

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:** Notice of proposed rulemaking (NPRM).

SUMMARY: RSPA is proposing revisions to 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 proposed 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 proposing revised 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 proposing a two-year period for development and testing of emergency discharge control technology. After two years, the proposal would require newly manufactured MC 331 cargo tank motor vehicles to be equipped with emergency discharge control equipment that complies with the proposed performance standards; MC 330, MC 331 and certain nonspecification cargo tank motor vehicles already in service would be retrofitted at their first scheduled pressure test after the two-year period. These proposals 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: Submit comments on or before April 21, 1999.

ADDRESSES: Address written comments to the Dockets Management System, U.S. Department of Transportation, Room PL-401, 400 Seventh Street, SW, Washington, DC 20590-0001. Identify the docket number RSPA-97-2718 at the beginning of your comments and submit two copies. If you want to receive confirmation of receipt of your comments, include a self-addressed, stamped postcard. Comments also may be submitted by e-mail to rules@rspa.dot.gov.

The Dockets Management System is located on the Plaza Level of the Nassif Building at the Department of Transportation at the above address. You can review public dockets there between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, except federal holidays. In addition, you can review comments by accessing the docket management system through the DOT home page (<http://dms.dot.gov>).

FOR FURTHER INFORMATION CONTACT: Jennifer Karim or Susan Gorsky, Office of Hazardous Materials Standards, Research and Special Programs Administration, (202) 366-8553; or Nancy Machado, Office of the Chief Counsel, Research and Special Programs Administration, (202) 366-4400.

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I. Background

On December 13, 1996 (61 FR 65480), the Research and Special Programs Administration (RSPA, "we") and the Federal Highway Administration (FHWA) published advisory guidance on emergency discharge control systems on MC 330, MC 331 and certain nonspecification cargo tanks used to transport liquefied compressed gases. This followed an incident involving the unintentional release of propane from an MC 331 cargo tank motor vehicle during unloading.

On February 19, 1997 (RSPA-97-2133 (HM-225), 62 FR 7638), RSPA adopted

an interim final rule establishing certain temporary alternative regulations under which cargo tanks could remain in service while RSPA and FHWA evaluated this incident and other situations in which liquefied compressed gases were released unintentionally from cargo tanks during unloading operations. In particular, the interim final rule amended the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) by establishing a new § 171.5, which set forth conditions under which affected cargo tanks, without certification and demonstrated performance of their emergency discharge control systems, could continue in service.

On August 18, 1997 (62 FR 44038), RSPA published a final rule and responded to petitions for reconsideration of the interim final rule. The final rule reiterated most of the elements of the interim final rule and extended it as a continuing temporary regulation.

Also on August 18, 1997 (62 FR 44059), RSPA published an advance notice of proposed rulemaking (ANPRM) in Docket No. RSPA-97-2718 (HM-225A). This ANPRM solicited public comment on a series of specific topics. RSPA 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 September 19, 1997 (62 FR 49171), RSPA issued additional advisory guidance in Docket No. RSPA-97-2133 (HM-225), in response to a petition for reconsideration and a request for clarification.

On December 10, 1997 (62 FR 65187), RSPA published a second final rule that made changes to the August 18, 1997, final rule, responded to petitions for reconsideration, and made certain corrections and clarifications.

On June 4, 1998 (63 FR 30572), RSPA proposed to establish a negotiated rulemaking committee under Docket RSPA-97-2718 (HM-225A) and announced a public meeting to discuss that proposal. The negotiated rulemaking process is defined in 5 U.S.C. 561 *et seq.*

The above-referenced rulemaking documents contain a thorough discussion of the issues that led to issuance of the temporary regulation in § 171.5, and to establishment of a negotiated rulemaking committee to develop recommendations for changes to the applicable regulations. These prior rulemaking publications and the

public comments on them (see RSPA-97-2133) are hereby incorporated into this docket by reference.

