in the following three years. As part of this implementation plan, we proposed the expedited replacement of tank cars used for the transportation of PIH materials manufactured before 1989 with non-normalized steel head or shell construction.[4] Recognizing that improvements in tank car performance have historically relied in large part on thicker and/or stronger steel, which brings with it a corresponding addition to the empty weight of the tank car, we also proposed an allowance to increase the gross weight on rail for tank cars designed to meet the proposed enhanced tank-head and shell puncture-resistance systems performance standards (up to 286,000 pounds).

IV. Discussion of Comments on the Proposed Rule

Subsequent to publication of the NPRM, DOT hosted a technical symposium on tank car crashworthiness and conducted four public meetings to solicit comment on the proposed rule. The intent of the technology symposium was to provide a forum for FRA and PHMSA to share with the tank car industry the agencies' collective knowledge and experience in the testing and design of rail tank cars significantly more crashworthy than conventional tank cars, as well as to provide parties involved in the manufacturing, repairing, and testing of tank cars an opportunity to openly discuss issues related to the manufacturing of such tank cars.

We received approximately 50 written comments in response to the NPRM, including comments from members of the railroad and PIH shipping industry, trade organizations, local governments, tank car manufacturing and repair companies, members of Congress, as well as members of the general public. Several of these commenters also provided verbal comments at the public meetings held during the subsequent comment period. The following discussion provides an overview of the written and verbal comments DOT received in response to the NPRM and how DOT has chosen to address those comments in this rule. As previously noted, two petitions were filed requesting DOT to establish interim tank car standards; comments on these petitions are set forth in Section V. More detailed discussions of specific comments on the NPRM and the petitions for interim standards, as well as DOT's responses, can be found in the relevant Section-by-Section analysis portion of the preamble.

Generally, commenters recognize the need to improve the crashworthiness of PIH tank cars and express support for DOT's efforts in the NPRM. For example, the NTSB supports the stated goals of the NPRM and states that many aspects of the proposal, when implemented, will significantly improve the safety of the transportation of PIH materials in railroad tank cars. The AAR applauds DOT's issuance of the NPRM as a ''truly innovative approach'' to tank car design and CI indicates that the organization ''fully supports the major step forward'' DOT took in issuing the proposed rule. Although commenters also generally support the development of a performance standard focused on tank car puncture resistance such as that proposed[5] commenters also raise important practical concerns regarding DOT's specific proposals. The majority of commenters' concerns are focused on (1) the technical basis for and feasibility of achieving, in the short term, the proposed tank-head and shell puncture resistance performance standards; (2) the proposed eight-year implementation period, including the proposed accelerated replacement of cars constructed with non-normalized steel; (3) the proposed allowance to increase the gross weight on rail of PIH tank cars; (4) the proposed speed restrictions, particularly the interim 30 mph speed restriction in dark territory for tank cars not meeting the proposed enhanced performance standards, but used to transport PIH materials; (5) the lack of proposed enhancements to PIH tank car top fittings; (6) the need for an interim standard for tank cars used to transport PIH materials; and (7) the costs associated with implementing the proposed rule.

A. Proposed Performance Standards

The majority of commenters express the view that although the 25 and 30 mph shell and head-impact puncture resistance standards are laudable goals, such proposed standards are ''technology forcing'' and achieving such impact resistance utilizing existing technology and currently accepted tank car engineering practices is not possible in the short term. For example, Dow, a driving force behind the Next Generation Rail Tank Car Project (NGRTCP),[6] suggests that although the 25 mph shell-impact puncture resistance system standard (which represents a six-fold performance improvement over existing chlorine tank cars) may be obtainable based upon the design concepts and technologies developed by the NGRTCP, the proposed 30 mph head impact standard (which represents a ten to twelve-fold improvement over existing chlorine cars) is outside the range of solutions contemplated by the Project. Noting that no existing tank car designs under review as part of the NGRTCP would meet the proposed head and shell-impact standards, tank car builders estimate that it will take up to ten years until a design proven to meet the proposed performance standards (both 25 mph shell-impact and 30 mph head-impact puncture resistance standards) could be ready for full-scale implementation. Other commenters indicate that it may take approximately three years until a design proven to meet the proposed 25 mph puncture resistance standard will be ready for full-scale implementation. These commenters' concerns regarding the time required until the tank car industry can meet the proposed performance standards are discussed in more detail below with other comments related to the proposed implementation period.

Some commenters, noting the synergy between the proposed 50 mph speed limit for PIH tank cars and the 25 mph shell impact puncture resistance performance standard, question the efficacy of the proposed 30 mph head-impact standard. As explained in the NPRM and by FRA staff at the May 28, 2008, public meeting, the 30 mph head impact standard was intended to protect against impacts when a tank car is involved in the primary collision (*i.e.*, impacts other than the secondary car-to-car impacts upon which the proposed 50 mph speed limit was based). FRA believes that in such instances, it is desirable to have additional head-impact protection strategies available to help reduce the risk of loss of lading and that the available space in front of the tank-head will accommodate sufficient energy absorbing material

[4] Non-normalized steel is steel that has not been subjected to a specific heat treatment procedure that improves the steel's ability to resist fracture.

[5] Trinity Industries, Inc. (Trinity), a tank car builder, comments that issuance of the proposed puncture resistance performance standard is inconsistent with SAFETEA–LU's mandate to develop ''appropriate design standards'' for pressurized rail tank cars. Although we respectfully disagree with Trinity's comment, we note that the issue would not appear to be relevant to this rule in that we are adopting tank car design standards.

[6] The NGRTCP is discussed in detail in the preamble to the NPRM. *See* 73 FR 17833–34.

between the head shield or jacket and the inner commodity tank. *See* 73 FR 17849.

NTSB acknowledges that establishing tank car puncture resistance at 25 mph would be an improvement that would enhance tank car safety. NTSB suggests, however, that such standard does not represent a standard for ensuring safety in 50-mph collisions because the general premise upon which the standard is based (*i.e.*, the finding by the Volpe National Transportation Systems Center (Volpe) that the secondary car-to-car impact speed is one-half that of the initial train speed) is not applicable to all derailment conditions. Specifically, noting the two-dimensional, linear model utilized in Volpe's research, NTSB recommends the development and validation of more technically rigorous models that include consideration of the many three-dimensional, highly nonlinear dynamic responses that occur in derailment situations. Noting that its Safety Recommendation R–04–06 contemplates the consideration of different types of critical-loading conditions observed in derailments, NTSB suggests that although improving the puncture-resistance of tank cars is an important safety enhancement, by itself, it does not fully respond to Safety Recommendation R–04–06. Accordingly, NTSB suggests that additional modeling and validation is necessary to understand the full range of dynamic responses that occur in derailments. We appreciate NTSB's comments in this regard and as we pursue continued research and development on advanced car design, we will continue to further refine our quantification of the dynamic forces acting on railroad tank cars in accident conditions.

CI notes that the proposed 30 mph head-impact standard represents an ''exponential increase in severity over the existing head protection requirement'' and questions whether the proposed standard goes beyond what is necessary to protect the integrity of the tank in real world accident scenarios. Noting its own efforts to address tank car puncture resistance, CI explains that its research demonstrates that a significant improvement (2x) in puncture resistance is possible if tank cars are constructed of steels with higher fracture toughness than AAR TC 128B steel (the steel typically used in tank car construction). Consistent with its Safety Recommendation R–04–07, NTSB similarly recommends that a standard for the fracture toughness of tank car construction materials be included in any final DOT tank car standard. NTSB suggests that the inherent material variability identified through FRA's research is common to the class of steel utilized and has been used in other applications to define fracture-based criteria. Although DOT believes that material properties play an important role in the performance of a tank car subjected to fatigue type loading, FRA's research has clearly demonstrated that for the impact conditions typical of accidents that result in a release, a holistic approach is required to prevent a breach of the commodity tank. As noted in the NPRM, however, DOT will continue to examine the dynamic fracture toughness of steels used in the construction of pressure tank cars in hazardous materials service and we will incorporate any workable tank car design-specific fracture toughness standards into the final performance standards.

Other commenters note that the Volpe concept work (described in detail at the technology symposium)[7] does not establish the feasibility of the proposed performance standards. Several commenters express the view that because the Volpe concept car differs significantly from traditional rail car designs and manufacturing methods, questions regarding the sill design, movement of the tank during yard impacts, how the car will be constructed, and other technical details need to be fully evaluated before the car can be manufactured and put into service. Commenters note that the proposed performance standards are based on impacts of 25 (shell) and 30 mph (head) from a 286,000 pound mass concentrated through a 6″ x 6″ impactor. Citing a recent head impact test by the NGRTCP, one tank car builder, American Railcar Industries (ARI), concludes that even meeting the 25 mph shell-impact puncture resistance standard requires a larger impactor, or less impacting weight. Another manufacturer suggests that it may be possible to achieve the 25 mph standard with the 6″ x 6″ impactor due to the deformations that are likely to occur, but the 30 mph standard probably would not be achievable.

Noting that current research has focused on development of a chlorine car (the Volpe ''concept car'') to meet the proposed performance standards, commenters express the view that other PIH materials (*e.g.*, anhydrous ammonia, ethylene oxide, methyl mercaptan, anhydrous hydrogen fluoride) have significantly different physical and chemical properties that must be accommodated in tank car designs. For example, product density affects how much product can be loaded into a car. Arkema, a shipper of methyl mercaptan, a raw material used in the production of animal feeds for the poultry and swine industry, notes that chlorine weighs approximately 12 pounds per gallon, while methyl mercaptan weighs only about 7.8 pounds per gallon. Because chlorine is a rather dense material as compared to other PIH materials, the typical chlorine car has smaller tank dimensions than tank cars designed to transport other PIH materials. As Dow notes, these smaller tank dimensions have allowed the NGRTCP to design a chlorine car with greater thickness and greater standoff distances (*i.e.*, the distance between the tank and the tank's outer protection) than may be possible for tank cars designed to carry other PIH commodities.

Commenters also suggest that the differing physicochemical properties and severity of hazards presented by various PIH materials need to be considered when designing tank cars to handle particular PIH materials. DGAC notes that many PIH materials are highly flammable and will ignite prior to the formation of a toxic cloud. As an example, BASF notes that ethylene oxide has flammability ranges between 3% and 100% in air and therefore, that an ethylene oxide release would result in a fire before there was an opportunity to affect the general population from a toxicity hazard. BASF further notes that there is a significant difference in the danger posed by a Zone B PIH material (*e.g.*, chlorine) versus a Zone D PIH material (*e.g.*, ethylene oxide).

Commenters further state that the disparate physicochemical properties of the various PIH materials shipped via railroad tank car have historically led to very specific car designs for certain materials. For example, DuPont notes that oleum and sulfur trioxide have relatively high freezing points. Accordingly, rail cars intended for the transportation of oleum and sulfur trioxide must be equipped with sufficient insulation capable of maintaining the temperature of the chemicals above their respective freezing points. Similarly, tank cars used to transport chlorosulfonic acid are constructed of stainless steel tanks to prevent discoloring of the acid. According to DuPont, there is no feasible alternative to stainless steel and the properties of the stainless steel inner tanks relative to the puncture resistance requirements of the proposed performance standards would have to be considered. Similarly, shippers of

[7] Copies of technical presentations from the symposium, as well as a summary of the symposium is available in the docket.

anhydrous hydrogen fluoride and hydrofluoric acid note that the corrosive properties of these chemicals have led to non-jacketed tank car designs for these particular commodities and that the non-jacketed cars allow for visual detection of any corrosive product on the outside of the commodity tank before it can compromise the integrity of the tank. Noting the Volpe concept car presented at the technology symposium and the NGRTCP car design rely on a ''sandwich'' (*i.e.*, layered design with a jacket encompassing supporting foam or other energy absorbing material surrounding and isolating the commodity tank from the structural forces of the moving train), these commenters suggest that such a design concept would introduce new maintenance and inspection challenges that could lead to a detriment in safety in that the inner tank could not be inspected as readily as is currently possible.

Although DOT recognizes commenters' concerns with commodity specific tank car design issues, as noted at the May 28, 2008 public meeting, the NPRM was not intended as a ''one size fits all'' approach. Specifically, as described at the technical symposium, the Volpe concept car is intended to demonstrate DOT's proposed approach to meeting the performance standards. DOT's approach, focusing on the energy absorbing capability of the tank car, is applicable to any type of tank car. DOT recognizes, however, that specific design elements would necessarily have to be modified for specific commodities.

Other commenters, including AAR and BNSF Railway Company (BNSF) suggest that the 6″ x 6″ impactor contemplated in the proposed rule is not representative of real world objects impacting tank cars and that any proposed standard needs to consider impacts other than carbody-to-carbody impacts, such as impacts by smaller, sharper objects; the crushing or tearing away of the shell; and oblique punctures or punctures away from the centerline of the tank. In support of this position, BNSF references five accidents on its railroad that resulted in releases from eight pressure tank cars over the last 12 years. Five of those eight releases did not involve carbody-to-carbody impacts. Instead those tank car releases involved: (1) Stub still failure due to a large vertical force on the draft gear which caused the sill to tear away a section of the tank shell, (2) puncture by pieces of broken rail, (3) the shearing off of liquid and vapor valves; (4) puncture by being struck by the corner of a flat car; and (5) puncture when the corner of an I-beam (which fell from a previous car) struck a tank car. Similarly, AAR expresses the view that the proposed performance standard is flawed because it focuses exclusively on the ability of tank car designs to absorb energy without releasing product and does not consider other possible modes of failure. Specifically, AAR suggests that DOT's focus on energy absorption effectively addresses punctures from ''large, blunt objects coming into contact with the tank head or shell from a perpendicular direction,'' but ignores other accident scenarios prevalent in railroad operations, including: (1) Punctures from smaller, sharper objects; (2) releases due to the tearing away of attachments to the shell; (3) cracking of the shell; and (4) oblique punctures and punctures away from the center of the head or the centerline of the shell. On the other hand, the Railway Supply Institute, Inc. (RSI) suggests that basing the proposed performance standard on a test utilizing a 6″ x 6″ impactor is not appropriate because the size of the impactor does not correlate to anything expected to be seen in the field. RSI suggests that the size of the impactor should be increased to more accurately reflect the face surface of a standard non-shelf coupler.

In response to the BNSF and AAR comments regarding the NPRM's focus on the energy absorption of impacts to tank cars, we note that the proposed head and shell impact standards were based on a series of complementary measures, including: (1) Blunting the load impacting the tank, (2) absorbing energy, (3) reinforcing the commodity tank, and (5) removal of in-train forces from the commodity tank. Although DOT continues to believe that this approach addresses each of the failure modes cited by commenters, as explained at the technology symposium, DOT recognizes that this approach is most effective in addressing carbody-to-carbody impacts that result in the bulk crushing and deformation of tank cars, and what DOT believes to be the most likely failure mode to result in a catastrophic release of hazardous materials, that is, the puncture of the head or shell by some intermediate size piece of railroad equipment (*e.g.*, coupler, drawbar, side or draft sill).

Commenters suggest that DOT should not promulgate final head and shell puncture-resistance standards until the NGRTCP has completed its work and compliant tank car designs have been developed, and cars have been built and tested for each PIH commodity. Dow indicates that the NGRTCP expects to have a prototype tank car built by the end of 2008 that would meet a 25 mph head and shell impact puncture resistance standard. Dow cautions, as do other commenters, that such a prototype car should be subjected to an additional period of in-service testing prior to being approved for use. Further, noting the ''evolutionary process'' of tank car safety enhancements, Dow concludes that the proposed performance standards are two to three generations ahead of what is currently achievable. Accordingly, in its comments, Dow urges the Department to adopt regulatory standards based on ''practical, proven, real world solutions.'' Similarly, commenters express the view that current generation PIH tank cars (*i.e.*, existing PIH rail car designs) are not inherently flawed or unsafe. Accordingly, these commenters suggest that DOT pursue a design that utilizes current car designs as a ''platform'' for safety and security enhancements.

Although DOT believes that the proposed performance standards can be met utilizing currently available materials and innovative engineering approaches to tank car design, as discussed above, we recognize the need to further model and validate any final performance standard. We also recognize the need to assist industry in developing the requisite technical expertise to accurately model and analyze the large deformation with material failure problems required to develop a significantly better tank car design (whether that final design is one, two, or three generations ahead of existing DOT specification cars). We will continue to work with the tank car manufacturing and shipping industries through a series of technical meetings to share the ongoing findings of FRA's tank car research program (including Volpe's modeling and testing efforts). The goal of this work will be to develop an improved performance standard for adoption into the HMR. Meanwhile, in order to ensure the ongoing availability of PIH tank cars, this rule establishes interim standards for tank cars that may be built prior to the development and commercialization of the final performance standard. This rule responds to commenters' recommendations that in the time period before the development and commercialization of a final performance standard, we adopt a design that utilizes current car designs as a basis for improvements. As discussed in more detail in sections VI and VII below, this rule adopts enhanced commodity-specific design standards for PIH tank cars based on existing DOT specification cars.

AAR urges DOT to adopt its ''conditional probability of release''

(CPR) metric in ascertaining the safety afforded by various tank car designs (*i.e.*, the probability of a release in the event of an accident). This request was reiterated in the Joint Petition for an interim standard in which the ACC, ASLRRA, AAR, CI, and RSI requested that DOT approve interim rail tank car standards that would incorporate design specifications as well as an alternative performance standard based on the CPR metric. The Joint Petition is discussed in more detail in section IV.F below. Although FRA believes that the analysis underlying the CPR metric is technically sound from the standpoint of implementation of standard statistical mathematics, FRA does not believe that the design of a tank car can rationally be based on statistical analysis alone. Instead, consideration of the physics that tank cars experience during accidents, derailments, and other types of rail incidents must be considered. FRA is also concerned that many of the issues raised by commenters concerning validation of the performance standard proposed in the NPRM apply equally to the ''improvement factor'' utilized in the Joint Petition. We note in this regard that the ''improvement factor'' was, in effect, reverse engineered from existing, available tank car specifications. The Joint Petition asks DOT to allow for alternative proofs that the tank car improvement factor for the commodity is met, even though different designs are employed than those specified as meeting the requirement. FRA does not believe that alternative proofs could be utilized in this context without reliance on broad assumptions that may not be supported by actual experience. Additionally, going through the exercise of attempting to prove an outcome that was tied to an available DOT specification in the first instance would be both awkward and likely fruitless, because the basis of the regression results rely on evaluation of traditional DOT specification cars. DOT is aware that this approach is built around an expectation that protective structures may be distributed between the tank and jacket or head shield as described in the petition for chlorine cars. Accordingly, this rule does not adopt the CPR metric as proposed by both AAR and the additional parties to the Joint Petition. However, DOT does accept the basic framework of specifications that the parties contemplate for use and provides a more direct and less cumbersome means to demonstrate the performance of alternative designs of the sort the petitioners sought.[8] The Department's rationale is discussed in more detail in section VI below.

B. Proposed Implementation Period

The majority of commenters also express the view that the proposed eight-year implementation period is overly-aggressive and not realistic. Specifically, commenters contend that design, development, and manufacturing ramp-up cannot be completed within the two-year period contemplated by the proposed rule. Commenters also state that the six-year fleet replacement period contemplated in the NPRM is too short, given the capital expenditures that would be required by individual fleet owners to replace their entire fleets in six years, the capacity of tank car manufacturers to manufacture new cars, and other market forces (*e.g.*, demand for ethanol tank cars). Further, several commenters express the opinion that the proposed rule's requirements that 50% of each owner's fleet be replaced with cars conforming to the proposed performance standards within five years of a final rule's effective date and the requirement that all PIH tank cars constructed of non-normalized steel in the head or shell be replaced within the same time frame are unjustified, and in some instances, impossible to meet.

With regard to the two-year design and manufacturing ramp-up period contemplated in the proposed rule,[9] commenters assert that it will take up to ten years until a proven design is ready for full-scale implementation.[10] Specifically, in written comments, as well as at the technical symposium, tank car builders explain that the time required to take a new tank car design from the conceptual research and development point to full-scale production is highly dependent on several competing factors. First, the extent to which a new design differs from traditional rail car design will affect the time required to finalize, test, and implement that design. Second, builders indicated that the time necessary to move from design to full-scale production will also be dependent on the extent of manufacturer re-tooling required, the extent of changes in fabrication protocols and welding protocols required, the extent of training and recertification of skilled workers in those new protocols and welding techniques required, the need to obtain potentially new materials, as well as the need for Chapter 11 [11] service testing. Commenters suggest that a service trial period ranging from between 12 to 18 months to two years should be required for any new car with a design substantially different from current cars.

