[4910-06]

U.S. DEPARTMENT OF TRANSPORTATION

Federal Railroad Administration

FRA Emergency Order No. 16

Notice No. 2

Owners of Railroad Tank Cars; Railroads

Modification of Emergency Order Requiring

Inspection and Repair of Dual Diameter Tank Cars

The Federal Railroad Administration (FRA) has determined that Emergency Order No. 16, Notice No. 1, (57 FR 11900, April 7, 1992) should be modified. This Notice summarizes the status of the inspection and repair work performed to date; modifies the number of cars to be inspected in the initial 60 days since the order was issued; extends the time for completing inspections of the cars included in the sample plans; modifies the reporting requirement for inspected cars; clarifies the identity of the "owner" of a tank car; publishes FRA's approval of an alternative inspection protocol using ultra-sound technology; and explains condemning imperfections.

Authority

Authority to enforce the Federal railroad safety laws, including laws pertaining to the transportation of hazardous materials by railroad, has been delegated by the Secretary of Transportation to the Federal Railroad Administrator. 49 CFR

§ 1.49. Railroads, shippers of hazardous materials, and owners of tank cars are subject to FRA's safety jurisdiction under the Federal Railroad Safety Act of 1970, 45 U.S.C. §§ 421, 438, and the Hazardous Materials Transportation Act, as amended, 49 App. U.S.C. § 1804. FRA is authorized to issue emergency orders where an unsafe condition or practice creates "an emergency situation involving a hazard of death or injury to persons." 45 U.S.C. § 432(a). These orders may immediately impose "such restrictions or prohibitions as may be necessary to bring about the abatement of such emergency situation." *Ibid.*

Background

On April 2, 1992, FRA issued Emergency Order No. 16, effective 12:01 a.m. April 4, 1992 (57 FR 11900, April 7, 1992), requiring owners of dual-diameter tank cars to develop a sampling plan for inspecting such cars with a 99 percent confidence level that no more than one percent of the dual-diameter cars of any given design type would contain a structural imperfection in the critical transition welds. Any defects discovered were to be repaired before returning the car to service and any discovery of a weld defect would subject all cars built to that design to an inspection requirement.

Emergency Order No. 16 prohibited the loading or offering into transportation of any dual-diameter tank car until its owner had submitted a sampling plan; once the plan had been submitted, the order further required an inspection of cars that were part of the sample before loading and not later than 60 days after the

effective date of the order. The 60-day period ends June 3, 1992.

The Inspection Program

The inspection program is now about half complete with more than 600 cars inspected, or nearly 30 percent of the more than 2,100 cars scheduled as part of their owners' plan. Even with the pace of inspections picking up, due at least in part to FRA's approval of ultra-sound as an alternative to radiography, it is clear that owners will not inspect all targeted cars before June 3, 1992. FRA believes that the inspection of dual-diameter tank cars must continue at an accelerated pace until the confidence level called for in Notice No. 1 is reached.

As of the last count, 48 out of 59 cars inspected, built to the same design as the car that failed at Dragon, Mississippi, have been found to be defective. At the same time, inspections of limited samples of eight other design types have not yet uncovered any single car structural defects, let alone systemic flaws or design deficiencies. What continues to trouble FRA (and the tank car owners, users, and carriers) is the lack of a clear indication of why the "Dragon" flaws occurred in that group of cars.

This agency is aware that tank car inspection points are unable to examine cars as fast as they are now arriving and that significant numbers of cars are merely waiting in an inspection line. Inspections under Emergency Order No. 16 will eventually reach some 2,100 (out of approximately 5,400) dual-diameter tank