II. Negotiated Rulemaking Committee and its Activities

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 consists 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 members of the Committee are:

1. Department of Transportation—Edward Mazzullo, Research and Special Programs Administration
2. National Propane Gas Association—Charles Revere, Revere Gas and Appliance
3. The Fertilizer Institute—Charles Rosas, Farmland Industries
4. National Tank Truck Carriers—Clifford Harvison
5. Compressed Gas Association—Ronald McGrath
6. National Fire Protection Association—Theodore Lemoff
7. Propane Distribution (Small)—Mike Gorham, Northwest Gas, and Lin Johnson, Lin's Propane
8. Propane Distribution (Large)—Russell Rupp, Suburban Propane, and Ken Faulhaber, Ferrellgas
9. Anhydrous Ammonia/Dual Use Anhydrous Ammonia-Propane

(Small)—Charles Whittington, Grammar Industries

10. Anhydrous Ammonia/Dual Use Anhydrous Ammonia-Propane (Large)—Jean Trobec and Cliff Shoettmer, Growmark; and Jim York and Tom Stene, National Private Truck Council
11. State Safety Enforcement Agencies—Steve Hermann, Cooperative Hazardous Materials Enforcement Development (COHMED), and Eric Adair, Commercial Vehicle Safety Alliance (CVSA)
12. State Safety Regulatory Agencies—Vicki O'Neill, Bureau of Liquefied Petroleum Gas Inspections/Florida Department of Agriculture and Consumer Services, and Ronny Coleman, California State Fire Marshal
13. State/Local Emergency Response Agencies and Fire Services—Ronald Dykes, International Association of Fire Chiefs
14. Cargo Tank Manufacturers (Transports)—Mike Pitts, Mississippi Tank
15. Cargo Tank Manufacturers (Bobtails)—David Auxier, Bulk Tank and Transport
16. Technology—Jim Griffin, Fisher Controls

The Committee was chaired by Philip J. Harter, Esq., a trained facilitator. The role of the facilitator was to apply proven consensus building techniques to the negotiations. The facilitator was not involved with the substantive development of the standard. Rather, his role was to: (1) chair the meetings of the committee in an impartial manner; (2) impartially assist the members of the committee in conducting discussions and negotiations; (3) act as disclosure officer for committee records under the Freedom of Information Act (FOIA); and (4) keep minutes of all committee meetings in accordance with the Federal Advisory Committee Act (FACA) requirements.

In some instances, work groups were formed around particular issues, and certain members were identified as spokespersons for these groups.

Interested parties who were not selected to membership on the Committee were provided an opportunity to contribute to the negotiated rulemaking effort in the following ways:

- They were provided with the minutes of Committee meetings and could submit written comments to the Committee as appropriate.
- They could attend the Committee meetings, which were open to the public, caucus with the Committee

member representing their interest on the Committee, and were provided opportunities to address the Committee as time permitted.

- They could participate in the workgroups established by the Committee. These informal workgroups were used to assist in addressing various technical matters (e.g., developing standards for an emergency discharge control system or verifying certain engineering procedures, or commenting on particular matters before the Committee) to facilitate Committee deliberations. They also assisted in drafting regulatory text. The workgroups were made up of Committee members and other parties who had expertise or a particular interest in the technical matter(s) being discussed.

The Committee met in plenary and working sessions on six occasions. Among the materials considered by the Committee in developing the proposals in this NPRM are 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. The Committee agrees that the costs imposed by the proposed rule will be off-set by the benefits. The Committee had no role in preparing DOT's "Preliminary Regulatory Evaluation" or "Environmental Assessment" and did not consider them in its deliberations.

III. 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, the

Department intends to address safety issues related to unloading of all liquefied compressed gases in a single proposed rule to the extent feasible and practicable. Accordingly, we propose to adopt the Committee's recommendations for 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 this proposed rule 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 70 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 proposing revisions 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.

IV. Proposed Revisions

A. Prevention

The Committee recommends and we are proposing 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 proposing a hose management program for liquid 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 we are proposing are equally applicable to unloading operations for all liquefied compressed gases. The proposed program includes 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 would apply 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 would require an operator to remove and replace damaged hose sections and to correct any defects discovered in hoses or hose assemblies. The operator would be 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 would not be required if the operator corrected 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 would 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 would 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, the Committee recommends and we are proposing to institute 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 recommended for hoses. Piping system inspections and tests would 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 Committee recommends and we are proposing that the person unloading liquefied compressed gases from a cargo tank visually check those components of the discharge system that are readily observed during the normal course of unloading. This check would be done before each delivery after the pressure in the discharge system reaches 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

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

- 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 recommends 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 proposing to define a new term—“metered delivery service.” The proposed 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.