RSI asserts that the typical regulatory lead time for ''other federal performance standards that require new designs and engineering breakthroughs'' (*i.e.*, technology forcing regulations) is substantially longer than the two-year period contemplated by the proposed rule. According to RSI, new performance regulations in other transportation industries with ''significantly more resources allocated to research and development'' have allowed from three to six years for design development to the commencement of production. In support of this assertion, RSI cites a recent U.S. Environmental Protection Agency rule on locomotive emission standards, which allows seven years for compliance with performance standards requiring the development of new technology, while allowing one year for compliance with performance standards that can be met with existing technology.

Further, as discussed above, several commenters note that to date, research has focused on a chlorine car (the Volpe ''concept car'') designed to meet the proposed performance standards. Citing practical experience, commenters involved in the shipment of PIH materials other than chlorine (*e.g.*, anhydrous ammonia, ethylene oxide, methyl mercaptan, anhydrous hydrogen fluoride) express the view that any final tank car standards will need to take into consideration the physicochemical properties of specific PIH materials, as well as the differing hazards presented by each material. These commenters assert that this commodity-specific analysis will necessitate more time than

[8] Both the petition and this rule rely upon an assumption that, within reasonable bounds, distribution of protective structure between an exterior layer and the tank itself will produce the same results from the point of view of tank puncture resistance as using all of the material thickness in constructing the tank. Petitioners have not established that this is the case; however, engineers directing and conducting FRA-sponsored research are satisfied that the effects are likely commutative (additive), at least in the classic puncture scenarios described in the NPRM.

[9] *See* 73 FR 17846–47.

[10] Some commenters indicated that it would take at least three years to develop a compliant design (at least to the 25 mph puncture resistance standard) and some said it would take two years to get a design to market, provided a bigger impactor was used. These commenters, however, also noted that an additional service trial period would be necessary before the cars could reasonably be put into full service.

[11] Chapter 11 of the AAR's Manual of Standards and Recommended Practices, CII, M–1001, entitled ''Service-Worthiness Tests and Analyses for New Freight Cars.''

the two-year design and manufacturing ramp-up period proposed.

Asserting that a six-year replacement period for existing bulk packages is ''unprecedented,'' DGAC states that the proposed rule's six-year replacement period is ''unjustifiable from a cost benefit perspective.'' Arkema, a methyl mercaptan shipper, notes that there are a limited number of engineers and rail car manufacturers to meet the mandates of any new railcar design. Accordingly, Arkema expresses concern that first priorities for designing and building enhanced rail cars for PIH materials will focus on cars designed to transport those substances that make up the bulk of the PIH railcar fleet (*i.e.*, chlorine and anhydrous ammonia).

With regard to the proposed rule's requirement that all PIH tank cars constructed of non-normalized steel in the head or shell be replaced within five years after the final rule's effective date, (effectively, half-way through the six year proposed fleet replacement period), several commenters note the PIH shipping industry's voluntary efforts already underway to phase-out these tank cars. TFI, the national trade association that represents fertilizer producers, importers, wholesalers and retailers (*i.e.*, shippers of anhydrous ammonia), notes that its members are already voluntarily phasing-out the use of non-normalized steel cars for the transportation of anhydrous ammonia. Specifically, TFI states that its members utilize approximately 4,600 tank cars to ship anhydrous ammonia and only about 340 of those cars are pre-1989 non-normalized steel cars. Further, TFI notes that its members anticipate that these 340 non-normalized steel cars will be completely removed from their anhydrous ammonia fleets earlier than the five years proposed in the NPRM. For example, one member, CF Industries, Inc. (CF), states that, beginning in 2005, it began voluntarily to modernize its fleet of anhydrous ammonia tank cars by phasing out 313 of its pre-1989 non-normalized steel cars. CF indicates that it plans to remove the remaining 24 non-normalized steel cars from its fleet of anhydrous ammonia cars by the end of 2008.

Several commenters, citing present difficulties obtaining new PIH tank cars, raise the concern that if such difficulties are not resolved in the short term, shippers may be forced to keep these older cars longer or reduce the size of their fleets. These concerns are discussed in more detail below with other comments pertaining to the need for an interim standard for PIH tank cars.

CI comments that although it does not object to prioritizing the removal of pre-1989 tank cars constructed with non-normalized steel in any fleet replacement program, the accelerated retirement of these cars as proposed is not justified because there is not sufficient evidence demonstrating that such accelerated replacement will significantly enhance rail safety. Similarly, other chlorine shippers (PPG & U.S. Magnesium) say that early replacement of non-normalized steel cars as proposed is not justified since the performance of non-normalized cars has not differed significantly from that of normalized cars, and the cars show similar puncture resistance to normalized steel cars. Further, PPG notes that as proposed, the accelerated phase out of non-normalized PIH tank cars would require PPG to change out 75% of its fleet in three years, having a significant impact on PPG's earnings and putting PPG at a significant disadvantage relative to its competition. On the other hand, another chlorine shipper, Olin Corporation (Olin), does not object to the accelerated phase out of the pre-1989 non-normalized steel cars so long as the ''accelerated transition'' (presumably referring to the proposed requirement that one-half the fleet be replaced with cars meeting the enhanced performance standards within five years) is limited to non-normalized cars.

As an alternative to the overall eight-year implementation period proposed, both CI and TFI suggest that any final implementation period should be developed as part of a joint government/industry effort. PPG, which has a fleet of almost 2,600 owned and leased tank cars used for shipping chlor-alkali products, suggests that instead of specifying an implementation period in terms of a date certain, DOT incorporate a ''test plan'' into any final rule establishing enhanced tank car performance standards. Specifically, PPG suggests that such ''test plan'' include a statistically significant test fleet, a service trial period, and process for intermediate inspections. Dow recommends that DOT consider a longer transition period based upon the age, safety, and performance features of tank cars or to phase in new tank car standards for different PIH commodities over successive periods of time, allowing shippers to cascade cars down in service from higher to lower risk PIH materials. DOT appreciates the alternatives recommended by these commenters. Because the rule is limited to standards for new tank car construction in the time prior to the development, adoption, implementation and commercialization of a final performance standard, incorporation into this final rule of any of the recommendations is not appropriate at this time. We will, however, consider the specific recommendations as we develop regulatory requirements to implement a final performance standard.

With regard to the time period allowed for individual car owners to replace their existing PIH tank car fleets with tank cars meeting any final DOT standard, commenters suggest that consideration must be given to several competing factors on a fleet-by-fleet basis.[12] For example, several shippers have voluntarily upgraded their fleets over the last few years, and have purposefully ''over-built'' their tank cars with additional safety features not mandated by the HMR. These shippers express the view that unless consideration is given to these additional safety features already in place, they are effectively being penalized for voluntarily investing in those upgrades in the first place. Commenters also express the view that individual fleet size and age, annual shipment volumes, product characteristics, quantities of cars available for purchase or lease, and manufacturing delivery schedules are other factors that need to be considered on an individual fleet-by-fleet basis when determining an appropriate fleet replacement period.

We appreciate the comments regarding the need to consider adequate time for developing car designs, validating compliance with the performance standards, and ensuring the car is dynamically suitable and serviceable. DOT will consider these issues as we work to validate and finalize a performance standard for PIH tank cars and incorporate that standard into the HMR. We note that issues related to a delayed effective date would not appear to be relevant to this final rule, since builders can adapt existing tank car designs within a short time to meet the interim requirements. We also are modifying our proposal for phasing out cars constructed prior to 1989 with non-normalized steel in the head or shell. Although we continue to believe that an accelerated phase out of these cars is justified, we recognize the voluntary efforts already underway by many fleet owners to phase out these cars, in many cases on schedules more

[12] See Transcript of comments of PPG at May 14, 2008 meeting (available in the docket) and; written comments of U.S. Magnesium and ACC in the docket (document numbers 57 and 86).

aggressive than the five-year deadline proposed in the NPRM. Rather than imposing a fixed deadline, this rule requires rail car owners that elect to retire or remove rail tank cars from PIH service, other than because of damage to the cars, to prioritize the retirement or removal of pre-1989 non-normalized steel cars.

C. Proposed Allowance To Increase the Gross Weight on Rail of PIH Tank Cars

Although commenters raise practical concerns related to an increase to 286,000 pounds in the maximum gross weight on rail of hazardous materials tank cars, most generally support this aspect of DOT's proposal. Specifically, AAR indicates that the infrastructure of Class I carriers can generally accommodate the heavier cars and that short line railroads should generally be able to transport the heavier cars, with a few isolated weight restrictions (*e.g.*, bridges).[13] TFI expresses support for this aspect of DOT's proposal, but noting the practical issue that some anhydrous ammonia shipment origin and destination points cannot handle the heavier cars, TFI expresses concern that light loading (loading a tank car with less than its full capacity of product) and diversion to other modes of transportation (*e.g.*, highway) could occur. Similarly, CI indicates that although the proposed allowance to increase the maximum gross weight on rail would be a ''positive move removing regulatory burden on shippers using the heavier car,'' CI expresses the same concerns as TFI. Individual shippers and the DGAC commented similarly, with one shipper (U.S. Magnesium) noting that it expects to upgrade its own track this year to accommodate 286,000 pound cars. At the May 14, 2008 public meeting, a representative of Olin Corporation, one of the largest shippers of chlorine in North America, estimated that due to infrastructure issues, approximately 50% of Olin's customers are currently unable to receive 286,000 pound cars. Further, the Olin representative noted that if the current 500 psi tank car typically used to transport chlorine were replaced with a 600 psi car, as originally proposed by the AAR's interchange standard, due to the increased weight of the tank car itself, Olin would have to light load approximately half of its shipments by approximately six tons each. In other words, instead of shipping 90 tons of chlorine in one tank car, Olin would be limited to shipping only 84 tons per tank car. Assuming demand remained constant, as other commenters note, this light loading would translate into additional shipments of chlorine and potentially the need for additional tank cars in which to transport the chlorine.

In response to questions presented by the Department at the May 15, 2008 public meeting regarding exactly how many anhydrous ammonia origin and destination points would not be able to handle the heavier cars, in its written comments TFI notes that five of its members reported that approximately 2,758 shipments of anhydrous ammonia would be affected annually. In response to a similar question posed on May 14, 2008 to CI, the Institute reports that of the six member companies responding to the question, approximately 50% of the origin and destination points of each company would be unable to handle rail tank cars weighing 286,000 pounds. The American Chemistry Council (ACC), which represents companies that ship most, if not all, of the PIH materials other than anhydrous ammonia, similarly noted that not all shipper and receiver locations of its members can accommodate 286,000 pound gross weight on rail cars.

TFI and individual shippers of anhydrous ammonia suggest that a longer phase-in schedule would allow more time for infrastructure upgrades necessary to support the heavier car and suggest that DOT require that railroads prioritize upgrades in geographical areas through which PIH materials are typically transported.

Although we recognize the practical issues noted by commenters associated with utilizing heavier tank cars to transport PIH materials, we also note that AAR's existing interchange standards, applicable to all freight car types and products, provide for the free interchange of freight cars up to 286,000 pounds.[14] Accordingly, we understand that freight rail cars with a maximum gross weight on rail of 286,000 pounds have become the industry standard for Class I railroads and that a substantial portion of the entire North American freight car fleet (not just hazardous materials tank cars) already meets the 286,000 pound interchange standard.[15] Given anticipated growth and capacity issues, FRA believes that the number of 286,000 pound freight cars will continue to increase over the coming years as railroads and shippers seek to maximize the resulting efficiencies and reductions in operating costs associated with the use of these larger freight cars. In general, use of larger 286,000 pound rail cars reduces the number of cars needed to transport the same volume of cargo, allowing corresponding reductions in the number of trains and locomotives. These reductions produce savings in ownership, maintenance, and crew costs; improved net-to-tare ratio (ratio of goods carried to empty car weight); and reduced fuel costs associated with the decrement of the train resistance (fewer axles needed for equivalent car weight). Offsetting these cost advantages are higher maintenance of way costs (including costs to upgrade track from 263,000 pound compliant to 286,000 pound compliant). Although short lines in most instances do not handle traffic volumes sufficient to truly realize these cost savings, in order to participate in the national rail network (*i.e.*, to originate and terminate traffic from other railroads), short lines must be able to accommodate the equipment used by Class 1 carriers. Accordingly, short lines must upgrade the weight-bearing capacity of their tracks and bridges to handle 286,000 pound railcars or risk losing business. FRA understands that throughout the last several years the short line industry has been going through an extensive process of upgrading track infrastructure to accommodate 286,000 pound freight cars. The short line industry has been aided in this endeavor through state funding, tax credits, and most recently the Rail Revitalization and Improvement Funding (RRIF) program, which provides loans and loan guarantees for the acquisition, development, improvement, or rehabilitation of rail equipment or facilities.

Accordingly, as noted at the May 15, 2007 public meeting, FRA believes that infrastructure restrictions related to the use of 286,000 pound tank cars are for the most part limited to PIH shipment origin and destination points. FRA also believes that the railroad industry standard providing for 286,000 pound freight cars generally will lead to the upgrading of not only railroad infrastructure, but the infrastructure of companies that ship or receive by rail (whether via hazardous materials tank cars or other railroad freight cars).

As noted above, although several shippers raise practical concerns related to the proposed allowance to increase the maximum allowed gross weight on rail of hazardous materials tank cars,

[13] No short line railroad directly commented on the NPRM. However, the American Short Line and Regional Railroad Association did join in the petition filed by the AAR, ACC, and RSI.

[14] Standard S–286 is the existing industry standard for designing, building, and operating rail cars at gross weights between 263,000 pounds and 286,000 pounds.

[15] As noted in the NPRM, to date DOT has also issued several Special Permits allowing the use of tank cars weighing up to 286,000 pounds. *See e.g.*, 71 FR 47288, 27301 (Aug. 16, 2001) (Special Permit number DOT–SP 14167, Trinity Industries, Inc.).

several of those same shippers suggest that a longer phase-in period for enhanced tank cars would allow more time for infrastructure upgrades to handle the heavier cars. In addition, because the scope of this rule is limited to newly-manufactured cars, shippers will have the flexibility to use existing 263,000 pound cars where infrastructure does not support the heavier cars.

At the end of the day, most of the commenters that expressed concern about the 286,000 pound issue joined one of the two petitions for rulemaking seeking establishment of interim tank car standards. Both petitions advocate increases in package strength that inevitably will either lead to construction of 286,000 pound cars (if allowed) or reduced-capacity 263,000 pound cars. Our economic analysis recognizes that, for an interim period during which remaining facilities are being improved to handle 286,000 pound cars, some additional shipments will be required. This should not impose an impossible burden on anyone; in fact, most commenters, while expressing some concern about increased costs, express considerable support for the adoption and implementation of safety improvements.

D. Proposed Speed Restrictions

The NPRM proposed a maximum speed limit of 50 mph for all trains containing railroad tank cars used to transport PIH materials, and a maximum speed limit of 30 mph in non-signaled (dark) territory for all trains with railroad tank cars transporting PIH materials, unless the material is transported in a tank car meeting the proposed enhanced tank-head and shell puncture-resistance systems. The NTSB and several members of the PIH shipping industry (tank car owners and lessees) express support for these proposed operational restrictions. For example, noting that the NTSB has attributed recent incidents involving the breach of chlorine tank cars to railroad operational issues, CI expresses its full support for the proposed operational restrictions. Another commenter (Occidental Chemical Corporation (OxyChem)) suggests that the proposed rule should have included additional operational improvements and restrictions by railroads and notes that although the speed and the presence of signaled versus dark territory are factors impacting the likelihood and severity of an accident, other factors (such as traffic density, bidirectional traffic, number of switches along a line, population densities, positive train control, and placement of PIH tank cars within trains) also need to be considered. Noting operational restrictions imposed through a recent Special Permit issued to BNSF Railway authorizing the railroad to operate outside the requirements of 49 CFR 174.14 (commonly known as the 48-hour rule) in order to better manage its PIH movements over non-signaled track, OxyChem suggests that similar operating restrictions be incorporated into the final rule.[16]

Although expressing support ''in principle'' for the proposed speed restrictions, NTSB asserts that such restrictions do not fully address its Safety Recommendations R–05–15 and R–05–16 relating to operating speeds in non-signaled territory. Specifically, NTSB notes that its Safety Recommendation R–05–15 applies to any train operating in non-signaled territory, with no system to provide train crews with advance notice of switch positions; the NPRM would apply only to tank cars transporting PIH materials. Similarly, NTSB notes that its Safety Recommendation R–05–16 includes operating measures (including positioning tank car toward the rear of trains and reducing speeds through populated areas) designed to minimize impact forces from accidents and to reduce the vulnerability of tank cars transporting PIH materials; neither of which were considered in the NPRM. Although, as discussed below, DOT agrees with NTSB that reduced train speed in non-signaled territory can be part of a strategy to mitigate the effects of train accidents, we do not believe that Recommendations R–05–15 and R–05–16 can be effectively implemented in their entirety without introducing additional safety risks and an extreme economic burden on industry.[17] As we work to develop and implement a final performance standard, however, we will continue to evaluate the potential of any feasible operating measures to minimize the impact forces from accidents and reduce the vulnerability of PIH tank cars.

Some of the same shippers expressing support for the proposed operational restrictions, however, also express concern regarding the potential negative impacts of the speed restrictions, including longer transit times, increased costs, potential increase in number of cars needed to meet demand, and apparent competing goals of Transportation Security Administration (TSA) initiatives to reduce the transit time of PIH materials, including reducing the dwell time of PIH shipments in transportation through high density population centers. Similarly, citing the same concerns noted above, other PIH material shippers express the view that the detrimental effects of certain aspects of the proposed operational restrictions would outweigh any safety benefits to be derived from such restrictions. For example, the National Association of Chemical Distributors (NACD) expresses concern with the proposed interim 30 mph speed restriction in dark territory for PIH tank cars not meeting the enhanced performance standards proposed. Specifically, NACD asserts that such a speed limit is ''contrary to the important objective of having these materials in transit for as short of a time as possible.'' NACD further asserts that the 30 mph speed limit would provide no guarantee that incidents would be eliminated. Further, NACD asserts that ''if two trains traveling at 30 mph were to crash, the result would be the same as that of a crash involving a single train traveling at 60 mph.''

NACD also expresses the view that the proposed 30 mph speed limit would adversely affect the timely delivery of anhydrous ammonia, a time-sensitive product given the short window of opportunity for application in agricultural operations. Similarly, Dow suggests that the operating restrictions proposed in the NPRM (taken together with other regulatory requirements), would ''only exacerbate'' the current situation of the tank car industry and even ''accepting the optimistic assumption in the NPRM that compliant tank cars will be available for purchase in two years, TIH shippers are likely to require more tank cars before then, if the proposed operating restrictions'' are implemented in the meantime.[18]

Subject to certain practical concerns, AAR and the Class I railroads (including CSXT, CP, and NS), generally support the proposed 50 mph maximum speed

[16] *See* Special Permit No. DO–SP 14436 (Jan. 30, 2008). The Special Permit provides BNSF with relief from the requirements of the 48 hour rule when transporting TIH materials over certain dark territory routes, subject to certain conditions (*e.g.*, maximum authorized speed of 35 mph, route must be evaluated and inspected by qualified railroad track department personnel prior to train hauling PIH materials traversing the track, trains hauling PIH materials must hold the main line during meets, and trains on sidings must stop before a PIH train passes).

[17] FRA's specific concerns with these Safety Recommendations are discussed in the NPRM. 73 FR 17828.

[18] Arkema indicated that it does not support maximum speed limit restrictions based solely on railcar content and that any speed limit restrictions should also be based on ''roadbed construction and environment.'' In response to this comment, DOT notes that FRA's track safety standards (49 CFR part 213) mandate minimum safety requirements that a track must meet and the condition of the track is directly tied to the maximum allowable operating speed for the track.

limit for all tank cars transporting PIH materials. However, these commenters strongly oppose the proposed interim 30 mph restriction in dark territory for tank cars not meeting the proposed tank head and shell impact performance standards.[19] First, acknowledging that as proposed, both the 30 and 50 mph speed limits would apply to residue tank car shipments of PIH materials, AAR expresses the view that the risk of a significant release of a PIH material ''from residue shipments is so small that the costs imposed on railroads and society from either speed limit cannot be justified.'' AAR also notes that the Department's analysis of costs related to the proposed 50 mph restriction in the Regulatory Impact Analysis (RIA) accompanying the NPRM appears to assume that the only trains that would be impacted by the 50 mph speed restriction would be trains operating with fewer than five tank cars containing PIH materials in accordance with industry's standard practice (*i.e.*, AAR's Circular OT–55–I).[20] Since Circular OT–55–I only applies to loaded tank cars, AAR reasons that DOT must be ''assuming that its proposal also only applies to loaded tank cars.'' Further, AAR asserts that DOT's estimate in the RIA that there are 78,000 tank car loads of PIH materials annually is reasonable only if residue shipments are not counted. AAR further asserts that should DOT desire to apply either proposed speed restriction to residue shipments, publication of a new NPRM would be required.

