DEPARTMENT OF TRANSPORTATION

Research and Special Programs Administration

49 CFR Parts 171, 173, 177, 178, 180

[Docket No. RSPA–97–2718 (HM–225A)]

RIN 2137–AD07

Hazardous Materials: Revision to Regulations Governing Transportation and Unloading of Liquefied Compressed Gases

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

ACTION: Final rule.

SUMMARY: RSPA is revising regulations applicable to the transportation and unloading of liquefied compressed gases. The revisions include new inspection, maintenance, and testing requirements for cargo tank discharge systems, including delivery hose assemblies, and revised attendance requirements applicable to liquefied petroleum gas and anhydrous ammonia to take account of certain unique operating characteristics. The revised attendance requirements provide a greater level of confidence that a qualified person attending the unloading operation can quickly identify and stop an unintentional release. Further, RSPA is revising requirements for cargo tank emergency discharge control equipment to provide a clear performance standard for passive emergency discharge control equipment that shuts down unloading operations without human intervention. The revised requirements also provide for a remote capability for certain cargo tanks to enable a person attending the unloading operation to shut off the flow of product when away from the motor vehicle during delivery. RSPA is allowing a two-year period for development and testing of emergency discharge control technology. After two years, newly manufactured MC 331 cargo tank motor vehicles must be equipped with emergency discharge control equipment that complies with the performance standards; MC 330, MC 331 and certain nonspecification cargo tank motor vehicles already in service must be retrofitted at their first scheduled pressure test after the two-year period. These revisions are intended to reduce the risk of an unintentional release of a liquefied compressed gas during unloading, assure prompt detection and control of an unintentional release, and make the regulatory requirements easier to understand and comply with.

DATES: *Effective Date:* July 1, 1999.

Voluntary Compliance Date: RSPA is authorizing immediate voluntary compliance.

Incorporation by Reference Date: The incorporation by reference of the publications listed in these amendments has been approved by the Director of the Federal Register effective July 1, 1999.

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SUPPLEMENTARY INFORMATION:

List of Topics

I. Background

The goal of this rulemaking is to enhance transportation safety by improving the Hazardous Materials Regulations (HMR; 49 CFR Parts 171–180) as they relate to the unloading of liquefied compressed gases from MC 330, MC 331 and certain nonspecification cargo tanks. Concerns about emergency discharge control on some of these cargo tanks were identified following an incident in 1996. In 1997, the Research and Special Programs Administration (RSPA, ''we'') adopted a final rule under Docket Number RSPA–97–2133 (HM–225; 62 FR 7638, 62 FR 44038, 62 FR 65187) establishing certain temporary alternative regulations in § 171.5 of the HMR under which cargo tanks could remain in service while we evaluated this incident and other situations in which liquefied compressed gases were released unintentionally from cargo tanks during unloading operations. The temporary regulations expire July 1, 1999.

On August 18, 1997, we published an advance notice of proposed rulemaking under Docket Number RSPA–97–2718 (HM–225A; 62 FR 44059) soliciting public comment on a number of specific topics related to cargo tank unloading operations of liquefied compressed gases. We received more than 150 comments addressing federal agency jurisdiction; active and passive emergency discharge control systems; suggestions for modification of cargo tank discharge systems; hoses, hose assemblies, and hose management; and vehicle attendance requirements.

On July 16, 1998 (63 FR 38456), RSPA established a negotiated rulemaking committee (the Committee) to develop recommendations for alternative safety standards for preventing and mitigating unintentional releases of liquefied compressed gases during the unloading of cargo tank motor vehicles. In a negotiated rulemaking, representatives of interests affected by a regulation meet to discuss the safety issues and to identify potential solutions. The group attempts to reach consensus on a proposed solution and prepares a recommendation for a notice of proposed rulemaking to be made by the agency. This process is intended to give parties the opportunity to find creative solutions, improve the information data base for decisions, produce more acceptable rules, enhance compliance, and reduce the likelihood of court challenges.

For this rulemaking, in addition to the Department of Transportation (DOT), the Committee consisted of persons who represent the interests affected by this rulemaking, including businesses that transport and deliver liquefied petroleum gases, anhydrous ammonia and other liquefied compressed gases; manufacturers and operators of cargo tanks and vehicle components; and state and local public safety and emergency response agencies. Particular care was taken to identify any unique interests that were determined to be significantly affected by the proposed rule and ensure that they were fully represented on the Committee.

The Committee met in plenary and working sessions on seven occasions and developed a number of recommendations for enhancing the safety of cargo tank unloading operations. Among the materials considered by the Committee in developing its recommendations were the prior rulemaking actions in RSPA–97–2133, public comments filed in response to those actions, information provided by regulatory and enforcement officials, and incident data. We issued a notice of proposed rulemaking based on the Committee's recommendations on March 22, 1999 (64 FR 13856).

The requirements in this final rule replace the provisions of the temporary regulation in § 171.5 with a comprehensive safety program intended to reduce the risk of an unintentional release of a liquefied compressed gas during unloading, assure prompt detection and control of an unintentional release, and make the

regulatory requirements easier to understand and comply with. The Committee agrees that the costs imposed by this final rule will be off-set by the benefits. The Committee had no role in preparing DOT's ''Final Regulatory Evaluation'' or ''Environmental Assessment'' and did not consider them in its deliberations.

II. Statement of the Issues

The goal of all parties to this negotiated rulemaking was to enhance safety in transportation through improvements in the regulations governing the unloading of liquefied compressed gases from MC 330, MC 331, and certain nonspecification cargo tanks. Concerns with emergency discharge control on certain of these cargo tanks were identified in 1996. RSPA issued the temporary regulation in § 171.5 of the HMR to address these concerns as related to the unloading of liquefied compressed gases because information and data gathered during the rulemaking process indicated that the problems were not limited to specific materials or specific cargo tank configurations.

The Committee focused its discussions, analyses, and recommendations on liquefied petroleum gases (LPG) and anhydrous ammonia. These are the liquefied compressed gases that are most commonly transported in cargo tanks; as a result, LPG and anhydrous ammonia are the materials most frequently involved in unintentional releases during unloading. However, in this final rule, the Department is addressing safety issues related to unloading of all liquefied compressed gases that present risks similar to or more serious than those presented by LPG and anhydrous ammonia. The issues identified by the Committee apply equally to compressed gases with poison inhalation hazards, refrigerant gases, and compressed gases that present risks similar to those of LPG and anhydrous ammonia. The safety benefits that will be realized from these revisions justify a broad rulemaking approach.

As one of its first activities, the Committee examined incident reports of unintentional releases of LPG, anhydrous ammonia, and sulfur dioxide during unloading operations. The data included incidents reported to RSPA as required by §§ 171.15 and 171.16 of the HMR and other incidents not required to be reported to RSPA that were identified through reports from DOT field office staff, industry representatives, and newspapers. The Committee identified 69 incidents that occurred from 1990 to 1998 and analyzed them to determine how the current regulations applicable to unloading could be improved.

More than 54 percent of the incidents resulted in unintentional releases from hoses and hose fittings. Another 37 percent involved releases that originated from equipment on the cargo tank motor vehicle itself, including pump seals, swivel joints, pump flanges, and piping and related fittings such as gauges, filters, and flex connectors. Many of these incidents appeared to result from problems with maintenance, installation, or mechanical damage rather than design flaws. Based on this information, the Committee concluded that improved inspection and maintenance programs for delivery hose assemblies and other discharge system components would prevent many incidents and, thus, would improve the safety of cargo tank unloading operations.

However, the Committee also concluded that additional safety enhancements are possible. Thus, the Committee agreed to consider alternative approaches for identifying the occurrence of unintentional releases and reducing their severity by determining which methods or combination of methods provide the most cost-effective means for controlling unintentional releases during cargo tank unloading operations. The Committee heard presentations from manufacturers of a variety of systems designed to shut down cargo tank unloading operations automatically (without the need for human intervention) or by means of off-truck remote shut-off devices.

Based on its discussion and findings, the Committee recommended a program combining measures to prevent unintentional releases during unloading operations with measures that will assure quick identification of releases and effective mitigation. Therefore, we are revising the HMR in these areas:

- Prevention—new inspection, maintenance, and testing requirements for discharge systems, including delivery hose assemblies, on cargo tanks transporting liquefied compressed gases.
- Identification—revised attendance requirements for monitoring unloading operations of LPG and anhydrous ammonia to take account of certain unique operating characteristics while assuring that the person attending the unloading operation can quickly determine if an unintentional release occurs.
- Mitigation—revised requirements for emergency discharge control equipment on certain cargo tanks in liquefied compressed gas service to provide a clearer performance standard for equipment that shuts down unloading operations without human intervention and to provide for an off-truck remote capability for certain cargo tanks to enable a qualified person attending the unloading operation to shut off the flow of product from wherever he may need to be during the delivery. The new requirements vary according to the degree of risk involved with the transportation of specific liquefied compressed gases.

III. Comments on the NPRM

Seven organizations submitted comments on the NPRM. Commenters were generally supportive of the proposals in the NPRM and urged their prompt adoption. Four commenters raised concerns with certain aspects of the NPRM: (1) the Michigan State Police Motor Carrier Division Hazardous Materials Unit; (2) Rutherford Equipment; (3) The Chlorine Institute; and (4) the Sulfur Dioxide Mutual Assistance Response Team. In addition, two organizations that are members of the Committee—the National Propane Gas Association and The Fertilizer Institute—submitted comments on the Environmental Assessment and Preliminary Regulatory Evaluation, which were developed by RSPA to support the NPRM. Also, five individual members of the Committee submitted joint comments on the Environmental Assessment and the Preliminary Regulatory Evaluation. The comments are discussed in detail below.

Michigan State Police

The Michigan State Police Motor Carrier Division Hazardous Materials Unit (the Unit) endorses the proposals in the NPRM, but notes a potential enforcement problem involving recordkeeping associated with the proposed discharge system inspection and maintenance program in § 180.416. In addition, the Unit opposes the proposal to permit use of the term ''spray-fill'' in place of ''vapor'' for marking cargo tank product inlet lines.

Concerning recordkeeping, the Unit states that proposed §§ 180.416(b)(5) and 180.416(f)(3) do not address where the inspection records are to be kept and for how long. The Unit recommends that the final rule specify that the records are to be maintained at a carrier's place of business for six months (as is required for driver logbooks) or one year (as is required for shipping papers).

While the NPRM is not specific on this point, the Committee had intended that the records required by §§ 180.416(d)(5) and 180.416(f)(3) would be maintained in the same

manner as currently required for cargo tank test records in § 180.417. Section 180.417(b)(2) requires the owner of a cargo tank to retain a copy of test and inspection reports until the next test or inspection of the same type is successfully completed. We agree that this requirement is not clear in the NPRM. Thus, the final rule has been modified to include an explicit requirement for retention of test and inspection records in § 180.416 similar to the provision in § 180.417(b)(2).

Concerning the use of ''spray-fill'' to designate cargo inlet vapor lines, the Unit states that the terms ''vapor'' and ''liquid'' are not easily misunderstood, but that the term ''spray-fill'' can be interpreted in a number of ways. The Unit recommends that, to avoid confusion on the part of enforcement and emergency response personnel, this proposal be deleted. We do not agree. The industry commonly uses the term ''spray-fill'' to designate product inlet lines that communicate with vapor. This practice helps to assure that there is no confusion about where to connect loading and unloading lines. We do agree with the Unit that the paragraph as drafted is confusing and difficult to follow. We have revised this section for the final rule to clarify that it is only product inlet lines that communicate with vapor that may be designated ''spray-fill.'' Other lines that communicate with vapor, such as vapor equalization lines, must be designated ''vapor.''

Rutherford Equipment

The commenter representing Rutherford Equipment is concerned about the procedure proposed in the NPRM for pressure testing new and repaired hose assemblies by operators in the field. The commenter states that the person conducting the visual inspection could be endangered because the rule does not include a requirement that the hose must be restrained or caged during the pressure test. We do not believe that it is necessary to include such a requirement in this regulation. We expect that suitable safeguards will be provided to protect personnel and facilities should a hose fail during a pressure test. Written procedures developed by manufacturers of hoses and apparatus for pressure testing hose assemblies generally include cautionary statements advising persons conducting such tests to take all necessary safety precautions. Therefore, no change has been made to this final rule.

The Chlorine Institute

The Chlorine Institute comments address: (1) The requirement in the NPRM that emergency discharge control systems must be certified by a Design Certifying Engineer; (2) the proposed definition of ''metered delivery service;'' (3) use of the term ''internal self-closing stop valve;'' (4) the implementation date for the proposed requirement that chlorine cargo tanks be unloaded in conformance with Pamphlet 57 of the Chlorine Institute; and (5) the applicability of proposed § 178.337–8 to chlorine cargo tanks.

The NPRM proposed to require passive shut-down systems, including those installed on cargo tank motor vehicles prior to July 1, 2001, to be certified by a Design Certifying Engineer. The certification would affirm that the system would shut off the flow of product without the need for human intervention within 20 seconds of an unintentional release caused by a complete separation of the delivery hose. The Chlorine Institute states that chlorine cargo tanks have excess flow valves under liquid angle valves that are designed to shut down product flow if an angle valve is broken off. The Chlorine Institute further states that the excess flow valve would also activate ''under the proper conditions'' in the event of a complete separation of the delivery hose. However, the Chlorine Institute is concerned that manufacturers of excess flow valves used on cargo tanks in chlorine service will not provide the required certification because an excess flow valve is only one component of a larger system.

System certification was a major issue for the Committee. The Committee recognized that component manufacturers might be reluctant to provide a performance certification for a system of which their component was only a part. Thus, the Committee proposed that a system performance certification be provided by a Design Certifying Engineer, who could be employed by a cargo tank manufacturer, a component manufacturer, a cargo tank owner or operator, or a third party.

The performance certification must consider any manufacturing specifications for components used in the system and must explain how the system operates and the parameters within which it is designed to operate. A performance certification for the emergency discharge control system on a chlorine cargo tank would thus explain the function of each element of the system and enumerate the ''proper conditions'' within which the system is designed to operate.

The Committee believes that certification of passive emergency discharge control systems installed on cargo tank motor vehicles is critical for successful implementation of the final rule. Therefore, the final rule does not change the proposal in the NPRM for all passive shut-down systems, including those installed on cargo tank motor vehicles prior to July 1, 2001, to be certified by a Design Certifying Engineer.

Concerning the proposed definition of ''metered delivery service,'' the Chlorine Institute is concerned that the definition could be misinterpreted if ''metered'' were read to mean ''under the control of a valve or nozzle.'' The Chlorine Institute recommends that the proposed definition be modified to make clear that, in metered delivery service, the flow of product passes through a calibrated measuring device. We do not agree that the proposed definition for ''metered delivery service'' could be interpreted to mean ''under the control of a valve or nozzle.'' The definition proposed in the NPRM for ''metered delivery service'' is an unloading operation conducted at a metered flow rate of 100 gallons per minute or less through an attached delivery hose with a nominal inside diameter of 1.25 inches or less. In this context, ''metered flow rate'' clearly refers to a meter—that is, a calibrated measuring device. Thus, we have made no change to the final rule.

Concerning use of the term ''internal self-closing stop valve,'' the Chlorine Institute suggests that, whenever reference is made to an internal self-closing stop valve in the final rule, it should be clear that the rule does not apply to cargo tanks, such as those used for transportation of chlorine, that do not have internal self-closing stop valves. We agree that it is not always clear in the NPRM that certain MC 330 and MC 331 cargo tanks are not equipped with internal self-closing stop valves and, thus, that requirements applicable to such valves do not apply to these cargo tanks. We have made several clarifications in the final rule.