The Committee recommends and we are proposing that the qualified person attending the unloading operation 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 would not be required to be in position to view the entire length of the delivery hose.

This proposed 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 would 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, we propose that 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 would not be 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 proposed requirements for attending unloading operations for metered delivery service would 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 would apply at all other times.

Taken together, the Committee believes that the proposed 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 also being proposed, 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. The Committee recommends, and we are proposing, 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 or 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 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. The Committee recommends and we are proposing clarifying the current regulations to accurately reflect an excess flow valve's performance capabilities. The clarification appears in proposed § 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. We are therefore proposing that, when required by regulation, a passive means to shut off the flow of product will be 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 would be 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 feature. The proposed modification would require 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 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 has been 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 therefore recommends 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 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, the Committee recommends 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 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 propose to adopt 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 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 Committee recommends and we are proposing to permit 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 recommends 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 off-truck remote must be capable of activation from any place the qualified person may need to be during the unloading operation. 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.

The Committee recognizes 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 proposed rule, such limitations would be considered acceptable. The Committee recognizes that some deliveries will be made under conditions where an otherwise operable

wireless transmitter/receiver system cannot be used or might not function and believes that the other safety features of this proposed rule should be considered sufficient in such cases. Accordingly, the proposed rule would 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 proposed regulation 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 RSPA's concerns, the Committee agreed 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, we are proposing that the Committee's recommendation be 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 our proposal 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. a. Division 2.2 materials with a subsidiary hazard and anhydrous ammonia. b. Division 2.1 materials.	All	Other than metered delivery service.	Passive shut-down capability.
4. a. Division 2.2 materials with a subsidiary hazard and anhydrous ammonia. b. Division 2.1 materials.	3,500 water gallons or less.	Metered delivery service.	Off-truck remote shut-down capability.
5. a. Division 2.2 materials with a subsidiary hazard and anhydrous ammonia. b. 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, we are proposing that 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 should 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 proposing specific requirements for certifying the design and installation of emergency discharge control equipment. For off-truck remote shut-off equipment, our proposal would require that it be installed under the supervision of a Registered Inspector, who would certify that it was installed according to the manufacturer's specifications. For passive shut-down equipment, we propose that its design 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, the Committee recommends and we are proposing that any passive shut-down systems installed on cargo tank motor vehicles prior to implementation of the proposed regulation must be certified by a Design Certifying Engineer.

The manufacturers of internal self-closing stop valves with an integral excess flow valve or 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. The Committee agreed and we are proposing that internal self-closing stop valves 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 proposing 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 should 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 following implementation schedule outline in the following table	for the new requirements proposed in this NPRM. [The dates noted assume	that the final rule will be effective on July 1, 1999.]
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 would be authorized within 30 days of publication of the final rule in the **Federal Register**, providing parties and the agency time to file and respond to any petitions for reconsideration. New or amended sections not specifically

referenced in the table would 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 [effective date of final rule]. 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 Committee recommends

and we are proposing 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 Committee also recommends that operators be permitted 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 would be permitted to operate after its first pressure testing interval occurring after [two years after the effective date of the final rule] unless it is equipped with appropriate emergency discharge control equipment. All equipment retrofits would be completed by [seven years after the effective date of the final rule].

Given the rates at which cargo tank motor vehicles are rechassis'd 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 Committee also recommends and we are proposing that cargo tanks authorized under § 173.315(k) of the HMR, which are currently limited to intrastate operations, should be permitted 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 would 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, the Committee recommends

and we are proposing that 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 [one year after effective date of final rule]. When a system reaches the end of its useful life, a replacement system would be required to conform to the new requirements proposed in this NPRM.