The commenting Class I railroads echoed AAR's views regarding residue tank cars and suggested that as an alternative DOT adopt a requirement that ''virtually all PIH be removed from a tank car before it is returned to the delivering rail carrier.''

As noted above, AAR and most of the Class I railroads that provided written comments strongly oppose the proposed 30 mph interim speed limit for tank cars transporting PIH materials in dark territory that do not meet the enhanced performance requirements of the rule. These commenters reiterate the practical concerns expressed by shippers, assert that DOT did not adequately justify the proposed restriction, and suggest that the proposed restriction would have an adverse effect on railroad operations (*e.g.*, increased switching, delays and/or increased transit times for virtually all railroad customers thereby reducing equipment utilization (which would exacerbate existing capacity constraints), and increasing dwell time of PIH tank cars in yards and terminals). In addition, CP asserts that the NPRM's focus on PIH shipments traversing ''non-signaled territory does not appear to be rationally related'' to the stated purpose of the rule (*i.e.*, to minimize the probability of release from a PIH tank car in the event of an accident).

AAR notes that the proposed 30 mph speed limit would require railroads to adjust their operations in one of two ways. First, railroads could group PIH shipments in fewer trains, thereby limiting the number of trains that would be subject to the speed restriction. AAR asserts, however, that the ability of railroads to group PIH cars in fewer trains is limited by the regulatory requirement to expedite hazardous materials shipments. *See* 49 CFR 174.14 (prohibiting, with certain exceptions, carriers from holding hazardous materials shipments for longer than 48 hours at any one location). Further, AAR asserts that to the extent railroads are able to group PIH tank cars in fewer trains, the dwell time for such shipments would necessarily increase; which is directly counter to TSA's efforts to reduce dwell time for PIH shipments. CP estimates that holding PIH tank cars for consolidation into fewer trains on one line segment of 430 miles of non-signaled track between Portal, ND and Glenwood, MN (Portal-Glenwood line), would increase dwell time by a minimum of 4 days in each direction (*i.e.*, 8 days on a round trip). CP further notes that such consolidation would result in an additional 1–2 switching moves during the course of each PIH shipment, which AAR suggests could have an adverse safety impact by increasing the exposure of employees to injury.

Second, AAR notes that railroads could slow all trains with PIH shipments in non-signaled territory to the proposed 30 mph limit. AAR asserts that an overall reduction in speeds for all PIH-hauling trains would adversely affect railroad operations by decreasing overall system velocity, which could potentially lead to diversion of some traffic to other modes of transportation.[21]

CSXT asserts that the proposed 30 mph interim speed restriction in dark territory is based on two faulty assumptions: (1) That only trains actually containing a PIH tank car would be affected by the proposed restriction; and (2) that as new cars meeting the proposed performance requirements come into service, the number of trains that will be affected by the speed restriction will decrease. CSXT contends that, given its train scheduling methodology, both of these assumptions are false. According to CSXT, ''[t]he projected run time of a scheduled merchandise train (*i.e.*, a train potentially carrying non-hazardous as well as hazardous freight) is based on three factors: (1) The maximum authorized speeds in the timetable, (2) the meet and pass planning in [the CSXT] systems, and (3) the historical run times of trains on the subdivision.'' In building initial train profiles under the provisions of the proposed rule, CSXT contends that it would have to assume the most restricted scenarios (*i.e.*, assume that all general merchandise trains operating in non-signaled territory would have a PIH car) and that ''[m]aking tactical changes daily based on the actual train consist would simply not be viable.''

According to CSXT, 17 of its 51 scheduled general merchandise trains operating in non-signaled territory would be unable to make the crew change point if a 30 mph speed restriction were imposed. In these 17 instances, CSXT notes that having to routinely re-crew trains en route would disrupt operations, creating at a minimum, ''17 daily choke points on the CSXT network.'' Further, CSXT contends that the proposed 30 mph speed restriction would result in a 10% reduction in capacity on one densely traveled line. Although CSXT did not identify the line at issue, it reported that the potential effects of a 35 mph speed restriction and a 40 mph speed restriction on this same line and concluded that restrictions would result in capacity reductions of 7% and 4%, respectively. CSXT further notes that each of these analyses considered absolutely perfect operating conditions,

[19] CSXT noted that OT–55–I's 50 mph speed limit on key trains ''does not have the same network implications as dropping from 50 to 30 mph. In maintaining network fluidity, homogeneity of speeds is invaluable. If a train ordinarily can operate for parts of its run at above 50 mph, but is forced on occasion to limit speeds to 50, the adverse effects are generally not extensive. In addition, general merchandise trains that operate out of areas where TIH is sourced are scheduled with the expectation that they will always be limited to 50 mph.'' NS further noted that they treat all trains containing one or more loaded PIH tank cars (as opposed to OT–55–I's five or more loaded PIH tank cars) as key trains. Accordingly, NS's standard practice is to operate trains with one or more loaded PIH tank cars no faster than 50 mph.

[20] A copy of AAR Circular OT–55–I is available in the docket and a more detailed discussion of the Circular's recommended practices is included in the NPRM. 73 FR 17831.

[21] Although commenters caution that diversion of PIH shipments to other transportation modes (*e.g.*, motor carrier) may occur if rail transportation becomes too cumbersome or expensive, it appears that any such diversion would be limited due to safety and cost considerations. Commenters note it takes approximately four truck loads to transport the same capacity as one rail tank car. Commenters further note that diversion to motor carrier is generally only cost effective for relatively short moves (*i.e.*, moves up to 500 miles).

with no track curfews, other network congestion issues, or localized difficulties.

Finally, CSXT explains that rail network velocity directly impacts how fast privately owned freight cars cycle. Increasing network velocity enables a carrier to handle more freight with existing car capacity, while providing good customer service. Implicit in CSXT's comments is the suggestion that decreasing network velocity will lead to longer equipment cycle times, and thus, additional rail freight cars, not only for the PIH shipping industry, but non-PIH rail shippers as well.[22]

Similar to CSXT's comments, CP asserts that DOT underestimated the costs of implementing the proposed 30 mph speed restriction. Specifically, CP analyzed the potential costs of implementing the restriction in two primary corridors of its network that include significant amounts of non-signaled track—approximately 430 miles of non-signaled track between Portal, ND and Glenwood, MN and approximately 266 miles of non-signaled track between Noyes, MN and Glenwood, MN. Assuming that the 30 mph speed restriction would apply to all trains carrying PIH shipments over these non-signaled line segments, CP determined that the proposed 30 mph speed limit would result in direct increased operating costs of $7 million per year (approximately $3.5 million in train miles costs and another $3.5 million in train re-crewing costs). Over the proposed eight year implementation period, these costs would total $56 million. Noting that DOT estimated in the RIA that the proposed restriction would cost the rail industry as a whole approximately $133.87 million over eight years (not including costs incurred by BNSF), CP expresses the view that its finding of a $56 million increase in operating costs for its two lines strongly suggests that the RIA's cost estimate substantially underestimated the potential economic burden that the restriction would impose on the rail industry.

CP further notes that in addition to the increased direct operating costs in the form of train miles and re-crewing costs, analysis indicated that the proposed 30 mph speed restriction would increase running time by five hours for all trains carrying PIH tank cars between Portal and Glenwood. This, CP asserts, would impact not only PIH shipments, but every other car moving in a train that was subject to the 30 mph restriction, and given the time-sensitive commodities moved on the CP lines at issue, could cause shippers of time-sensitive commodities to divert their shipments from CP's lines to motor carriers. Further, noting that installing a signal system on the Portal-Glenwood line would require a capital investment of $36–$71 million, with additional annual maintenance costs of $400,000–$800,000, CP asserts that eliminating the non-signaled lines within its network is cost prohibitive.

Putting aside the estimated impacts of the proposed interim 30 mph restriction, AAR and CP, in particular, assert that DOT did not adequately justify the proposed requirement. These commenters contend that DOT's analysis of 19 accidents since 1967 provides an insufficient basis for the proposed speed restriction because of the limited number of accidents considered, all of which involved chlorine or anhydrous ammonia tank cars breached due to head and shell punctures, cracks, or tears. Further, noting changes in the railroad operating environment since 1965, CP asserts that DOT's analysis ''led it to make findings based on circumstances that no longer exist.'' Noting the various mean and median speeds at which the 19 cited accidents occurred, these commenters also question DOT's proposed 30 mph threshold and instead suggest that a higher speed threshold may be more appropriate. CP estimates that the costs of imposing 30, 35, 40 and 45 mph speed restrictions in dark territory would result in cost increases relative to the revenue generated by PIH shipments of 27%, 16%, 8%, and 2%, respectively. Again, contending that this cost burden would impact not only the PIH shipping and receiving industries, but all rail customers, CP suggests that DOT consider alternatives to the proposed 30 mph dark territory speed restriction to improve the safety of railroad tank car PIH transportation.

Although DOT remains firmly convinced that reduced train speed in dark territory can be part of an interim strategy to mitigate the effects of train accidents in some instances, DOT is not adopting the 30 mph speed limitation in this final rule. In proposing the restriction, we envisioned it as a temporary measure with a foreseeable life span, for which potential impacts could reasonably be foreseen. As a result of DOT's decision to authorize the construction of interim cars that will not meet the performance standards proposed in the NPRM, and the expectation that these cars will have a useful life of at least two decades, estimating the potential impact of the 30 mph speed restriction is extremely difficult. Moreover, the time horizon within which the speed restrictions would remain in effect would be substantially expanded. Traffic continues to grow on the national rail system, even on many non-signaled rail lines. As capacity is constrained, the cost of any restriction on the speed of trains will markedly increase. Further, we are persuaded by the comments filed by CSXT (discussed above) that the introduction of speed-restricted cars could significantly upset its operating plan because of its inability to anticipate which trains would need to transport PIH cars on any given day and because of the ripple effects of delays.

Finally, DOT believes that the recently published final rule on routing of sensitive hazardous materials, including PIH shipments, provides a useful framework for better targeting risk reduction strategies.[23] The interim final rule requires rail carriers to analyze the safety and security risks of the routes currently used to transport certain high-risk hazardous materials, including PIH materials, and all available alternative routes. Rail carriers must use that analysis to select routes that pose the fewest overall safety and security risks. In addition, under authority granted in 49 U.S.C. 20502, DOT may require implementation of supportable risk reduction measures, including the installation of signal and train control systems. Taken together, these measures allow DOT and the railroads to develop ways to target and address excess risk in dark territory.

In this rule, DOT is adopting the proposed overall 50 mph speed restriction for loaded PIH tank cars. Commenters are correct that we did not clearly state our intention to subject residue shipments to the 50 mph speed restriction in the NPRM; certainly, the supporting RIA did not account for the added costs that would result from the inclusion of residue shipments. While we continue to believe that residue shipments of PIH materials pose a safety risk that is directly related to the amount of material remaining in the tank, we note that the reduced product load may contribute to somewhat less frequent releases than from fully loaded cars, stemming in part from the reduced mass of the car, and that the consequences of an accident involving a residue shipment will generally be less severe than the consequences of an accident involving a fully loaded car. For these reasons, we agree with commenters that the costs associated

[22] CSXT references the present high demand for coal transportation and suggests that ''productivity of utility companies' car fleets should be a national priority.''

[23] 73 FR 72182 (Nov. 26, 2008).

with imposing the overall speed restriction on residue shipments would likely outweigh any safety benefits. Therefore, in this rule we are not adopting the overall 50 mph speed restriction for tank cars containing residues of PIH materials. We encourage railroads to apply the overall 50 mph speed restriction to residue shipments where such application is feasible and practicable.

E. PIH Tank Car Top Fittings

Noting ongoing government and industry research efforts to develop consensus-based industry standards for enhanced tank car top fittings protection, in the NPRM we did not propose to revise current requirements for tank car top fittings.[24] Specifically, we stated that adopting new standards (by rulemaking or otherwise) for top fittings protection would be inappropriate because it was not yet clear what modifications would provide a substantial improvement in the ability of top fittings to: (1) Withstand accident conditions, while providing at least the same level of protection from non-accident releases; (2) continue to work with industry's existing loading and unloading infrastructure; and (3) maintain compatibility with current emergency response requirements (*e.g.*, compatibility with Emergency Kit C, which is used to contain leaks in and around the pressure relief device and valves in the case of chlorine cars). 73 FR 17840. In the NPRM, we also noted that although incidents involving tank car top fittings do occur, historical accident data demonstrate that top fittings are not a significant factor in the risk associated with large product losses. *Id.*

Several commenters express disagreement with our conclusions and suggest that we incorporate improved top fittings standards in a final rule addressing enhanced tank car specifications. For example, BNSF asserts that ''[t]op fittings protection needs to be addressed by DOT, either specifically in the requirements of the Final Rule or by including or formally recognizing the industry's interchange standards in the Final Rule.'' BNSF cites a May 17, 2008 derailment in Lafayette, Louisiana, resulting in the release of over 8,000 gallons of hydrochloric acid when a tank car's top fittings were sheared off. The release resulted in the mandatory evacuation of several thousand residents. BNSF notes that although hydrochloric acid is not a PIH material, a tank car containing a PIH material was next to the derailed hydrochloric acid tank car in the consist.

Noting DOT's stated reliance on an analysis of 14 chlorine tank car releases between 1965 and 2005, with one release of 1,000 gallons,[25] AAR asserts that ''DOT can hardly minimize the significance of a loss of 1,000 gallons * * * when it has just issued an interim final rule addressing the routing of TIH materials where it bases a decision to regulate on the potential for a release from tank cars containing 320 gallons or less.'' *See* 74 FR 20752, 20758 (Apr. 16, 2008). AAR further notes that according to the Railroad Tank Car Safety Research and Test Project's analysis of lading losses, losses from the top fittings account for 20 percent of 135 releases from pressure cars in mainline accidents where five percent or more of the lading was released;[26] in AAR's words, ''hardly an insignificant percentage.'' In its comments to the docket, AAR urges us to adopt the top-fittings standard of CPC–1187.[27] AAR notes that the AAR Tank Car Committee has already approved two designs meeting both the CPC–1187 standard and DOT standards, and that a third design meeting the CPC–1187 standard is authorized under a DOT special permit.

Another commenter, TGO Technologies, Inc., suggests that any new tank car design must include secondary containment of the manway. TGO asserts that measures such as lowering the profile of the valves, installing a roll bar, welding the protective housing to the pressure plate (as opposed to bolting it), and similar measures, may provide ''some protection'' against releases, but not equal to what a passive secondary containment system could provide. Although DOT understands the value of secondary containment systems in certain situations, we do not believe that reliance on such systems would be appropriate in attempting to increase the crashworthiness of railroad tank cars transporting PIH materials.

Recognizing that since publication of the NPRM, industry has developed several improved top fittings designs,[28] and in response to commenters' suggestions that we address top fittings, in this rule DOT is modifying requirements in the HMR applicable to PIH tank car top fittings. The specific modifications adopted are discussed in more detail in the section by section analysis of § 179.102–3 below.

F. The Need for an Interim Standard for Tank Cars Used To Transport PIH Materials

PIH shippers that submitted comments on the NPRM note that, unlike other railroad freight cars, hazardous materials tank cars are primarily owned or leased by shippers, not the railroads. The overwhelming majority of these commenters recommend that DOT adopt an interim tank car standard, with an appropriate grandfathering period for tank cars meeting such standard, as a solution to ensure the availability of PIH tank cars in the time period before DOT's proposed performance standards are finalized and tank cars can be built to meet those standards. PIH shippers explain that obtaining new or leased PIH tank cars at the present time is very difficult, if not impossible. Commenters note that, subsequent to publication of the NPRM, AAR renewed its previously suspended interchange standard (Casualty Prevention Circular 1187 or CPC–1187) for tank cars transporting PIH materials.[29] Although the tank car head and shell requirements of CPC–1187 can be met by using DOT specification tank cars of higher tank classes than required by DOT standards, tank cars built to meet the CPC–1187 standard would not meet the performance standards proposed in the NPRM. Commenters express concern that the tank cars could not be retrofitted to meet any final DOT standard because of the weight of the cars. Coupled with the general consensus of the tank car industry that the tank head and shell puncture resistance performance requirements proposed in the NPRM are ''technology-forcing,'' commenters assert that the tank car market is effectively frozen. According to these commenters, shippers and other tank car purchasers (*e.g.*, tank car lessors) cannot purchase PIH tank cars with any assurance that the cars will have a reasonable economic life. According to these commenters, this uncertainty

[24] *See* 73 FR 17840. The existing regulatory requirements for top fittings are found at 49 CFR 179.100–12.

[25] 73 FR 17840.

[26] AAR cites the Railroad Tank Car Safety Research and Test Project, ''Safety Performance of Tank Cars in Accidents: Probabilities of Lading Loss,'' RA–05–02, p. 30 (Jan. 2006).

[27] The top fittings standard proposed in the Joint Petition discussed above is the top fittings standard of CPC–1187.

[28] Although some of these designs are still undergoing service trials, each have been found to improve the ability of the fittings to withstand accident conditions (and not adversely affect the potential for non-accident releases), work with industry's existing loading and unloading practices, and maintain compatibility with current emergency response equipment.

[29] CPC–1187 is discussed in detail in the preamble to the NPRM. 73 FR 17832–17833 and in AAR's comments responding to the NPRM. *See* document no. 79 in the docket.

encourages lessors to delay purchases or to exit the market altogether, in either case leading to the delayed phase-out of aging tank cars that would normally be replaced with newer, safer cars and, potentially, a shortage of PIH tank cars.

Several commenters suggest specific interim solutions. Some recommend that DOT grandfather existing PIH tank cars under any final rule. Others recommend that DOT grandfather tank cars constructed to meet the standards of CPC–1187, assuring purchasers of these tank cars that the cars will be afforded a reasonable economic useful life. Commenters suggest grandfathering periods from 15–50 years.

For example, Dow suggests an interim chlorine tank car utilizing a current 105J600W car with full-height head shields, 1.1360 inch head thickness and 0.9819 inch shell thickness; or an enhanced 105J500W car with full-height head shields, and with head, head shield and jacket thickness to achieve an equivalent level of puncture resistance as the enhanced 105J600W, or any alternative design that can be demonstrated to achieve an equivalent puncture resistance. Similarly, Dow suggests an interim ethylene oxide car utilizing a 105J500W car with full-height head shields, 1.0300 inch head thickness and 0.8900 inch shell thickness; or an enhanced 105J300W or 105J400W car with full-height head shields, and with head, head shield and jacket thickness to achieve an equivalent level of puncture resistance as the enhanced 105J500W, or any alternative design that can be demonstrated to achieve an equivalent puncture resistance. Dow recommends that any such interim car be authorized for its intended service for at least 25 years from its original build date.

The Ethylene Oxide/Ethylene Glycols Panel of the Ethylene Oxide Safety Task Group of the ACC recommends a retrofit approach to an interim ethylene oxide tank car. Specifically, this Task Group suggests an interim standard for ethylene oxide tank cars complying with at least the 105J300W specification, insulated tanks and protected with an outer steel jacket at least 0.375 inches thick and constructed of steel similar to TC128B. The Task Group further proposes that a tank car meeting such interim standard be authorized for ethylene oxide service for 50 years from its original construction.

In addition to these specific suggestions for interim tank car standards, as noted in the ''Background'' section above, industry participants filed two petitions requesting that the Department amend the HMR to authorize interim standards for tank cars transporting PIH materials. The Joint Petition, filed by ACC, ASLRRA, AAR, CI and RSI (Petitioner Group) seeks DOT approval of interim rail tank car standards that could be met in three different ways. First, the Joint Petition contemplates a commodity-specific scaled step up in the DOT specification tank car used to transport PIH commodities. In other words, the Joint Petition proposes that where the HMR currently require a 105*300W car (DOT specification tank car authorized for transportation of chlorine) or 112*340W car (DOT specification tank car authorized for transportation of anhydrous ammonia), as a stepped improvement, the proposed interim standard would require a 105J500W or 112J500W car,[30] with a minimum head and shell thickness of 13⁄16 inches and a full-height 1⁄2-inch thick or equivalent head shield. Similarly, the Joint Petition proposes that where the HMR currently require a 105*500W or 105*600W tank car, as a stepped improvement, the proposed interim standard would require a 105J600W car, with a minimum head and shell thickness of 15⁄16 inches and full-height 1⁄2-inch thick or equivalent head shield.