Proposed § 177.840(u) requires operators unloading chlorine from cargo tanks to comply with section 3 of Pamphlet 57 ''Emergency Shut-off Systems for Bulk Transfer of Chlorine.'' The Chlorine Institute asks that the final rule include an implementation date of two years after the effective date of the final rule, or July 1, 2001. This implementation date has been added in the final rule.

Concerning the applicability of proposed § 178.337–8, the Chlorine Institute notes that chlorine cargo tanks do not have openings to permit complete drainage; do not have openings that must be closed with a

plug, cap, or bolted flange; and do not have back flow check valves. Therefore, the Chlorine Institute suggests that this section should be modified to clarify that it does not apply to chlorine cargo tanks. For the final rule, we have revised the title of paragraph (a) of § 178.337–8 to indicate that it contains general requirements applicable to cargo tank openings and added language specifying that paragraph (a) applies to MC 331 cargo tanks except for those used to transport chlorine. We have also revised paragraph (b) for clarity.

Sulfur Dioxide Mutual Assistance Response Team

The Sulfur Dioxide Mutual Assistance Response Team (SMART) expresses concern over the proposed requirement for certain cargo tanks to be equipped with an emergency discharge control system that will shut off unloading without human intervention within 20 seconds of an unintentional release caused by a complete hose separation. SMART asserts that a complete separation of a delivery hose ''is not a situation that has occurred in the sulfur dioxide industry'' and, thus, sees no reason for imposition of the proposed requirement on cargo tanks used to transport sulfur dioxide. SMART also states that the technology to meet the proposed requirement does not yet exist and that ''it is unlikely that a device that may be appropriate for propane is going to work for sulfur dioxide.'' SMART is also concerned that its interests were not ''appropriately represented'' on the negotiated rulemaking committee. SMART requests that the final rule except cargo tanks that transport sulfur dioxide from the requirement for a passive emergency discharge control system. Failing that, SMART asks for reconsideration of the proposed implementation date for these systems.

From the beginning, our goal has been an open and inclusive process that would enable anyone with an interest in the rulemaking to provide information and to comment on proposals. The notice announcing our intention to establish a negotiated rulemaking committee (63 FR 30572; June 4, 1998) listed those interests that we believed should be represented on the Committee and invited commenters to identify other interests that should also be represented. The notice identified the Compressed Gas Association and National Tank Truck Carriers as organizations that should be included on the Committee to represent the interests of manufacturers and transporters of liquefied compressed gases other than LPG and anhydrous ammonia.

Once the Committee was established, interested parties who were not selected for membership were invited to attend Committee meetings, which were open to the public, caucus with Committee members representing their interest on the Committee, address the Committee or submit written comments on issues of concern, and participate in the informal work groups that were established by the Committee to address certain technical issues and draft regulatory text. Further, in January 1999, we circulated a draft NPRM to the Committee and other interested persons, including SMART's representative, thereby providing an opportunity for interested persons to provide comments in advance of formal publication of the NPRM. At the Committee's February meeting, Committee members and other participants discussed the draft NPRM in detail.

SMART's comments highlight the accident history of sulfur dioxide in transportation. We recognize that unintentional releases of liquefied compressed gases during unloading occur infrequently and that events such as complete hose separations during unloading are also infrequent events. However, an unintentional release of a gas that is poisonous by inhalation, such as sulfur dioxide, can have very serious consequences if it is not controlled quickly. The proposed requirement for passive emergency discharge control systems is designed to address potential risks to the public safety associated with such low-probability/high-consequence events. SMART has not provided sufficient information to justify its request for an exception from the proposed requirement; therefore, we have made no changes to the final rule.

Although SMART states that technology capable of automatically shutting off unloading in the event of complete hose failure cannot be available within two years, the industry is field-testing several promising systems, and at least one company is marketing a system that appears to meet the performance standard established in the proposed rule. Further, we note that, as is the case with chlorine, cargo tanks used to transport sulfur dioxide currently are equipped with an emergency discharge control system that may well meet the proposed performance standard provided certain operating conditions are met. If so, the existing system can be so certified by a Design Certifying Engineer. Thus, we have made no changes to the implementation schedule proposed in the NPRM.

Comments on Environmental Assessment and Preliminary Regulatory Evaluation

Several members of the Committee submitted formal comments expressing concerns about specific issues discussed in the Environmental Assessment and Preliminary Regulatory Evaluation. All of the commenters reiterated their support for the proposed regulatory program and their certainty that the safety benefits of the proposed program outweigh its costs.

Concerning the Environmental Assessment, commenters stated that some of the possible scenarios discussed are so improbable that they are not representative of the risks the new regulations are designed to addressed and should not have been presented. One factor normally considered in an Environmental Assessment is risk to health or safety. In this case, the most significant environmental effects of an unintentional release of material are the health and safety threats at the time of the release to humans, animals, and vegetation. Comments on the Environmental Assessment centered on potential fatality figures cited for several different delivery scenarios. These figures are intended to provide some sense of the upper bound, worst-case, or ''could range up to'' consequences that are possible in an accident. RSPA recognizes that unintentional releases of liquefied compressed gases during unloading occur infrequently and that events such as these are of very low probability. Less extreme outcomes are not as improbable. The safety measures adopted through this rulemaking, however, act to further reduce the likelihood of either category of events or mitigate consequences should they occur. Regardless of differences on how they may choose to portray risks, both RSPA and commenters come to the same conclusion: there are no significant environmental impacts associated with the proposed regulations.

Concerning the preliminary regulatory evaluation, commenters were primarily concerned that it understates the costs of the proposed regulations. In several cases, RSPA has adjusted cost figures upwards to reflect information provided by commenters. Where commenters did not offer specific information to support their arguments, RSPA elected to continue to rely on its original estimates. A complete discussion of individual comments received is included in the final Regulatory Evaluation. Notwithstanding their differences in characterizing the costs associated with the proposed program,

RSPA and the commenters agree that the costs imposed by this final rule will be off-set by the benefits.

IV. Revisions to the Regulations

A. Prevention

We are revising the HMR to incorporate the following measures to prevent unintentional releases during unloading of liquefied compressed gases:

- A hose management program, including post-delivery safety checks of hoses and hose assemblies.
- A new inspection and maintenance program for on-truck components of a cargo tank's discharge system.
- A visual check of the discharge system and its components prior to each unloading.

Hose Management Program

The Committee conducted an in-depth analysis of the incident data for liquefied compressed gas spills during unloading. The data indicate that failure of hoses and piping components is the cause of the majority of unloading incidents. In addition, the data show that relatively minor leaks can result in major consequences if a liquefied flammable gas is ignited. For these reasons, the Committee decided that any rule it recommended should contain provisions focused on preventing incidents.

Supporting this position is research conducted by Pennsylvania State University's Transportation Institute (PSUTI) under contract with The Fertilizer Institute. PSUTI analyzed the risks involved in deliveries of anhydrous ammonia and the most cost effective way of mitigating those risks. The PSUTI study identified a hose management program as the most cost-effective method of mitigating risks associated with unloading anhydrous ammonia.

The majority of the incidents examined by the Committee involved leaks from hoses or failures of hose couplings. An incident in Sanford, North Carolina, in September of 1996 provides an example. In that case, the hose couplings of a newly assembled delivery hose assembly disconnected from the hose when subjected to delivery pressures. Less severe hose failures are more frequent and generally occur as a result of cuts and gouges to hoses that have experienced rough handling, such as being dragged across uneven ground or over rough structures during deliveries.

For the reasons outlined above, we are requiring a hose management program for liquid transfer hoses carried on cargo tanks that transport liquefied compressed gases. Although the accident data and analysis focused on unloading operations involving LPG and anhydrous ammonia, the preventive measures are equally applicable to unloading operations for all liquefied compressed gases. The requirements include tests of new and repaired hose assemblies; safety checks of hoses after each unloading; monthly and annual hose assembly inspections; and specific rejection criteria.

The hose management program applies to delivery hose assemblies on cargo tank motor vehicles used to transport liquefied compressed gases. For purposes of this rule, a ''delivery hose assembly'' is defined as a liquid delivery hose and its attached couplings. During Committee deliberations, certain Committee members described instances in the field when it is necessary to attach ''adapters'' to the end of a delivery hose assembly to unload product from the cargo tank into the receiving container. Because these adapters are not regularly attached to the liquid delivery hose and its couplings, they are not considered part of the delivery hose assembly for purposes of the hose management program.

The hose management program requires an operator to remove and replace damaged hose sections and to correct any defects discovered in hoses or hose assemblies. The operator is required to pressure test a repaired hose at a minimum of 120 percent of the maximum working pressure of the hose before placing it back in service. A pressure test is not required if the operator corrects defects such as replacing or tightening loose or missing bolts or fastenings on bolted hose assembly couplings, provided no slipping of the coupling has occurred.

The annual hose inspection must be conducted by a Registered Inspector as part of the leakage test procedures already required by the HMR, making updating of registration unnecessary. For hoses not permanently attached to the cargo tank motor vehicle, the annual hose test does not necessarily have to be done by the same Registered Inspector or at the same time as the leakage test for the cargo tank motor vehicle.

Discharge System Inspection and Maintenance

Another area of emphasis identified by the Committee with respect to prevention of incidents during unloading was targeted at leaks from piping systems—defined by the Committee to include any component other than the delivery hose assembly that contains product during unloading. Again, the incident data indicate that leaks from piping components during unloading are a cause of a significant proportion of the reported incidents. The Committee heard presentations from two pump manufacturers about how pumps function and how they should be maintained. The Committee also investigated meters and other piping components.

Because of the incident data and the constant wear on piping components, we are requiring a program of inspections and tests for piping systems in cargo tanks that transport liquefied compressed gases. The inspection and testing program is similar to the program required for hoses. Piping system inspections and tests must include monthly checks of internal self-closing stop valves for closure, testing of linkages designed to close internal self-closing stop valves during emergencies, visual inspections of all piping system components, and rejection criteria for piping system components.

Pre-Delivery Safety Check

As an additional means to prevent unintentional releases from cargo tank delivery hose assemblies and piping, the person unloading liquefied compressed gases from a cargo tank must visually check those components of the discharge system that are readily observed during the normal course of unloading. This check must be done before each delivery after the pressure in the discharge system has reached at least equilibrium with the pressure in the cargo tank. This check should assure that all connections are secure and that each component of the discharge system, including delivery hose assemblies and piping, is of sound quality and free of defects detectable through visual observation and audio awareness.

B. Identification

We are establishing new attendance provisions applicable to unloading of LPG and anhydrous ammonia. The attendance provisions in § 177.834(i), which we are revising for clarity and consistency, will apply to all other cargo tank loading and unloading operations. We are making the following changes to the HMR:

- A definition for ''metered delivery service.''
- Revised regulations for monitoring the unloading operations of LPG and anhydrous ammonia in metered delivery service.
- Revised regulations for monitoring the unloading operations of liquefied compressed gases.

Definition for ''Metered Delivery Service''

The Committee recommended that the attendance requirements in the HMR take account of the differences in design and configuration of cargo tank motor vehicles delivering LPG and anhydrous ammonia. Unloading of LPG and anhydrous ammonia from large-capacity cargo tanks through large-diameter delivery hoses involves the transfer of thousands of gallons of product into large storage containers at a rate of 200–400 gallons per minute. Typically, the vehicle is unloaded through a short delivery hose (less than 25 feet).

Note: As an aid to the reader, units of measure in this preamble are expressed in U.S. standard or customary units. In the regulatory text, consistent with the requirements of § 171.10 of the HMR, they are expressed using the International System of Units (''SI'' or metric) as the regulatory standard, followed in parentheses by the U.S. standard unit.

Cargo tank motor vehicles that unload LPG or anhydrous ammonia through small-diameter delivery hoses differ in design and operation. These vehicles are used almost exclusively for deliveries in which small volumes of product are transferred to small storage containers at metered flow rates much lower than those used in other unloading operations. The average delivery for these vehicles involves the transfer of fewer than 170 gallons of product at a rate of 40–60 gallons per minute through a delivery hose that commonly ranges from 100 to 150 feet in length.

To account for these differences, we are defining a new term—''metered delivery service.'' The definition for ''metered delivery service'' is an unloading operation conducted at a metered flow rate of 100 gallons per minute or less through an attached delivery hose with a nominal inside diameter of 1.25 inches or less.

Monitoring Unloading Operations for Metered Delivery Service

By far the most common unloading scenario for cargo tank motor vehicles in metered delivery service is the delivery of propane for heating and cooking by households and small businesses, and for light industrial applications. In these settings, the vehicle is typically positioned in the customer's driveway, farm lane, or parking area, and the customer's storage container is located to the side or rear of the facility. The storage container may be located more than 25 feet from the nearest point of vehicle access, and can be up to 150 feet away in extreme cases. Fences, buildings, vegetation, or other obstructions may make it impossible to maintain an unobstructed view of the cargo tank from the position of the storage container.

The delivery hose on a cargo tank motor vehicle in metered delivery service remains attached and full of product during transit. It is equipped with a hose end valve that the attendant opens and closes to start and stop the flow of product into a customer container in the course of each delivery. As a result, an attendant located at the receiving container has a ready means to shut off the flow of gas in the event of a leak at the connection to the receiving container. An attendant located at the vehicle end of the system could respond to such a leak by closing the vehicle's internal self-closing stop valve, but product in the downstream piping and hose could still continue to escape until the hose empties. Attendance at the position of the receiving container has the advantage of facilitating more effective mitigation of releases at the connection to the receiving container through use of the hose end valve.

Attendance at the receiving container also addresses safety concerns about overfilling. The primary tool used to ensure against overfilling is a fixed maximum liquid level gauge mounted on customer containers. Propane industry safety procedures emphasize the need for close attendance of receiving containers to ensure that this gauge is monitored as necessary to prevent overfilling.

While these considerations favor attendance at receiving containers, attendance at the vehicle end of the unloading system can effectively ensure prompt mitigation of releases from hose assemblies, piping, pump seals, or other components of the unloading system through closure of the internal self-closing stop valve. A requirement for attendance at one end of the unloading system to the exclusion of the other would thus be inappropriate. Therefore, the Committee agreed that the attendant should monitor both ends of the delivery system. Because of concerns about potential cost and other factors, the Committee agreed that using two persons to monitor unloading operations is not a viable option.

This final rule requires the qualified person attending the unloading operation to remain within 150 feet of the cargo tank and within 25 feet of the delivery hose throughout the unloading operation. In addition, the qualified person must observe the cargo tank, the receiving container, and the delivery hose at least once every five minutes during unloading operations that take more than five minutes to complete. For purposes of this requirement, the qualified person is not required to be in position to view the entire length of the delivery hose.

This requirement should assure that leaks are detected before a substantial release occurs. Many of the releases that occur during metered delivery operations occur in close proximity to the attendant and are thus detected immediately. In any event, substantial releases should usually be evident to the attendant at any point along the delivery hose, whether or not such releases occur close to the attendant or within the attendant's field of view. Indeed, industry experience has been that substantial leaks during unloading are typically detected first by sound rather than by sight, regardless of the position of the attendant relative to the cargo tank or the source of the leak. Large ruptures and similar mechanical failures are accompanied by loud pops or bangs, followed by the hiss of escaping gas, both of which should be audible at a significant distance in most environments. Even small releases can cause changes in pump sound or vibration, or oscillation in the delivery hose that are detectable by an experienced qualified person located within 25 feet of the delivery hose.