Because of RSPA's concern about the potential risk involved with larger capacity cargo tanks, the Committee agreed and we are proposing that cargo tank motor vehicles in metered delivery service with capacities greater than 3,500 water gallons must 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 by [four years after effective date of final rule], whether or not they are due to be requalified at that time and whether or not they are already equipped with off-truck remote shut-off devices that close 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 proposed above by [four years after effective date of final rule].

We anticipate that periodic progress reviews will be needed during the two-year development and testing cycle for emergency discharge control technology. These reviews would 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 proposals outlined above, we are proposing revisions to 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, the Committee agreed to revisions to the current specification, described in more detail in the section-by-section review below, that would 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 would be removed. Through the amendments proposed in this notice, these temporary measures would no longer be necessary.

Section 171.7. We propose to revise the incorporations by reference to reflect the most recent publication of The Chlorine Institute.

Section 171.8. We propose to add 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 proposing to include an exception from this requirement where the provisions of Pamphlet 58 are inconsistent with Parts 178 and 180 of the HMR. We also propose to permit such tanks to cross state lines to travel to and from a qualified assembly, repair, maintenance, or requalification facility under certain conditions. Finally, we propose to rewrite paragraph (k) for clarity.

We are proposing to revise 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.

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

Proposed paragraph (n)(2) describes the emergency discharge control equipment that will be required on cargo tanks used to transport liquefied compressed gases in other than metered delivery service and requirements for installation and certification. Proposed paragraph (n)(2)(ii) would require the design for equipment to be certified by a Design Certifying Engineer. The certification would be required to consider any specifications of the original component manufacturer and would 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. Proposed paragraph (n)(2)(iii) would require 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.

Proposed paragraphs (n)(3) and (n)(4) describe the emergency discharge control equipment that would be required on cargo tanks transporting liquefied compressed gases in metered delivery service, including requirements for installation and certification. Proposed 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.

We are also proposing to add paragraph (p) to require 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 propose to revise 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 propose to remove paragraph (i)(5) for clarity.

Section 177.840. We propose to add several new provisions concerning unloading procedures for liquefied compressed gases. Paragraph (l) would require that each operator of a cargo tank motor vehicle transporting a liquefied compressed gas carry a written operating procedure for all delivery operations on the cargo tank motor vehicle. The operating procedure would 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 would describe the conditions under which use of a facility-provided hose for unloading is authorized.

We propose to add paragraph (m) to require 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 would determine that each component is of sound quality and without obvious defects detectable through visual observation and audio awareness. The qualified person would also assure that all connections are secure. This paragraph would also prohibit an operator from unloading a liquefied compressed gas if the discharge system has any of the defects listed in proposed § 180.416(g).

Paragraph (n) would require 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.

Paragraph (o) would require that operators of cargo tank motor vehicles with an off-truck remote shut-off capability 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.

Paragraphs (p) and (q) provide proposed attendance requirements for unloading LPG and anhydrous ammonia. For cargo tank motor vehicles in metered delivery service, paragraph (p) would require that a qualified person must remain within 150 feet of the cargo tank motor vehicle and within 25 feet of the delivery hose and must observe both the cargo tank and the receiving container at least once every five minutes while the internal self-closing stop valve is open. Proposed 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.

Paragraph (q) proposes revised 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.

Paragraph (r) proposes 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.

Proposed paragraph (s) would require 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.

Proposed paragraph (t) would require 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.

Proposed paragraph (u) would require that chlorine be unloaded from cargo tanks in accordance with procedures set forth in section 3 of Pamphlet 57 published by the Chlorine Institute. This proposal responds to comments received under Docket HM-225.

Part 178

Section 178.337-1. We are proposing to add a new paragraph (g) that would 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."

Section 178.337-8. We are proposing to retitle and rewrite this section to place all of the requirements related to MC 331 cargo tank openings, inlets, and outlets in one section. Paragraph (a)(1) would be rewritten for clarity. Paragraph (a)(2) would be revised to indicate the specific cargo tank openings that must be closed with a plug, cap, or bolted flange.

Paragraph (a)(3) would be 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) would be 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, would be 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 would thus implement the Committee's recommendation that all MC 331 cargo tanks, regardless of their capacities, must be equipped with fusible elements.