cars, about twice the minimum number FRA estimated when the Emergency Order was issued. Based on this fact, and based on the lack of systemic flaws in other than "Dragon" design cars, FRA has decided to reduce the sample inspection target for the first sixty days to a minimum of 20 percent of the cars of any given design type and to require the inspection of the remainder of the cars *on each owner's sample plan* within the 90-day period following June 3, i.e., by midnight September 1, 1992. If 20 percent or more of the cars of any design type have been inspected by June 3, 1992, owners of cars of that type can release those cars into transportation so long as they receive an inspection within the 90-day extension. However, *none* of the relief just described is available unless the 20 percent inspection target is met by June 3. FRA does not consider a car inspected until the owner furnishes a report of its inspection to the Chief, Hazardous Materials Division; owners have until June 4 to report cars inspected June 3. Car owners, or pool participants where applicable, failing to complete inspections on at least 20 percent of the population of each design type may not release any cars back into service, and each non-inspected car of these design types found in transportation after June 3 will be subject to penalty, with each day of use a separate violation. By the same standard, unless all of the sample cars of a design type are inspected by September 1, 1992, each non-inspected car of that design type operating after midnight on that day is subject to a penalty for each day of operation.

Reporting Inspections

Most car owners have been diligent in reporting the inspections of their cars but FRA is aware that there may be instances of a failure to make daily inspection reports as required by this Emergency Order. Paragraph 5 of the Order requires daily reporting of cars inspected the previous day, and FRA will treat a failure to comply with the utmost seriousness. However, FRA knows that some inspections show questionable results and need a second inspection to achieve sustainable conclusions; the reporting order applies only to completed inspections.

FRA is modifying the reporting requirement slightly: In order to monitor the activity in many shops and in order to maintain a picture of the activity at facilities scattered around the nation, FRA is adding a requirement to include the place and date of the inspection along with the other data reported.

Tank Car "Owners"

FRA entered this emergency order against "owners" of tank cars. An obvious, but by no means exclusive, concept of an "owner" is available in the freight car safety standards where, at 49 CFR § 215.301, appears the requirement that the railroad or private car owner reporting mark must be displayed on the car. Car reporting marks, an alpha/numeric identification such as ABC 1234 that is unique to each piece of railroad rolling stock, are listed in *The Official Railway Equipment Register*, Tariff ICC RER 6400-Series, published by International Thomson Transport

Press, New York, New York.

Another concept of "owner" can be drawn from the Hazardous Materials Regulations: Certain hazardous materials, among them compressed gases, must be unloaded on private track. (See, for example, 49 CFR § 174.204(a).) The definition of "private track" in 49 CFR § 171.8 includes "track ... which is devoted to the purpose of its user either by lease or written agreement, in which case the lease or written agreement is considered equivalent to ownership."

Tank cars commonly are operated pursuant to master lease agreements under which the lessee uses the car in exchange for a monthly rental payment. The holder of such an agreement, the lessee, has the right to control the service of the car, that is to designate its next load and destination. The car lease, like a track lease, allows an asset to be devoted to the purpose of its user. A tank car master lease gives the lessee more control than the owner of the reporting mark over the day to day operation of a tank car; the lease also means that the title holding owner (who may be an investment company with an interest in transportation only to the extent it produces revenue) may not be able to prevent the movement of a tank car contrary to this Emergency Order. FRA believes that the intent of Emergency Order No. 16 will be realized most clearly and most fairly, if all parties understand that, when FRA refers to a tank car "owner," that term includes whatever interest controls or influences relevant activity involving the tank car. This means that the

title holder, the reporting mark owner, and the lessee/shipper are all included as necessary to effect safety. Further, this means that FRA will continue to look to the reporting mark owner for submitting sample plans and accomplishing the inspections but that FRA will not hesitate to seek penalty damages from a lessee/shipper who offers an improper car into transportation.

Alternative, Equivalent Inspection Protocols

Paragraph 8 of Emergency Order No. 16 required radiographic examination of the critical A1, A2, B1, and B2 welds (See the drawing at 57 FR 11903). The Order also allowed owners who could not comply with radiography to use alternative, equivalent inspection protocols after submission to, and approval by, the Chief, Hazardous Materials Division, FRA.

In a letter dated April 6, 1992, General American Transportation Corporation submitted a request to use ultrasonic examination to inspect welds. That request included procedures that complied with generally accepted principles for ultrasonic examination. Three subsequent letters from ACF Industries, Trident NGL, Inc., and Union Tank Car Company also requested the use of ultrasonic examination as an alternative to the radiographic examinations covered by the order. After reviewing the procedures, the Chief, Hazardous Materials Division, granted approval, giving permission to use ultrasonic examination techniques as an alternative to radiography.