Monitoring Unloading Operations for Other Than Metered Delivery Service

For a cargo tank in other than metered delivery service, as well as for all cargo tanks in LPG and anhydrous ammonia service, a manual emergency discharge control system is located on or within the cargo tank itself. Any releases that occur during unloading are detectable from the position of the cargo tank because of the short delivery hose used; therefore, safety considerations favor attendance from that position. Thus, for unloading of anhydrous ammonia and LPG in other than metered delivery service, and for other liquefied compressed gases in all types of service, the qualified person attending the unloading operation must be positioned within 25 feet of the cargo tank during unloading. The qualified person must maintain an unobstructed view of the cargo tank and the delivery hose to the maximum extent possible during unloading, except during short periods when it is necessary to activate controls or monitor the receiving tank. For purposes of this ''unobstructed view'' requirement, the qualified person is not required to be in position to view the entire length of the delivery hose.

Monitoring Unloading Operations for Dual Service Vehicles

Where cargo tank motor vehicles in anhydrous ammonia or LPG service are equipped to unload with both small diameter delivery hoses (1.25 inch nominal inside diameter or less) and larger diameter delivery hoses, the requirements for attending unloading operations for metered delivery service apply when such vehicles are being used to transfer product at a metered flow rate of 100 gallons per minute or less through the small diameter hose. The attendance requirements applicable to unloading operations for other than metered delivery service apply at all other times.

Taken together, the Committee believes that the new attendance requirements will provide the flexibility necessary to accommodate the need to ensure that both ends of the unloading system can be monitored effectively and, in combination with new inspection and emergency discharge control requirements, will provide greater safety benefits on a cost-effective basis.

C. Mitigation

The Committee considered alternatives to the current regulatory requirements for emergency discharge control with a view towards assessing their effectiveness and the need for modifications. We are making the following revisions to the current requirements for equipment designed to minimize the consequences of an unintentional release of a liquefied compressed gas:

- Modification of the performance standard for a passive means to shut down unloading—that is, one that operates without human intervention.
- Modification of the current requirements for emergency discharge control equipment on cargo tanks transporting liquefied compressed gases to account for varying degrees of risk presented by specific materials.
- New requirements for design and certification of emergency discharge control equipment.
- A new requirement that all internal self-closing stop valves on MC 330 and MC 331 cargo tanks and nonspecification cargo tanks authorized by § 173.315(k) with water capacities less than or equal to 3,500 gallons be equipped with a fusible element. Fusible elements are currently required on cargo tanks with capacities greater than 3,500 water gallons.
- A requirement for unloading operating procedures to be maintained on cargo tank motor vehicles.

Modification of the Performance Standard for Passive Means To Shut Down Unloading

A ''passive'' means to shut down unloading when a leak is detected is one that operates automatically, that is, without human intervention. The current regulation at § 178.337–11(a)(1)(i) of the HMR requires that ''each internal self-closing stop valve and excess flow valve must automatically close if any of its attachments are sheared off or if any attached hoses or piping are separated.'' It was reported to the Committee that § 178.337–11(a)(1)(i) has been a source of confusion since it was amended in 1989. This section might be read as requiring an excess flow valve or an internal self-closing stop valve with an integral excess flow valve or excess flow feature to close automatically at any time if any attachments were sheared off or attached hoses or piping were separated regardless of the rate of flow of product through the valve. An excess flow valve is only required to close if its flow rating as established by the original manufacturer is exceeded. In this final rule, we are clarifying the current regulations to accurately reflect an excess flow valve's performance capabilities. The clarification appears in § 178.337–8(a)(4)(iv).

None of the unloading incidents examined by the Committee involve complete separations of piping. Indeed, incidents involving piping and other discharge system components on the cargo tank itself usually involve relatively small leaks or releases. Because complete separations of piping during cargo tank unloading operations are unlikely to occur, the Committee concluded that RSPA should modify the current performance standard for passive shut-down. Thus, in this final rule, a passive means to shut off the flow of product is defined as one that is designed to shut off the flow of product without the need for human intervention in the event of an unintentional release caused by a complete hose separation.

With respect to shearing off of piping, the requirement for automatic shut-down in the event of a complete pipe separation is modified to apply only to shearing off of piping directly attached to an excess flow valve or an internal self-closing stop valve with an integral excess flow valve or excess flow feature. The modification requires the valve to close automatically when any piping mounted directly on the valve is sheared off at a point before the first valve, pump, or fitting downstream from the excess flow valve or excess flow feature if the flow of product reaches the rated flow of gas or liquid specified by the original valve manufacturer. The current requirement for installation of additional downstream excess flow valves if branching or other restrictions reduce the flow rating to less than that of the excess flow valve at the cargo tank is eliminated.

Modification of Requirements for Emergency Discharge Control Equipment

The Committee considered two types of emergency discharge control equipment: (1) Passive means to shut down unloading, and (2) off-truck remote shut-off equipment that can be activated by a person attending an unloading operation at a distance from the cargo tank. The Committee also discussed different cargo tank motor vehicle configurations and capacities with a view towards determining the most appropriate equipment for each configuration and operating situation.

a. *Passive shut-down.* For cargo tanks transporting LPG and anhydrous ammonia in other than metered delivery service, the Committee agreed that a requirement for a means to shut off the flow of product without human intervention in the event of a complete liquid hose separation is justified because of higher flow rates during unloading and the relatively low projected cost of technology currently being developed. The Committee recommended that each MC 330 and MC 331 cargo tank intended for transportation of LPG or anhydrous ammonia in other than metered delivery service must be equipped with a passive means to shut down unloading that is designed to shut off the flow of product in the event of unintentional releases resulting from complete liquid transfer hose separations only.

The Committee discussed at length the timeframe within which the passive means should operate. The Committee agreed that the regulation should require shut down of unloading within a specified timeframe. Most of the technology currently being developed is designed to shut off the flow of product within 10 seconds. However, the Committee was concerned that none of this technology has been operationally tested with liquefied compressed gases. The Committee was also concerned that the characteristics of specific materials could make it difficult to shut down unloading immediately. For this reason, this final rule requires that a passive means to shut off the flow of product must operate without human intervention within 20 seconds of an unintentional release caused by a

complete liquid transfer hose separation. We encourage the industry to develop technology that operates effectively and reliably in a shorter amount of time. Faster shut-down means that serious consequences resulting from unintentional releases are less likely.

We believe that the safety benefits of a passive means to shut down unloading justify its use on cargo tanks that transport Division 2.3 materials—gases that are poisonous by inhalation. An unintentional release of a Division 2.3 material can have devastating consequences if it is not controlled quickly. In addition, we believe that materials transported in other than metered delivery service that present the same hazards as LPG and anhydrous ammonia should be transported in cargo tanks with a passive shut-down capability. The concerns about high flow rates during unloading apply equally to these materials as to LPG and anhydrous ammonia. Thus, we are adopting the Committee's recommendation for passive shut-down to require that all shipments of gas poisonous by inhalation (Division 2.3 materials), and shipments in other than metered delivery service of non-flammable compressed gas (Division 2.2 materials) with a subsidiary hazard, flammable gas (Division 2.1 materials), and anhydrous ammonia must be transported in cargo tanks equipped with a means to shut off the flow of product without human intervention within 20 seconds of an unintentional release caused by a complete liquid transfer hose separation.

In many instances, the equipment utilized to meet the proposed requirement for passive shut-down may be contained in the delivery hose assembly. The Committee heard from at least two vendors that have developed passive shut-down technology based on specially equipped delivery hose assemblies.

We are aware that a number of owners or operators of facilities receiving liquefied compressed gases from cargo tank motor vehicles require, as a condition of unloading, that the cargo tank operator utilize the facility's hose assembly for the unloading operation. In most cases, such facility hoses are subject to standards of the Occupational Safety and Health Administration (OSHA) of the Department of Labor and/or state requirements that are consistent with the recommendations of the National Fire Protection Association (NFPA).

For those situations where a facility requires the use of its own hose assembly for unloading and the cargo tank operator relies on a specially fitted delivery hose to comply with the requirement for passive emergency shut-down, the new regulation permits unloading provided two conditions are met. First, the qualified person monitoring the unloading operation must remain within arm's reach of the mechanical means of closure for the internal self-closing stop valve throughout the unloading operation except for short periods when it is necessary to activate controls or monitor the receiving container. Second, the qualified person monitoring the unloading operation must visually examine the facility hose for obvious defects prior to beginning unloading.

b. *Off-truck remote shut-offs.* For cargo tanks transporting LPG and anhydrous ammonia in metered delivery service, the Committee agreed that a passive shut-down capability is not justified in terms of costs versus benefits. These cargo tanks deliver LPG or anhydrous ammonia through small diameter hoses at low flow rates. Delivery times commonly average 3–5 minutes. The discharge rate serves as a limiting factor on risk—over a period of seconds or even minutes, the average amount of product released in an incident will be relatively small.

At the same time, however, the Committee agreed that the qualified person attending the unloading of a cargo tank in metered delivery service must be able to quickly mitigate an unintentional release to prevent significant consequences. Thus, the Committee recommended that a cargo tank motor vehicle in metered delivery service for LPG or anhydrous ammonia must be equipped with an off-truck remote means to close the internal self-closing stop valve and shut off all motive and auxiliary power equipment when activated by a qualified person attending the unloading of the cargo tank motor vehicle. The activation device must not be capable of reopening the internal self-closing stop valve once it has been closed in an emergency; this is to assure that an operator cannot unintentionally restart the flow of product with the off-truck remote during an emergency.

We recognize that even reliable, well-designed wireless transmitter/receiver systems cannot be expected to function in every circumstance. In a small percentage of cases, signal interference may require the attendant to change position before such a system will function. In a very small number of cases, unusual site conditions may make it impossible to operate such a system at all. The latter could occur where signal interference is particularly severe (e.g., at a radio tower) or where the use of a wireless transmitter is prohibited (e.g., at a construction site where blasting operations are being conducted). Under the final rule, such limitations are considered acceptable. We also recognize that some deliveries will be made under conditions where an otherwise operable wireless transmitter/receiver system cannot be used or might not function and believe that the other safety features of this proposed rule should be considered sufficient in such cases. Accordingly, the final rule does not prohibit deliveries in such circumstances.

The Committee did not want to limit operators of cargo tanks to a single type of off-truck remote shut-off technology. While most include radio frequency devices, the Committee is aware of at least one off-truck remote shut-off device that is located at the end of a specially configured delivery hose. This technology increases the abrasion-resistance of a hose, thereby reducing the potential for hose failures, and has the added feature of shutting down the flow of product without human intervention in the event of either a delivery hose leak or a complete separation of the delivery hose. Where the final rule includes a requirement for the qualified person to carry the off-truck remote activation device at all times during the unloading process, there is an exception for a system that places the remote shut-down device at the end of the delivery hose and that also includes an automatic shut-down feature that reacts to both hose leaks and complete hose separations.

There are several important safety benefits associated with an off-truck remote shut-off capability. In the event of an unintentional release, the qualified person will be able to quickly close the internal self-closing stop valve, thereby minimizing the amount of product released. The qualified person will also be able to quickly shut off the vehicle's engine and thus eliminate a possible ignition source. Further, the qualified person will not be placed in harm's way by having to approach the vehicle during an incident when it may be enveloped in vapors of released product or engulfed in flames if there is a fire at the point of release. These safety benefits are so significant that we are adopting the Committee's recommendation to require that each cargo tank in metered delivery service transporting a non-flammable compressed gas (Division 2.2 material) with a subsidiary hazard, a flammable gas (Division 2.1 material), or anhydrous ammonia have an off-truck remote shut-

off capability designed in accordance with the Committee's recommendation.

c. *Cargo tank size and emergency discharge control.* The size of cargo tanks that transport LPG or anhydrous ammonia in metered delivery service varies. Most have a water capacity of 3,500 gallons or less. However, we know of between 150 and 170 cargo tanks transporting LPG and anhydrous ammonia in metered delivery service with capacities greater than 3,500 gallons. The Committee discussed whether larger capacity vehicles in metered delivery service present increased risks to life, health, property, or the environment. RSPA believes that the capacity of a cargo tank could have a significant effect on the worst-case consequences of an incident, particularly where the qualified person's view of the vehicle is obstructed or obscured. To address these concerns, this final rule requires that cargo tanks with capacities greater than 3,500 water gallons transporting LPG and anhydrous ammonia in metered delivery service must, for obstructed view deliveries, in addition to an off-truck remote shut-off capability, have either: (1) A passive shut-down capability to shut off the flow of product without human intervention within 20 seconds of an unintentional release caused by a complete hose separation, or (2) a means to automatically shut off the flow of product unless prompted at least once every five minutes during the unloading operation by the person attending the unloading operation (e.g., an off-truck remote shut-off capability with a query feature). These types of emergency discharge control will assure that the unloading operation will shut down even if the qualified person is incapacitated.

Here again, we believe that the safety issues apply equally to certain cargo tanks transporting other liquefied compressed gases in metered delivery service with hazards similar to LPG and anhydrous ammonia. Thus, this requirement is adopted for all non-flammable compressed gases (Division 2.2 materials) with a subsidiary hazard, flammable gases (Division 2.1 materials), and anhydrous ammonia in metered delivery service in cargo tanks with capacities greater than 3,500 water gallons.

The following table summarizes the provisions of this final rule for emergency discharge control equipment on cargo tanks transporting liquefied compressed gases:

Material	Cargo tank capacity	Delivery service	New required emergency discharge control equipment
1. Division 2.2 materials with no subsidiary hazard, excluding anhydrous ammonia.	All	All	None.
2. Division 2.3 materials	All	All	Passive shut-down capability.
3. Division 2.2 materials with a subsidiary hazard, anhydrous ammonia, and Division 2.1 materials.	All	Other than metered delivery service.	Passive shut-down capability.
4. Division 2.2 materials with a subsidiary hazard, anhydrous ammonia, and Division 2.1 materials.	3,500 water gallons or less.	Metered delivery service.	Off-truck remote shut-down capability.
5. Division 2.2 materials with a subsidiary hazard, anhydrous ammonia, and Division 2.1 materials in cargo tanks.	Greater than 3,500 water gallons.	Metered delivery service.	Off-truck remote shut-down capability, and, for obstructed view deliveries where permitted by the regulations, an off-truck remote with a query feature or passive shut-down capability.

We believe that passive shut-down and off-truck remote technology provides such important safety benefits that all cargo tanks transporting liquefied compressed gases except for Division 2.2 materials with no subsidiary hazard (excluding anhydrous ammonia) should be equipped with one or the other, depending on the type of service in which they operate. The risks presented by Division 2.2 materials with no subsidiary hazard are not sufficient to justify either a passive shut-down capability or an off-truck remote shut-off capability. Accordingly, MC 330 and MC 331 specification cargo tank motor vehicles and nonspecification cargo tank motor vehicles authorized under § 173.315(k) of the HMR currently in operation must be equipped in accordance with the above table. The timing of the retrofit is discussed in detail under ''Implementation Schedule'' below.

Design and Certification of Emergency Discharge Control Equipment

We are also instituting specific requirements for certifying the design and installation of emergency discharge control equipment. Off-truck remote shut-off equipment must be installed under the supervision of a Registered Inspector, who must certify that it is installed according to the manufacturer's specifications. The design for passive shut-down equipment must be certified by a Design Certifying Engineer and its installation must be supervised by a Registered Inspector. Separate certification of emergency discharge control equipment will allow a manufacturer of an MC 331 cargo tank to build and certify a cargo tank without installing an emergency discharge control system. The Committee was concerned that the requirement for emergency discharge control is dependent on the type of service in which the tank is operated, and that the manufacturer cannot be expected to know how it will be operated at the time of manufacture. The Committee was also concerned that cargo tank manufacturers may not have the specialized expertise necessary to install and certify the performance of the emergency discharge control technology currently being developed.