Proposed paragraph (a)(4)(i) would incorporate 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) would incorporate 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. Proposed paragraph (a)(4)(iii) would move 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). Proposed paragraph (a)(4)(iv) would clarify performance requirements for excess flow valves, integral excess flow valves, and excess flow features.

Proposed paragraph (a)(4)(v) would permit an integral excess flow valve or the excess flow feature of an internal self-closing stop valve to be designed with a bypass and would specify bypass requirements currently found in § 178.337-11(a)(1)(vi). Proposed paragraph (a)(4)(vi) would specify construction requirements for internal self-closing stop valves currently located in § 178.337-11(a)(1)(ii).

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

Proposed paragraph (b) moves and updates requirements applicable to chlorine cargo tanks from § 178.337-11(a)(4). Proposed 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 propose to revise paragraph (b)(6) to move the hose testing requirements to a new paragraph (b)(7), which would require that hose assemblers mark each hose assembly with a unique identifier and test the hose assembly in accordance with the new testing requirements proposed in § 180.416(f). Current paragraph (b)(7) would be redesignated as (b)(8) and updated to incorporate the most recent publications of The Chlorine Institute. This proposal responds to comments received to Docket HM-225. 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 proposed revision should clarify any confusion among enforcement personnel about whether this practice is permitted.

Section 178.337-11. We are proposing 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 would also note 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. In addition, we propose to redesignate paragraph (a) as paragraph (b) and modify redesignated paragraph (b)(1)(v) to accurately reflect the performance capabilities of excess flow valves.

Proposed 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) would be relocated to § 178.337-8. Current paragraph (a)(1)(v) would be removed. Current paragraphs (a)(2), (a)(2)(i) and (ii), (a)(3), and (a)(4) and current paragraph (b) would be moved to § 178.337-8.

Part 180

Section 180.403. We propose to add a definition for "delivery hose assembly" and for "piping systems." In addition, we propose to revise 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 would be considered a modification. This would make a modification of this equipment subject to certification by a Design Certifying Engineer under § 180.413(d).

Section 180.405. We propose to revise 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 two years after the effective date of the final rule. 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 four years after the effective date of the final rule or by the cargo tank's first scheduled pressure test two years after the effective date of the final rule, whichever is earlier. For fusible elements, a cargo tank must be retrofitted by the date of its first scheduled leakage test after the effective date of the final rule.

Section 180.407. We are proposing to revise 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 proposes recordkeeping requirements related to the leakage test.

Section 180.416. We are proposing to add 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.

Appendices to Part 180. We propose to add Appendices A and B to Part 180. Appendix A would outline 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 would outline 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 proposed rule is not considered a significant regulatory action under section 3(f) of Executive Order 12866. The rule is considered significant under the Regulatory Policies and Procedures of the Department of Transportation (44 FR 11034) because of public interest. A preliminary regulatory evaluation is available for review in the docket.

B. Executive Order 12612

This proposed 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. 5701-5127, 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 proposed rule addresses covered subjects under items (i) through (v) above and, if adopted, would preempt 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. RSPA proposes that the effective date of federal preemption for these requirements be 90 days after a final rule is issued in this rulemaking.

C. Executive Order 13084

This proposed 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 resulting from this NPRM 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. Nevertheless, this NPRM specifically requests comments from affected persons, including Indian tribal governments, as to its potential impact.

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 preliminary regulatory evaluation, I hereby certify that the proposed rule would not have a significant economic impact on a substantial number of small businesses.

Need for the proposed rule. The goal of the proposed regulations 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 proposals in this NPRM are intended to 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 would incur compliance costs in the amounts outlined in the preliminary 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 \$804 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 \$0.00201. RSPA fully anticipates that this additional cost of operation would 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 \$0.33. Considering that the national average residential price of propane on January 18, 1999 was \$0.890 per gallon, RSPA determined that there would 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 proposed 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 proposed 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 would 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 proposed rule. The principal types of compliance expenditures effectively required by the proposed 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 proposed rules were developed under the assumption that small businesses comprise an overwhelming majority of entities that would be compelled to comply. The NPRM 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 proposed rules, 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.

RSPA is proposing a two-year period for development and testing of new

technologies for emergency discharge control and 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, RSPA is proposing 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, RSPA is proposing that 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 one year after the effective date of the final rule.

