

Transportation Information Bulletin

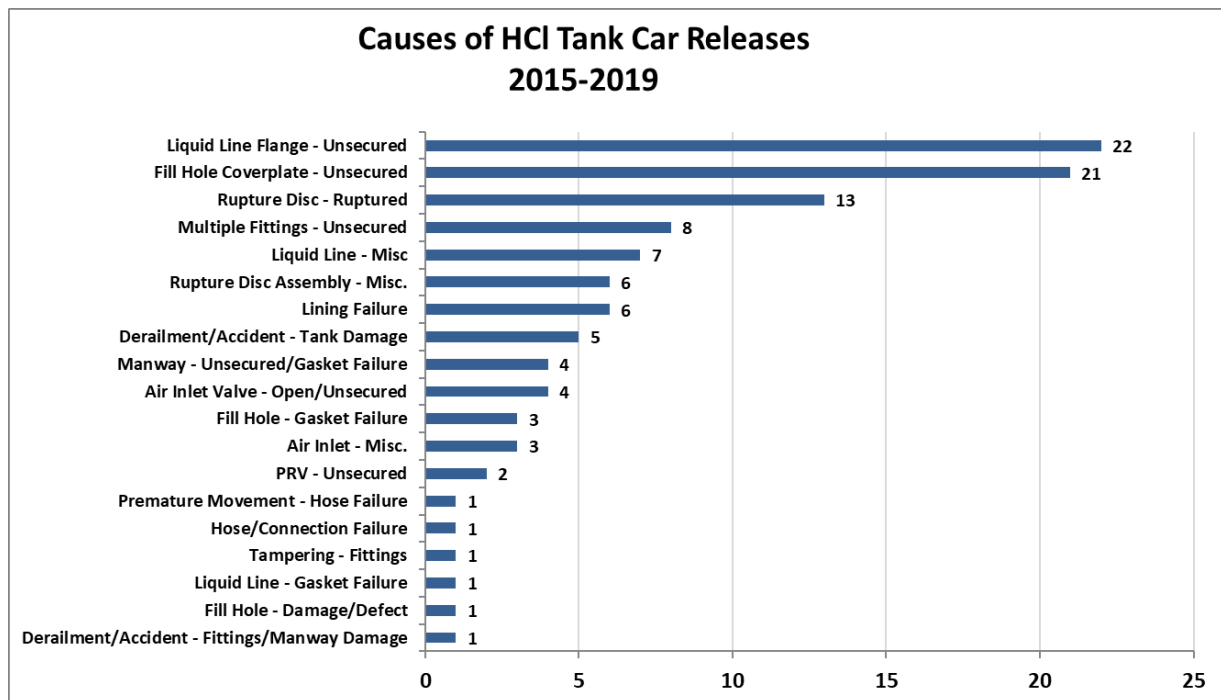
Issue Date: November 20, 2020

Subject: Best Practices for Reducing NARs Involving Railcars Used to Transport HCl

Background: CI’s Transportation Issue Team (TRN IT) continually analyzes transportation incident data involving CI mission chemicals¹ to identify areas of improvement in order to achieve the long-term goal of zero mission chemical releases during transportation. After the recent update and publishing of Pamphlet 98, *Recommended Practices for Handling Hydrochloric Acid in Tank Cars*, the TRN IT wanted to issue this information bulletin and further highlight recommended best practices for preventing non-accident releases (NARs) from tank cars used to transport hydrochloric acid (HCl).

What does the transportation incident data show?

The TRN IT downloads transportation incident data from DOT’s publicly available Form 5800.1 hazardous materials transportation incident reporting database.² The following chart represents incidents pulled from the DOT database that involve HCl railcars during 2015-2019. This data reflects that the majority of reported HCl tank car releases were caused by securement-related issues or other human error.



¹ CI’s mission chemicals: chlorine, sodium and potassium hydroxides, sodium hypochlorite, vinyl chloride monomer (VCM), and hydrogen chloride (aqueous and anhydrous).

² PHMSA Incident Statistics website: <https://www.phmsa.dot.gov/hazmat-program-management-data-and-statistics/data-operations/incident-statistics>

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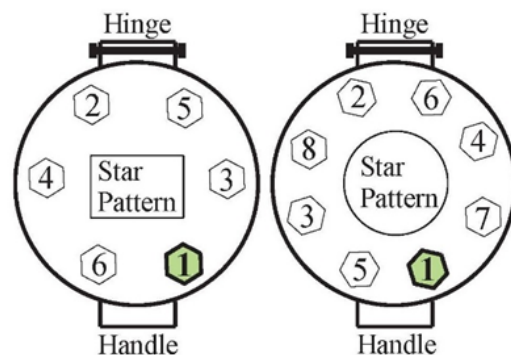
What best practices can help reduce NARs from HCl railcars?

Rail Equipment Design & Integrity

- Install a reclosing pressure relief device (PRD) (i.e. pressure relief valve (PRV)) instead of a non-reclosing pressure relief device (i.e., rupture disc assembly).
- Use the highest allowable PRV start-to-discharge setting (165 psig is commonly used).
- If a non-reclosing PRD is installed, ensure proper orientation of the rupture disc and follow the original equipment manufacturer's (OEM's) installation instructions.
- Ensure the surge suppression device under the PRD, if installed, is in place and not broken.
- If applicable, replace the ridged eduction tube and guide assembly with an eduction tube having a flexible tip extension
- Perform rubber lining integrity testing in accordance with Appendix E of Pamphlet 98.
- Perform spark testing as part of the lining qualification per Appendix K of Pamphlet 98.

Inspections after Loading or Unloading

- After loading, ensure the tank car has not been overloaded and has sufficient outage.
- When a non-reclosing PRD is installed, thoroughly inspect the rupture disc and gaskets for damage. Loaders should remove the rupture disc and inspect both sides. Unloaders are not required to remove the rupture disc for inspection.
- Ensure all service equipment, including the PRD, valves, closures, fasteners, washers and gaskets, are in good condition, properly secured/tightened, and all valves are closed.
- Use a proper torqueing sequence, such as what is shown in the figure to the right, and graduated levels to achieve the desired final torque.
- Conduct a leak check around bolted and threaded connections using aqua ammonia or bubble leak solution to ensure service equipment is adequately tightened. Due to rubber lining relaxation, wait a period of time, if possible, to perform an additional leak check prior to offering the railcar for shipment.
- After leak checks, reduce the internal tank pressure as low as possible.



Where can I find related CI resources that are focused on safely handling HCl railcars?

More comprehensive guidance on safely handling HCl tank cars and preventing NARs can be found in the following CI publications (free electronic download):

- [Pamphlet 98, Recommended Practices for Handling Hydrochloric Acid in Tank Cars](#)
- [HCLS-VIDEO, Preventing Non-Accident Releases by Properly Securing Hydrochloric Acid Railcars](#)