



Railroad Safety



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Federal Railroad Administration

“Regulatory Update”

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Learning Objectives

- DOT Safety Policy
- Federal Expectations
- Design Level of Reliability & Safety
- Where We've Been
- Where We're Going
- Questions



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DOT Safety Policy



POLICY STATEMENT ON SAFETY 2011

In carrying out our transportation mission, safety is our highest priority. Every life is precious, and we must strive to ensure the safety of every user of our transportation systems, as well as all who are affected by those systems. Injuries and loss of life are unacceptable in the efficient and effective transportation of goods and people, and we must take every practical action to prevent those tragedies from happening.

The American public has entrusted us with the responsibility of assuring the safety of our transportation systems. We will hold ourselves accountable, measure our performance, and continuously act to make our transportation systems safer. We expect no less from our transportation partners. Our guidance, oversight, and regulatory decisions will emphasize safety and be timely, fair, reasonable, and necessary. We can and should be a change agent by exemplifying and promoting a safety culture in which the values, actions, and behaviors of our employees reflect this priority.

Safety begins within our own Department, and the ability to carry out our statutory responsibilities is directly tied to the health and wellbeing of our workforce. The safety of our own employees is paramount. Each of our employees should be provided with a safe working environment, and know how to respond to emergencies and avoid unnecessary risks. We also expect supervisors and managers to provide our employees with an environment that promotes the open sharing of safety concerns, without fear of reprisal, as well as processes to assure those concerns are addressed. It is the responsibility of all DOT employees to conduct themselves in a way that does not pose unnecessary risks, or put themselves or others in danger.

Everyone within the Department is expected to exercise effective leadership in support of this policy, which shall be posted throughout the Department, clearly visible and accessible to all employees.

Ray LaHood



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Federal Expectations

Part 179.7(a) – Each tank car facility shall have an AAR approved QAP which:

- (1) Ensures the finished product conforms to the requirements of the applicable specification and regulations of this subchapter;
- (2) Has the means to detect **any** nonconformity in the manufacturing, qualification, repair and maintenance programs of the tank car;
- (3) Prevents nonconformities from recurring.

Facilities that apply, inspect, qualify and / or repair interior coatings and / or linings are *tank car facilities* covered by 49 CFR § 179.7.



Federal Expectations

- Corrosive to the tank or service equipment – A material identified in 49 CFR § Part 180 Appendix D with a corrosion rate in excess of 0.0025 inch per year on steel which reduces the design level of reliability and safety.

Note: Appendix D is not all inclusive – owners must use their commodity knowledge and service history to supplement list.

- Coating or lining owner – The person with the financial responsibility for purchasing and maintaining the integrity of the interior coating or lining.
- Design level of reliability & safety – The level of reliability and safety built into the tank car as a result of its specification, design, and manufacture.
- Reliability – The quantified ability to operate w/o failure.



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Federal Expectations

In other words:

“The item must be designed right, made right, maintained right, and work right over its expected life or qualification interval !!!”

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Federal Expectations

Design Level of Reliability & Safety

- 1) Interior coating / lining owners (IC/L) must maintain design level of reliability & safety;
- 2) Tank car facilities (TCF) must request permission to apply, inspect, qualify, and / or repair interior coatings / linings.
- 3) IC/L owners must develop Qualification and Maintenance Programs (QMP), written procedures, acceptance criteria; provide to TCF for application, inspection, qualification and repair;
- 4) TCF must provide required documentation to IC/L owners and tank car (T/C) owners;

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Federal Expectations

Design Level of Reliability & Safety

- 5) IC/L owners must establish and maintain a record of the service life of the interior coating / lining and commodity combination that was in place at the time of loading;
- 6) The IC/L must analyze data, establish an inspection interval for the interior coating / lining and commodity combination which does not exceed eight (8) years unless service history or scientific analysis supports a longer interval;
- 7) The IC/L owner must provide the test method and acceptance criteria to T/C owner and FRA, upon request;
- 8) Offeror must provide commodity information to T/C owner and IC/L owner, upon request.



Federal Expectations

Transition from Regulatory Maximums to: Data Driven Intervals for Reliability & Safety*

- Visual inspection - 10 years*;
- Tank structural integrity - 10 years*;
- Tank thickness – 10 / 5 years*;
- Tank car safety systems - 10 years*;
- **Tank interior coating or lining – 8 years*;**
- Tank leakage pressure test – after reassembly;
- Service equipment – 10 years*.

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Federal Expectations

- Define failure;
- Tally failures and suspensions based on actual or potential failure modes;
- Tally actual or potential failure and suspension times or cycles;
- Classify times by actual or potential failure modes.