Some operators of cargo tank motor vehicles currently in operation believe that their passive shut-down systems meet the performance requirements contained in this proposed regulation. The Committee believes that operators should assure that any such systems comply with the new performance standard. Accordingly, this final rule requires that any passive shut-down systems installed on cargo tank motor vehicles prior to July 1, 2001, must be certified by a Design Certifying Engineer.

The manufacturers of internal self-closing stop valves with an integral excess flow valve or excess flow feature participating as members of the Committee advised the Committee that, in addition to restrictions in downstream piping caused by pumps,

other variables may make such a valve unsuitable to serve as a means of passive shut-down. Such variables include other restrictions incorporated in the discharge system (due to pipe and hose dimensions, branching, elbows, reductions in pipe diameter, or other in-line valves or fittings), low operating pressures as a result of ambient temperatures, or a partially closed valve downstream from the excess flow valve, all of which restrict the rate of flow through the excess flow valve. In addition, they noted that operating conditions will also produce different flow rates affecting activation of the valve for different liquefied compressed gases because the properties vary from one gas to another. They advised the Committee that such variables may prevent activation of the excess flow valve in the event of a complete hose separation.

Fusible Elements

The Committee also discussed the safety benefits of fusible elements, which provide a heat-activated means for closing a valve. Fusible elements melt when subjected to sufficiently high temperatures, thereby effecting closure of the valve to which they are affixed. The HMR currently require installation of on-truck remote closures with a means of thermal activation on MC–331 cargo tanks with capacities greater than 3,500 gallons. This final rule requires internal self-closing stop valves to be equipped with a means of thermal activation on all MC 330, MC 331, and nonspecification cargo tanks authorized under § 173.315(k) that are not currently so equipped.

Operating Procedures

We are requiring that operators of cargo tank motor vehicles in liquefied compressed gas service carry operating procedures applicable to unloading operations on or within the cargo tank motor vehicle. The operating procedures must include all information relevant to the vehicle's emergency discharge control equipment, including the type installed on the vehicle and, for passive systems, the parameters within which it is designed to operate. This will help to assure that a qualified person attending a cargo tank unloading operation is familiar with and understands the features of the cargo tank motor vehicle's emergency discharge control equipment and how it operates.

D. Implementation Schedule

The Committee discussed implementation issues in detail and agreed on the implementation schedule outlined in the following table for the new requirements in this final rule.

Section	Compliance date
1. New emergency discharge control equipment:	
a. § 173.315(k)(6)—Authority for nonspecification cargo tank motor vehicles to cross state lines to travel to and from qualified assembly, repair, or requalification facility.	July 1, 1999.
b. § 173.315(n)(2)—For cargo tanks in other than metered delivery service and for cargo tanks transporting Division 2.3 materials, a means to automatically shut off the flow of product without the need for human intervention within 20 seconds of an unintentional release caused by complete hose separation.	July 1, 2001, for newly manufactured cargo tanks. Beginning July 1, 2001, cargo tanks currently in service begin retrofit at pressure testing interval.
c. § 173.315(n)(3)—For cargo tanks in metered delivery service with capacity of 3,500 water gallons or less, a means to enable the operator to stop the delivery from any location he may need to be during unloading.	July 1, 2001, for newly manufactured cargo tanks. Beginning July 1, 2001, cargo tanks currently in service begin retrofit at pressure testing interval.
d. § 173.315(n)(3) and (4), § 177.840(p)(2)(ii)—For cargo tanks in metered delivery service with capacity greater than 3,500 water gallons, a means to enable the operator to stop the delivery from any location he may need to be during unloading AND for obstructed view deliveries either a passive shut-down capability OR a means to shut down the unloading operation unless prompted by the operator at least once every five minutes.	July 1, 2001, for newly manufactured cargo tanks. Beginning July 1, 2001, cargo tanks currently in service begin retrofit at pressure testing interval or before July 1, 2003, whichever is earlier.
e. § 173.315(p), § 178.337–8(a)(4)—fusible elements on cargo tanks with capacities less than or equal to 3,500 water gallons.	July 1, 1999, for newly manufactured cargo tanks. Beginning July 1, 1999, cargo tanks currently in service begin retrofit at leakage test interval.
2. Unloading procedures:	
a. § 177.840(l)—written operating procedures for unloading operations	January 1, 2000.
b. § 177.840(m)—pre-transfer check of discharge system	July 1, 1999.
c. § 177.840(n)—shut down of unloading in the event of an emergency	July 1, 1999.
d. § 177.840(o)—daily test of activation device for cargo tank motor vehicles equipped with off-truck remote shut-off systems.	July 1, 1999.
e. § 177.840(p)—unloading procedures and attendance requirements for LPG and anhydrous ammonia in metered delivery service.	July 1, 1999.
f. § 177.840(q)—unloading procedures and attendance requirements for LPG and anhydrous ammonia in other than metered delivery service.	July 1, 1999.
3. Discharge system inspection and maintenance program for cargo tanks transporting liquefied compressed gases:	
a. § 180.407(h)—annual inspection of discharge system by Registered Inspector	The first leakage test after July 1, 2000.
b. § 180.416(b)—hose assembly marking	July 1, 2000.
c. § 180.416(c)—post-delivery hose check	July 1, 1999.
d. § 180.416(d)—monthly discharge system inspections and tests	July 1, 1999.
e. § 180.416(f)—pressure tests for new/repaired hose assemblies	July 1, 1999.
f. § 180.416(g)—discharge system rejection criteria	July 1, 1999.
g. § 180.407(h)(4); § 180.416(d)(5), (f)(3)—recordkeeping for inspections and tests	July 1, 2000.

Voluntary compliance is authorized immediately. New or amended sections of the HMR not specifically referenced in the table will become effective on July 1, 1999.

The Committee agreed that the new discharge system inspection and maintenance requirements and the revised attendance provisions applicable to unloading of LPG and anhydrous ammonia should become

effective July 1, 1999. However, the Committee believes that the final rule should allow time for development and testing of new technologies to meet the requirements for passive and off-truck remote shut-off capability. The final rule includes a two-year period for this purpose.

The Committee is not aware of any passive shut-off technology currently installed and functioning on vehicles in liquefied compressed gas service that is sufficiently tested and proven to meet the proposed new standards. Although several types have been developed and tested on a limited basis, none has been subjected to widespread testing under all operating conditions. Allowing a two-year development period will give industry sufficient time to install prototype designs on cargo tanks, operate the tanks for a year while conducting testing, make refinements to the technology as necessary, and operate the tanks for another year to test the refinements. In-use testing under actual winter-delivery conditions—including exposure to road salt, ice, damp weather conditions, and geographical variations—is essential. Testing the technology over more than one year should result in better, more reliable systems.

The argument above for development of passive shut-off technology over two years to ensure reliable functioning in all conditions is also applicable to off-truck remote shut-off technology. Industry has been installing and testing a number of different radio-frequency devices. Testing has shown that some of these devices were inadequate. Further, some in the industry have discovered that installation of these devices can affect other cargo tank systems, resulting in unwanted or even unsafe conditions while the vehicle is in operation. The importance of a trial-and-development period is underscored by the experience of companies that have installed off-truck remote shut-off systems. Some of these have had to be discarded because of problems with reliability, range, transmission/receiving antennas, and battery life; maintenance difficulties; and inability to operate through obstructions.

Another factor arguing in favor of a two-year development period is that the industry needs time to develop standards for installing off-truck remote shut-off equipment on cargo tank motor vehicles. There are a variety of different make and model vehicles with differing ignition, computer, and electrical systems—all of which can affect installation of an off-truck remote shut-off device. The actual installation can take from half-a-day to two days depending on the installer's familiarity with the type of vehicle. A two-year development period will provide industry time to develop installation procedures for all different types of vehicles.

The final rule also permits operators to retrofit vehicles with the new safety equipment over a five-year period on a schedule consistent with a cargo tank's five-year pressure retest cycle. This schedule saves the industry the cost of taking a vehicle out of service more than once during the five-year period, avoids conflicts with the peak periods of use for cargo tanks in LPG and anhydrous ammonia service, and provides a standard for implementation of this rule that can be checked easily during roadside inspections. No MC 330, MC 331, or nonspecification cargo tank used to transport liquefied compressed gases will be permitted to operate after its first pressure testing interval occurring after July 1, 2001, unless it is equipped with appropriate emergency discharge control equipment. All equipment retrofits must be completed by July 1, 2006.

Given the rates at which cargo tank motor vehicles are rechassised and requalified, the Committee estimates that over half of all cargo tank motor vehicles subject to the proposed retrofit requirements will be equipped within the first two years after the two-year development period. About 90 percent of affected vehicles will be equipped by the end of the fourth year.

The final rule permits cargo tanks authorized under § 173.315(k) of the HMR, which are currently limited to intrastate operations, to cross state lines for the purpose of traveling to and from a qualified assembly, repair, maintenance, or requalification facility. The cargo tank need not be cleaned and purged, but it may not contain liquefied petroleum gas in excess of five percent of the water capacity of the cargo tank. Vehicles supplied with engine fuel from the cargo tank will be permitted to carry sufficient fuel for the trip to or from the facility.

The Committee took note of the fact that, beginning in the spring of 1997, several operators of cargo tanks transporting liquefied compressed gases installed off-truck remote shut-off devices in efforts to address RSPA's concern over emergency discharge control. The Committee agreed that companies that installed off-truck remote shut-offs designed to close the internal self-closing stop valve from a distance of at least 150 feet should not be required to retrofit their vehicles to meet the requirements for off-truck remote shut-off devices being proposed here. Thus, cargo tank motor vehicles in metered delivery service, with capacities less than or equal to 3,500 gallons, that are equipped with off-truck remote shut-offs that close the internal self-closing stop valve will not be subject to the retrofit requirements if the systems were installed prior to July 1, 2000. When a system reaches the end of its useful life, a replacement system must conform to the new requirements for off-truck remote shut-off equipment.

Because of RSPA's concern about the potential risk involved with larger capacity cargo tanks, the final rule requires cargo tank motor vehicles in metered delivery service with capacities greater than 3,500 water gallons to have an off-truck remote shut-off capability to shut the internal self-closing stop valve or other primary means of closure and shut down all motive and auxiliary power. This requirement must be met by July 1, 2001, for newly manufactured cargo tank motor vehicles and, for vehicles already in service, by the date of a cargo tank's first scheduled pressure test after July 1, 2001 or by July 1, 2003, whichever is earlier. This retrofit schedule applies whether or not the cargo tank is due to be requalified by July 1, 2003, and whether or not it is already equipped with an off-truck remote shut-off device that closes the internal self-closing stop valve. When such vehicles are used to make deliveries where the qualified person monitoring the unloading operation cannot maintain an unobstructed view of the cargo tank, the vehicles must have either a passive shut-down capability or a query feature as described above by July 1, 2003.

We anticipate that periodic progress reviews will be needed during the two-year development and testing cycle for emergency discharge control technology. These reviews will help foster communication between industry and government and function as a catalyst for critical development and testing needs that may occur.

We plan to work in partnership with the industry to assure widespread dissemination of information on the development and testing of emergency discharge control technology. We envision that this effort will parallel training and research conducted by organizations such as the Propane Education and Research Council, the National Propane Gas Association, the Fertilizer Institute, and the Compressed Gas Association. Key elements of the progress review and study may include: (1) Surveying and cataloging industry efforts; (2) identification and communication of successes and problems; (3) monitoring or performing

critical research and development; and (4) testing. We will also explore possible sponsorship of technology exchange forums to highlight the state of technology development and implementation.

E. Miscellaneous

In addition to the provisions outlined above, we are revising the current specification for MC 331 cargo tanks to accommodate new requirements for hose assembly testing, emergency discharge control, excess flow valves, and thermal means of closing an internal self-closing stop valve. Several members of the Committee also suggested that the MC 331 cargo tank specification should be clarified and simplified. This is particularly important with the introduction of new terminology and the need to differentiate types of discharge control. To accomplish this, we are revising the current specification, described in more detail in the section-by-section review below, to add several defining terms and place all requirements for outlets, inlets, and openings in a single section.

F. Section-by-Section Review

Part 171

Section 171.5. The provisions initially adopted as a temporary measure are removed. Operators of cargo tanks marked in accordance with § 171.5(b) should remove the marking as expeditiously as possible after July 1, 1999.

Section 171.7. We are revising the incorporations by reference to reflect the most recent publications of The Chlorine Institute. For the final rule, we have revised the reference to Pamphlet 57 in the table in § 171.7(a)(3) to reflect that the publication is the 3rd edition and was published in 1997.

Section 171.8. We are adding a new definition for ''metered delivery service.''

Part 173

Section 173.315. Paragraph (k) sets forth requirements that must be met for use of nonspecification cargo tanks to transport LPG. Paragraph (k)(4) currently requires that such cargo tanks conform to the requirements of Pamphlet 58 of the National Fire Protection Association. We are including an exception from this requirement where the provisions of Pamphlet 58 are inconsistent with Parts 178 and 180 of the HMR. We are also permitting such tanks to cross state lines to travel to and from a qualified assembly, repair, maintenance, or requalification facility under certain conditions. Finally, we are rewriting paragraph (k) for clarity.

We are revising paragraph (n) to add requirements for emergency discharge control equipment on cargo tanks transporting liquefied compressed gases. We concluded that the emergency discharge control equipment design and certification requirements should not be included with the MC 331 cargo tank specification in Part 178 of the HMR. The new requirements are material-specific depending on the degree of risk associated with specific classes of liquefied compressed gases. The MC 331 cargo tank specification in Part 178 sets forth requirements for all MC 331 cargo tanks that apply irrespective of the specific material transported in the tank. For these reasons, we have placed the new emergency discharge control requirements in Part 173, which sets forth general requirements for shipments and packagings.

New paragraph (n)(1) includes a table that shows the subparagraphs of paragraph (n) where emergency discharge control requirements applicable to specific liquefied compressed gases are located.

New paragraph (n)(2) describes the emergency discharge control equipment that is required on cargo tanks used to transport liquefied compressed gases in other than metered delivery service and requirements for installation and certification. New paragraph (n)(2)(ii) requires the design for equipment to be certified by a Design Certifying Engineer. The certification must consider any specifications of the original component manufacturer and explain how the passive means to shut off the flow of product operates. This certification is separate from the certification required for an MC 331 cargo tank motor vehicle under § 178.337–18. New paragraph (n)(2)(iii) requires installation under the supervision of a Registered Inspector except for equipment, such as a delivery hose assembly, that is installed and removed as part of regular operations.

New paragraphs (n)(3) and (n)(4) describe the emergency discharge control equipment that is required on cargo tanks transporting liquefied compressed gases in metered delivery service, including requirements for installation and certification. New paragraph (n)(5) shows the dates by which cargo tanks used for transporting liquefied compressed gases must come into compliance with the new emergency discharge control equipment requirements.

New paragraph (p) requires each specification MC 330, MC 331, and nonspecification cargo tank authorized under § 173.315(k) to conform to the new requirements for fusible elements.

Part 177

Section 177.834. We are revising paragraph (i)(3), which currently covers attendance requirements for loading and unloading of all cargo tank motor vehicles, to reference the new provisions in § 177.840 that set forth attendance procedures specifically applicable to unloading of LPG and anhydrous ammonia. In addition, we are revising this paragraph to clarify that the person monitoring the unloading operation must be alert and have an unobstructed view of the cargo tank and the delivery hose to the maximum extent practicable. We are removing paragraph (i)(5) for clarity.