In addition, RSPA is proposing that nonspecification cargo tanks authorized for liquefied petroleum gas service under § 173.315(k) of the Hazardous Materials Regulations, which are limited to intrastate operations, be permitted 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 proposed requirements, including

proposed new recordkeeping requirements, should not significantly affect the cost of transporting and delivering liquefied compressed gases. Based on this initial analysis, RSPA believes that the proposed rules will not impose a substantial economic burden on a significant number of small businesses or other small entities.

E. Paperwork Reduction Act

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. RSPA has a current information collection approval under OMB No. 2137-0595, Cargo Tank Motor Vehicles in Liquefied Compressed Gas Service, which expires July 1, 1999, with 8,300 burden hours and an annual cost of \$85,000. RSPA believes that this proposed rule may result in an increase in annual burden hours and costs. If these proposals are finalized, RSPA will revise the current approval and resubmit it to OMB for extension and re-approval.

Section 1320.8(d), Title 5, Code of Federal Regulations, requires that RSPA provide interested members of the public and affected agencies an opportunity to comment on information collection and recordkeeping requests. This proposal identifies information collection that RSPA may submit to OMB for extension and re-approval based on the requirements in this proposed rule. RSPA has revised burden estimates, where appropriate, to reflect current reporting levels or adjustments based on changes in this proposed rule since the information collection was last approved. RSPA estimates that the total information collection and recordkeeping burden for transportation and unloading of cargo tank motor vehicles in liquefied compressed gas service requirements would be revised as follows:

OMB No.: 2137-0595.

Number of Respondents: 6,958.

Total Annual Responses: 920,530.

Total Annual Burden Hours: 200,615.

Total Annual Burden Cost:

\$2,621,141.

One Time Annual Start Up Burden Hours: 14,490.

One Time Annual Start Up Cost: \$161,615.

Total Responses for First Year: 990,563.

Total Annual Burden Hours for First Year: 215,105.

Total Annual Burden Cost for First Year: \$2,782,756.

RSPA specifically requests comments on the information collection and recordkeeping burdens associated with

developing, implementing, and maintaining these requirements for transportation and unloading of cargo tank motor vehicles in liquefied compressed gas service under this proposed rule.

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

Written comments should be addressed to the Dockets Management System as identified in the **ADDRESSES** section of this rulemaking. Comments should be received prior to the close of comment period identified in the **DATES** section of this rulemaking.

Under the Paperwork Reduction Act of 1995, no person is required to respond to an information collection unless it displays a valid OMB control number. If these proposed requirements are adopted in a final rule, RSPA will submit the revised information collection and recordkeeping requirements to the Office of Management and Budget for approval.

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

I. Environmental Assessment

RSPA finds that there are no significant environmental impacts associated with proposed regulations resulting from the negotiated rulemaking to develop safety standards for preventing and mitigating unintentional releases during the unloading of cargo tank motor vehicles in liquefied compressed gas service. 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 propose to amend 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 would continue to read as follows:

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

§ 171.5 [Removed]

2. Section 171.5 would be removed.

3. In § 171.7, in the table in paragraph (a)(3), a new entry would be 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						177.840
*	*	*	*	*	*	

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

a. Under "Chlorine Institute, Inc.," for the entry "Standard Chlorine Angle

Valve Assembly," the wording "104–6, December 1, 1982" would be revised to read "104–8, July 1, 1993."

b. Under "Chlorine Institute, Inc.," for the entry "Excess Flow Valve with

Removable Seat," the wording "101–6, September 1, 1973" would be revised to read "101–7, July 1, 1993" and, in column 2, the reference "178.337–11" would be 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" would be revised to read "106-6, July 1, 1993" and, in column 2, the reference "178.337-11" would be revised to read "178.337-8."

5. In § 171.8, the following definition would be 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 would continue to read as follows:

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

7. In § 173.315, paragraphs (k) and (n) would be revised and paragraph (p) would be 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, paragraphs (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 possible without destruction of 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 [the effective date of the final rule] 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 [two years after the effective date of the final rule]. No MC 330, MC 331 or nonspecification cargo tank motor vehicle authorized under paragraph (k) of this section may be operated after [seven years after the effective date of the final rule] 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 [four years after the effective date of the final rule].

