[49 CFR Part 179]

[Docket No. HM-109; Notice No. 73-4]

TANK CAR TANK HEAD SHIELDS

Notice of Proposed Rulemaking

The Hazardous Materials Regulations Board (HMRB), is considering an amendment to § 179.100-8, of the hazardous materials regulations to require a protective shield for uninsulated pressure tank car tank heads.

As a result of the growing concern with tank car accidents involving uninsulated pressure tank cars, the Federal Railroad Administration commissioned the railroad tank car safety research and test project (a cooperative program of the Railway Progress Institute and the Association of American Railroads), to study the design of a railroad tank car head protective device, which would reduce the frequency of head puncture in accidents. This study was undertaken under contract No. DOT FRA 00035 and the final report, entitled "Hazardous Materials Tank Cars—Tank Head Protective Shield or Bumper Design," was completed in August 1971. The study showed that for uninsulated pressure tank cars conforming to DOT specifications 112A and 114A, most punctures occur on the lower portion of the tank head. In addition, the study indicated that there was merit in terms of cost/benefit in applying head protection to the lower portion of specifications 112A and 114A tank car tank heads.

Subsequent to the issuance of the report on protective head shields, an accident occurred in the East St. Louis railroad yard of the Alton and Southern Railway. As a result of an impact, the lower portion of the head of a specification 112A tank car was punctured, releasing a vapor cloud of liquefied petroleum gas which exploded. More than 230 persons were injured and property damage was estimated at $7½ million. A complete analysis of this accident was published by the National Transportation Safety Board in Report No. NTSB-RAR-73-1, adopted January 31, 1973. The HMRB believes that rulemaking action is necessary to prevent repetition of such an accident.

Based on the Federal Railroad Administration's studies and analysis of the various accidents, including the one in East St. Louis, the HMRB is proposing to amend § 179.100-8 to include a requirement for a protective shield for each tank head on the specifications 112A and 114A uninsulated tank car tanks. Protective shields would be installed on all newly constructed tank cars of these specifications effective January 1, 1974, although existing tank cars would not have to be so equipped until January 1, 1978. The Board considers this proposal to be more practical and effective than that made in the HM-60 advance notice of proposed rulemaking (35 FR 16180) which proposed speed restrictions for certain hazardous materials trains or wayside inspections and checking of the trains by hotbox detectors or dragging equipment detectors.

The HMRB also believes that even though interlocking couplers are now required on all new tank cars, their presence does not obviate the need for protective end shielding. Shielding is necessary due to the possibility of tank cars being coupled to cars having couplers which are not of the interlocking type, or whose shanks may break, allowing puncture of tank heads in derailments.

In consideration of the foregoing, it is proposed to amend § 179.100-8 of title 49 of the Code of Federal Regulations by adding a new paragraph (b) to read as follows:

§ 179.100-8 Tank heads.

* * * * *

(b) After December 31, 1973, each end of a class DOT-112AW and 114AW tank car must be equipped with a protective head shield, unless the car was built before January 1, 1974, in which case it need not be equipped until January 1, 1978. The shield must be—

(1) At least ½-in thick, and made from steel produced in accordance with specification ASTM A242 or ASTM A572 Gr. 50;

(2) In the shape of a trapezoid with the following dimensions:

(i) A minimum width at the top of center sill of 4 ft 6 in;

(ii) A minimum width at the top of the shield of 9 ft 0 in;

(iii) The top corners of the shield rounded to a minimum radius of 9 in;

(iv) The bottom corners of the shield rounded to a minimum radius of 3 in;

(v) All inside edges of the shield chamfered to a minimum radius of ¼-inch; and

(vi) A minimum height of 4 ft 6 in;

(3) Shaped to the contour of the tank shell head, utilizing a minimum of three vertical bend lines; and

(4) Secured to the underframe of the car structure by means which will not completely fail if a dynamic force of 500,000 pounds, distributed over a ½-square ft area, is applied anywhere on the shield in a direction anywhere from 0° to 15° from the longitudinal centerline of the tank shell.

Interested persons are invited to give their views on this proposal. Communications should identify the docket number and be submitted in duplicate to the Secretary, Hazardous Materials Regulations Board, Department of Transportation, Washington, D.C. 20590. Communications received before September 4, 1973, will be considered before final action is taken on the proposal. All comments received will be available for examination by interested persons at the Office of the Secretary, Hazardous Materials Regulations Board, room 6215F, Buzzards Point Building, Second and V Streets SW., Washington, D.C., both before and after closing date for comments.

This notice is issued under the authority of sections 831-835 of title 18, United States Code, and section 9 of the Department of Transportation Act (49 U.S.C. 1657).

Issued in Washington, D.C., on May 18, 1973.

MAC E. ROGERS,
Board Member,
Federal Railroad Administration.

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