Section 177.840. We are adding several new provisions concerning unloading procedures for liquefied compressed gases. New paragraph (l) requires each operator of a cargo tank motor vehicle transporting a liquefied compressed gas to carry a written operating procedure for all delivery operations on the cargo tank motor vehicle. The operating procedure must describe the vehicle's emergency discharge control features and, for passive systems, set forth the parameters within which they are designed to function. If the cargo tank motor vehicle relies on a specially equipped delivery hose to meet the requirements of § 173.315(n)(2), the procedure must describe the conditions under which use of a facility-provided hose for unloading is authorized.

New paragraph (m) requires that, before each transfer from a cargo tank motor vehicle containing a liquefied compressed gas, the qualified person unloading the cargo tank must check those components of the discharge system that are readily observed during the normal course of unloading after the pressure in the discharge system has reached at least equilibrium with the pressure in the cargo tank. The qualified person must determine that each component is of sound quality and without obvious defects detectable through visual observation and audio awareness. The qualified person must also assure that all connections are secure. This paragraph also prohibits an operator from unloading a liquefied compressed gas if the discharge system has any of the defects listed in new § 180.416(g).

New paragraph (n) requires the qualified person to promptly shut the internal self-closing stop valve or other primary means of closure and shut down all motive and auxiliary power

equipment in the event of an unintentional release during unloading.

New paragraph (o) requires operators of cargo tank motor vehicles with an off-truck remote shut-off capability to successfully test the activation device within 18 hours prior to the first delivery of each day. The person conducting the test must be at least 150 feet from the cargo tank and may have the cargo tank in his line of sight. A test at this distance should help to assure that the activation device will function at the maximum distance permitted for a qualified person attending an unloading operation.

New paragraphs (p) and (q) provide attendance requirements for unloading LPG and anhydrous ammonia. For cargo tank motor vehicles in metered delivery service, paragraph (p) requires a qualified person to remain within 150 feet of the cargo tank and within 25 feet of the delivery hose and to observe both the cargo tank and the receiving container at least once every five minutes while the internal self-closing stop valve is open. New paragraph (p)(2) sets forth attendance requirements for unloading LPG and anhydrous ammonia from cargo tank motor vehicles with capacities greater than 3,500 gallons.

New paragraph (q) revises the attendance requirements for cargo tank motor vehicles unloading LPG or anhydrous ammonia in other than metered delivery service. For these vehicles, the qualified person must remain within 25 feet of the cargo tank throughout the unloading operation and must maintain an unobstructed view of the cargo tank except when activating controls or monitoring the receiving container for brief periods.

New paragraph (r) sets forth conditions under which cargo tanks equipped with emergency discharge control equipment that is part of the delivery hose may be unloaded using facility-provided hoses. For the final rule, we have revised the language proposed in the NPRM to specify that, for chlorine tanks, which are not equipped with an internal self-closing stop valve, the attendant must remain within arm's reach of a means to stop the flow of product while unloading. In addition, for the final rule, we have added language to clarify that, if the facility hose is equipped with a passive shut-down device that conforms to the performance standard established in the final rule, the special attendance provisions in this paragraph (r) do not apply.

New paragraph (s) requires that, for a cargo tank with an off-truck remote shut-off, the qualified person must be in possession of the activation device at all times during the unloading operation. This paragraph includes an exception from this requirement if the activation device is part of a system that will shut off the unloading operation without human intervention in the event of a leak or separation of the delivery hose.

New paragraph (t) requires that, until a cargo tank motor vehicle unloading liquefied compressed gases in other than metered delivery service is equipped with a passive means to shut down unloading, the qualified person attending the unloading operation must remain within arm's reach of a means to shut down the unloading operation except for short periods to activate controls or monitor the receiving container. For the final rule, we have revised the language proposed in the NPRM to specify that, for chlorine tanks, which are not equipped with an internal self-closing stop valve, the attendant must remain within arm's reach of a means to stop the flow of product while unloading.

New paragraph (u) requires chlorine to be unloaded from cargo tanks in accordance with procedures set forth in section 3 of Pamphlet 57 published by the Chlorine Institute. For the final rule, we have added the implementation date—July 1, 2001.

Part 178

Section 178.337–1. We are adding a new paragraph (g) to define ''emergency discharge control,'' ''excess flow valve, integral excess flow valve or excess flow feature,'' ''internal self-closing stop valve,'' and ''primary discharge control system.'' For the final rule, the definition of ''internal self-closing stop valve'' has been revised for clarity.

Section 178.337–8. We are retitling and rewriting this section to place all of the requirements related to MC 331 cargo tank openings, inlets, and outlets in one section. For the final rule, we have revised the title of paragraph (a) to clarify that it contains general requirements applicable to cargo tank openings. In addition, we have added language to the text proposed in the NPRM to clarify that the requirements in paragraph (a) do not apply to cargo tanks that transport chlorine. The requirements for product inlet/outlet openings on chlorine cargo tanks are in § 178.337–8(b). Paragraph (a)(1) is rewritten for clarity. Paragraph (a)(2) is revised to indicate the specific cargo tank openings that must be closed with a plug, cap, or bolted flange.

Paragraph (a)(3) is added to describe requirements for product inlet openings, including vapor return lines, and to move applicable requirements concerning installation and materials of construction from §§ 178.337–11(a)(1)(ii) and 178.337–11(a)(1)(iii).

Paragraph (a)(4) is added to describe requirements for liquid and vapor discharge outlets. This paragraph also specifies performance requirements for thermal remote actuators and for linkages between closures and remote actuators currently in § 178.337–11(a)(2). All cargo tanks, except for those used to transport chlorine, carbon dioxide, refrigerated liquid, and certain cargo tanks certified before January 1, 1995, are required to have a primary discharge control system consisting of an internal self-closing stop valve with an on-truck remote means of closure that operates by both manual and thermal means. This paragraph implements the Committee's recommendation that all MC 331 cargo tanks, regardless of their capacities, must be equipped with fusible elements.

Paragraph (a)(4)(i) incorporates requirements for remote closures on cargo tanks greater than 3,500 gallons water capacity. These requirements are currently in § 178.337–11(a)(2)(i). Paragraph (a)(4)(ii) incorporates requirements currently in § 178.337–11(a)(2)(ii) for remote closures on cargo tanks with water capacities of 3,500 gallons water capacity or less. This paragraph includes a new requirement for a remote means of closure that operates by thermal means. Paragraph (a)(4)(iii) moves applicable requirements concerning installation and materials of construction for internal self-closing stop valves from §§ 178.337–11(a)(1)(ii) and (a)(1)(iii). Paragraph (a)(4)(iv) clarifies performance requirements for excess flow valves, integral excess flow valves, and excess flow features. Paragraph (a)(4)(v) permits an integral excess flow valve or the excess flow feature of an internal self-closing stop valve to be designed with a bypass and specifies bypass requirements currently found in § 178.337–11(a)(1)(vi). Paragraph (a)(4)(vi) specifies construction requirements for internal self-closing stop valves currently located in § 178.337–11(a)(1)(ii).

Paragraph (a)(5) moves exceptions from the requirement for a primary discharge control system from §§ 178.337–11(a)(2) and 178.337–11(c). Paragraph (a)(6) moves requirements for shut-off valves from § 178.337–11(b). Paragraph (a)(7) permits an excess flow valve to be designed with a bypass for equalization of pressure.

Paragraph (b) moves and updates requirements applicable to chlorine cargo tanks from § 178.337–11(a)(4). For this final rule, we have revised the paragraph to clarify that the paragraph

applies to inlets and discharge outlets on chlorine cargo tanks.

Paragraph (c) moves and restates the current exception from the requirement for an internal self-closing stop valve for cargo tanks that transport carbon dioxide, refrigerated liquid, currently in § 178.337–11(a)(3).

Section 178.337–9. We are revising paragraph (b)(6) to move the hose testing requirements to a new paragraph (b)(7), which requires that hose assemblers mark each hose assembly with a unique identifier and test the hose assembly in accordance with the new testing requirements in § 180.416(f). Current paragraph (b)(7) is redesignated as (b)(8) and updated to incorporate the most recent publications of The Chlorine Institute. In addition, we are modifying paragraph (c) of this section to allow for a product inlet to be marked as ''spray-fill'' or ''vapor.'' This is a common industry practice that addresses safety concerns about ensuring that loading and unloading lines are correctly connected. The revision should clarify any confusion among enforcement personnel about whether this practice is permitted. For the final rule, this paragraph has been revised for clarity.

Section 178.337–11. We are adding a new paragraph (a) to require that liquid discharge lines in MC 331 cargo tanks must be fitted with emergency discharge control equipment as specified by product and service in § 173.315(n). This paragraph also notes that performance and certification requirements for emergency discharge control equipment are specified in § 173.315(n) and are not considered to be part of the MC 331 cargo tank motor vehicle certification.

Paragraph (b) restates the exception from emergency discharge control requirements in current paragraph (c)(3) of this section.

Current paragraphs (a)(1)(ii), (iii), (iv), and (vi) are relocated to § 178.337–8. Current paragraph (a)(1)(v) is removed. Current paragraphs (a)(2), (a)(2)(i) and (ii), (a)(3), and (a)(4) and current paragraph (b) are moved to § 178.337–8.

Part 180

Section 180.403. We are adding definitions for ''delivery hose assembly'' and ''piping systems.'' In addition, we are revising the current definition for ''modification'' to specify that a change in the design of the passive shut-down capability of the emergency discharge control equipment is considered a modification. This makes a modification of this equipment subject to certification by a Design Certifying Engineer under § 180.413(d).

Section 180.405. We are revising this section to incorporate the retrofit requirements for MC 330, MC 331, and nonspecification cargo tank motor vehicles authorized under § 173.315(k). For both passive shut-down and off-truck remote equipment, a cargo tank motor vehicle must be retrofitted by the date of its first scheduled pressure test after July 1, 2001. For a cargo tank of greater than 3,500 gallons capacity operating in metered delivery service, we propose to allow two years to accomplish the required retrofit; thus, retrofits must be completed no later than July 1, 2003, or by the cargo tank's first scheduled pressure test after July 1, 2001, whichever is earlier. For fusible elements, a cargo tank must be retrofitted by the date of its first scheduled leakage test after July 1, 1999.

Section 180.407. We are revising paragraph (h) of this section to authorize a ''meter creep'' test for checking the leak tightness of an internal self-closing stop valve and to add a requirement that delivery hose assemblies and piping systems of MC 330, MC 331, and nonspecification cargo tanks authorized under § 173.315(k) must be visually inspected while under leakage test pressure. Delivery hose assemblies that are not permanently attached to the cargo tank motor vehicle may be inspected separately from the cargo tank motor vehicle. This paragraph also includes recordkeeping requirements related to the leakage test. For the final rule, we have revised the text in the NPRM to indicate that the requirement that delivery hose assemblies and piping systems must be visually inspected while under leakage test pressure is effective after July 1, 2000.

Section 180.416. We are adding a new section to incorporate the new delivery hose assembly and piping system inspection and maintenance program for cargo tank motor vehicles transporting LPG and anhydrous ammonia. The new section includes requirements for marking delivery hose assemblies, post-delivery hose checks, monthly inspections and tests, annual inspections and tests, and testing new and repaired delivery hose assemblies. The section also includes recordkeeping requirements and rejection criteria for both delivery hose assemblies and discharge system piping. For this final rule, we have modified paragraph (d)(5) and (f)(3) to clarify where and for how long inspection and test records must be kept. In addition, we have modified paragraphs d(5) and (f)(3) to indicate that the recordkeeping requirements are effective after July 1, 2000.

Section 180.417. We are revising paragraph (a)(1) to require owners to retain any certification of emergency discharge control systems on a specification cargo tank throughout his ownership of the tank and for one year thereafter.

Appendices to Part 180. We are adding Appendices A and B to Part 180. Appendix A outlines acceptable methods for conducting periodic tests to assure that the linkages connecting an internal self-closing stop valve to its remote actuators on a cargo tank in other than metered delivery service will move freely when activated by the operator. Appendix B outlines acceptable leakage tests, including the ''meter creep test,'' for an internal self-closing stop valve on a cargo tank in metered delivery service.

V. Regulatory Analyses and Notices

A. Executive Order 12866 and DOT Regulatory Policies and Procedures

This final rule is not considered a significant regulatory action under section 3(f) of Executive Order 12866 and, therefore, was not reviewed by the Office of Management and Budget. The rule is considered significant under the Regulatory Policies and Procedures of the Department of Transportation (44 FR 11034) because of public interest. A final regulatory evaluation is available for review in the docket.

B. Executive Order 12612

This final rule has been analyzed in accordance with the principles and criteria contained in Executive Order 12612 (''Federalism''). Federal hazardous materials transportation law, 49 U.S.C. 5101–5127, contains an express preemption provision (49 U.S.C. 5125(b)) that preempts state, local, and Indian tribe requirements on certain covered subjects. Covered subjects are:

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

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

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

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

(v) 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 final rule addresses covered subjects under items (i) through (v)

above and preempts state, local, or Indian tribe requirements not meeting the ''substantively the same'' standard. Federal hazardous materials transportation law provides at § 5125(b)(2) that if RSPA issues a regulation concerning any of the covered subjects RSPA must determine and publish in the **Federal Register** the effective date of federal preemption. The effective date may not be earlier than the 90th day following the date of issuance of the final rule and not later than two years after the date of issuance. Thus, RSPA lacks discretion in this area, and preparation of a federalism assessment is not warranted. The effective date of federal preemption for these requirements is October 1, 1999.

C. Executive Order 13084

This final rule has not been analyzed in accordance with the principles and criteria in Executive Order 13084 (''Consultation and Coordination with Indian Tribal Governments''). Because revised rules and regulations in this final rule are not expected to significantly or uniquely affect communities of Indian tribal governments, the funding and consultation requirements of this Executive Order do not apply.

D. Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires an agency to review regulations to assess their impact on small entities unless the agency determines that a rule is not expected to have a significant impact on a substantial number of small entities. Based on the assessment in the final regulatory evaluation, I hereby certify that the final rule will not have a significant economic impact on a substantial number of small businesses.

Need for the final rule. The goal of the final rule is to enhance transportation safety by improving the regulations governing the unloading of liquefied compressed gases from MC 330, MC 331 and certain nonspecification cargo tanks. Concerns about emergency discharge control on some of these cargo tanks were identified following an incident in 1996. In 1997, RSPA adopted an interim final rule establishing certain temporary regulations under which cargo tanks could remain in service while RSPA evaluated this incident and other situations in which liquefied compressed gases were released unintentionally from cargo tanks during unloading operations. The interim final rule expires July 1, 1999. The requirements in the final rule replace the provisions of the interim final rule with a comprehensive safety program intended to reduce the risk of an unintentional release of a liquefied compressed gas during unloading, assure prompt detection and control of an unintentional release, and make the regulatory requirements easier to understand and comply with.

Objectives and legal basis for the proposed rule. As indicated above and in previous rulemakings under Docket HM–225 (RSPA–97–2133), the goal of this rulemaking is to enhance safety in transportation through improvements in the regulations governing the unloading of liquefied compressed gases from MC 330, MC 331, and certain nonspecification cargo tanks. Federal hazardous materials transportation law (49 U.S.C. 5101 *et seq.*) directs the Secretary of Transportation to prescribe regulations for the safe transportation of hazardous materials in intrastate, interstate, and foreign commerce. Section 5103(b) specifies that the regulations shall apply to persons transporting hazardous materials in commerce; causing hazardous materials to be transported in commerce; or manufacturing, marking, maintaining, reconditioning, repairing, or testing a packaging or container that is represented, marked, certified, or sold by such persons as qualified for use in transporting hazardous materials in commerce.