Imperfections

Paragraph 3 of Emergency Order 16, as an example, cites the

definition of "imperfection" from the 1990 *Association of American Railroads Manual of Standards and Recommended Practices, Section C - Part III, Specifications for Tank Cars, Appendix W*. This portion of the Tank Car Manual lists imperfections of several types, including slag inclusions, porosity, cracks, incomplete fusions or incomplete penetrations. Some of these imperfections, like slag inclusions or porosity, tend not to grow over time, while some, like stress cracks, are almost certain to increase with the accumulation of service life. FRA's primary interest in adopting the Appendix W standard for imperfections is to catch all those that would be likely to pose a growing threat to tank integrity, and therefore to safety, over time. The interpretation of the results of inspections of over 600 cars shows the occasional existence of some minor latent weld imperfections in the areas targeted for inspection, including weld inclusions (slag), porosity, and incomplete weld fusion. Although these minor imperfections do exist, they have no effect on strength nor have they shown a propensity to cause crack growth throughout the service life of these cars. FRA is therefore modifying paragraph 6 of the Order to require inspection of all cars built to a design type only when a sample car is found with a structural defect that may initiate crack growth.

Finding and Order

I find that the emergency situation involving a hazard of death or injury to persons that led to the issuance of Emergency Order

No. 16, has not been completely abated and, accordingly, pursuant to the authority of section 203 of the Federal Railroad Safety Act of 1970 (45 U.S.C. § 432), delegated to me by the Secretary of Transportation (49 CFR § 1.49), it is ordered that Emergency Order No. 16, Notice No. 1 be amended as follows:

1. Owners of dual-diameter tank cars who have inspected a minimum of 20 percent of the cars of any given design type by June 3, 1992, may release for transportation service non-inspected cars of that design type now listed as part of a sample plan, but must complete the original sample plan inspections by September 1, 1992.

2. No non-inspected car shown on a sample plan may be loaded or offered for transportation unless 20 percent of the cars of that design type have been inspected by June 3, 1992. Each car loaded or offered in violation of this order shall constitute a separate violation.

3. No non-inspected car of a design type shall be loaded or offered for transportation after September 1, 1992 unless all cars on the sample plan for that design type have been inspected. Each car loaded or offered in violation of this order shall constitute a separate violation.

4. Paragraph 6 of the Emergency Order is amended to read as follows:

> 6. If any sample car of a particular design type is found with an imperfection as defined in Appendix W of the Tank Car Manual, and the imperfection is a structural defect that may initiate crack growth, the owner shall immediately notify FRA and any other owners of cars built to that design type (to the extent the owner knows of such other owners).

Thereafter, owners of cars of that design type must ensure that all such cars are inspected in accordance with paragraph 8 of this Order or with the alternative ultrasound techniques authorized by Notice No. 2 before permitting any further loading of such cars.

5. Daily reports of inspections shall include the date and place of inspection, that is, the name of the facility and the city and state of its location, in addition to the items required by paragraph 5 of Emergency Order No. 16, Notice No. 1.

6. Owners who wish to avail themselves of ultrasound examination techniques for the inspection of tank cars subject to this Emergency Order may use the procedures specified below as an alternative to the radiography procedures set forth in paragraph 8 of Notice No. 1:

A. **EQUIPMENT.**

1. **Ultrasonic Flaw Detector.** Use an ultrasonic examination device that can detect flaws, such as cracks and other imperfections as defined in Appendix W of the Tank Car Manual, in the circumferential weld areas inside of the tank. Use of the device shall satisfy the manufacturer's instructions for recalibration (recall) prior to use, but in no case shall the device exceed six months of operation. The device shall consist of:

a. **Transducer.** Use a 60° or 70° angle, longitudinal and shear wave transducer, at least 1/2 inch in diameter, operating at 2.25 Mhz.

b. **Couplant.** Use a cellulose base water soluble liquid couplant, or equivalent, that is not detrimental to

the tank.

c. **Calibration block.** Use a basic ASME calibration block, "DSC" type, or "IIW" miniature angle block, or other acceptable equivalent.