Second, the Joint Petition contemplates an alternative performance standard based on the CPR metric discussed above. This alternative performance standard utilizes relative probabilities that conventional tank cars and tank cars with thicker tanks will release hazardous materials in an accident. In the Joint Petition, this relative comparison between two conditional probabilities is referred to as the ''Tank Improvement Factor'' (TIF). The Joint Petition contains a table showing the TIF for 25 PIH materials commonly transported by railroad tank car.

Third, the Joint Petition requests that DOT allow alternative methodologies to demonstrate improvement equivalent to the TIF calculation.

The Joint Petition proposes a specific design standard for chlorine tank cars, which Petitioners assert would achieve the desired CPR improvement. The initial chlorine tank car design standard proposed was a 105J500W tank car with a head, shell, jacket, and head shield, 0.777 inch thick, 0.777 inch thick, 0.375 inch thick, and a 0.625 inches thick, respectively. In comments submitted on July 25, 2008, the Petitioner Group modified the proposed chlorine design standard to a 105J500W tank car with a total head and head shield thickness of 1.636 inches and a total shell and jacket thickness of 1.102 inches. Both proposed design standards specified that the jacket be constructed of steel with a minimum tensile strength of 70 ksi and minimum elongation in two inches of 21%.

The Joint Petition also proposes a top fittings protection standard that would require top fittings to be designed to withstand, without loss of lading, a rollover with a linear velocity of nine mph. Noting that the HMR currently mandate that the top fittings protection system be bolted to the tank, the Joint Petition suggests that the 9 mph rollover standard necessitates, instead, that the top fittings protection system be attached to the tank by welding. This top fittings arrangement is consistent with CPC–1187's requirement.

Finally, the Joint Petition proposes that DOT grandfather tank cars built to meet the proposed standards for 25 years after the effective date of the final rule in this docket.

In its petition, TFI expresses support for many aspects of the Joint Petition, but also contends that the unique characteristics of its members' fleets of anhydrous ammonia tank cars necessitate special consideration by DOT. Noting the safety features of the typical anhydrous ammonia tanks cars currently in service, DOT112J340W tank cars, TFI proposes that these cars remain in production until January 1, 2009 and proposes set useful lives of these cars of approximately 20–25 years. As an interim car to be manufactured starting January 1, 2009 until cars are available under any DOT final performance standard, TFI proposes DOT 112J400 pound cars with thicker jackets and a guaranteed useful life of 25 years from the date of a final rule in this docket.

DOT agrees with commenters' assertions that an interim solution is necessary. Accordingly, this rule amends the HMR by specifying enhanced commodity-specific design standards for PIH tank cars constructed after March 16, 2009. The standards specified are based on existing DOT specification cars and modified top fitting designs developed by industry since publication of the NPRM. This rule provides for a 20-year expected PIH service life of tank cars meeting these interim standards. As noted above, this rule is an interim solution to the market issues identified by commenters. DOT intends to move forward as expeditiously as possible with the development and validation of an enhanced performance standard for PIH tank cars, and the incorporation of such enhanced standard into the HMR.

[30] A DOT class 112 car differs from a DOT class 105 car in that it is not insulated.

Although as noted in section A above, we have not adopted the exact standards proposed by AAR and the Petitioner Group, we utilized the Group's basic framework of proposed specifications to develop a more direct and less cumbersome means of demonstrating the performance of alternative tank car designs, which takes into consideration the physics that tank cars experience during accidents, derailments, and other types of rail incidents. This methodology results in interim standards generally consistent with that proposed by both the Petitioner Group and TFI.[31]

V. Discussion of Comments on Petitions for Interim Tank Car Standards

On July 23, 2008, PHMSA published the petitions submitted by the Petitioner Group and TFI and requested comments on their merits (73 FR 42765). Approximately 20 persons submitted comments, including industry associations, PIH shippers and receivers, a tank car manufacturing and repair company, the American Association for Justice, and representatives of local governments and emergency response teams. Although most commenters reiterate their support for DOT's development of a performance standard as proposed in the NPRM, the overwhelming majority of commenters express support for the development of interim PIH tank car standards with an accompanying grandfather period. For example, Dow supports both the Joint Petition and TFI's petition and suggests that an interim final rule for PIH tank cars should include (1) tank car safety improvements ''based upon currently available and proven construction materials, design concepts and technologies''; and (2) a reasonable economic life for tank cars built during the interim period. Similarly, Olin's Chlor Alkali Products Division suggests that adoption of the interim standard in the Joint Petition would lead to immediate safety improvements and make it economically viable for tank car owners to replace existing tank cars at the end of their useful lives with newer, safer cars, thereby ensuring shippers would have access to adequate PIH tank cars to meet service needs. PPG expresses support for the Joint Petition and asserts that interim standards are necessary to provide alternatives for tank car designs that would ensure the continued safe shipment of chlorine and allow for a design that can be retrofitted in the future to meet any final performance standard.

One commenter, DuPont, contends that the Joint Petition's proposal is ''far too generic and does not adequately address the crashworthiness and commodity-specific requirements for tank car design.'' DuPont suggests that the TIF contemplated in the Joint Petition is ''not a true indicator'' of a tank car's crashworthiness and that a ''strictly probabilistic approach,'' such as the CPR metric proposed in the Joint Petition is not appropriate. Further, DuPont suggests that each PIH commodity must be considered individually as interim performance standards are developed.

As discussed in Section IV.A of this preamble and the Section-by-Section analysis of § 173.244, we agree that the purely statistical analysis of CPR is not the best metric for measuring the effectiveness of tank car improvements. We also appreciate DuPont's concerns regarding the commodity-specific requirements for tank car design. Accordingly, in this rule we have adopted commodity-specific design standards for PIH tank cars based on existing DOT specification cars. We recognize that as a result of the differing physicochemical properties of certain PIH commodities, such as chlorosulfonic acid and anhydrous hydrogen fluoride, unique tank car designs have developed over time and are currently authorized by special permit. We do not intend to supplant those special permits with this rule. Shippers may continue use of the existing tank cars under these special permits. Additionally, the special permit process provides for the development and authorization of alternative tank car designs as contemplated by the Joint Petition. Specifically, the special permit process enables tank car owners and manufacturers to develop variations in tank car designs, using materials and techniques that are not currently authorized. We anticipate that shippers and tank car manufacturers will continue to perform safety equivalency evaluations and submit special permit applications to address variations in tank car designs for particular materials.

Although we agree with DuPont's suggestion that a performance standard should be the ultimate goal of any effort to specify tank car improvements, we do not believe that such a standard is necessary to achieve the purposes of this interim rule. Instead, we believe the commodity-specific design standards based on existing DOT specification cars provides a commercially feasible and effective method of improving the accident survivability of PIH tank cars in the near term. As noted earlier in this document, this rule is the first part of a longer-term strategy to enhance the safety of rail shipments of PIH materials. We plan to continue to develop and validate performance standards that further improve the crashworthiness of PIH tank cars.

As discussed above, the Joint Petition also proposes a top fittings protection standard that would require top fittings to be designed to withstand, without loss of lading, a rollover with a linear velocity of nine mph and permit top fittings protection system to be attached to the tank by welding. In its comments, DuPont expresses concern about the proposed top fittings protection standard, stating that inspections of similar designs have shown that corrosion can develop in welded protective housings and that such corrosion could impact the structural integrity of the housing, reducing its effectiveness in the event of a rollover. DuPont notes that it is ''aware of no data analyzing the impact of the corrosion risk on the overall integrity of the housing (and related impact on overall tank car safety) as compared to the current bolted housing design.'' As noted in the section-by-section analysis of § 179.102–3 below, we share DuPont's concern regarding the welding of the top fittings protective housing to the tank, and accordingly, we have not adopted this aspect of the Joint Petition.

Several anhydrous ammonia shippers and receivers submitted comments supporting the TFI petition, including its proposal to permit cars currently used to transport anhydrous ammonia to remain in service for 20–25 years. Although we appreciate TFI's desire for assurance as to a guaranteed PIH service life of its existing anhydrous ammonia fleet, such assurance is outside the scope of this rule. This rule addresses only PIH tank cars constructed after March 16, 2009 and cars built to meet the standards set forth in this rule. This rule does not limit the PIH service life of existing PIH tank cars meeting the requirements of the HMR prior to this rule's effective date nor does it provide a guaranteed PIH service life for the existing fleet. The issue of

[31] In its petition, TFI further suggests an accelerated phase-out of pre-1989 tank cars constructed utilizing non-normalized steel by December 31, 2010. Although we have not adopted this proposal, as noted in section IV.B and discussed in more detail in the section-by-section analysis of § 173.31, this rule does require rail car owners that retire or remove rail tank cars from PIH service to prioritize the retirement or removal of pre-1989 non-normalized steel cars. In addition, we note that this rule addresses only PIH tank cars constructed after March 16, 2009 and cars built to meet the standards set forth in this rule. This rule does not limit the PIH service life of existing PIH tank cars meeting the requirements of the HMR prior to this rule's effectiveness.

grandfathering the existing PIH tank car fleet will be addressed with DOT's promulgation of a final performance standard.

In its petition, TFI proposes an interim standard for anhydrous ammonia cars that would incorporate the current DOT 112J400 pound cars with thicker jackets to enhance accident survivability. We agree that a 112J400W car with a thicker jacket and head will provide a significant safety improvement over existing 112J340W cars. Accordingly, this rule specifies that newly constructed cars designed for anhydrous ammonia service must meet the 105J500I or 112J500I specifications, and also authorizes a 400 pound car, as proposed by TFI, with a thicker jacket and head.

VI. Summary of Rule

This rule prescribes enhanced safety measures for rail transportation of PIH materials, including improvements in the safety features of DOT specification tank cars. Pending further validation and implementation of the crashworthiness performance standard proposed in the NPRM, this rule amends the HMR to prescribe enhanced commodity-specific design standards for PIH tank cars based on existing DOT specifications. The amendments require that shell and/or jacket thickness be increased for each commodity and that full head shields be used where not already required. The increases in package crashworthiness are generally scaled in the same manner as previous DOT specifications, and the general intent is that the increases in package robustness be accommodated within a gross weight on rail limitation of 286,000 pounds. This rule adds new engineering analysis to support adding thickness to the head shield and jacket. Additionally, this rule puts in place new requirements for enhancement of top fittings protection systems and nozzle arrangements. This rule also implements a proposed 50 mph speed limit for all loaded, placarded rail tank cars used to transport PIH materials.

As discussed above, this rule will not implement the proposed interim 30 mph speed limit in dark territory for tank cars transporting PIH materials that do not meet the proposed enhanced performance requirements. In addition, in response to comments, this rule does not implement the proposed expedited replacement requirement for PIH tank cars manufactured before 1989 with non-normalized steel head or shell construction as proposed. Instead this rule requires that tank car owners prioritize retirement or replacement of pre-1989 non-normalized steel cars when retiring or removing cars from PIH materials service.

As stated above, although DOT believes that this rule incrementally improves the crashworthiness protection of newly manufactured tank cars designed for the transportation of PIH materials, DOT intends that the standards set forth in this rule apply on an interim basis, until such time as final performance standards are developed and tank cars are available meeting such standards. DOT believes that PIH tank cars built to the final performance standards will be significantly safer than cars built to these interim standards. Accordingly, DOT does not intend that the entire PIH tank car fleet be replaced with cars meeting these interim requirements.[32] To the contrary, beyond the numbers necessary to meet new business demands and to replace cars that are damaged or have reached the end of their service lives, acquisition of cars meeting the interim standards will tend to diminish potential safety benefits by delaying the introduction of cars built to the final performance standards. Instead, DOT expects that tank car owners will acquire cars meeting these interim standards to replace existing PIH tank cars that are retired, scrapped, damaged, or otherwise taken out of service in the normal course of operations and to meet new business needs, only as necessary to efficiently and safely manage their PIH tank car fleets pending the development and implementation of final performance standards addressing the crashworthiness of PIH tank cars.

VII. Section-by-Section Analysis

Part 171

Section 171.7—Reference Material

This section addresses reference materials that are incorporated by reference into the HMR. In the NPRM, we proposed to allow an increase in the gross weight on rail of tank cars to 286,000 pounds and accordingly, we proposed to amend § 171.7(a)(3), the table of material incorporated by reference, to add the entry for AAR Standard S–286–2002, Specification for 286,000 lbs. Gross Rail Load Cars for Free/Unrestricted Interchange Service, revised as of 2005. Subsequently, FRA learned that AAR revised Standard S–286–2002 in 2006 and renamed the standard ''S–286, Free/Unrestricted Interchange for 286,000 lb Gross Rail Load Cars''. AAR Standard S–286 is the existing industry standard for designing, building, and operating rail cars at gross weights between 263,000 pounds and 286,000 pounds. As discussed in the analysis of § 179.13, in this rule we are adopting the proposal to allow an increase in the gross weight on rail of tank cars. Accordingly, we are adopting the proposal to incorporate the AAR Standard, only revising the rule text to incorporate the most recent version of the Standard. By incorporating the standard into the HMR, we will ensure that tank cars exceeding the existing 263,000 pound limitation and weighing up to 286,000 pounds gross weight on rail are mechanically and structurally sound.

Part 172

The Hazardous Materials Table in § 172.101 is amended to consolidate and update the special provisions applicable to the rail tank car transportation of PIH materials. The revisions to the table are for ease of reference only and do not substantively change the requirements applicable to the transportation of PIH materials by railroad tank cars.

Part 173

Section 173.31—Use of Tank Cars

Existing § 173.31 addresses the use of tank cars to transport hazardous materials and contains various safety system and marking requirements. The NPRM proposed to revise existing paragraphs (a)(6), (b)(3), (b)(6) and (e)(2)(ii), as well as add new paragraphs (b)(7) and (b)(8). This rule implements revisions to paragraphs (b)(6) and (e)(2)(ii) and adds new paragraphs (e)(2)(iii) and (e)(2)(iv). The proposed revision to paragraph (a)(6) is unnecessary because this rule implements a marking under § 179.22 that does not change the existing delimiters specified in the paragraph. The proposed revision to paragraph (b)(3) is unnecessary because this rule does not modify the existing head protection requirements specified in the paragraph. Proposed new paragraphs (b)(7) and (b)(8) related to the enhanced tank shell puncture-resistance systems. This rule does not mandate the proposed tank head and shell puncture-resistance performance standards. Therefore, the proposed revisions to these paragraphs are not adopted in this rule.

Current paragraph (b)(6) requires tank car owners to implement measures to ensure the phased-in completion of modifications previously required by the Department and to annually report progress on such phased-in implementation. We proposed to modify

[32] As noted in the Regulatory Impact Analysis accompanying this rule, DOT estimates that the fleet of interim PIH tank cars will at most represent approximately 14% of the total PIH tank car fleet (roughly 2,044 tank cars).

paragraph (b)(6) by deleting references to various compliance dates that have now passed. This rule adopts the proposed deletions from paragraph (b)(6).

Current paragraph (e)(2) requires tank cars used to transport PIH materials to have a minimum tank test pressure of 20.7 Bar (300 psig), head protection, and a metal jacket. In this rule, we are revising this paragraph to remove the outdated compliance date in paragraph (e)(2)(ii), and cross reference the applicable authorized tank car specifications and standards listed in § 173.244(a)(2) and (3) and § 173.314(c) and (d).

We are also adding new paragraphs (e)(2)(iii) and (iv). New paragraph (e)(2)(iii) authorizes the use of PIH tank cars meeting the applicable authorized tank car specifications and standards listed in § 173.244(a)(2) or (3) or § 173.314(c) or (d) for 20 years after the date of original construction. New paragraph (e)(2)(iv) requires that if a tank car owner retires or otherwise removes a tank car from PIH materials service, that owner must retire or remove cars constructed of non-normalized steel in the head or shell before removing any car in PIH materials service constructed of normalized steel meeting the applicable DOT specification. Because a car damaged as a result of an accident no longer meets DOT specifications, and the decision to remove this car from service may actually be that of the damaging railroad, this requirement does not apply to the replacement of such damaged cars (*i.e.*, a car owner is free to replace a damaged car with a car constructed to meet this interim standard regardless of whether the damaged car was a pre-1989 car of non-normalized steel construction, or a newer car constructed of normalized steel).

Section 173.244—Bulk Packaging for Certain Pyrophoric Liquids (Division 4.2), Dangerous When Wet (Division 4.3) Materials, and Poisonous Liquids With Inhalation Hazards (Division 6.1)

This section sets forth bulk packaging requirements for certain Division 4.2, 4.3, and 6.1 materials. The NPRM did not propose revisions to this section. However, in this rule, we are revising paragraph (a) to authorize new tank car specifications for tank cars manufactured after March 16, 2009, for the listed PIH materials. Generally, the tank car specifications authorized in this section are a step up from the specifications currently mandated by the HMR for each commodity, consistent with the proposal in the Joint Petition. Recognizing that the HMR do not require all PIH commodities to be transported in tank cars equipped with thermal protection, the specifications authorized include both class 105 and 112 cars. We are also revising paragraph (a) to include the language from special provisions B71, B72, and B74 (which are removed from the § 172.101 Hazardous Materials Table) as a matter of convenience for the reader.

Paragraph (a)(3) provides an alternative authorized tank car to that listed in column (2) of the table in paragraph (a), that provides an equivalent level of safety. This alternative would allow the use of a car with a tank constructed to a lower test pressure within the same DOT class, provided that the added steel necessary for the higher pressure is moved from the tank to the tank car jacket and head. This provision responds to the Petitioner Group's request that DOT provide an alternative performance standard to the stepped-up commodity specific tank car specifications, and also responds to TFI's request to authorize on an interim basis 112J400 cars with thicker jackets for anhydrous ammonia service.

The Petitioner Group requested that DOT authorize cars that meet a formula [33] demonstrating that improvements to the head or shell are at least as good as the design standards (*i.e.*, the stepped-up commodity-specific tank car specifications) in terms of CPR. The petitioners suggest that this alternative will provide an opportunity to retrofit these tank cars at some future point in order to achieve an equivalent level of safety to any changing regulatory requirements or technology improvements.

As noted in section IV.F above, the Petitioner Group proposes a specific alternative design standard for chlorine tank cars: a DOT 105J500W tank car with a total head and head shield thickness of 1.636 inches and a total shell and jacket thickness of 1.102 inches. The jacket material would be 70,000 p.s.i. minimum tensile strength steel, having a minimum elongation of 21 percent in two inches.

As previously stated, DOT remains unconvinced that the CPR metric is the best means of determining tank car improvements. However, DOT agrees that the Petitioner Group's proposal for an alternative car is a valid concept. We note, however, that the Petitioner Group's proposal (in Exhibit 1 to the petition pertaining to 25 different PIH materials and the proposed alternative chlorine tank car design) is based on a single tank car diameter per commodity. Mandating minimum thicknesses without specifying mandatory diameters would be inconsistent with the current regulatory structure applicable to pressure vessels. Additionally, tank car manufacturers may desire to vary the tank diameters to offer a variety of configurations depending on shippers' needs and their own manufacturing processes. The HMR provide a formula that enables a builder to calculate the tank thickness based upon the chosen diameter.[34] In addition, the calculations provide an incentive for using steels with a higher tensile strength. By using AAR TC–128, Grade B steel with a tensile strength of 81,000 k.s.i. tensile strength, the tank shell can be manufactured at 84.3% of the thickness mandated for a car of the same diameter manufactured from steels with lower tensile strengths (*e.g.*, 70,000 k.s.i. to 80,000 k.s.i.).

The DOT alternative tank car outlined in paragraph (a)(3) mirrors the approach used by the Petitioner Group in developing its alternative, but does not limit the tank diameter or force the builder to use a lower tensile steel by adding forming thicknesses when determining how much steel to move from the tank shell and head to the head shield and jacket. DOT finds that the effect of steel in the tank and head or jacket is, at a minimum, commutative and can be transferred with relative ease provided that minimum equivalent thicknesses are maintained. Because of the variances in commodity, tank diameter, length, and steel, DOT's alternative tank car provides equivalent safety to the specified car through a more generally applicable performance standard. The concept is simple: § 179.100–6(a) requires the wall thickness after forming for tank shell and heads to be no less than the minimum thickness listed in the § 179.101–1 Table or the calculation provided. For pressure tank cars greater than 400 pounds with an inside diameter above 100 inches, the formula thickness will always set the minimum. Therefore, under DOT's approach, the difference in the required plate thickness, based on the calculations of the specified and alternative cars, is added to the alternative car in the form of extra thickness in its tank car jacket and head shield.