Identification of potentially affected small entities. Unless alternative definitions have been established by the agency in consultation with the Small Business Administration, the definition of ''small business'' has the same meaning as under the Small Business Act. Therefore, since no such special definition has been established, RSPA employs the thresholds (published in 13 CFR 121.201) of 100 employees for wholesale trade in general and $5,000,000 annual sales for retail trade in general.

1. Liquefied petroleum gas dealers constitute the principal type of business on which new costs for compliance will be imposed by this rule. Using the Small Business Administration definitions and the latest (1992) available *Census of Retail Trade,* it appears that over 95 percent of retail liquefied petroleum gas dealers must be considered small businesses for purposes of the Regulatory Flexibility Act. In the 1992 Census, they accounted for over 50 percent of business locations and almost 43 percent of annual sales. Unpublished 1992 *Census of Wholesale Trade* figures provided to RSPA by the U.S. Bureau of the Census indicate that over 95 percent of merchant wholesalers of liquefied petroleum gas must be considered small businesses; they account for approximately 40 percent of annual sales and over 50 percent of business locations.

In addition to liquefied petroleum gas dealers, shippers and transporters of liquefied compressed gases such as anhydrous ammonia, chlorine and other materials classified as poisonous by inhalation, and refrigerant gases would incur new compliance costs associated with the proposed rule. The Small Business Administration threshold for manufacturers of industrial gases (SIC 2813) is 1,000 employees, as is the threshold established for manufacturers of nitrogenous fertilizers (SIC 2873). For motor freight transportation and warehousing (Major Group 42), the threshold is annual revenues of $18.5 million. Using these criteria, RSPA estimates that at least 90 percent of shippers and transporters of liquefied compressed gases, in bulk, are small businesses.

Shippers and transporters of liquefied compressed gases will incur compliance costs in the amounts outlined in the final regulatory evaluation for implementation of hose management and discharge system inspection and maintenance programs, installation of new emergency discharge control equipment on cargo tanks, and for revised unloading procedures. For a small propane marketer that operates three smaller cargo tank motor vehicles used in local retail deliveries of propane, RSPA estimates an increased cost of operation of $621 per year, including increased recordkeeping costs. If such a propane marketer delivers 400,000 gallons of propane per year (800 deliveries per cargo tank motor vehicle at an average rate of 166 gallons per delivery) the annual increase per gallon of product sold is $0.00155. RSPA fully anticipates that this additional cost of operation will be passed along to the consumer. On a typical delivery of 166 gallons of propane, the additional charge attributed to new requirements proposed in this rule come to $0.26. Considering that the national average residential price of propane on January 18, 1999 was $0.890 per gallon, RSPA determined that there will be no significant economic impact, in terms of lost sales or otherwise, on a small propane marketer that increases the price of residential propane to $0.892 per gallon.

2. Besides shippers and transporters of liquefied compressed gases, cargo tank assembly, repair, or requalification facilities will also incur compliance costs associated with the final rule that requires installation of certain

equipment on the cargo tank must be examined by a Registered Inspector. For these entities, the Small Business Administration threshold is 1,000 employees (SIC 3795). There are about 150 assembly, repair, or requalification facilities currently registered with RSPA to handle MC 331 cargo tanks. RSPA estimates that at least 90 percent of these entities are small businesses. Under the final rule, assembly, repair, and requalification facilities will incur compliance costs associated with certifying the installation of emergency discharge control equipment. Each of those facilities has filed a self-certified registration statement with RSPA and must re-register every 6 years. Under its current OMB approval (2137–0014), RSPA estimated that the time required to prepare and file an initial registration statement with RSPA is 20 minutes, and re-registrations require 15 minutes, at an average cost of $20 per hour. Over a six-year period, the annual cost is little more than $1. Here again, RSPA determined that there will be no significant economic impact on any small facility that would need to file a registration statement in the future.

Related federal rules and regulations. The Department of Labor's Occupational Safety and Health Administration (OSHA) issues regulations related to safe handling, including containment and transfer operations, of hazardous materials, including liquefied compressed gases, in the workplace. These regulations are codified at 29 CFR Part 1910. Where both agencies have issued rules related to specific materials or operations, the OSHA rules defer to the RSPA regulations.

Alternate proposals for small businesses. The Regulatory Flexibility Act suggests that it may be possible to establish exceptions and differing compliance standards for small business and still meet the objectives of the applicable regulatory statutes. However, given the importance of small business, as defined for purposes of the Regulatory Flexibility Act, in liquefied compressed gas distribution and especially in its retail sector, RSPA believes that it would not be possible to establish such differing standards and still accomplish the objectives of federal hazardous materials transportation law.

While certain regulatory actions may affect the competitive situation of an industry by imposing relatively greater burdens on small-scale than on large-scale enterprises, RSPA does not believe that this will be the case with the final rule. The principal types of compliance expenditures effectively required by the final rule are new requirements for discharge system inspection and maintenance and new requirements for emergency discharge control equipment. These expenditures are imposed on each vehicle, whether operated within a large or a small fleet.

At the same time, RSPA notes that the final rule was developed under the assumption that small businesses comprise an overwhelming majority of entities that would be compelled to comply. The final rule was developed through a negotiated rulemaking process by a committee that included representatives of the interests affected by the regulations, including businesses that transport and deliver liquefied petroleum gases, anhydrous ammonia and other liquefied compressed gases; manufacturers and operators of cargo tanks and vehicle components; and state and local public safety and emergency response agencies. Many of the committee members represented small businesses. In developing the final rule, the negotiated rulemaking committee considered each requirement and agreed that the overall safety benefits of the proposed regulations justify the compliance costs that the regulated industry will incur.

The final rule includes a two-year period for development and testing of new technologies for emergency discharge control. RSPA plans to provide support for development and testing of such technology in a cooperative effort with industry. RSPA anticipates that this effort will parallel training and research conducted by organizations such as the Propane Education and Research Council, the National Propane Gas Association, The Fertilizer Institute, and the Compressed Gas Association. Key elements of the progress review and study may include: (1) Surveying and cataloging industry efforts; (2) identification and communication of successes and problems; (3) monitoring or performing critical research and development; and (4) testing.

Further, to minimize the compliance burden, the final rule includes a five-year retrofit period for installation of new emergency discharge control equipment on a schedule consistent with a cargo tank's five-year pressure retest date. This schedule saves the industry the cost of taking a vehicle out of service more than once during the five-year period and avoids conflicts with the peak periods of use of cargo tanks in liquefied petroleum gas and anhydrous ammonia service.

Moreover, RSPA recognizes that, beginning in the spring of 1997, several operators of cargo tanks transporting liquefied compressed gases installed off-truck remote control devices in an effort to address RSPA's concern over emergency discharge control. Companies that installed off-truck remote shut-offs designed to close the internal self-closing stop valve should not be required to retrofit their vehicles to meet the requirements for off-truck remote shut-off devices being proposed here. Thus, cargo tank motor vehicles that are equipped with off-truck remote shut-off devices that close the internal self-closing stop valve will not be subject to the retrofit requirements if the systems were installed prior to July 1, 2000.

In addition, the final rule permits nonspecification cargo tanks authorized for liquefied petroleum gas service under § 173.315(k) of the Hazardous Materials Regulations, which are limited to intrastate operations, to cross state lines for the purpose of traveling to or from a qualified assembly, repair, maintenance, or requalification facility. This will save operators the cost of traveling to a facility within the state in which they operate when there is a closer facility in a neighboring state.

Conclusion. RSPA has determined that the cost of complying with the new requirements, including new recordkeeping requirements, should not significantly affect the cost of transporting and delivering liquefied compressed gases. Based on this analysis, RSPA believes that the final will not impose a substantial economic burden on a significant number of small businesses or other small entities.

E. Paperwork Reduction Act

The requirements for information collection included in this final rule have been approved by the Office of Management and Budget under OMB control number 2137–0595. Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it displays a valid OMB control number.

F. Regulation Identifier Number (RIN)

A regulation identifier number (RIN) is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The RIN containing in the heading of this document can be used to cross-reference this action with the Unified Agenda.

G. Unfunded Mandates Reform Act

This final rule imposes no mandates and thus does not impose unfunded mandates under the Unfunded Mandates Reform Act of 1995.

H. Impact on Business Processes and Computer Systems

Many computers that use two digits to keep track of dates will, on January 1, 2000, recognize ''double zero'' not as 2000 but as 1900. This glitch, the Year 2000 problem, could cause computers to stop running or to start generating erroneous data. The Year 2000 problem poses a threat to the global economy in which Americans live and work. With the help of the President's Council on Year 2000 Conversion, Federal agencies are reaching out to increase awareness of the problem and to offer support. We do not want to impose new requirements that would mandate business process changes when the resources necessary to implement those requirements would otherwise be applied to the Year 2000 problem.

This final rule does not mandate business process changes or require modifications to computer systems. Because this rule apparently does not affect organizations' ability to respond to the Year 2000 problem, we do not intend to delay the effectiveness of the requirements.

I. Environmental Assessment

RSPA finds that there are no significant environmental impacts associated with this final rule. A copy of the environmental assessment has been placed in the public docket for this rulemaking.

List of Subjects

49 CFR Part 171

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

49 CFR Part 173

Hazardous materials transportation, Packaging and containers, Radioactive materials, Reporting and recordkeeping requirements, Uranium.

49 CFR Part 177

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

49 CFR Part 178

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

49 CFR Part 180

Hazardous materials transportation, Motor carriers, Motor vehicle safety, Packaging and containers, Railroad safety, Reporting and recordkeeping requirements.

In consideration of the foregoing, we are amending 49 CFR parts 171, 173, 177, 178, and 180 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. 5101–5127; 49 CFR 1.53.

§ 171.5 [Removed]

2. Section 171.5 is removed.

3. In § 171.7, in the table in paragraph (a)(3), a new entry is added in alphanumeric sequence, under the Chlorine Institute, Inc., to read as follows:

§ 171.7 Reference material.

(a) * * *

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

Source and name of material	49 CFR reference
* * * * *	
Chlorine Institute, Inc.	
* * * * *	
Section 3, Pamphlet 57, Emergency Shut-Off Systems for Bulk Transfer of Chlorine, 3rd Edition, October 1997	177,840
* * * * *	

§ 171.7 [Amended]

4. In § 171.7, in the table in paragraph (a)(3), the following changes are made:

a. Under ''Chlorine Institute, Inc.,'' for the entry ''Standard Chlorine Angle Valve Assembly,'' the wording ''104–6, December 1, 1982'' is revised to read ''104–8, July 1993''.

b. Under ''Chlorine Institute, Inc.,'' for the entry ''Excess Flow Valve with Removable Seat,'' the wording ''101–6, September 1, 1973'' is revised to read ''101–7, July 1993'' and, in column 2, the reference ''178.337–11'' is revised to read ''178.337–8''.

c. Under ''Chlorine Institute, Inc.,'' for the entry ''Excess Flow Valve with Removable Basket,'' the wording ''106–5, September 1, 1973'' is revised to read ''106–6, July 1993'' and, in column 2, the reference ''178.337–11'' is revised to read ''178.337–8''.

5. In § 171.8, the following definition is added in alphabetical order to read as follows:

§ 171.8 Definitions and abbreviations.

* * * * *

Metered delivery service means a cargo tank unloading operation conducted at a metered flow rate of 378.5 liters (100 gallons) per minute or less through an attached delivery hose with a nominal inside diameter of 3.175 centimeters (1¼ inches) or less.

* * * * *

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. 5101–5127, 44701; 49 CFR 1.45, 1.53.

7. In § 173.315, paragraphs (k) and (n) are revised and paragraph (p) is added to read as follows:

§ 173.315 Compressed gases in cargo tanks and portable tanks.

* * * * *

(k) A nonspecification cargo tank meeting, and marked in conformance with, the edition of the ASME Code in effect when it was fabricated may be used for the transportation of liquefied petroleum gas provided it meets all of the following conditions:

(1) It must have a minimum design pressure no lower than 250 psig.

(2) It must have a capacity of 13,247.5 liters (3,500 water gallons) or less.

(3) It must have been manufactured in conformance with the ASME Code prior to January 1, 1981, according to its ASME name plate and manufacturer's data report.

(4) It must conform to applicable provisions of NFPA Pamphlet 58, except to the extent that provisions of Pamphlet 58 are inconsistent with requirements in parts 178 and 180 of this subchapter.

(5) It must be inspected, tested, and equipped in accordance with subpart E of part 180 of this subchapter as specified for MC 331 cargo tanks.

(6) Except as provided in this paragraph (k), it must be operated exclusively in intrastate commerce, including its operation by a motor carrier otherwise engaged in interstate commerce, in a state where its operation was permitted by law (not including the incorporation of this subchapter) prior to January 1, 1981. A cargo tank motor vehicle operating under authority of this section may cross state lines to travel to and from a qualified assembly, repair, maintenance, or requalification facility. The cargo tank need not be cleaned and purged, but it may not contain liquefied petroleum gas in excess of five percent of the water capacity of the cargo tank. If the vehicle engine is supplied fuel from the cargo tank, enough fuel in

excess of five percent of the cargo tank's water capacity may be carried for the trip to or from the facility.

(7) It must have been used to transport liquefied petroleum gas prior to January 1, 1981.

(8) It must be operated in conformance with all other requirements of this subchapter.

* * * * *

(n) *Emergency discharge control for cargo tanks in liquefied compressed gas service.*—(1) *Required emergency discharge control equipment.* Each cargo tank in liquefied compressed gas service must have an emergency discharge control capability as specified in the following table:

§ 173.315(n)(1)(*)	Material	Delivery service	Required emergency discharge control capability
(i)	Division 2.2 materials with no subsidiary hazard, excluding anhydrous ammonia.	All	None.
(ii)	Division 2.3 materials	All	Paragraph (n)(2) of this section.
(iii)	Division 2.2 materials with a subsidiary hazard, Division 2.1 materials, and anhydrous ammonia.	Other than metered delivery service.	Paragraph (n)(2) of this section.
(iv)	Division 2.2 materials with a subsidiary hazard, Division 2.1 materials, and anhydrous ammonia in a cargo tank with a capacity of 13,247.5 liters (3,500 water gallons) or less.	Metered delivery service ..	Paragraph (n)(3) of this section.
(v)	Division 2.2 materials with a subsidiary hazard, Division 2.1 materials, and anhydrous ammonia in a cargo tank with a capacity greater than 13,247.5 liters (3,500 water gallons).	Metered delivery service ..	Paragraph (n)(3) of this section, and, for obstructed view deliveries where permitted by § 177.840(p) of this subchapter, paragraph (n)(3) or (n)(4) of this section.

(2) *Cargo tank motor vehicles in other than metered delivery service.* A cargo tank motor vehicle in other than metered delivery service must have a means to automatically shut off the flow of product without the need for human intervention within 20 seconds of an unintentional release caused by a complete separation of a liquid delivery hose (passive shut-down capability).

(i) Designed flow of product through a bypass in the valve is acceptable when authorized by this subchapter.

(ii) The design for the means to automatically shut off product flow must be certified by a Design Certifying Engineer. The certification must consider any specifications of the original component manufacturer and must explain how the passive means to shut off the flow of product operates. It must also outline the parameters (e.g., temperature, pressure, types of product) within which the passive means to shut off the flow of product is designed to operate. All components of the discharge system that are integral to the design must be included in the certification. A copy of the design certification must be provided to the owner of the cargo tank on which the equipment will be installed.