2. **Materials for Liquid Penetrant or Magnetic Particle Examination.** Use materials as specified by the manufacturer.

3. **Scale removing equipment.** Power wire brush, wire brush, scrapper, etc.

B. **PERSONNEL.**

The "Certification of Competency of Nondestructive Examination Personnel" of Appendix W of the Tank Car Manual apply.

C. **EXAMINATION AREAS.**

Ultrasonically examine the A1, A2, B1, and B2 circumferential weld areas two inches on each side of each weld and at least twenty-four inches on each side of the tank car longitudinal center line.

D. **PROCEDURE.**

1. Clean the interior of the tank.

2. Scrape or wire-brush the areas for examination inside of the tank, as required, to ensure that the surface is free from scale and foreign material that may interfere with sound transmission or smooth movement of the transducer.

3. Calibrate the test equipment prior to use.

4. Measure the thickness of the plate using a straight beam

transducer or an ultrasonic thickness gauge.

5. Examine the areas outlined in paragraph III above, by scanning forward and backward at 6-10 dB above the Primary Reference Level. Examination procedures shall comply with the ASME Boiler and Pressure Vessel Code, Section V, Article 5 (current edition) or by a procedure developed and approved by qualified Level III personnel.

6. Use liquid penetrant or magnetic particle examination methods as defined in Appendix W of the Tank Car Manual to find mechanical imperfections in the examination areas.

7. When finding a defect, use suitable measuring techniques to measure their dimensions and depth.

E. **ACCEPTANCE CRITERIA.**

The non-destructive examinations and acceptance standards of Appendix W of the Tank Car Manual apply.

F. **REPAIRED AREAS AND RULE 88.**

1. For repaired areas, the requirements of Appendix R of the Tank Car Manual apply.

2. The requirements of Rule 88, "Mechanical Requirements for Acceptance," of the 1992 AAR Field Manual of Interchange Rules apply.

Relief

Tank car owners may obtain relief from this Order by informing the Federal Railroad Administration, as directed, of the identity of the representative sample and by performing the inspections and making the reports as required.

Penalties

Each violation of this Emergency Order shall subject the respondent committing such violation to a civil penalty of up to $20,000. 45 U.S.C. §§ 432, 438. FRA may, through the Attorney General, also seek injunctive relief to enforce this order. 45 U.S.C. § 439.

Notice to Affected Persons

Notice of this Order will be provided by publishing it on an emergency basis in the Federal Register. Copies of this Emergency Order were sent by mail or facsimile prior to publication to the Association of American Railroads, the American Short Line Railroad Association, the Regional Railroads of America, the Railway Progress Institute, all members of the AAR Tank Car Committee, and to owners of dual-diameter tank cars as follows: ACF Industries, Inc., Aeropres Corp., Bay Cities Gas, Canadian Enterprise Gas Products Ltd., CGTX, Inc., Chevron U.S.A. Products Company, Coastal Chem, Inc., CONOCO Inc., Continental Tank Car Corporation, General American Transportation Corporation, GLNX Corporation, Home Oil Company Limited, Mallard Transportation Company, Mobile Oil Corporation, Petrosol International, Inc., Phillips 66 Company, PLM Transportation Equipment Corp., SAZ Transportation Corporation, Suburban Propane/Petrolane, Sun Refining and Marketing Company, Texas Petrochemicals Corporation, Trident NGL, Inc., Union Tank Car Company, United States Rail Services, Inc., Vista Chemical Company, Willard Grain & Feed Inc., and ZIP Transportation

Company, Inc.

Review

Opportunity for formal review of this Emergency Order will be provided in accordance with section 203(b) of the Federal Railroad Safety Act of 1970, 45 U.S.C. § 432(b), and section 554 of Title 5 of the United States Code. Administrative procedures governing such review are found in 49 CFR Part 211 (see § 211.47, .71-.75).

Effective Date

This amendment to Emergency Order No. 16, Notice No. 1, shall be effective immediately upon issuance.

Issued in Washington, D.C. on May 15, 1992.

Gilbert E. Carmichael
Administrator