There are, however, several limitations to the alternative. First, a reduction in tank test pressure of only one level is permitted. Second, the tank

[33] The formula proposed is:

1 − (CPR of tank car/CPR of minimum specification tank car) ≥ TIF for the commodity.

[34] *See* § 179.100–6(a).

car head shield and jacket must be made from tank car carbon steel authorized in § 179.100–7. Finally, if the tank shell and head are constructed from AAR TC–128, Grade B steel and the jacket and head shield are made from authorized steel with a 70,000 p.s.i. tensile strength, the material being transferred to the head shield and jacket must include a 15.7 percent addition to account for the shift in steel to a lower tensile strength.

Because the carbon steel plate used in the Petitioner Group's specified car has a tensile strength of 81,000 p.s.i., if steel plate of a lower tensile strength is used to add thickness, the equivalent level of safety standard demands that the measured difference in thickness be augmented by a factor to account for that lower tensile strength. The difference in tensile strengths between 81,000 ksi steel and the other common plate, with a tensile strength of 70,000 ksi, is a factor of 1.157 when, for instance, ASTM A–516, Grade 70 is used in lieu of AAR TC–128 Grade B steel. This means that, in addition to the measured difference between the shells of the two cars, the thickness of the added steel of a lower tensile must itself be increased by the equivalency factor. For example, the § 179.100–6 formula for the shell plate thickness of a 600 pound test car that is 106 inches in diameter requires AAR TC–128, Grade B plate of .981 inch thickness. A 500 pound car built of this diameter and this steel requires a shell .818 inches thick, for a difference of .163 inches. If this required additional thickness is of 70,000 p.s.i. tensile strength steel, .163 must be multiplied by 1.157, for a total addition of .189 inches to the existing 11 gage (.1196 inch) jacket structure and .5 inch head shield.

FRA has determined that this equivalency factor is valid for all tank cars over 100 inches in diameter and over 400 pounds test pressure.

Section 173.249—Bromine

Current § 173.249 sets forth specific packaging requirements, including specific tank car requirements, for bromine, a PIH material. The NPRM proposed to add a new paragraph (g) to the section, clarifying that railroad tank cars transporting bromine must comply with the enhanced tank-head and shell puncture-resistance requirements of proposed §§ 179.16(b) and 179.24. Because we are not adopting the proposed tank-head and shell puncture-resistance requirements in this rule, we are instead revising this section to add a new paragraph (g) clarifying that railroad tank cars built after March 16, 2009, and used to transport bromine must meet the applicable authorized tank car specification listed in the table in § 173.244(a)(2) or the alternative specified in § 173.244(a)(3).

Section 173.314—Compressed Gases in Tank Cars and Multi-Unit Tank Cars

Current § 173.314 sets forth specific filling limits and tank car packaging requirements for various compressed gases, including chlorine, a PIH material. Although in the NPRM our proposed revisions to this section were limited to paragraph (k), which contains specific tank car packaging requirements relevant to chlorine, in this rule we are revising paragraphs (c), (d), and (k).

Current paragraph (c) sets forth specific compressed gas filling limits for tank cars and commodity-specific authorized tank car classes for particular commodities. In this rule, we are amending the table in paragraph (c) to authorize specifications for tank cars manufactured after March 16, 2009 for the listed PIH materials. We are adding note 11 to the table to make clear that for tank cars built prior to March 16, 2009 and used to transport PIH materials, the current class of authorized tank cars may continue to be used, provided the tank cars have been approved by the AAR Tank Car Committee for transportation of the specified material. Similarly, we are adding note 12 to the table to make clear that for tank cars built on or after March 16, 2009, only tank cars meeting the listed authorized tank car specifications in column 4 of the table (or the alternative requirements of paragraph (d)) may be used to transport PIH materials. Multi-unit tank car tanks and forged-welded tank car tanks (*e.g.*, DOT 106, DOT 109, and DOT 110) may continue to be used as authorized. Similar to the authorized specifications in § 173.244, the authorized specifications in this section are a step up (*i.e.*, a higher test pressure) from the specifications currently mandated by the HMR for each commodity, consistent with the proposal in the Joint Petition. Again, recognizing that the HMR do not require all PIH commodities to be transported in tank cars equipped with thermal protection, the specifications authorized include both class 105 and 112 cars.

Consistent with the revisions in § 173.244(a)(3), currently reserved paragraph (d) is added to provide an alternative to constructing a car meeting the authorized tank car specifications listed in column (3) of the table in paragraph (c), provided the alternative car achieves an equivalent level of safety. The technical basis for this alternative is described above in the discussion of § 173.244(a)(3).

The NPRM proposed to revise paragraph (k) to make clear that railroad tank cars transporting chlorine must comply with the enhanced tank-head and shell puncture-resistance requirements of proposed §§ 179.16(b) and 179.24. Because we are not adopting the proposed tank-head and shell puncture-resistance requirements, we are instead revising paragraph (k) to clarify that railroad tank cars built after March 16, 2009 and used to transport chlorine must meet the applicable authorized tank car specification in the table immediately following paragraph (c). We are also revising this paragraph to provide that tank cars constructed after March 16, 2009 used for the transportation of chlorine may be equipped with a pressure relief device required for a DOT 105A300W car, but that the car may not be restenciled to the lower test pressure.

In the NPRM, we proposed to replace the current insulation system of 2-inches glass fiber over 2-inches ceramic fiber with a requirement to meet the existing thermal protection requirements of § 179.18, or with a system that has an overall thermal conductance of no more than 0.613 kilojoules per hour, per square meter, per degree Celsius temperature differential. As noted in the NPRM, this proposal was intended to allow flexibility in the use of the interstitial space between the tank shell and jacket for crush energy management purposes. Because we are not adopting the proposed tank head and shell impact performance standards which would necessitate use of the interstitial space, we have decided not to adopt the proposed regulatory change at this time.

Section 173.323—Ethylene Oxide

Existing § 173.323 sets forth specific packaging requirements, including tank car requirements, for ethylene oxide, a PIH material. Specifically paragraph (c)(1) contains requirements for transporting ethylene oxide in railroad tank cars. In the NPRM we proposed to revise paragraph (c)(1) to make clear that railroad tank cars transporting ethylene oxide must comply with the proposed enhanced tank-head and shell puncture-resistance requirements of proposed §§ 179.16(b) and 179.24. Because we are not adopting the proposed tank-head and shell puncture resistance requirements, we are instead revising paragraph (c)(1) to clarify that railroad tank cars built after March 16, 2009 and used to transport ethylene oxide must meet the applicable authorized tank car specification listed in the table in § 173.314(c) or the requirements of § 173.314(d).

Part 174

Section 174.2—Limitation on Actions by States, Local Governments, and Indian Tribes

Section 174.2 is unchanged from that proposed in the NPRM and simply informs the public of statutory provisions which govern the preemptive effect of the rule. Although we did not receive any comments responding to proposed § 174.2, we did receive comments related to the NPRM's discussion of the preemptive effect of the proposed rule in the Regulatory Notices section of the preamble. Those comments, as well as our responses, are discussed in the Regulatory Notices section below.

Section 174.86—Maximum Allowable Operating Speed

Current § 174.86 addresses the maximum allowable operating speed for molten metals and molten glass. The NPRM proposed to add new paragraphs (b) and (c) limiting the operating speed of all railroad tank cars transporting PIH materials to 50 mph, and in non-signaled territory limiting the operating speed of railroad tank cars transporting PIH materials to 30 mph, unless alternative measures providing an equivalent level of safety are provided, or the material is being transported in a tank car conforming to the proposed enhanced tank-head and shell impact puncture resistance requirements.

As discussed in section IV.B above, this rule adopts the proposed 50 mph restriction for all trains transporting loaded, placarded tank cars containing PIH materials, but does not adopt the proposed interim 30 mph restriction in dark territory. Accordingly, in this final rule, we are revising paragraph (b) to restrict the operating speed of trains transporting any loaded, placarded tank cars containing PIH materials to 50 mph. We are not adopting the proposed revisions to paragraph (c).

Part 179

Section 179.8—Limitation on Actions by States, Local Governments, and Indian Tribes

Section 179.8 is unchanged from that proposed in the NPRM and simply informs the public of statutory provisions which govern the preemptive effect of the rule. Although we did not receive any comments responding to proposed § 179.8, we did receive comments related to the NPRM's discussion of the preemptive effect of the proposed rule in the Regulatory Notices section of the preamble. Those comments, as well as our responses, are discussed in the Regulatory Notices section below.

Section 179.13—Tank Car Capacity and Gross Weight Limitation

Existing § 179.13 sets forth tank car capacity and gross weight limitations. Specifically, this section provides that tank cars may not exceed a capacity of 34,500 gallons or 263,000 pounds gross weight on rail. In the NPRM, recognizing that safety improvements would necessitate an increase in the weight of a tank car, we proposed to revise this section to allow an increase in the gross weight on rail to 286,000 pounds for tank cars constructed to meet the proposed head and shell impact puncture-resistance standards. Although this rule does not adopt the proposed performance standards, the safety improvements mandated in this rule may necessitate the construction of heavier cars, and as discussed in section IV.C above, this rule adopts the proposal to allow an increase in the gross weight on rail of tank cars constructed to meet the new interim standards provided the weight increases are not used to increase product capacity.

Section 179.16—Tank-Head Puncture-Resistance Systems

Current § 179.16 contains the tank-head puncture resistance requirements applicable to tank cars currently required under the HMR to have tank-head puncture-resistance systems. The NPRM proposed to amend this section to specify an enhanced tank-head puncture-resistance performance standard for tank cars used to transport PIH materials. Because we are not adopting the proposed tank-head puncture-resistance performance standard, this rule does not modify the requirements of this section. As noted above, however, DOT plans to continue to develop and validate a performance standard such as that proposed to further improve the crashworthiness of PIH tank cars.

Section 179.22—Marking

Existing § 179.22 contains marking requirements applicable to railroad tank cars. Specifically, this section provides that tank cars must be marked in accordance with the Tank Car Manual and assigns meaning to each of the delimiters used in tank car specification markings. This rule adds a new paragraph (e) which requires that tank cars manufactured after *March 16, 2009* to meet the requirements of § 173.244(a)(2) or (3) or § 173.314(c) or (d) be marked with an ''I'' following the test pressure instead of the letter ''W.'' This marking requirement is intended to allow ready identification of tank cars constructed to meet these interim standards.

Section 179.100–3—Type

Current § 179.100–3 provides general requirements for the construction of pressure tank cars designed for hazardous materials transportation. Although the NPRM did not propose a revision to this section, consistent with the recommendation of some commenters during the public outreach process prior to promulgation of the NPRM,[35] this rule revises currently reserved paragraph (b) to adopt the long standing industry standard (AAR interchange requirement) requiring head shields and shells of newly constructed pressure tank cars to be constructed of normalized steel.

Section 179.102–3—Materials Poisonous by Inhalation

This rule adds a new § 179.102–3 which addresses certain aspects of the design of PIH material tank cars constructed to meet the requirements of § 173.244(a)(2) and (3) and § 173.314(c) and (d). First, in response to commenters recommendations, paragraph (a) includes a performance standard for tank car top fittings protection, based on industry's development of several improved top fitting designs since publication of the NPRM.

As discussed above, the Petitioner Group proposed a top fittings protection standard that would require top fittings to be designed to withstand, without loss of lading, a rollover with a linear velocity of nine miles per hour. Further, the Petitioner Group proposed that DOT allow the top fittings protective housing to be attached to the tank by welding, as opposed to the HMR's current requirement that the top-fittings protection system be bolted to the tank.

Although we adopted the proposed nine miles per hour performance standard, we did not adopt the allowance for welding of the protective housing to the tank. Additionally, new § 179.102–3 provides an alternative standard that we believe addresses the intent of the Petitioner Group's request, and recognizes the views expressed by other commenters with regard to top fittings. Particularly, in the Department's public outreach efforts prior to publication of the NPRM, commenters expressed general agreement that two of the most important factors for top fitting

[35] *See* Transcript of Dec. 14, 2006 public meeting.

survivability in an accident are lowering the profile of the fittings to reduce vulnerability and strengthening the protection surrounding the fittings. *See* 73 FR 17840. Although the manway nozzle is not a part of a tank car's top fittings protection system for regulatory purposes,[36] the nozzle is integral to protecting top fittings in accident scenarios. If the nozzle fails, regardless of the strength of the fittings themselves, a release will occur. Accordingly, paragraph (a) requires the top fittings of tank cars constructed after March 16, 2009 to be enclosed within a protective housing and cover. The protective housing system and the tank nozzle must be capable of sustaining, without failure, a rollover accident at nine miles per hour. Paragraph (a) further defines ''failure'' as occurring when ''the deformed protective housing contacts any of the service equipment or when the tank retention capability is compromised.'' Although the Petitioner Group's proposed top fittings standard was based on the ability of top fittings to withstand a nine mph rollover ''without loss of lading,'' we note that the underlying research considered failure to occur whenever the deformed protective housing came into contact with any of the service equipment, or whenever the tank retention capability was compromised in any other manner. Accordingly, we believe the ''failure'' criteria in § 179.102–3(a)(1) is consistent with that proposed by the Petitioner Group.

Recognizing that the top fittings arrangements of different conventional DOT specification tank cars have varying performance levels, in paragraph (b) DOT has provided an alternative for the top fitting protection portion of this requirement. Under the alternative, tank cars must be equipped with a nozzle that meets the nine miles per hour roll-over requirement, but may have a top fittings protection system that prevents the release of product from any top fitting in the case of an accident where the top fittings would be sheared off. If this alternative is used, the required excess flow devices must be mechanically operated.

DOT notes that currently only one special permit (DOT SP–14167, issued to Trinity Industries, Inc. on April 20, 2006) authorizes the welding of the top fittings protection system to the tank. Because of the relative lack of service trial data from the alternate welding design, in this rule, DOT has chosen to retain the current standard requiring that the top fittings protection system be bolted to the manway cover. DOT reminds tank car builders that, upon application, DOT will consider requests for special permits to continue to evaluate new designs deviating from the requirements of the HMR. In addition, DOT will consider incorporating any special permit for alternate designs into the regulations as soon as adequate service data is available.

We note that in developing these standards for top fittings protection, we considered various alternatives. We considered adopting just the Petitioner Group's proposed nine miles per hour rollover standard. Recognizing that the top fittings arrangements of different conventional DOT specification tank cars have varying performance levels, we considered adopting a standard that required the doubling of the speed that the top fittings of current tank cars authorized for particular PIH materials could withstand. We also considered adopting just a standard providing that if the top fittings were sheared off, no product would be released. We believe that the 9 mph rollover standard in paragraph (a)(1), coupled with the alternative top fittings standard in (a)(3), represents a realistic and complementary approach in reducing the likelihood of releases through the valves and fittings by requiring the strengthening of all aspects of the tank car that impact the performance of the top fittings and allowing for innovations currently underway in the industry that prevent release if the protective housing and valves are sheared off. As noted in the NPRM, however, FRA has an ongoing research program focused on improving the performance of tank car top fittings in the event of roll-over incidents. We will continue this research effort and if the research demonstrates additional improvements can be made, we will propose such improvements in a subsequent rulemaking. DOT specifically requests comment on the standards set forth in § 179.102–3 of this rule.

New paragraph (b) includes a requirement that the tank jacket applied to a car meeting the standards specified in § 173.244(a)(3) or § 173.314(d) must undergo an engineering analysis as part of the Certificate of Construction consideration and grant process. The analysis must demonstrate that the jacket will not shift under the forces generated in a 6 mph coupling. This requirement is necessary because the alternative car jacket is certain to be significantly heavier that the 11 gauge jacket now used as an industry standard. That jacket has a proven history over many years of not shifting during normal railroad transportation, including switch yard impacts of at least 6 miles per hour. In order to keep a heavier jacket similarly anchored, additional support is necessary to achieve the same level of safe performance. Several builders have indicated that they are considering, for instance, doubling the number of jacket anchor points. In order to allow the builders maximum flexibility to design a jacket anchoring system that will restrain a heavier jacket, DOT has mandated a performance, rather than a design, requirement.

Section 179.102–17—Hydrogen Chloride, Refrigerated Liquid

Existing § 179.102–17 sets forth specific tank car packaging requirements for hydrogen chloride, refrigerated liquid, a PIH material. The NPRM proposed to add a new paragraph (m) to the section to make clear that railroad tank cars transporting hydrogen chloride must comply with the proposed enhanced tank-head and shell puncture-resistance requirements of §§ 179.16(b) and 179.24. Because we are not adopting the proposed tank-head and shell puncture resistance requirements, we are instead revising this section to add a new paragraph (m) clarifying that railroad tank cars built after March 16, 2009 and used to transport hydrogen chloride must meet the applicable authorized tank car specification listed in the table in § 173.314(c) or the alternative specified in § 173.314(d).

VII. Regulatory Analyses and Notices

A. Statutory/Legal Authority for This Rulemaking

This rule is published under authority of the Federal hazmat law. Section 5103(b) of Federal hazmat law authorizes the Secretary of Transportation to prescribe regulations for the safe transportation, including security, of hazardous materials in intrastate, interstate, and foreign commerce. SAFETEA–LU, which added § 20155 to the Federal hazmat law, requires, in part, that FRA (1) validate a predictive model quantifying the relevant dynamic forces acting on railroad tank cars under accident conditions and (2) initiate a rulemaking to develop and implement appropriate design standards for pressurized tank cars. Additionally, the Federal Railroad Safety Act, 49 U.S.C. 20101 *et seq.,* authorizes the Secretary to issue regulations governing all areas of railroad transportation safety.

[36] Nozzles are considered part of the tank for regulatory requirements. *See* 49 CFR 179.100–12. Top fittings protection systems include the manway plate, the protective housing, the cover, and the enclosed valves or fittings.

B. Executive Order 12866 and DOT Regulatory Policies and Procedures

This rule has been evaluated in accordance with existing policies and procedures, and determined not to be economically significant under both Executive Order 12866 and DOT policies and procedures (44 FR 11034; Feb. 26, 1979). This rule is a significant regulatory action under § 3(f) Executive Order 12866 and, therefore, was reviewed by the Office of Management and Budget (OMB). The rule is a significant rule under the Regulatory Policies and Procedures order issued by the DOT (44 FR 11034). We have prepared and placed in the docket a regulatory impact analysis (RIA) addressing the economic impact of this rule.

The RIA includes qualitative discussions and quantitative measurements of costs related to implementation of this rule. The costs are primarily for additional labor and material to incorporate the improved PIH tank car crashworthiness features. In addition, there are costs associated with tank car design modifications, increased PIH tank car traffic, fuel for heavier tank cars, and the 50 mph operating restriction.

The RIA also provides estimates of potential savings from derailments and other accidents in which PIH tank car integrity will be less likely to be compromised as a result of implementing this rule. Such benefits include the saving of lives, the avoidance of injuries, and the avoidance of evacuations, environmental cleanup, track and road closures, and property and business damages. Additional societal benefits are also discussed, but their value is translated into monetary terms only to the extent practicable with the information available. The analysis also includes business benefits associated with the fact that the operating restriction will result in fuel savings.

For the 30-year period analyzed, the rule is estimated to have quantified costs totaling $153 million with a PV (7%) of $83.6 million. The business and other societal (non-safety) benefits discussed total $37.64 million. As noted in the RIA, the likely effectiveness of this rule can be represented by a percentage falling between 27 and 69 percent and for costs and benefits to break even, interim PIH tank cars would have to achieve a minimum average effectiveness of 64 percent. Although the large number of factors impacting any analysis of the effectiveness of the designs required by this rule prevents an exact determination of the effectiveness of this rule, because it is very likely the number of events with respect to which puncture is possible will tend to cluster toward the lower range of energies actually encountered, achievement of the 64 percent effectiveness rate is a plausible outcome. As also noted in the RIA, DOT is confident from a public policy standpoint that the petitioners are advancing sound arguments for DOT taking the requested action. Further, industry's expressed need for Federal action to address a safety gap via their petitions demonstrates a certain willingness to accept the costs associated with the manufacture and operation of interim tank cars meeting the requirements of this rule.