(iii) Installation must be performed under the supervision of a Registered Inspector unless the equipment is installed and removed as part of regular operation (e.g., a hose). The Registered Inspector must certify that the equipment is installed and tested, if it is possible to do so without damaging the equipment, in accordance with the Design Certifying Engineer's certification. The Registered Inspector must provide the certification to the owner of the cargo tank motor vehicle.

(3) *Cargo tanks in metered delivery service.* When required by the table in paragraph (n)(1) of this section, a cargo tank motor vehicle must have an off-truck remote means to close the internal self-closing stop valve and shut off all motive and auxiliary power equipment upon activation by a qualified person attending the unloading of the cargo tank motor vehicle (off-truck remote shut-off). It must function reliably at a distance of 45.72 meters (150 feet). The off-truck remote shut-off activation device must not be capable of reopening the internal self-closing stop valve after emergency activation.

(i) The emergency discharge control equipment must be installed under the supervision of a Registered Inspector. Each wireless transmitter/receiver must be tested to demonstrate that it will close the internal self-closing stop valve and shut off all motive and auxiliary power equipment at a distance of 91.44 meters (300 feet) under optimum conditions. Emergency discharge control equipment that does not employ a wireless transmitter/receiver must be tested to demonstrate its functioning at the maximum length of the delivery hose.

(ii) The Registered Inspector must certify that the remote control equipment is installed in accordance with the original component manufacturer's specifications and is tested in accordance with paragraph (n)(3)(i) of this section. The Registered Inspector must provide the owner of the cargo tank with this certification.

(4) *Query systems.* When a transmitter/receiver system is used to satisfy the requirements of paragraph (n)(1)(v) of this section, it must close the internal self-closing stop valve and shut off all motive and auxiliary power equipment unless the qualified person attending the unloading operation prevents it from doing so at least once every five minutes. Testing and certification must be as specified in paragraph (n)(3) of this section.

(5) *Compliance dates.* (i) Each specification MC 331 cargo tank motor vehicle with a certificate of construction issued two or more years after July 1, 1999, must have an appropriate emergency discharge control capability as specified in this paragraph (n).

(ii) No MC 330, MC 331, or nonspecification cargo tank motor vehicle authorized under paragraph (k) of this section may be operated unless it has an appropriate emergency discharge control capability as specified in this paragraph (n) no later than the date of its first scheduled pressure retest required after July 1, 2001. No MC 330, MC 331 or nonspecification cargo tank motor vehicle authorized under paragraph (k) of this section may be operated after July 1, 2006, unless it has

been equipped with emergency discharge control equipment as specified in this paragraph (n).

(iii) No MC 330, MC 331, or nonspecification cargo tank motor vehicle authorized under paragraph (k) of this section, with a capacity over 13,247.5 liters (3,500 gallons) used in metered delivery service may be operated unless it has an appropriate emergency discharge control capability as specified in this paragraph (n) no later than July 1, 2003, or the date of its first scheduled pressure retest required after July 1, 2001, whichever is earlier.

* * * * *

(p) *Fusible elements.* Each MC 330, MC 331, or nonspecification cargo tank authorized under paragraph (k) of this section must have a thermal means of closure for each internal self-closing stop valve as specified in § 178.337–8(a)(4) of this subchapter.

PART 177—CARRIAGE BY PUBLIC HIGHWAY

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

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

9. In § 177.834, paragraph (i)(5) is removed and paragraph (i)(3) is revised to read as follows:

§ 177.834 General requirements.

* * * * *

(i) *Attendance requirements.* * * *

(3) Except for unloading operations subject to §§ 177.840 (p) or (q), a qualified person ''attends'' the loading or unloading of a cargo tank if, throughout the process, he is alert and is within 7.62 meters (25 feet) of the cargo tank. The qualified person attending the unloading of a cargo tank must have an unobstructed view of the cargo tank and delivery hose to the maximum extent practicable during the unloading operation.

* * * * *

10. In § 177.840, paragraphs (l) through (u) are added to read as follows:

§ 177.840 Class 2 (gases) materials.

* * * * *

(l) *Operating procedure.* By January 1, 2000, each operator of a cargo tank motor vehicle transporting a liquefied compressed gas must carry on or within the cargo tank motor vehicle written emergency discharge control procedures for all delivery operations. The procedures must describe the cargo tank motor vehicle's emergency discharge control features and, for a passive shut-down capability, the parameters within which they are designed to function. The procedures must describe the process to be followed if using a facility-provided hose for unloading when the cargo tank motor vehicle has a specially equipped delivery hose assembly to meet the requirements of § 173.315(n)(2) of this subchapter.

(m) *Cargo tank safety check.* Before unloading from a cargo tank motor vehicle containing a liquefied compressed gas, the qualified person performing the function must check those components of the discharge system, including delivery hose assemblies and piping, that are readily observed during the normal course of unloading to assure that they are of sound quality, without obvious defects detectable through visual observation and audio awareness, and that connections are secure. This check must be made after the pressure in the discharge system has reached at least equilibrium with the pressure in the cargo tank. Operators need not use instruments or take extraordinary actions to check components not readily visible. No operator may unload liquefied compressed gases from a cargo tank motor vehicle with a delivery hose assembly found to have any condition identified in § 180.416(g)(1) of this subchapter or with piping systems found to have any condition identified in § 180.416(g)(2) of this subchapter.

(n) *Emergency shut down.* If there is an unintentional release of product to the environment during unloading of a liquefied compressed gas, the qualified person unloading the cargo tank motor vehicle must promptly shut the internal self-closing stop valve or other primary means of closure and shut down all motive and auxiliary power equipment.

(o) *Daily test of off-truck remote shut-off activation device.* For a cargo tank motor vehicle equipped with an off-truck remote means to close the internal self-closing stop valve and shut off all motive and auxiliary power equipment, an operator must successfully test the activation device within 18 hours prior to the first delivery of each day. For a wireless transmitter/receiver, the person conducting the test must be at least 45.72 meters (150 feet) from the cargo tank and may have the cargo tank in his line of sight.

(p) *Unloading procedures for liquefied petroleum gas and anhydrous ammonia in metered delivery service.* An operator must use the following procedures for unloading liquefied petroleum gas or anhydrous ammonia from a cargo tank motor vehicle in metered delivery service:

(1) For a cargo tank with a capacity of 13,247.5 liters (3,500 water gallons) or less, excluding delivery hose and piping, the qualified person attending the unloading operation must remain within 45.72 meters (150 feet) of the cargo tank and 7.62 meters (25 feet) of the delivery hose and must observe both the cargo tank and the receiving container at least once every five minutes when the internal self-closing stop valve is open during unloading operations that take more than five minutes to complete.

(2) For a cargo tank with a capacity greater than 13,247.5 liters (3,500 water gallons), excluding delivery hose and piping, the qualified person attending the unloading operation must remain within 45.72 meters (150 feet) of the cargo tank and 7.62 meters (25 feet) of the delivery hose when the internal self-closing stop valve is open.

(i) Except as provided in paragraph (p)(2)(ii) of this section, the qualified person attending the unloading operation must have an unobstructed view of the cargo tank and delivery hose to the maximum extent practicable, except during short periods when it is necessary to activate controls or monitor the receiving container.

(ii) For deliveries where the qualified person attending the unloading operation cannot maintain an unobstructed view of the cargo tank, when the internal self-closing stop valve is open, the qualified person must observe both the cargo tank and the receiving container at least once every five minutes during unloading operations that take more than five minutes to complete. In addition, by the compliance dates specified in §§ 173.315(n)(5) and 180.405(m)(3) of this subchapter, the cargo tank motor vehicle must have an emergency discharge control capability that meets the requirements of § 173.315(n)(2) or § 173.315(n)(4) of this subchapter.

(q) *Unloading procedures for liquefied petroleum gas and anhydrous ammonia in other than metered delivery service.* An operator must use the following procedures for unloading liquefied petroleum gas or anhydrous ammonia from a cargo tank motor vehicle in other than metered delivery service:

(1) The qualified person attending the unloading operation must remain within 7.62 meters (25 feet) of the cargo tank when the internal self-closing stop valve is open.

(2) The qualified person attending the unloading operation must have an unobstructed view of the cargo tank and delivery hose to the maximum extent practicable, except during short periods when it is necessary to activate controls or monitor the receiving container.

(r) *Unloading using facility-provided hoses.* A cargo tank motor vehicle equipped with a specially designed

delivery hose assembly to meet the requirements of § 173.315(n)(2) of this subchapter may be unloaded using a delivery hose assembly provided by the receiving facility under the following conditions:

(1) The qualified person monitoring unloading must visually examine the facility hose assembly for obvious defects prior to its use in the unloading operation.

(2) The qualified person monitoring unloading must remain within arm's reach of the mechanical means of closure for the internal self-closing stop valve when the internal self-closing stop valve is open except for short periods when it is necessary to activate controls or monitor the receiving container. For chlorine cargo tanks, the qualified person must remain within arm's reach of a means to stop the flow of product except for short periods when it is necessary to activate controls or monitor the receiving container.

(3) If the facility hose is equipped with a passive means to shut off the flow of product that conforms to and is maintained to the performance standard in § 173.315(n)(2) of this subchapter, the qualified person may attend the unloading operation in accordance with the attendance requirements prescribed for the material being unloaded in § 177.834 of this section.

(s) *Off-truck remote shut-off activation device.* For a cargo tank motor vehicle with an off-truck remote control shut-off capability as required by §§ 173.315(n)(3) or (n)(4) of this subchapter, the qualified person attending the unloading operation must be in possession of the activation device at all times during the unloading process. This requirement does not apply if the activation device is part of a system that will shut off the unloading operation without human intervention in the event of a leak or separation in the hose.

(t) *Unloading without appropriate emergency discharge control equipment.* Until a cargo tank is equipped with emergency discharge control equipment in conformance with §§ 173.315(n)(2) and 180.405(m)(1) of this subchapter, the qualified person attending the unloading operation must remain within arm's reach of a means to close the internal self-closing stop valve when the internal self-closing stop valve is open except during short periods when the qualified person must activate controls or monitor the receiving container. For chlorine cargo tanks, the qualified person must remain within arm's reach of a means to stop the flow of product except for short periods when it is necessary to activate controls or monitor the receiving container.

(u) *Unloading of chlorine cargo tanks.* After July 1, 2001, unloading of chlorine from a cargo tank must be performed in compliance with Section 3 of Pamphlet 57, Emergency Shut-off Systems for Bulk Transfer of Chlorine, of the Chlorine Institute.

PART 178—SPECIFICATIONS FOR PACKAGINGS

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

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

12. In § 178.337–1, new paragraph (g) is added to read as follows:

§ 178.337–1 General requirements.

* * * * *

(g) *Definitions.* The following definitions apply to §§ 178.337–1 through 178.337–18:

Emergency discharge control means the ability to stop a cargo tank unloading operation in the event of an unintentional release. Emergency discharge control can utilize passive or off-truck remote means to stop the unloading operation. A passive means of emergency discharge control automatically shuts off the flow of product without the need for human intervention within 20 seconds of an unintentional release caused by a complete separation of the liquid delivery hose. An off-truck remote means of emergency discharge control permits a qualified person attending the unloading operation to close the cargo tank's internal self-closing stop valve and shut off all motive and auxiliary power equipment at a distance from the cargo tank motor vehicle.

Excess flow valve, integral excess flow valve, or excess flow feature means a component that will close automatically if the flow rate of a gas or liquid through the component reaches or exceeds the rated flow of gas or liquid specified by the original valve manufacturer when piping mounted directly on the valve is sheared off before the first valve, pump, or fitting downstream from the valve.

Internal self-closing stop valve means a primary shut off valve installed in a product discharge outlet of a cargo tank and designed to be kept closed by self-stored energy.

Primary discharge control system means a primary shut-off installed at a product discharge outlet of a cargo tank consisting of an internal self-closing stop valve that may include an integral excess flow valve or an excess flow feature, together with linkages that must be installed between the valve and remote actuator to provide manual and thermal on-truck remote means of closure.

13. Section 178.337–8 is revised to read as follows:

§ 178.337–8 Openings, inlets, and outlets.

(a) *General.* The requirements in this paragraph (a) apply to MC 331 cargo tanks except for those used to transport chlorine. The requirements for inlets and outlets on chlorine cargo tanks are in paragraph (b) of this section.

(1) An opening must be provided on each cargo tank used for the transportation of liquefied materials to permit complete drainage.

(2) Except for gauging devices, thermometer wells, pressure relief valves, manhole openings, product inlet openings, and product discharge openings, each opening in a cargo tank must be closed with a plug, cap, or bolted flange.

(3) Except as provided in paragraph (b) of this section, each product inlet opening, including vapor return lines, must be fitted with a back flow check valve or an internal self-closing stop valve located inside the cargo tank or inside a welded nozzle that is an integral part of the cargo tank. The valve seat must be located inside the cargo tank or within 2.54 centimeters (one inch) of the external face of the welded flange. Damage to parts exterior to the cargo tank or mating flange must not prevent effective seating of the valve. All parts of a valve inside a cargo tank or welded flange must be made of material that will not corrode or deteriorate in the presence of the lading.

(4) Except as provided in paragraphs (a)(5), (b), and (c) of this section, each liquid or vapor discharge outlet must be fitted with a primary discharge control system as defined in § 178.337–1(g). Thermal remote operators must activate at a temperature of 121.11°C (250 °F) or less. Linkages between closures and remote operators must be corrosion resistant and effective in all types of environmental conditions incident to discharging of product.

(i) On a cargo tank over 13,247.5 liters (3,500 gallons) water capacity, thermal and mechanical means of remote closure must be installed at the ends of the cargo tank in at least two diagonally opposite locations. If the loading/unloading connection at the cargo tank is not in the general vicinity of one of the two locations specified in the first sentence of this paragraph (a)(4)(i), additional means of thermal remote closure must be installed so that heat from a fire in the loading/unloading connection area or the discharge pump will activate the primary discharge

control system. The loading/unloading connection area is where hoses or hose reels are connected to the permanent metal piping.

(ii) On a cargo tank of 13,247.5 liters (3,500 gallons) water capacity or less, a thermal means of remote closure must be installed at or near the internal self-closing stop valve. A mechanical means of remote closure must be installed on the end of the cargo tank furthest away from the loading/unloading connection area. The loading/unloading connection area is where hoses or hose reels are connected to the permanent metal piping. Linkages between closures and remote operators must be corrosion resistant and effective in all types of environmental conditions incident to discharge of product.

(iii) All parts of a valve inside a cargo tank or within a welded flange must be made of material that will not corrode or deteriorate in the presence of the lading.

(iv) An excess flow valve, integral excess flow valve, or excess flow feature must close if the flow reaches the rated flow of a gas or liquid specified by the original valve manufacturer when piping mounted directly on the valve is sheared off before the first valve, pump, or fitting downstream from the excess flow valve, integral excess flow valve, or excess flow feature.

(v) An integral excess flow valve or the excess flow feature of an internal self-closing stop valve may be designed with a bypass, not to exceed 0.1016 centimeters (0.040 inch) diameter opening, to allow equalization of pressure.

(vi) The internal self-closing stop valve must be designed so that the self-stored energy source and the valve seat are located inside the cargo tank or within 2.54 centimeters (one inch) of the external face of the welded flange. Damage to parts exterior to the cargo tank or mating flange must not prevent effective seating of the valve.

(5) A primary discharge control system is not required on the following:

(i) A vapor or liquid discharge opening of less than 1¼ NPT equipped with an excess flow valve together with a manually operated external stop valve in place of an internal self-closing stop valve.