* * * * *

(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 would continue to read as follows:

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

9. In § 177.834, paragraph (i)(5) would be removed and paragraph (i)(3) would be 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) would be added to read as follows:

§ 177.840 Class 2 (gases) materials.

* * * * *

(l) *Operating procedure.* Six months after effective date of final rule, 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.

(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 except during short periods when the

qualified person must activate controls or monitor the receiving container.

(u) *Unloading of chlorine cargo tanks.* 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 would continue to read as follows:

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

12. In § 178.337–1, new paragraph (g) would be 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 the primary shut off valve installed at a product discharge outlet of a cargo tank.

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 would be revised to read as follows:

§ 178.337-8 Openings, inlets, and outlets.

(a) *Outlets generally.* (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) Each product inlet opening, including vapor return lines, must be fitted with a back flow check 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 above, 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 1 1/4 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 3/4 NPT equipped with a valve having an integral excess flow valve or 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 single, so-called "stop-check" 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) *Discharge outlets on chlorine tanks.* Discharge outlets on cargo tanks 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, 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) would be revised, paragraph (b)(7) would be redesignated as paragraph (b)(8) and revised, a new paragraph (b)(7) would be added, and paragraph (c) would be 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 safety relief valves, all cargo tank inlets and outlets must be marked "liquid" to designate that it communicates with liquid when the

cargo tank is filled to the maximum permitted filling density, or "vapor" or "spray-fill" to indicate a filling line that communicates with vapor when the cargo tank is filled to the maximum permitted filling density.

* * * * *

15. Section 178.337-11 would be 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 3/4 NPT equipped with a valve having an integral excess flow valve or feature.

PART 180—CONTINUING QUALIFICATION AND MAINTENANCE OF PACKAGINGS

16. The authority citation for part 180 would continue 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" would be revised, and definitions for "Delivery hose assembly" and "Piping system" would be 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) would be 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 [two years after the effective date of the final rule], 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 [two years after the effective date of the final rule], 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 [two years after the effective date of the final rule] 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 a Division 2.1 material, a Division 2.2 material with a subsidiary hazard, or anhydrous ammonia in metered delivery service equipped with an off-truck remote shut-off device that was installed prior to [one year after the effective date of the final rule]. 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 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 in metered delivery service, marked and certified before [the effective date of final rule], 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 [two years after the effective date of the final rule or four years after the effective date of the final rule], whichever is earlier.

(n) *Thermal activation.* No later than the date of its first scheduled leakage test after [the effective date of final rule], 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 [the effective date of final rule], 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) would be added, existing paragraphs (h)(4) through (h)(8) would be redesignated as paragraphs (h)(5) through (h)(9), respectively, and a new paragraph (h)(4) would be 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) 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 would be 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 hoses, apply only to hoses installed or carried on the cargo tank.

(b) *Hose identification.* [One year after the effective date of the final rule], 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 month the delivery hose assembly is in service.

(2) The operator must visually inspect the piping system at least once each 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 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 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) 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 and piping system passed or failed the tests and inspections.

(e) *Annual hose leakage test.* The owner of a hose assembly that is not permanently attached to a cargo tank motor vehicle must ensure that the hose 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 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) 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 hose assembly and test, notes of any defects observed and repairs made, and an indication that the delivery hose passed or failed the tests and inspections.

(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 hoses 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 below 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) would be 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 would be 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 horizontal 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 certified 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 at normal pump operating conditions. 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. For the purposes of this section, a "certified meter" is any meter that has

undergone an annual certification by a local or state approved certification process for the material(s) being metered. The certification must be within the previous 12-month period to meet the monthly test criteria, or within the past 60 days for the annual leakage test prescribed in § 180.407(h).

4. 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 certified 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.

Issued in Washington, DC on March 17, 1999, under authority delegated in 49 CFR Part 106.

Alan I. Roberts,

Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration.

[FR Doc. 99-6885 Filed 3-17-99; 2:03 pm]

BILLING CODE 4910-60-P