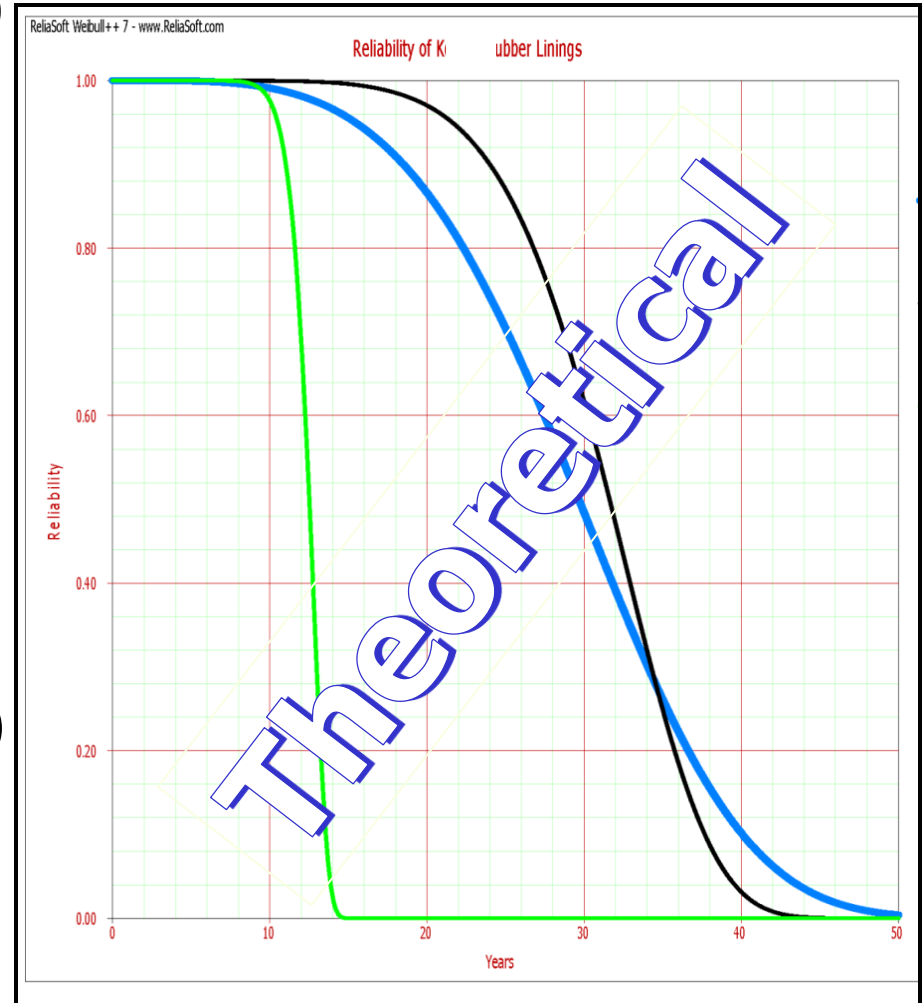


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Federal Expectations

- Plot reliabilities for each rational grouping (mfg. / type / failure mode / lading / etc.)
- Set reliability level / risk tolerance including safety margin (B_{value}) "1-car rule";
- Set qualification intervals based on reliability level / risk tolerance (B_{value}) "1-car rule";
- Monitor results, adjust intervals.



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Federal Expectations

- What Is *1 - Car Rule*?
 - Reliability value at which less than 1 car is predicted to fail:
 - For 10 car fleet, *1-car rule* means 95% reliability;
 - For 100 car fleet, *1-car rule* means 99.5% reliability;
 - For 1,000 car fleet, *1-car rule* means 99.95% reliability;
 - For 10,000 car fleet, *1-car rule* means 99.995% reliability.

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Federal Expectations



No hazmat releases over this period





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Where We've Been

- Designs Based on Cost & / or “Preferred Suppliers”;
- Break / Fix Approach – Previous 100 Years;
- No Scheduled Maintenance;
- No / Little Documentation;
- Few Procedures / Drawings;
- Low Owner Involvement.

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Where We're Going

- Coating / Lining Selection Based on Reliability & Safety;
- Tank Car Coating / Lining and Commodity Management;
- Owner Qualification & Maintenance Programs;
- Extensive Documentation and Analysis;
- Data-Driven Qualification Intervals;
- Robust Root Cause / Corrective Action / Preventive Action Tools;
- Comprehensive Owner Responsibility.



Federal Expectations Summary

- 1) Owner Procedures for Application, Inspection, Qualification and Repair to Tank Car Facilities;
- 2) Defined Acceptance Criteria;
- 3) Trained personnel;
- 4) Data Collection, Analysis Procedures, Commodity Data;
- 5) Data and Documents to Coating / Lining and Tank Car Owners;
- 6) Validated Qualification Intervals;
- 7) Robust Root Cause / Corrective and Preventive Actions.

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Questions ???