(ii) An engine fuel line on a truck-mounted cargo tank of not more than ¾ NPT equipped with a valve having an integral excess flow valve or excess flow feature.

(iii) A cargo tank motor vehicle certified before January 1, 1995, unless intended for use to transport a flammable liquid, flammable gas, hydrogen chloride, refrigerated liquid, or anhydrous ammonia.

(6) In addition to the internal self-closing stop valve, each filling and discharge line must be fitted with a stop valve located in the line between the internal self-closing stop valve and the hose connection. A back flow check valve or excess flow valve may not be used to satisfy this requirement.

(7) An excess flow valve may be designed with a bypass, not to exceed a 0.1016 centimeter (0.040 inch) diameter opening, to allow equalization of pressure.

(b) *Inlets and discharge outlets on chlorine tanks.* The inlet and discharge outlets on a cargo tank used to transport chlorine must meet the requirements of § 178.337–1(c)(2) and must be fitted with an internal excess flow valve. In addition to the internal excess flow valve, the inlet and discharge outlets must be equipped with an external stop valve (angle valve). Excess flow valves must conform to the standards of The Chlorine Institute, Inc., as follows:

(1) A valve conforming to Drawing 101–7, dated July 1993, must be installed under each liquid angle valve.

(2) A valve conforming to Drawing 106–6, dated July 1993, must be installed under each gas angle valve.

(c) *Discharge outlets on carbon dioxide, refrigerated liquid, cargo tanks.* A discharge outlet on a cargo tank used to transport carbon dioxide, refrigerated liquid is not required to be fitted with an internal self-closing stop valve.

14. In § 178.337–9, paragraph (b)(6) is revised, paragraph (b)(7) is redesignated as paragraph (b)(8) and revised, a new paragraph (b)(7) is added, and paragraph (c) is revised to read as follows:

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

* * * * *

(b) *Piping, valves, hose, and fittings.*

* * *

(6) Cargo tank manufacturers and fabricators must demonstrate that all piping, valves, and fittings on a cargo tank are free from leaks. To meet this requirement, the piping, valves, and fittings must be tested after installation at not less than 80 percent of the design pressure marked on the cargo tank.

(7) A hose assembler must:

(i) Permanently mark each hose assembly with a unique identification number.

(ii) Demonstrate that each hose assembly is free from leaks by performing the tests and inspections in § 180.416(f) of this subchapter.

(iii) Mark each hose assembly with the month and year of its original pressure test.

(8) *Chlorine cargo tanks.* Angle valves on cargo tanks intended for chlorine service must conform to Drawing 104–8, dated July 1993, in the standards of The Chlorine Institute. Before installation, each angle valve must be tested for leakage at not less than 225 psig using dry air or inert gas.

(c) *Marking inlets and outlets.* Except for gauging devices, thermometer wells, and pressure relief valves, each cargo tank inlet and outlet must be marked ''liquid'' or ''vapor'' to designate whether it communicates with liquid or vapor when the cargo tank is filled to the maximum permitted filling density. A filling line that communicates with vapor may be marked ''spray-fill'' instead of ''vapor.''

* * * * *

15. Section 178.337–11 is revised to read as follows:

§ 178.337–11 Emergency discharge control.

(a) *Emergency discharge control equipment.* Emergency discharge control equipment must be installed in a liquid discharge line as specified by product and service in § 173.315(n) of this subchapter. The performance and certification requirements for emergency discharge control equipment are specified in § 173.315(n) of this subchapter and are not a part of the cargo tank motor vehicle certification made under this specification.

(b) *Engine fuel lines.* On a truck-mounted cargo tank, emergency discharge control equipment is not required on an engine fuel line of not more than ¾ NPT equipped with a valve having an integral excess flow valve or excess flow feature.

PART 180—CONTINUING QUALIFICATION AND MAINTENANCE OF PACKAGINGS

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

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

17. In § 180.403, the introductory text for the definition ''Modification'' is revised, and definitions for ''Delivery hose assembly'' and ''Piping system'' are added in alphabetical order to read as follows:

§ 180.403 Definitions.

* * * * *

Delivery hose assembly means a liquid delivery hose and its attached couplings.

* * * * *

Modification means any change to the original design and construction of a cargo tank or a cargo tank motor vehicle

that affects its structural integrity or lading retention capability including changes to equipment certified as part of an emergency discharge control system required by § 173.315(n)(2) of this subchapter. Any modification that involves welding on the cargo tank wall must also meet all requirements for ''Repair'' as defined in this section. Excluded from this category are the following:

* * * * *

Piping system means any component of a cargo tank delivery system, other than a delivery hose assembly, that contains product during loading or unloading.

* * * * *

18. In § 180.405, paragraphs (m) and (n) are added to read as follows:

§ 180.405 Qualification of cargo tanks.

* * * * *

(m) *Specification MC 330, MC 331 cargo tank motor vehicles, and nonspecification cargo tank motor vehicles conforming to § 173.315(k) of this subchapter, intended for use in the transportation of liquefied compressed gases.* (1) No later than the date of its first scheduled pressure test after July 1, 2001, each specification MC 330 and MC 331 cargo tank motor vehicle, and each nonspecification cargo tank motor vehicle conforming to § 173.315(k) of this subchapter, marked and certified before July 1, 2001, that is used to transport a Division 2.1 material, a Division 2.2 material with a subsidiary hazard, a Division 2.3 material, or anhydrous ammonia must have an emergency discharge control capability as specified in § 173.315(n) of this subchapter. Each passive shut-off system installed prior to July 1, 2001, must be certified by a Design Certifying Engineer that it meets the requirements of § 173.315(n)(2) of this subchapter.

(2) The requirement in paragraph (m)(1) of this section does not apply to a cargo tank equal to or less than 13,247.5 liters (3,500 gallons) water capacity transporting in metered delivery service a Division 2.1 material, a Division 2.2 material with a subsidiary hazard, or anhydrous ammonia equipped with an off-truck remote shut-off device that was installed prior to July 1, 2000. The device must be capable of stopping the transfer of lading by operation of a transmitter carried by a qualified person attending unloading of the cargo tank. The device is subject to the requirement in § 177.840(o) of this subchapter for a daily test at 45.72 meters (150 feet).

(3) Each specification MC 330 and MC 331 cargo tank in metered delivery service of greater than 13,247.5 liters (3,500 gallons) water capacity transporting a Division 2.1 material, a Division 2.2 material with a subsidiary hazard, or anhydrous ammonia, marked and certified before July 1, 1999, must have an emergency discharge control capability as specified in §§ 173.315(n) and 177.840 of this subchapter no later than the date of its first scheduled pressure test after July 1, 2001, or July 1, 2003, whichever is earlier.

(n) *Thermal activation.* No later than the date of its first scheduled leakage test after July 1, 1999, each specification MC 330 or MC 331 cargo tank motor vehicle and each nonspecification cargo tank motor vehicle conforming to § 173.315(k) of this subchapter, marked and certified before July 1, 1999, that is used to transport a liquefied compressed gas, other than carbon dioxide and chlorine, that has a water capacity of 13,247.5 liters (3,500 gallons) or less must be equipped with a means of thermal activation for the internal self-closing stop valve as specified in § 178.337–8(a)(4) of this subchapter.

19. In § 180.407, paragraph (h)(1)(iii) is added, existing paragraphs (h)(4) through (h)(8) are redesignated as paragraphs (h)(5) through (h)(9), respectively, and a new paragraph (h)(4) is added to read as follows:

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

* * * * *

(h) *Leakage test.* (1) * * *

(iii) An operator of a specification MC 330 or MC 331 cargo tank, and a nonspecification cargo tank authorized under § 173.315(k) of this subchapter, equipped with a meter may check leak tightness of the internal self-closing stop valve by conducting a meter creep test. (See Appendix B to this part.)

* * * * *

(4) After July 1, 2000, Registered Inspectors of specification MC 330 and MC 331 cargo tanks, and nonspecification cargo tanks authorized under § 173.315(k) of this subchapter must visually inspect the delivery hose assembly and piping system while the assembly is under leakage test pressure utilizing the rejection criteria listed in § 180.416(g). Delivery hose assemblies not permanently attached to the cargo tank motor vehicle may be inspected separately from the cargo tank motor vehicle. In addition to a written record of the inspection prepared in accordance with § 180.417(b), the Registered Inspector conducting the hose test must note the hose identification number, the date of the original hose assembly test, and the condition of the hose assembly and piping system tested.

* * * * *

20. Section 180.416 is added to read as follows:

§ 180.416 Discharge system inspection and maintenance program for cargo tanks transporting liquefied compressed gases.

(a) *Applicability.* This section is applicable to an operator using specification MC 330, MC 331, and nonspecification cargo tanks authorized under § 173.315(k) of this subchapter for transportation of liquefied compressed gases other than carbon dioxide. Paragraphs (b), (c), (d)(1), (d)(5), (e), (f), and (g)(1) of this section, applicable to delivery hose assemblies, apply only to hose assemblies installed or carried on the cargo tank.

(b) *Hose identification.* By July 1, 2000, the operator must assure that each delivery hose assembly is permanently marked with a unique identification number and maximum working pressure.

(c) *Post-delivery hose check.* After each unloading, the operator must visually check that portion of the delivery hose assembly deployed during the unloading.

(d) *Monthly inspections and tests.* (1) The operator must visually inspect each delivery hose assembly at least once each calendar month the delivery hose assembly is in service.

(2) The operator must visually inspect the piping system at least once each calendar month the cargo tank is in service. The inspection must include fusible elements and all components of the piping system, including bolts, connections, and seals.

(3) At least once each calendar month a cargo tank is in service, the operator must actuate all emergency discharge control devices designed to close the internal self-closing stop valve to assure that all linkages operate as designed. Appendix A to this part outlines acceptable procedures that may be used for this test.

(4) The operator of a cargo tank must check the internal self-closing stop valve in the liquid discharge opening for leakage through the valve at least once each calendar month the cargo tank is in service. On cargo tanks equipped with a meter, the meter creep test as outlined in Appendix B to this part or a test providing equivalent accuracy is acceptable. For cargo tanks that are not equipped with a meter, Appendix B to this part outlines one acceptable method that may be used to check internal self-closing stop valves for closure.

(5) After July 1, 2000, the operator must note each inspection in a record.

That record must include the inspection date, the name of the person performing the inspection, the hose assembly identification number, the company name, the date the hose was assembled and tested, and an indication that the delivery hose assembly and piping system passed or failed the tests and inspections. A copy of each test and inspection record must be retained by the operator at its principal place of business or where the vehicle is housed or maintained until the next test of the same type is successfully completed.

(e) *Annual hose leakage test.* The owner of a delivery hose assembly that is not permanently attached to a cargo tank motor vehicle must ensure that the hose assembly is annually tested in accordance with § 180.407(h)(4).

(f) *New or repaired delivery hose assemblies.* Each operator of a cargo tank must ensure each new and repaired delivery hose assembly is tested at a minimum of 120 percent of the hose maximum working pressure.

(1) The operator must visually examine the delivery hose assembly while it is under pressure.

(2) Upon successful completion of the pressure test and inspection, the operator must assure that the delivery hose assembly is permanently marked with the month and year of the test.

(3) After July 1, 2000, the operator must complete a record documenting the test and inspection, including the date, the signature of the inspector, the hose owner, the hose identification number, the date of original delivery hose assembly and test, notes of any defects observed and repairs made, and an indication that the delivery hose assembly passed or failed the tests and inspections. A copy of each test and inspection record must be retained by the operator at its principal place of business or where the vehicle is housed or maintained until the next test of the same type is successfully completed.

(g) *Rejection criteria.* (1) No operator may use a delivery hose assembly determined to have any condition identified below for unloading liquefied compressed gases. An operator may remove and replace damaged sections or correct defects discovered. Repaired hose assemblies may be placed back in service if retested successfully in accordance with paragraph (f) of this section.

(i) Damage to the hose cover that exposes the reinforcement.

(ii) Wire braid reinforcement that has been kinked or flattened so as to permanently deform the wire braid.

(iii) Soft spots when not under pressure, bulging under pressure, or loose outer covering.

(iv) Damaged, slipping, or excessively worn hose couplings.

(v) Loose or missing bolts or fastenings on bolted hose coupling assemblies.

(2) No operator may use a cargo tank with a piping system found to have any condition identified in this paragraph (g)(2) for unloading liquefied compressed gases.

(i) Any external leak identifiable without the use of instruments.

(ii) Bolts that are loose, missing, or severely corroded.

(iii) Manual stop valves that will not actuate.

(iv) Rubber hose flexible connectors with any condition outlined in paragraph (g)(1) of this section.

(v) Stainless steel flexible connectors with damaged reinforcement braid.

(vi) Internal self-closing stop valves that fail to close or that permit leakage through the valve detectable without the use of instruments.

(vii) Pipes or joints that are severely corroded.

21. In § 180.417, paragraph (a)(1) is revised to read as follows:

§ 180.417 Reporting and record retention requirements.

(a) *Vehicle certification.* (1) Each owner of a specification cargo tank must retain the manufacturer's certificate, the manufacturer's ASME U1A data report, where applicable, and related papers certifying that the specification cargo tank identified in the documents was manufactured and tested in accordance with the applicable specification. This would include any certification of emergency discharge control systems required by § 173.315(n) of this subchapter or § 180.405(m). The owner must retain the documents throughout his ownership of the specification cargo tank and for one year thereafter. In the event of a change in ownership, the prior owner must retain non-fading photo copies of these documents for one year.

* * * * *

22. Appendices A and B are added to part 180 to read as follows:

Appendix A to Part 180—Internal Self-closing Stop Valve Emergency Closure Test for Liquefied Compressed Gases

1. In performing this test, all internal self-closing stop valves must be opened. Each emergency discharge control remote actuator (on-truck and off-truck) must be operated to ensure that each internal self-closing stop valve's lever, piston, or other valve indicator has moved to the closed position.

2. On pump-actuated pressure differential internal valves, the three-way toggle valve handle or its cable attachment must be activated to verify that the toggle handle moves to the closed position.

Appendix B to Part 180—Acceptable Internal Self-closing Stop Valve Leakage Tests for Cargo Tanks Transporting Liquefied Compressed Gases

For internal self-closing stop valve leakage testing, leakage is defined as any leakage through the internal self-closing valve or to the atmosphere that is detectable when the valve is in the closed position. On some valves this will require the closure of the pressure by-pass port.

(a) Meter Creep Test.

1. An operator of a cargo tank equipped with a calibrated meter may check the internal self-closing stop valve for leakage through the valve seat using the meter as a flow measurement indicator. The test is initiated by starting the delivery process or returning product to the cargo tank through the delivery system. This may be performed at an idle. After the flow is established, the operator closes the internal self-closing stop valve and monitors the meter flow. The meter flow must stop within 30 seconds with no meter creep within 5 seconds after the meter stops.

2. On pump-actuated pressure differential internal self-closing stop valves, the valve must be closed with the remote actuator to assure that it is functioning. On other types of internal self-closing stop valves, the valve(s) may be closed using either the normal valve control or the discharge control system (e.g., remote).

3. Rejection criteria: Any detectable meter creep within the first five seconds after initial meter stoppage.

(b) Internal Self-Closing Stop Valve Test.

An operator of a cargo tank that is not equipped with a meter may check the internal self-closing stop valve(s) for leakage as follows:

1. The internal self-closing stop valve must be in the closed position.

2. All of the material in the downstream piping must be evacuated, and the piping must be returned to atmospheric temperature and pressure.

3. The outlet must be monitored for 30 seconds for detectable leakage.

4. Rejection criteria. Any detectable leakage is considered unacceptable.

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Kelley Coyner,

Administrator.

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