

# Tank Car Non-Destructive Testing Webinar

## Summary

**Date:** May 25

**Time commitment:** 90 minutes. **Learning Level:** Expert.

The Pipeline and Hazardous Material Safety Administration (PHMSA) and Federal Railroad Administration (FRA) will hold an informational webinar on principles for developing a successful tank car qualification and maintenance program, with a focus on determination of qualification intervals and selection of non-destructive testing (NDT) methods. The intended audience includes tank car owners, facilities, manufacturers, shippers, trade associations, and any other parties interested in tank car safety. The webinar will take place via Microsoft Teams, at 11AM on Tuesday, May 25 and include a live Q&A portion. Please register at the following link to access the webinar: [https://opsweb.phmsa.dot.gov/hm\\_seminars/webinar\\_rail.asp](https://opsweb.phmsa.dot.gov/hm_seminars/webinar_rail.asp)

## Background

On August 27, 2016, a DOT-105 rail tank car sustained a 42-inch long crack in its tank shell shortly after being loaded with 178,400 pounds of liquefied compressed chlorine in New Martinsville, West Virginia. Over the next 2.5 hours, the entire 178,400-pound load of chlorine was released and formed a large vapor cloud that migrated south along the Ohio River valley.

The National Transportation Safety Board (NTSB) determined that the probable cause of the chlorine release was an undetected preexisting crack near the inboard end of the stub sill cradle pad, that propagated to failure with the changing tank shell stresses during the thermal equalization of the car after loading with low temperature chlorine. Contributing to the failure was insufficiently frequent stub sill inspection interval that did not detect the crack, the low fracture resistance of the nonnormalized steel used in the tank car construction, and the presence of residual stresses associated with tank wall corrosion repairs and uncontrolled local postweld heat treatment.

Accordingly, the NTSB issued Safety Recommendation R-19-03 to PHMSA, as follows:

Issue maintenance guidance to owners of US Department of Transportation Specification-105 pressure tank cars transporting poison inhalation hazard/toxic inhalation hazard hazardous materials with risk factors such as nonnormalized steel shell material and repairs or postweld heat treating near stub sill attachments and other high stress locations to

- (1) establish structural integrity inspection frequency,
- (2) provide guidance for defining critical flaw size and repair and acceptance criteria for indications in fracture-sensitive locations, and
- (3) provide guidance for selecting nondestructive testing methods to identify cracks with a sufficient probability of detection.

Consistent with the intent of this Safety Recommendation, FRA and PHMSA have developed a webinar to provide guidance on the development of a successful tank car qualification and maintenance program to prevent the type of incident seen in New Martinsville. Of immediate concern is guidance for owners of DOT-105 pressure cars in PIH/TIH service, but the guidance can will be useful for tank car owners in general. We invite the tank car community to participate in this webinar, which, time permitting, will include a question and answer session. For further information please contact Eamonn Patrick ([eamonn.patrick@dot.gov](mailto:eamonn.patrick@dot.gov)) or Larry Strouse ([larry.strouse@dot.gov](mailto:larry.strouse@dot.gov))