The results of the RIA analysis are sensitive to various inputs and assumptions. DOT believes that the range of benefit levels show that, despite the uncertainty surrounding the assumptions related to release consequences, much needed safety benefits would be realized through implementation of this rule. Absent issuance of this rule, availability of essential materials would be threatened. Unfortunately, no engineering consensus yet exists that would provide a complete foundation for moving forward with the performance standard that DOT proposed in its NPRM. However, the petitions for interim standards provide the opportunity to begin to close the gap within the bounds of accepted technology. This rulemaking addresses industry's current need to procure PIH tank cars while reducing the risk presently attending transportation of PIH materials by railroad tank car within a time certain. Providing reassurance to the communities through which these trains travel, that feasible action has been taken to safeguard those potentially affected, itself provides societal benefits.

The RIA also notes that although quantitative methodologies such as a benefit-cost analysis are a useful way of organizing and comparing the favorable and unfavorable effects of regulatory changes such as this rule, a benefit-cost analysis does not provide the policy answer, but rather defines and displays a useful framework for debate and review. Hence, the RIA is only one tool which can be utilized when considering such a policy change.

C. Executive Order 13132

This final rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13132 (''Federalism''). This rule amends PHMSA's existing regulations on the design and manufacturing of rail tank cars authorized for the transportation of PIH materials and the handling of rail shipments of PIH materials in these rail tank cars. As discussed below, State and local requirements on the same subject matters covered by PHMSA's existing regulations and the amendments proposed in this NPRM, including certain State common law tort actions, are preempted by 49 U.S.C. 5125 and 20106. At the same time, this NPRM does not propose any regulation that would have 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. Additionally, it would not impose any direct compliance costs on State and local governments. Therefore, the consultation and funding requirements of Executive Order 13132 do not apply.

Through FRA and PHMSA, DOT comprehensively and intentionally regulates the subject matter of the transportation of hazardous materials by rail, thereby setting the Federal standard of care that railroads must meet, and this rule is part of this regulatory scheme. These regulations leave no room for State, local or Indian tribe standards established by any means (e.g., statutory, regulatory, or common law) dealing with the subject matter covered by the DOT regulations. States are free of course to craft standards that address the extremely rare ''essentially local safety and security hazard'' so long as the standards otherwise (1) meet the three part test of 49 U.S.C. 20106 and (2) are not preempted under 49 U.S.C. 5125. Tort suits may be brought when they are based on a violation of the Federal standard of care; failure to comply with a plan created pursuant to a Federal requirement; or failure to comply with a State law or regulation that is permitted under § 20106.

As discussed in the NPRM's preamble, the preemption provisions of both the Federal hazardous materials transportation law (HMTA), 49 U.S.C. 5125, and the former Federal Railroad Safety Act of 1970 (FRSA), 49 U.S.C. 20106, govern the preemptive effect of this rule.[37] State and local requirements, including State common law tort actions, are preempted by 49 U.S.C. 5125 and 20106, respectively, when

[37] See the ''Regulatory Analyses and Notices'' discussion of Executive Order 13132 (73 FR 17852). Section 20106 preemption applies to DOT regulations promulgated pursuant to both the FRSA and the HMTA. *See CSXT* v. *Williams,* 406 F. 3d 667, 671 n.6 (D.C. Cir. 2005); *see also CSXT Transp.* v. *Easterwood,* 507 U.S. 658, 663 n.4 (1993); *CSXT Transp.* v. *Public Utils. Comm'n of Ohio,* 901 F. 2d 497 (6th Cir. 1990).

such non-Federal requirements cover the same subject matter as the requirements in the Hazardous Materials Regulations (HMR), 49 CFR parts 171–180, and other DOT regulations and orders, or are inconsistent with the HMR. A State may adopt, or continue in force a law, regulation, or order covering the same subject matter as a DOT regulation or order applicable to railroad safety and security (including the requirements in this subpart), only when the additional or more stringent state law, regulation, or order is necessary to eliminate or reduce an essentially local safety or security hazard; is not incompatible with a law, regulation, or order of the United States Government; and does not unreasonably burden interstate commerce. (''Local safety and security hazard exception'' found in § 20106(a)(2).)

The HMTA at § 5125 contains an express provision preempting State, local, and Indian tribe requirements on the following subjects:

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

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

(3) The preparation, execution, and use of shipping documents related to hazardous material 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; and

(5) The design, manufacturing, fabricating, marking, maintenance, reconditioning, repairing or testing of a packaging or container represented, marked, certified, or sold as qualified for use in transporting hazardous material.

This rule addresses both subjects 2 and 5 noted above and therefore preempts any State, local or Indian tribe requirement that is not substantively the same as PHMSA's regulations on these subject matters, as those regulations are amended by this rule. The effective date of preemption under 49 U.S.C. 5125 is April 13, 2009.

The FRSA also contains a preemptive provision that pertains to safety regulations issued by DOT. Section 20103 authorizes the Secretary of Transportation to prescribe regulations and issue orders for every area of railroad safety. Section 20106 provides that States may not adopt or continue in effect any law, regulation, or order related to railroad safety or security that covers the subject matter of a regulation prescribed or order issued by the Secretary of Transportation (with respect to railroad safety matters) or the Secretary of Homeland Security (with respect to railroad security matters), except when the State law, regulation, or order qualifies under the local safety or security exception to § 20106. The courts have construed the ''essentially local safety or security'' exception very narrowly, holding that it is designed to enable States to respond to local situations which are not statewide in character and not capable of being adequately encompassed within uniform national standards. *See, e.g., Union Pacific R.R.* v. *California Pub. Util. Comm'n,* 346 F.3d 851, 860 (9th Cir. 2003) (CPUC). The intent of § 20106 is to promote national uniformity in railroad safety and security standards. 49 U.S.C. 20106(a)(1).

The Supreme Court has consistently found that § 20106 preempts not only State statutes, but State common law as well. *See Norfolk Southern Ry.* v. *Shanklin,* 529 U.S. 344 (2000), and *Easterwood* (holding that under § 20106 state law claims are preempted whenever the Secretary of Transportation has issued regulations that ''cover'' the subject matter of the state law claims, including common law claims). In *Easterwood,* the Supreme Court found that FRA's regulations that ''substantially subsume'' the subject matter of the relevant State law will cause § 20106 to apply, and it ruled that the railroad could not be held liable on the grounds that it negligently permitted its train to operate too fast under the circumstances when the train was operating within the speed limits imposed by FRA regulations. 507 U.S. at 664. Accordingly, with the exception of a provision directed at an essentially local safety or security hazard, § 20106 preempts any State statutory, regulatory, or common law standard covering the same subject matter as a DOT regulation or order.

As noted in the NPRM, in 2007, Congress clarified the availability of State law causes of action under § 20106 arising out of activities covered by Federal requirements (Implementing Recommendations of the 9/11 Commission Act of 2007, Public Law No. 110–53 § 1528, 121 Stat. 453). As amended, § 20106(b) permits certain State tort actions arising from events or activities occurring on or after January 18, 2002 (the date of the Minot, North Dakota hazardous materials train accident), for the following: (1) A violation of the Federal Standard of care established by regulation or order issued by the Secretary of Transportation (with respect to railroad safety) or the Secretary of Homeland Security (with respect to railroad security); (2) a party's failure to comply with, its own plan, rule, or standard that it created pursuant to a regulation or order issued by either of the two Secretaries; or (3) a party's violation of a State standard that is necessary to eliminate or reduce an essentially local safety or security hazard, is not incompatible with a law, regulations, or order of the United States Government, and does not unreasonably burden interstate commerce.

As we noted in the NPRM, this exception to preemption is limited. By its terms, the exception applies only to an action in State court seeking damages for personal injury, death or property damage. The statute does not provide for the recovery of punitive damages in the permitted common law tort actions. In addition, the statute permits actions for violation of an internal control plan, rule, or standard only to the extent that it is created pursuant to a Federal regulation or order issued by DOT or DHS. These limitations are consistent with well established judicial precedent and the legislative history of the 2007 amendment. As noted in the NPRM, while parties are encouraged to go beyond the minimum regulatory standards, elements of their plan that establish policies, procedures, or requirements that are not imposed by a Federal regulation are not ''created pursuant to'' a Federal regulation or order. Accordingly, there is no authorization of a common law tort action alleging a violation of those aspects of such an internal plan, rule, or standard related to the subject matter of this regulation that exceed the minimum required or are otherwise not specifically required by the Federal regulation or order. Where the Federal regulation has established the standard of care, a railroad or another regulated entity does not alter that standard of care by creating a plan based on a higher standard. Finally, as indicated in the NPRM, nothing in § 20106 creates a Federal cause of action on behalf of an injured party or confers Federal question jurisdiction for such State law causes of action. *See* § 20106(c).

In response to the NPRM's discussion of the preemptive effect of § 20106 relevant to the proposed rule, we received comments from four parties: AAR, the American Association for Justice (AAJ), the Brotherhood of Locomotive Engineers and Trainmen (BLET), and the United Transportation Union (UTU). In both the May 29, 2008 meeting and written comments to the docket, AAR expressed the view that DOT's preamble discussion of the preemptive effect of the proposed rule was correct and referred to comments it had filed in previous FRA proceedings.

Citing the 2007 amendment to § 20106, at the May 29, 2008 public meeting and in written comments, AAJ expressed the view that neither § 20106 or § 5125 authorizes preemption of state common law claims. AAJ requested that we revise the preamble discussion of preemption to delete any language regarding the preemption of state common law claims.

AAJ asserted that Federal railroad regulations ''have never lawfully preempted State law claims,'' the HMR ''do not broadly preempt state tort actions,'' and ''State common law should act in conjunction with Federal regulations to govern railroad safety issues.'' It stated that the 2007 amendment to § 20106 ''sends a loud and clear message that § 20106 in no way preempts state common law claims.'' In support of this assertion, AAJ cited several cases addressing preemption in various contexts, including an unreported Minnesota state court decision arising out of the Minot derailment, that was decided several months before the amendment, *In re Soo Line R.R. Co. Derailment of January 18, 2002 in Minot, ND,* 2006 WL 1153359. In that decision, the court found for various reasons that plaintiffs' claims were not preempted. AAJ cited *In Re Soo Line* for the case's reliance on the well-settled ''presumption against preemption'' noted in *Easterwood. See Easterwood,* 507 U.S. at 664 (noting that ''preemption will not lie unless it is the 'clear and manifest purpose of Congress.' '' citing *Rice* v. *Santa Fe Elevator Corp.,* 331 U.S. 218, 230 (1947)). AAJ's comments, however, fail to recognize that, as noted above, the Court in *Easterwood* held that federal regulations preempt state law claims, including common law claims, whenever the Secretary of Transportation has issued regulations that cover the subject matter of the state law claim. 507 U.S. at 664–65, 674. *See also* CPUC, 346 F.3d at 861. Moreover, the Court held that ''[l]egal duties imposed on railroads by the common law fall within the scope of [the] broad phrases'' of the FRSA preemption provision. *Easterwood,* 507 U.S. at 664. The 2007 amendment clarified that state tort claims are not preempted in certain circumstances; *i.e.,* when the state claim is based on the violation of the Federal standard of care, failure to comply with a plan created pursuant to a Federal requirement, or failure to comply with a State law or regulation the subject matter of which has not been covered by a Federal requirement, or if covered, is permitted under the local safety and security hazard exception requirements of § 20106.

Also citing the 2007 amendment to § 20106, BLET and UTU disagreed with our assertion that common law state tort actions are permissible for violations of internal plans, rules, or standards ''only when'' such plans, rules, or standards ''are created pursuant to Federal regulation or order issued by DOT or DHS to the minimum required by the Federal regulation or order.'' BLET and UTU requested that the preamble discussion of violations of internal plans, rules, or standards be revised to indicate that § 20106 ''permits actions for violation of an internal plan, rule, or standard that is created pursuant to a Federal regulation or order issued by DOT or DHS.''

BLET and UTU claimed that the exception to preemption in § 20106(b)(1)(B) is construed too narrowly in the NPRM because that discussion applied the exception only to State causes of action for violations of those portions of a party's plan that were minimally required by Federal regulation or order. Based upon the reading of the plain language of the statute, as well as the legislative history of the 2007 amendment, DOT respectfully disagrees with BLET and UTU comments. The exception to preemption in § 20106(b)(1)(B) is necessarily limited to those elements of a party's plan that are created pursuant to a Federal regulation or order. Plans, or provisions in a plan that are not required by a Federal regulation are not ''created pursuant to'' that regulation, and section 20106(b) does not subject parties to tort liability for failure to comply with them. BLE and UTU asserted that to construe the statute as DOT did in the NPRM would eliminate any additional liability based on compliance with a party's plan, because there would only be liability when the regulation is violated. This is incorrect. Federal regulations requiring the creation of a plan are violated if a party fails to create a plan, or to create a plan with the required elements and to abide by the required elements. Parties are also subject to tort liability for their failure to comply with any other requirements contained in the Federal regulation.

As previously noted, DOT through FRA and PHMSA has comprehensively regulated the subject matter of the transportation of hazardous materials by rail. FRA has adopted a comprehensive set of Federal regulations governing the safety of rail carrier operations (passenger and freight, including hazardous materials). Among the matters covered by FRA regulations are train speed, track and roadbed conditions, signal systems, brake system standards, hours of service requirement for railroad employees, operating practices, and drug and alcohol testing for railroad employees. See 49 CFR Parts 200–244. FRA's track safety standards (49 CFR Part 213) prescribe, among other things, maintenance and inspection requirements and maximum speeds for each class of track, and restrict the transportation of hazardous materials only on low speed excepted track. FRA's regulations are tailored to the nation's operating environment in order to provide for the safety of rail operations, including the carriage of hazardous materials, in the United States.

PHMSA has similarly adopted comprehensive Federal regulations covering all transportation of hazardous materials, including transportation by rail, in the HMR. See the discussion in the preamble to the NPRM, 73 FR at 17819. The HMR address all areas of hazardous materials transportation, including operating requirements for rail, highway, air, and vessel transportation; comprehensive rail tank car standards and rail tank car specifications (including PHMSA approval of tank car designs); training requirements for persons who prepare hazardous materials for shipment or who transport hazardous materials; security plan requirements covering the transportation of hazardous materials from origin to destination (including the selection of routes); and the reporting of hazardous materials incidents. The operating requirements for railroads include restrictions on the placement of hazardous material cars in trains.

Taken together, these regulations are intended to establish comprehensive requirements for the safe and secure rail transportation of hazardous materials. Accordingly, 49 U.S.C. 5125 and 20106 preempt any State law, regulation, or order, including State common law, concerning the hazardous material tank car packaging (*e.g.,* including, but not limited to, the design, manufacturing, maintenance, repair, and inspection of hazardous materials tank cars), and the rail transportation of hazardous materials in tank cars.

This rule on PIH tank car crashworthiness further refines DOT's comprehensive regulation of hazardous materials tank car safety, leaving no room for State statutory, regulatory, or common law standards. Accordingly, DOT contends that §§ 5125 and 20106 preempt any State law, rule, or regulation, or common law theory of liability that might purport to impose differing or more stringent standards, rules, or regulations relevant to the design, manufacturing, construction, maintenance, repair, inspection, or transportation of hazardous materials tank cars. For example, DOT intends this rule to preempt any State law, rule or regulation, or common law theory of liability that would require a railroad, tank car owner, lessor or lessee, to utilize tank cars meeting more stringent safety requirements than those contained in the HMR.

As noted above, however, parties are encouraged to go beyond the minimum regulatory requirements in establishing and implementing plans, rules, and procedures for safe transportation operations. On subjects covered by Federal regulatory requirements, such as the rail transportation of hazardous materials, such additional requirements that a party voluntarily imposes upon itself do not establish an enforceable standard of care and, even if violated, cannot support a common law tort claim under the preemption standards and exceptions in § 20106. *See Shanklin,* 529 U.S. at 357 (finding that Federal regulations detailing what types of grade crossing warning devices must be installed under Federal program establish a ''federal standard for the adequacy of those devices that displace state tort law addressing the same subject'').

D. Executive Order 13175

We analyzed this rule in accordance with the principles and criteria contained in Executive Order 13175 (''Consultation and Coordination with Indian Tribal Governments''). Because this rule does not significantly or uniquely affect tribes and does not impose substantial and direct compliance costs on Indian tribal governments, the funding and consultation requirements of Executive Order 13175 do not apply, and a tribal summary impact statement is not required.

E. Regulatory Flexibility Act and Executive Order 13272

To ensure potential impacts of rules on small entities are properly considered, we developed this rule in accordance with Executive Order 13272 (''Proper Consideration of Small Entities in Agency Rulemaking'') and DOT's procedures and policies to promote compliance with the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*).

The Regulatory Flexibility Act requires an agency to review regulations to assess their impact on small entities. An agency must conduct a regulatory flexibility analysis unless it determines and certifies that a rule is not expected to have a significant impact on a substantial number of small entities.

As discussed in earlier sections of this preamble, DOT initiated this rulemaking in response to accidents involving catastrophic failures of rail tank cars, NTSB recommendations and growing public and industry concern over the risks of transporting PIH materials by rail. In 2005 SAFETEA–LU directed the Secretary of Transportation to ''initiate a rulemaking to develop and implement appropriate design standards for pressurized tank cars.'' This rule is responsive to SAFETEA–LU's mandate, as well as recommendations of the NTSB.

In the NPRM, DOT proposed enhanced tank car performance standards for head and shell impacts; operational restrictions for trains hauling tank cars containing PIH materials; interim operational restrictions for trains hauling tank cars used to transport PIH materials, but not meeting the enhanced performance standards; and an allowance to increase the gross weight on rail of tank cars that meet the enhanced tank-head and shell puncture-resistance systems. (See section I of preamble). The current rule is a ''natural outgrowth'' of information gathered in response to the NPRM. The rule is less prescriptive and permits more operational flexibility, while making it clear that the standards set forth in this rule serve as interim standards until such time as final performance standards are developed and tank cars are available meeting such standards. The rule retains the maximum speed limit of 50 mph for all railroad tank cars used to transport PIH materials, but no longer mandates a maximum speed limit of 30 mph for PIH tank cars in non-signaled (*i.e.*, dark) territory. The rule provides for enhanced safety based on commodity specific design standards for PIH tank cars, resulting in a less burdensome policy alternative that still yields incremental improvements in safety. The rule also retains the allowance for increasing the maximum gross weight on rail of hazardous materials tank cars to 286,000 pounds. The rule further requires that tank car owners prioritize retirement or replacement of pre-1989 non-normalized steel cars when retiring or removing cars from PIH materials service. In addition, in response to industry comments, DOT is adopting a performance standard for top fittings.

DOT has considered comments submitted to the docket and at public hearings in response to the NPRM. DOT appreciates the information provided by many parties and especially notes the petitions presented by industry trade groups representing railroad and shipper entities. TFI submitted a petition, and a coalition consisting of ACC, ASLRRA, AAR, CI, and RSI separately submitted a petition. The proposed rule, and consequently the IRFA, included as part of the NPRM, have been modified as a result, as described above. In this rule, DOT has adjusted the proposals in the NPRM to reduce the impact on all entities. Given these changes, DOT is able to certify that the rule will result in ''no significant economic impact on a substantial number of small entities.'' The reasons for this certification are explained in the following section of this preamble.

I. Description of Regulated Entities and Impacts

The ''universe'' of the entities under consideration includes only those small entities that can reasonably be expected to be directly affected by the provisions of this rule. Three types of small entities are potentially affected by this rule: (1) PIH material shippers and tank car owners, (2) small railroads, and (3) a small tank car manufacturer.

''Small entity'' is defined in 5 U.S.C. 601 section 601(3) defines a ''small entity'' as having the same meaning as ''small business concern'' under § 3 of the Small Business Act. This includes any small business concern that is independently owned and operated, and is not dominant in its field of operation. Section 601(4) likewise includes within the definition of ''small entities'' not-for-profit enterprises that are independently owned and operated, and are not dominant in their field of operations. The U.S. Small Business Administration (SBA) stipulates ''size standards'' for small entities. It provides that the largest a for-profit railroad business firm may be (and still classify as a ''small entity'') is 1,500 employees for ''Line-Haul Operating'' railroads, and 500 employees for ''Short-Line Operating'' railroads.[38] For PIH material shippers potentially impacted by this rule, SBA's size standard is 750 or 1,000 employees, depending on the industry the shipper is in as determined by its North American Industry Classification System (NAICS) Code. The SBA size standard for rail tank car manufacturers, under the category of ''railroad rolling stock manufacturing'', NAICS Code 336510, is 1,000 employees.

SBA size standards may be altered by Federal agencies in consultation with SBA, and in conjunction with public

[38] ''Table of Size Standards,'' U.S. Small Business Administration, January 31, 1996, 13 CFR Part 121. *See also* NAICS Codes 482111 and 482112.

comment. Pursuant to the authority provided to it by SBA, FRA has published a final policy, which formally establishes small entities as railroads that meet the line haulage revenue requirements of a Class III railroad.[39] Currently, the revenue requirements are $20 million or less in annual operating revenue, adjusted annually for inflation. The $20 million limit (adjusted annually for inflation) is based on the Surface Transportation Board's threshold of a Class III railroad carrier, which is adjusted by applying the railroad revenue deflator adjustment.[40] The same dollar limit on revenues is established to determine whether a railroad shipper or contractor is a small entity. As proposed in the NPRM, DOT is using this definition for this rulemaking.

A. Shippers

Almost all hazardous materials tank cars, including those cars that transport PIH materials, are owned or leased by shippers. DOT believes that a majority, if not all, of these shippers are large entities. As noted in the Initial Regulatory Flexibility Analysis (IRFA) prepared in support of the NPRM, DOT used data from the DOT/PHMSA Hazardous Materials Information System (HMIS) database to screen for PIH material shippers that may be small entities. The HMIS uses the SBA size standards as the basis for determining if a company qualifies as a small business. DOT also gathered data from industry trade groups such as the ACC and TFI to help identify the number of small shippers that might be affected. After identifying the set of small businesses that could potentially be impacted, DOT cross-referenced this group with *The Official Railway Equipment Register* (October, 2007) to determine if any of these actually own tank cars subject to this rule.

From the DOT/PHMSA HMIS database, and industry sources, DOT found eight small shippers that might be impacted. By further checking information available on the companies' websites, all eight shippers are noted as being subsidiaries of larger businesses. Out of these eight, however, only one owns tank cars that would be affected. The remaining seven shippers either do not own tank cars or own tank cars that would not be affected by this rule. The one remaining small shipper potentially impacted has annual revenues that exceed by 20 times the FRA size standard for a small entity. Further, although this shipper is for-profit, the parent company is a non-profit. Thus, DOT is confident that there are very few or no PIH material shippers that are small businesses affected by this rule.

Among all PIH shippers in the industry, the rule will result in approximately a 14% car replacement rate over 6 years, or 2,044 cars. The rule reduces the impact from the NPRM, which would have affected 100% of the cars. Regarding the heavier 286,000-pound cars, affecting only 14% of the cars means that older 263,000-pound cars can be used in the relatively small number of locations that cannot accept the 286,000-pound cars. In other words, by affecting a relatively small portion of the fleet, the rule allows shippers sufficient flexibility to manage their fleets in a manner that mitigates any impact. See the preamble above for a detailed discussion of the comments received regarding 286,000-pound cars. Given that there is widespread industry support for heavier cars, and industry interchange rules would have moved the industry to adopt 286,000-pound cars as standard practice in the absence of the rule, DOT does not expect the impact of the heavier cars to be significant. In addition, the rule is permissive in nature, that is, 286,000-pound cars are allowed but not mandated.

Finally, no small shippers provided any oral comments during DOT's six days of public meetings. Nor did any small shippers provide any written comments to the public docket for this rulemaking.

B. Railroads

DOT estimates that approximately 46 railroads meeting the definition of ''small entity'' as described above transport PIH materials via railroad tank car.[41] Because this rule applies to all of these railroads, we have concluded that a substantial number of small entities will be impacted.

However, the overall impact on small railroads will not be significant. All railroads that transport PIH materials via railroad tank car, including the 46 railroads identified as small entities, would still have to incur the additional expense to accommodate 286,000-pound tank cars to comply with the new AAR PIH tank car standard (*i.e.*, a 286,000-pound tank car equipped with additional head protection, thicker shell, and modified top fittings). (See the preamble above for a more detailed discussion of the new AAR PIH tank car standard.)

Recognizing the growing use of rail cars with gross weight on rail exceeding 263,000 pounds for non-hazardous commodities, such as grain, this rule provides the flexibility to design a tank car for the transportation of PIH materials weighing up to 286,000 pounds, in line with AAR's existing standard S–286 Accordingly, the actual impact of the general increase in gross weight on rail of products in this commodity group in relation to the overall transition now being completed within the industry (which has been eased by tax incentives and, in some cases, government-guaranteed loan arrangements) should not be substantial. While we recognize that some small railroads will not be able to accommodate the additional weight on some of their bridges and track, we believe that railroads that handle PIH cars have, in general, already made or are making the transition to track structures and bridges capable of handling 286,000-pound cars in line with the general movement in the industry toward these heavier freight cars. These railroads include many switching and terminal railroads that are partially or totally owned by Class 1 railroads as interline connections. These connections have previously mandated upgrading to 286,000-pound capability.

For example, in 2005, the Texas Transportation Institute reported that 42 percent of the short-line railroad miles that were operated in Texas that year had already been upgraded, nine percent would not need an upgrade, and 47 percent needed upgrading if they wanted to transport any type of 286,000-pound shipments.[42] In addition, the results of a 1998–1999 survey conducted by the ASLRRA indicated that 41 percent of respondent short-line railroads could handle 286,000-pound rail cars and 87 percent of the respondent short-line railroads indicated that they would need to accommodate 286,000-pound railcars in the future.[43] More current data from the

[39] *See* 68 FR 24891 (May 9, 2003).

[40] For further information on the calculation of the specific dollar limit, please see 49 CFR Part 1201.

[41] Data provided by Railinc, Corp. (a subsidiary of AAR) indicates that approximately 80 short-line and regional railroads transport PIH materials via railroad tank car. Of these 80 railroads, 34 are regional railroads that meet the Surface Transportation Board's definition of a Class II railroad, and thus, are not considered ''small entities'' for the purposes of this IRFA.

[42] Jeffrey E. Warner & Manuel Solari Terra, ''Assessment of Texas Short Line Railroads, '' Texas Transportation Institute (Nov. 15, 2005).

[43] The Ten-Year Needs of Short Line and Regional Railroads, Standing Committee on Rail Transportation, American Association of State Highway and Transportation Officials, Washington, DC (Dec. 1999). This report was based on a survey conducted by the ASLRRA in 1998 and 1999 with data from 1997.

ASLRRA suggests that many of the railroads needing future capability to handle 286,000-pound rail loads for this rule have been upgraded within the past two years.[44] In addition, industry comments to the NPRM support DOT's understanding that the railroads are almost all capable of transporting 286,000-pound cars.

Furthermore, as noted for Shippers above, the rule is affecting a much smaller percent of the cars (14%) than the NPRM would have, allowing the industry flexibility to route heavier cars to locations that are equipped to handle them, and use the lighter cars where needed. In general, most of the impacts will not burden the 46 small railroads potentially affected by this rule.

It should be noted that the ASLRRA represents a majority of small railroads. The ASLRRA was a co-signer in the petition to PHMSA requesting an interim PIH tank car standard with implications for car weights up to 286,000 pounds, which is the basis of this rule.

C. Manufacturers

DOT estimates that there are five tank car builders in the United States. All but one are large entities in themselves or are subsidiaries of larger conglomerates. For example, Union Tank Car Company employs about 850 people at just one plant in Louisiana. As another example, Trinity Rail Group is a subsidiary of Trinity Industries, Inc., which has 14,400 employees and about $3.9 billion in annual revenues (Trinity Rail Group has about $2.3 billion in annual revenues.) Although all of the large rail tank car manufacturers will be affected, the small manufacturer identified would likely not be significantly impacted for the following reasons. First, pressure tank car manufacturing is a very small part of this entity's business. This company offers repair, maintenance, manufacturing, and fleet management services. Fifty percent or less of this company's business is manufacturing of tank cars (an average of 40 tank cars each year); and five percent or less of such manufacturing is of pressure tank cars. In addition, this manufacturer has not built a pressure tank car in several years. The company has stated that if it were to build pressure tank cars under this rule, it would incur increased material costs, which would be passed on to the buyer. Furthermore, it would likely incur no additional design or retooling costs because it uses pre-made head-shields and could simply use thicker steel for manufacturing pressure tank cars.

Note that the rule also mitigates the economic impact by achieving additional safety by enhancing existing designs and reducing the percent of cars that will be affected as noted above.

II. Certification

Pursuant to section 605(b) of the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Pipeline and Hazardous Materials Safety Administrator certifies that this rule will not have a significant economic impact on a substantial number of small entities. Although a substantial number of small railroads and manufacturers may be affected by the rule, none of the two groups of entities will be significantly impacted.

F. Paperwork Reduction Act

This final rule results in an increase in the information collection and recordkeeping burden under OMB Control Number 2137–0559, ''(Rail Carriers and Tank Car Tanks Requirements) Requirements for Rail Tank Car Tanks—Transportation of Hazardous Materials by Rail.''

Pursuant to 5 CFR 1320.8(d), PHMSA is required to provide interested members of the public and affected agencies with an opportunity to comment on information collection and recordkeeping requests. This final rule identifies a revised information collection request PHMSA will submit to the Office of Management and Budget (OMB) for approval based on the requirements in this final rule.

PHMSA developed information collection burden estimates to reflect proposals in the NPRM. Based on comments received from the affected market sector in response to the NPRM and two petitions for rulemaking, FRA and PHMSA are adopting interim standards for tank cars used to transport PIH materials and limiting the operating speeds of all loaded, placarded PIH tank cars to 50 mph. DOT intends that the standards set forth in this final rule serve as interim standards until such times as final performance standards are developed and tank cars are available meeting such standards. Therefore, PHMSA estimates that the total information collection and recordkeeping burdens for OMB Control Number 2137–0559 due to the amendments in this final rule would be as follows:

Total Annual Number of Respondents: 400.

Total Annual Responses: 16,781.

Total Annual Burden Hours: 3,546.

Total Annual Burden Cost: $220,436.25.

Direct your requests for a copy of the information collection to Deborah Boothe or T. Glenn Foster, U.S. Department of Transportation, Pipeline & Hazardous Materials Safety Administration (PHMSA), East Building, Office of Hazardous Materials Standards (PHH–11), 1200 New Jersey Avenue, SE., Washington, DC 20590; telephone (202) 366–8553.

G. Regulation Identifier Number (RIN)

A 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.

H. Unfunded Mandates Reform Act

Pursuant to Section 201 of the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4, 2 U.S.C. 1531), each Federal agency ''shall, unless otherwise prohibited by law, assess the effects of Federal regulatory actions on State, local, and tribal governments, and the private sector (other than to the extent that such regulations incorporate requirements specifically set forth in law).'' Section 202 of the Act (2 U.S.C. 1532) further requires that ''before promulgating any general notice of proposed rulemaking that is likely to result in the promulgation of any rule that includes any Federal mandate that may result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of $141,100,000 or more (adjusted annually for inflation) in any 1 year, and before promulgating any final rule for which a general notice of proposed rulemaking was published, the agency shall prepare a written statement'' detailing the effect on State, local, and tribal governments and the private sector.

This rule will not result in the expenditure of more than $141,100,000 (adjusted annually for inflation) by the public sector in any one year, and thus preparation of such a statement is not required.

I. Environmental Assessment

There are no significant environmental impacts associated with this final rule. In fact, as discussed in the preamble to the NPRM, the enhanced standards of this rule should have a positive impact on the environment because such standards will enhance the accident survivability of newly constructed tank cars used to transport PIH materials, thereby

[44] John Gallagher, ''Tank Car Tensions,'' Traffic World (June 19, 2006).

minimizing the possibility that PIH materials would be released from those cars.

J. Privacy Act

Anyone is able to search the electronic form of any written communications and comments received into any of our dockets by the name of the individual submitting the document (or signing the document, if submitted on behalf of an association, business, labor union, etc.). You may review DOT's complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (65 FR 19477) or at *http://www.dot.gov/privacy.html.*

List of Subjects

49 CFR Part 171

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

49 CFR Part 172

Exports, Hazardous materials transportation, Hazardous waste, Labeling, 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 174

Hazardous materials transportation, Radioactive materials, Rail carriers, Railroad safety, Reporting and recordkeeping requirements.

49 CFR Part 179

Hazardous materials transportation, Railroad safety, Reporting and recordkeeping requirements.

The Rule

■ On the basis of the foregoing, PHMSA amends title 49, Chapter I, Subchapter C, as follows:

PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

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

Authority: 49 U.S.C. 5101–5128, 44701; 49 CFR 1.45 and 1.53.

■ 2. In § 171.7, in paragraph (a)(3), in the Table of Material Incorporated by Reference, under the entry ''Association of American Railroads,'' revise the address and add the entry ''AAR Standard S–286, Free/Unrestricted Interchange for 286,000 lbs. Gross Rail Load Cars, Adopted 2002; Revised: 2003, 2005, 2006,'' to read as follows:

§ 171.7 Reference material.

(a) * * *

(3) *Table of material incorporated by reference.* * * *

Source and name of material	49 CFR reference
* * * * * * *	
Association of American Railroads, American Railroads Building, 50 F Street, NW., Washington, DC 20001; telephone (877) 999–8824, *http://www.aar.org/publications.com*;	
* * * * * * *	
AAR Standard 286; AAR Manual of Standards and Recommended Practices, Section C, Car Construction Fundamentals and Details, Standard S–286, Free/Unrestricted Interchange for 286,000 lb Gross Rail Load Cars (Adopted 2002; Revised: 2003, 2005, 2006)	179.13
* * * * * * *	

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

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

Authority: 49 U.S.C. 5101–5128, 44701; 49 CFR 1.53.

■ 4. In § 172.101:

■ a. In the Hazardous Materials Table, in Column (7), remove ''B71'' in the following entry:

Hydrogen fluoride, anhydrous

■ b. In the Hazardous Materials Table, in Column (7), remove ''B72'' in the following entries:

Acrolein, stabilized
Bromine pentafluoride
Ethyl isocyanate
Ethyleneimine, stabilized
Iron pentacarbonyl
Isobutyl isocyanate
Isopropyl isocyanate
Methoxymethyl isocyanate
Methyl chloroformate
Methyl chloromethyl ether
Methyl isocyanate
Methyl vinyl ketone, stabilized
Methylhydrazine
n-Propyl isocyanate tert-Butyl isocyanate
Toxic by inhalation liquid, N.O.S. *with an inhalation toxicity lower than or equal to 200 ml/m³ and saturated vapor concentration greater than or equal to 500 LC_{50}*
Toxic by inhalation liquid, flammable, N.O.S. *with an inhalation toxicity lower than or equal to 200 ml/m³ and saturated vapor concentration greater than or equal to 500 LC_{50}*
Toxic by inhalation liquid, water reactive, N.O.S. *with an inhalation toxicity lower than or equal to 200 ml/m³ and saturated vapor concentration greater than or equal to 500 LC_{50}*
Toxic by inhalation liquid, oxidizing, N.O.S. *with an inhalation toxicity lower than or equal to 200 ml/m³ and saturated vapor concentration greater than or equal to 500 LC_{50}*
Toxic by inhalation liquid, corrosive, N.O.S. *with an inhalation toxicity lower than or equal to 200 ml/m_3 and saturated vapor concentration greater than or equal to 500 LC_{50}*

■ c. In § 172.101, in the Hazardous Materials Table, in Column (7), remove ''B74'' in the following entries:

Allyl alcohol
Allyl chloroformate
Allylamine
Arsenic trichloride
Boron tribromide
Bromine trifluoride
n-Butyl chloroformate
n-Butyl isocyanate
Chloroacetone, stabilized
Chloroacetonitrile
Chloroacetyl chloride
2-Chloroethanal
Chloropicrin
Chloropivaloyl chloride
Chlorosulfonic acid (*with or without sulfur trioxide*)
Crotonaldehyde, stabilized

Cyclohexyl isocyanate
3, 5-Dichloro-2,4,6-trifluoropyridine
Diketene, stabilized
Dimethyl sulfate
Dimethylhydrazine symmetrical
Dimethylhydrazine unsymmetrical
Ethyl chloroformate
Ethyl chlorothioformate
Ethyldichloroarsine
Ethylene chlorohydrin
Ethylene dibromide
Hexachlorocyclopentadiene
Hydrogen cyanide, solution in alcohol *with not more than 45% hydrogen cyanide*
Isopropyl chloroformate
Methacrylonitrile, stabilized
Methanesulfonyl chloride
Methyl bromide and ethylene dibromide mixture, liquid
Methyl iodide
Methyl isothiocyanate
Methyl orthosilicate
Methyl phosphonic dichloride
2-Methyl-2-heptanethiol
Nitric acid, red fuming
Perchloromethyl mercaptan
Phenyl isocyanate
Phenyl mercaptan
Phenylcarbylamine chloride
Phosphorus oxychloride
Phosphorus trichloride
n-Propyl chloroformate
Sulfur trioxide, stabilized
Sulfuric acid, fuming with 30 percent or more free sulfur trioxide
Sulfuryl chloride
Thiophosgene
Titanium tetrachloride
Toxic by inhalation liquid, N.O.S. *with an inhalation toxicity lower than or equal to 1000 ml/m³ and saturated vapor concentration greater than or equal to 10 LC_{50}*
Toxic by inhalation liquid, flammable, N.O.S. *with an inhalation toxicity lower than or equal to 1000 ml/m³ and saturated vapor concentration greater than or equal to 10 LC_{50}*
Toxic by inhalation liquid, water reactive, N.O.S. *with an inhalation toxicity lower than or equal to 1000 ml/m³ and saturated vapor concentration greater than or equal to 10 LC_{50}*
Toxic by inhalation liquid, corrosive, N.O.S. *with an inhalation toxicity lower than or equal to 1000 ml/m³ and saturated vapor concentration greater than or equal to 10 LC_{50}*
Trichloroacetyl chloride
Trimethoxysilane
Trimethylacetyl chloride

■ d. The Hazardous Materials Table is amended by revising the following entries in the appropriate alphabetical sequence to read as follows:

§ 172.101 HAZARDOUS MATERIALS TABLE

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or division	Identification numbers	PG	Label codes	Special provisions (§ 172.102)	(8) Packaging (§ 173 ***) Exceptions	Non-bulk	Bulk	(9) Quantity limitations (See §§ 173.27 and 175.75) Passenger aircraft/rail	Cargo aircraft only	(10) Vessel stowage Location	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	[REVISE]												
		*		*	*	*	*	*	*		*		
	Acrolein, stabilized.	6.1	UN1092	I	6.1, 3	1, B9, B14, B30, B42, B77, T22, TP2, TP7, TP13, TP38, TP44.	None	226	244	Forbidden	Forbidden	D	40
		*		*	*	*	*	*	*		*		
	Adhesives, *containing a flammable liquid.*	3	UN1133	I	3	T11, TP1, TP8, TP27.	150	201	243	1 L	30 L	B.	
		*		*	*	*	*	*	*		*		
+	Bromine	8	UN1744	I	8, 6.1	1, B9, B85, N34, N43, T22, TP2, TP10, TP12, TP13.	None	226	249	Forbidden	Forbidden	D	12, 40, 66, 74, 89, 90
		*		*	*	*	*	*	*		*		
+	Bromine solutions	8	UN1744	I	8, 6.1	1, B9, B85, N34, N43, T22, TP2, TP10, TP12, TP13.	None	226	249	Forbidden	Forbidden	D	12, 40, 66, 74, 89, 90
+	Bromine solutions	8	UN1744	I	8, 6.1	2, B9, B85, N34, N43, T22, TP2, TP10, TP12, TP13.	None	227	249	Forbidden	Forbidden	D	12, 40, 66, 74, 89, 90
		*		*	*	*	*	*	*		*		
	Hydrogen fluoride, anhydrous.	8	UN1052	I	8.6.1	3, B7, B46, B77, N86, T10, TP2.	None	163	244	Forbidden	Forbidden	D	40
		*		*	*	*	*	*	*		*		
	Nitric oxide, compressed.	2.3	UN1660		2.3, 5.1, 8	1, B77	None	337	None	Forbidden	Forbidden	D	40, 89, 90
	Nitric oxide and dinitrogen tetroxide mixtures*or* Nitric oxide and nitrogen dioxide mixtures.	2.3	UN1975		2.3, 5.1, 8	1, B77	None	337	None	Forbidden	Forbidden	D	40, 89, 90
		*		*	*	*	*	*	*		*		
+	Tetranitromethane	5.1	UN1510	I	5.1, 6.1	2, B32, T20, TP2, TP13, TP38, TP44.	None	227	None	Forbidden	Forbidden	D	40, 66
		*		*	*	*	*	*	*		*		

■ 5. In § 172.102, in paragraph (c)(3), Special Provisions B42, B65 and B76 are revised and Special Provisions B64, B71, B72 and B74 are removed. The revisions read as follows:

§ 172.102 Special provisions.

* * * * *

(c) * * *

(3) * * *

Code/Special Provisions

* * * * *

B42 Tank cars constructed before March 16, 2009, must have a test pressure of 34.47 Bar (500 psig) or greater and conform to Class 105J. Each tank car must have a reclosing pressure relief device having a start-to-discharge pressure of 10.34 Bar (150 psig). The tank car specification may be marked to indicate a test pressure of 13.79 Bar (200 psig).

* * * * *

B65 Tank cars constructed before March 16, 2009, must have a test pressure of 34.47 Bar (500 psig) or greater and conform to Class 105A. Each tank car must have a reclosing pressure relief device having a start-to-discharge pressure of 15.51 Bar (225 psig). The tank car specification may be marked to indicate a test pressure of 20.68 Bar (300 psig).

* * * * *

B76 Tank cars constructed before March 16, 2009, must have a test pressure of 20.68 Bar (300 psig) or greater and conform to Class 105S, 112J, 114J or 120S. Each tank car must have a reclosing pressure relief device having a start-to-discharge pressure of 10.34 Bar (150 psig). The tank car specification may be marked to indicate a test pressure of 13.79 Bar (200 psig).

* * * * *

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

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

Authority: 49 U.S.C. 5101–5128, 44701; 49 CFR 1.45, 1.53.

■ 7. Amend § 173.31 as follows:

■ a. Revise paragraphs (b)(6) introductory text and (e)(2)(ii); and

■ b. Add new paragraphs (e)(2)(iii) and (e)(2)(iv).

The revisions and additions read as follows:

§ 173.31 Use of Tank Cars.

* * * * *

(b) * * *

(6) *Scheduling of modifications and progress reporting.* The date of conformance for the continued use of tank cars subject to paragraphs (b)(4), (b)(5), and (f) of this section and § 173.314(j) is subject to the following conditions and limitations.

* * * * *

(e) * * *

(2) * * *

(ii) Each tank car constructed on or after March 16, 2009, and used for the transportation of PIH materials must meet the applicable authorized tank car specifications and standards listed in § 173.244(a)(2) or (3) and § 173.314(c) or (d).

(iii) A tank car meeting the applicable authorized tank car specifications listed in § 173.244(a)(2) or (3), or § 173.314(c) or (d) is authorized for the transportation of a material poisonous by inhalation for a period of 20 years after the date of original construction.

(iv) A tank car owner retiring or otherwise removing a tank car from service transporting materials poisonous by inhalation, other than because of damage to the car, must retire or remove cars constructed of non-normalized steel in the head or shell before removing any car in service transporting materials poisonous by inhalation constructed of normalized steel meeting the applicable DOT specification.

* * * * *

■ 7. In § 173.244, revise paragraph (a) to read as follows:

§ 173.244 Bulk packaging for certain pyrophoric liquids (Division 4.2), dangerous when wet (Division 4.3) materials, and poisonous liquids with inhalation hazards (Division 6.1).

* * * * *

(a) *Rail cars:* (1) Class DOT 105, 109, 112, 114, or 120 fusion-welded tank car tanks; and Class 106 or 110 multi-unit tank car tanks. For tank car tanks built prior to March 16, 2009, the following conditions apply:

(i) Division 6.1 Hazard Zone A materials must be transported in tank cars having a test pressure of 34.47 Bar (500 psig) or greater and conform to Classes 105J, 106 or 110.

(ii) Division 6.1 Hazard Zone B materials must be transported in tank cars having a test pressure of 20.68 Bar (300 psig) or greater and conform to Classes 105S, 106, 110, 112J, 114J or 120S.

(iii) Hydrogen fluoride, anhydrous must be transported in tank cars having a test pressure of 20.68 Bar (300 psig) or greater and conform to Classes 105, 112, 114 or 120.

(2) For materials poisonous by inhalation, single unit tank cars tanks built prior to March 16, 2009 and approved by the Tank Car Committee for transportation of the specified material. Except as provided in § 173.244(a)(3), tank cars built on or after March 16, 2009 used for the transportation of the PIH materials listed below, must meet the applicable authorized tank car specification listed in the following table:

Proper shipping name	Authorized tank car specification
Acetone cyanohydrin, stabilized (Note 1)	105J500I 112J500I
Acrolein (Note 1)	105J600I
Allyl Alcohol	105J500I 112J500I
Bromine	105J500I
Chloropicrin	105J500I 112J500I
Chlorosulfonic acid	105J500I 112J500I
Dimethyl sulfate	105J500I 112J500I
Ethyl chloroformate	105J500I 112J500I
Hexachlorocyclopentadiene	105J500I 112J500I
Hydrocyanic acid, aqueous solution*or* Hydrogen cyanide, aqueous solution*with not more than 20% hydrogen cyanide (Note 2)*	105J500I 112J500I
Hydrogen cyanide, stabilized (Note 2)	105J600I
Hydrogen fluoride, anhydrous	105J500I 112J500I
Poison inhalation hazard, Zone A materials not specifically identified in this table	105J600I
Poison inhalation hazard, Zone B materials not specifically identified in this table	105J500I 112J500I
Phosphorus trichloride	105J500I 112J500I
Sulfur trioxide, stabilized	105J500I 112J500I
Sulfuric acid, fuming	105J500I 112J500I
Titanium tetrachloride	105J500I 112J500I

Note 1: Each tank car must have a reclosing pressure relief device having a start-to-discharge pressure of 10.34 Bar (150 psig). Restenciling to a lower test pressure is not authorized.

Note 2: Each tank car must have a reclosing pressure relief device having a start-to-discharge pressure of 15.51 Bar (225 psig). Restenciling to a lower test pressure is not authorized.

(3) As an alternative to the authorized tank car specification listed in the table in paragraph (a)(2) of this section, a car of the same authorized tank car specification but of the next lower test pressure, as prescribed in column 5 of the table at § 179.101–1 of this subchapter, may be used provided that

both of the following conditions are met:

(i) The difference between the alternative and the required minimum plate thicknesses, based on the calculation prescribed in § 179.100–6 of this subchapter, must be added to the alternative tank car jacket and head shield. When the jacket and head shield are made from steel with a minimum tensile strength from 70,000 p.s.i. to 80,000 p.s.i., but the required minimum plate thickness calculation is based on steel with a minimum tensile strength of 81,000 p.s.i., the thickness to be added to the jacket and head shield must be increased by a factor of 1.157. Forming allowances for heads are not required to be considered when calculating thickness differences.

(ii) The tank car jacket and head shield are manufactured from carbon steel plate as prescribed in § 179.100–7(a) of this subchapter.

* * * * *

■ 8. Amend § 173.249 as follows:

■ a. Revise the last sentence of paragraph (a); and

■ b. Add new paragraph (g).

The revisions and additions read as follows:

§ 173.249 Bromine.

* * * * *

(a) * * * Tank cars must conform to the requirements in paragraphs (a) through (g) of this section.

* * * * *

(g) Except as provided in § 173.244(a)(3), tank cars built on or after March 16, 2009 and used for the transportation of bromine must meet the applicable authorized tank car specification listed in the table in § 173.244(a)(2).

■ 9. In § 173.314:

■ a. Revise paragraph (c) introductory text and the table.

■ b. Add notes 11 and 12 to the end of paragraph (c).

■ c. Add a new paragraph (d).

The revisions and additions read as follows:

§ 173.314 Compressed gases in tank cars and multi-unit tank cars.

* * * * *

(c) *Authorized gases, filling limits for tank cars.* A compressed gas in a tank car or a multi-unit tank car must be offered for transportation in accordance with § 173.31 and this section. The gases listed below must be loaded and offered for transportation in accordance with the following table:

Proper shipping name	Outage and filling limits (see note 1)	Authorized tank car class (see note 11)	Authorized tank car specification (see note 12)
Ammonia, anhydrous, or ammonia solutions > 50 percent ammonia.	Notes 2, 10	105, 112, 114, 120	105J500I, 112J500I
	Note 3	106	
Ammonia solutions with > 35 percent, but ≤ 50 percent ammonia by mass.	Note 3	105, 109, 112, 114, 120.	
Argon, compressed	Note 4	107.	
Boron trichloride	Note 3	105, 106.	
Carbon dioxide, refrigerated liquid	Note 5	105.	
Chlorine	Notes 6, 13	105	105J600I
	125	106.	
Chlorine trifluoride	Note 3	106, 110.	
Chlorine pentafluoride	Note 3	106, 110.	
Dimethyl ether	Note 3	105, 106, 110, 112, 114, 120.	
Dimethylamine, anhydrous	Note 3	105, 106, 112.	
Dinitrogen tetroxide, inhibited	Note 3	105, 106, 112	105J500I
Division 2.1 materials not specifically identified in this table.	Notes 9, 10	105, 106, 110, 112, 114, 120.	
Division 2.2 materials not specifically identified in this table.	Note 3	105, 106, 109, 110, 112, 114, 120.	
Division 2.3 Zone A materials not specifically identified in this table.	None	See § 173.245.	105J600I
Division 2.3 Zone B materials not specifically identified in this table.	Note 3	105, 106, 110, 112, 114, 120.	105J600I
Division 2.3 Zone C materials not specifically identified in this table.	Note 3	105, 106, 110, 112, 114, 120.	105J500I
Division 2.3 Zone D materials not specifically identified in this table.	Note 3	105, 106, 109, 110, 112, 114, 120.	105J500I, 112J500I
Ethylamine	Note 3	105, 106, 110, 112, 114, 120.	
Helium, compressed	Note 4	107.	
Hydrogen	Note 4	107.	
Hydrogen chloride, refrigerated liquid	Note 7	105	105J600I, 112S600I
Hydrogen Sulphide	Note 3	105, 106, 110, 112, 114, 120.	105J600I
Hydrogen sulphide, liquefied	68	106.	
Methyl bromide	Note 3	105, 106	105J500I
Methyl chloride	Note 3	105, 106, 112.	
Methyl mercaptan	Note 3	105, 106	105J500I
Methylamine, anhydrous	Note 3	105, 106, 112.	
Nitrogen, compressed	Note 4	107.	
Nitrosyl chloride	124	105	105J500I
	110	106.	
Nitrous oxide, refrigerated liquid	Note 5	105.	
Oxygen, compressed	Note 4	107.	
Phosgene	Note 3	106.	
Sulfur dioxide, liquefied	125	105, 106, 110	105J500I

Proper shipping name	Outage and filling limits (see note 1)	Authorized tank car class (see note 11)	Authorized tank car specification (see note 12)
Sulfuryl fluoride	120	105.	
Vinyl fluoride, stabilized	Note 8	105.	

**11. For materials poisonous by inhalation, the single unit tank car tanks authorized are only those cars approved by the Tank Car Committee for transportation of the specified material and built prior to March 16, 2009.

12. Except as provided by paragraph (d) of this section, for materials poisonous by inhalation, fusion-welded tank car tanks built on or after March 16, 2009 used for the transportation of the PIH materials noted, must meet the applicable authorized tank car specification and must be equipped with a head shield as prescribed in § 179.16(c)(1).

(d) *Alternative tank car tanks for materials poisonous by inhalation.* (1) As an alternative to the authorized tank car specification noted in the column 4 of the table in paragraph (c) of this section, a car of the same authorized tank car specification but of the next lower test pressure, as prescribed in column 5 of the table at § 179.101–1, may be used provided both of the following conditions are met:

(i) The difference between the alternative and the required minimum plate thicknesses, based on the calculation prescribed in § 179.100–6 of this subchapter, is added to the alternative tank car jacket and head shield. When the jacket and head shield are made from any authorized steel with a minimum tensile strength from 70,000 p.s.i. to 80,000 p.s.i., but the required minimum plate thickness calculation is based on steel with a minimum tensile strength of 81,000 p.s.i., the thickness to be added to the jacket and head shield must be increased by a factor of 1.157. Forming allowances for heads are not required to be considered when calculating thickness differences as prescribed in this paragraph.

(ii) The tank car jacket and head shield must be manufactured from carbon steel plate as prescribed in § 179.100–7(a) of this subchapter.

* * * * *

(k) *Special requirements for chlorine.* (1) Tank cars built after September 30, 1991, must have an insulation system consisting of 5.08 cm (2 inches) glass fiber over 5.08 cm (2 inches) of ceramic fiber.

(2) Tank cars must have excess flow valves on the interior pipes of liquid discharge valves.

(3) Tank cars constructed to a DOT 105A500W specification and authorized for chlorine service prior to March 16, 2009 may be marked as a DOT 105A300W specification with the size and type of reclosing pressure relief valves required by the marked specification.

(4) Except as provided in § 173.314(d), tank cars constructed after March 16, 2009 and used for the transportation of chlorine must meet the authorized tank car specification listed in the table in paragraph (c) of this section. These tank cars may be equipped with a pressure relief device of the size and type authorized in paragraph (k)(3) of this section. Restenciling to a lower test pressure is not authorized.

* * * * *

■ 10. In § 173.323, revise paragraph (c)(1) to read as follows.

§ 173.323 Ethylene Oxide.

* * * * *

(c) * * *

(1) *Tank cars.* Class DOT 105 tank cars:

(i) Each tank car built before March 16, 2009 must have a tank test pressure of at least 20.7 Bar (300 psig); and

(ii) Except as provided in § 173.314(d), tank cars built on or after March 16, 2009 used for the transportation of ethylene oxide must meet the applicable authorized tank car specification listed in the table in § 173.314(c).

* * * * *

PART 174—CARRIAGE BY RAIL

■ 11. The authority citation for part 174 continues to read as follows:

Authority: 49 U.S.C. 5101–5128; 49 CFR 1.53.

■ 12. Add new § 174.2 to read as follows:

§ 174.2 Limitation on actions by states, local governments, and Indian tribes.

Sections 5125 and 20106 of Title 49, United States Code, limit the authority of states, political subdivisions of states, and Indian tribes to impose requirements on the transportation of hazardous materials in commerce. A state, local, or Indian tribe requirement on the transportation of hazardous materials by rail may be preempted under either 49 U.S.C. 5125 or 20106, or both.

(a) Section 171.1(f) of this subchapter describes the circumstances under which 49 U.S.C. 5125 preempts a requirement of a state, political subdivision of a state, or Indian tribe.

(b) Under the Federal Railroad Safety Act (49 U.S.C. 20106), administered by the Federal Railroad Administration (*see* 49 CFR parts 200 through 244), laws, regulations and orders related to railroad safety, including security, shall be nationally uniform to the extent practicable. A state may adopt, or continue in force, a law, regulation, or order covering the same subject matter as a DOT regulation or order applicable to railroad safety and security (including the requirements in this subpart) only when an additional or more stringent state law, regulation, or order is necessary to eliminate or reduce an essentially local safety or security hazard; is not incompatible with a law, regulation, or order of the United States Government; and does not unreasonably burden interstate commerce.

■ 13. Revise § 174.86 to read as follows:

§ 174.86 Maximum allowable operating speed.

(a) For molten metals and molten glass shipped in packagings other than those prescribed in § 173.247 of this subchapter, the maximum allowable operating speed may not exceed 24 km/hour (15 mph) for shipments by rail.

(b) For trains transporting any loaded, placarded tank cars containing a material poisonous by inhalation, the maximum allowable operating speed may not exceed 80.5 km/hour (50 mph) for shipments by rail.

PART 179—SPECIFICATIONS FOR TANK CARS

■ 14. The authority citation for part 179 continues to read as follows:

Authority: 49 U.S.C. 5101–5128; 49 CFR part 1.53.

■ 15. Add new § 179.8 to read as follows:

§ 179.8 Limitation on actions by states, local governments, and Indian tribes.

Sections 5125 and 20106 of Title 49, United States Code, limit the authority of states, political subdivisions of states, and Indian tribes to impose requirements on the transportation of hazardous materials in commerce. A state, local, or Indian tribe requirement on the transportation of hazardous materials by rail may be preempted under either 49 U.S.C. 5125 or 20106, or both.

(a) Section 171.1(f) of this subchapter describes the circumstances under which 49 U.S.C. 5125 preempts a requirement of a state, political subdivision of a state, or Indian tribe.

(b) Under the Federal Railroad Safety Act (49 U.S.C. 20106), administered by the Federal Railroad Administration (see 49 CFR parts 200–244), laws, regulations and orders related to railroad safety, including security, shall be nationally uniform to the extent practicable. A state may adopt, or continue in force, a law, regulation, or order covering the same subject matter as a DOT regulation or order applicable to railroad safety and security (including the requirements in this subpart) only when an additional or more stringent state law, regulation, or order is necessary to eliminate or reduce an essentially local safety or security hazard; is not incompatible with a law, regulation, or order of the United States Government; and does not unreasonably burden interstate commerce.

■ 16. Revise § 179.13 to read as follows:

§ 179.13 Tank car capacity and gross weight limitation.

(a) Except as provided in paragraph (b) of this section, tank cars built after November 30, 1970, may not exceed 34,500 gallons (130,597 L) capacity or 263,000 pounds gross weight on rail. Existing tank cars may not be converted to exceed 34,500 gallons capacity or 263,000 pounds gross weight on rail.

(b) Tank cars meeting the applicable authorized tank car specifications listed in § 173.244(a)(2) or (3), or § 173.314(c) or (d) may not exceed 34,500 gallons (130,597 L) capacity or 286,000 pounds (129,727 kg) gross weight on rail. Tank cars exceeding 263,000 pounds and up to 286,000 pounds gross weight on rail must meet the requirements of AAR Standard S–286, Free/Unrestricted Interchange for 286,000 Lb Gross Rail Load Cars (IBR; *see* § 171.7 of this subchapter), except that any increase in weight above 263,000 may not be used to increase commodity quantity.

■ 17. In § 179.22, add paragraph (e) to read as follows:

§ 179.22 Marking.

* * * * *

(e) Each tank car manufactured after March 16, 2009 to meet the requirements of § 173.244(a)(2) or (3) or § 173.314(c) or (d) shall be marked with the letter ''I'' following the test pressure instead of the letter ''W''. (Example: DOT 105J600I).

■ 18. In § 179.100–3, add paragraph (b) to read as follows:

§ 179.100–3 Type.

* * * * *

(b) Head shields and shells of tanks built under this specification must be normalized. Tank car heads must be normalized after forming unless specific approval is granted for a facility's equipment and controls.

■ 19. Add § 179.102–3 to read as follows:

§ 179.102–3 Materials poisonous by inhalation.

(a) Each tank car built after March 16, 2009 for the transportation of a material poisonous by inhalation must, in addition to the requirements prescribed in § 179.100–12(c), enclose the service equipment within a protective housing and cover.

(1) Tank cars must be equipped with a top fitting protection system and nozzle capable of sustaining, without failure, a rollover accident at a speed of 9 miles per hour, in which the rolling protective housing strikes a stationary surface assumed to be flat, level and rigid and the speed is determined as a linear velocity, measured at the geometric center of the loaded tank car as a transverse vector. Failure is deemed to occur when the deformed protective housing contacts any of the service equipment or when the tank retention capability is compromised.

(2) As an alternative to the tank car top fitting protection system requirements in paragraph (a)(1) of this section, the tank car may be equipped with a system that prevents the release of product from any top fitting in the case of an accident where any top fitting would be sheared off. The tank nozzle must meet the performance standard in paragraph (a)(1) of this section and only mechanically operated excess flow devices are authorized.

(b) An application for approval of a tank car built in accordance with § 173.244(a)(3) or § 173.314(d) must include a demonstration, through engineering analysis, that the tank jacket and support structure system, including any anchors and support devices, is capable of withstanding a 6 mile per hour coupling without jacket shift such that results in damage to the nozzle.

■ 20. In § 179.102–17, add a new paragraph (m) to read as follows:

§ 179.102–17 Hydrogen chloride, refrigerated liquid.

* * * * *

(m) Except as provided in § 173.314(d), tank cars built on or after March 16, 2009 used for the transportation of hydrogen chloride, refrigerated liquid, must meet the applicable authorized tank car specification listed in § 173.314(c).

Issued in Washington, DC on December 23, 2008, under the authority delegated in 49 CFR Part 106.

Carl T. Johnson,

Administrator.

[FR Doc. E8–31056 Filed 1–12–09; 8:45 am]

BILLING CODE 4910–60–P