



NATIONAL TRANSPORTATION SAFETY BOARD
Investigative Hearing

Norfolk Southern Railway general merchandise freight train 32N
derailment with subsequent hazardous material release and fires,
in East Palestine, Ohio, on February 3, 2023

GROUP	F
EXHIBIT	
33	

Agency / Organization

RSI

Title

RSI Patty Long's Statement for the Record at
Senate Commerce Hearing on Rail Safety
3.22.2023



Support, Connection, Advocacy

2001 K Street, NW | Suite 300 | Washington, DC 20006 | phone (202) 367-1126 | fax (202) 367-2210 | www.rsiweb.org

Statement for the Record

**Patty Long
President
Railway Supply Institute**

To the United States Senate Committee on Commerce, Science, and Transportation

Hearing on:

“Improving Rail Safety in Response to the East Palestine Derailment”

Wednesday, March 22, 2023

Chairman Cantwell and Members of the Subcommittee:

On behalf of the Railway Supply Institute (“RSI”) and its members, thank you for convening this hearing to examine opportunities to improve rail safety in response to the February 3, 2023, derailment in East Palestine, Ohio.

RSI is the international trade association of the railway supply industry. The domestic railway supply industry has been a dynamic and vital part of the U.S. economy for more than 200 years, encompassing more than 682,400 direct, indirect, and induced jobs across all 50 states.¹ RSI members provide all types of goods and services to freight and passenger railroads, rail shippers, and freight car manufacturers and lessors. RSI is the only trade association representing the entire rail supply industry—manufacturers, distributors, and service providers to the freight car, locomotive, maintenance-of-way, communications, signaling, leasing, and passenger rail industries. RSI members collectively build more than ninety-five percent (95%) of all new railroad tank cars and own and supply for lease more than seventy percent (70%) of railroad tank cars operating in North America.

The members of the RSI’s Committee on Tank Cars (“RSI-CTC”) build, own, and/or lease the majority of tank cars operating in North America. The RSI-CTC members consist of: American Industrial Transport; CIT Rail; GATX Corporation; The Greenbrier Companies; SMBC Rail Services, LLC; Trinity Rail Group, LLC; and Union Tank Car Company. RSI-CTC members have significant expertise in tank car engineering, design, manufacturing, maintenance, repair, and compliance practices, and the RSI-CTC works closely with railroads and shippers through the Association of American Railroads’ (“AAR”) Tank Car Committee and other technical committees (e.g., the Equipment Engineering Committee).

¹ Oxford Economics, “Rail Supply Industry: Manufacturing and Services Keeping the American Economy on Track,” (January 2023), available at <https://www.rsiweb.org/data-technical-resources/rail-supply-economic-impact-study/>.

As leaders of the supply industry, RSI and its members have a personal stake in the safe transportation of rail freight, including the movement of flammable liquids and other hazardous materials by rail. RSI and its members work with railroads, shippers, federal regulators, and the AAR to design and maintain safe rail freight equipment, including tank cars. This includes RSI's long-standing participation in the RSI-AAR Railroad Tank Car Safety Research and Test Project ("Tank Car Safety Project") with the North American railroads. Through the Tank Car Safety Project, the RSI-CTC contributes funding, technical resources, and thought leadership to the detection, prevention, and mitigation of equipment-related factors in train accidents. In addition, the RSI-CTC has a long history of collaboration with regulators from both the United States and Canada to undertake various research initiatives and to enhance the regulations applicable to the transport of rail freight and the movement of hazardous materials by rail.

In the wake of the East Palestine derailment and other recent incidents, RSI and its members have increased our commitment to enhancing the safe transportation of rail freight and the movement of flammable liquids and other hazardous materials by rail. The National Transportation Safety Board ("NTSB") is continuing its role of conducting an independent accident investigation of East Palestine and certain policy changes may be premature until the NTSB has completed its investigation of the causal and root factors in this incident. RSI urges Congress to ensure the results and recommendations of the NTSB investigation are fully considered and to focus any reforms and additional safety measures on the root cause of the derailment.

Rail is the Safest Way to Transport Hazardous Materials, Including Flammable Liquids

The production, transportation, and use of hazardous materials are essential to the U.S. economy and a modern society. From the chlorine used to purify drinking water, to the chemicals used in fertilizers, to the petroleum products that warm our houses and fuel our cars, hazardous materials are a critical part of daily life. According to the U.S. Department of Transportation, "rail transportation of hazardous materials in the United States is recognized to be the safest land-based method of moving large quantities of chemicals over long distances."² More than 99.9% of all hazardous materials moved by rail reaches its destination without a release caused by a train accident.³

Hazardous materials safety is a shared responsibility, which is why RSI works closely with the railroads, shippers, government agencies, and other industry stakeholders. RSI supports an approach that looks holistically at rail safety and commends Congress for doing the same. RSI agrees that safe transportation of hazardous materials by rail requires simultaneous focus on the entire integrated system—railway infrastructure, track maintenance, railway operations, technology innovations, such as track wayside detectors and on-board condition monitoring systems, product classification, equipment standards, and human factors.

Acceleration of FAST Act Timelines to Phase Out DOT-111s in Flammable Liquid Service

RSI and its members support the U.S. DOT's requirement to use tank cars that have enhanced safety features to transport flammable liquid products, such as those meeting the newer DOT-117 standard. During the development of the DOT-117 standard, RSI was one of the key industry leaders encouraging the federal government to develop this specification and advocated in favor of enhanced safety features on tank cars

² U.S. DOT, Federal Railroad Administration, "Hazardous Materials Transportation," last updated March 8, 2023.

³ AAR, "Railroad Hazmat Safety Record" (citing AAR's Analysis of FRA Train Accident Database and PHMSA Hazardous Materials Incident Database, as of March 2023).

transporting flammable liquids. RSI further supports the phase-out of DOT-111 specification tank cars in flammable liquids service, as set forth by the 2015 Fix America's Surface Transportation ("FAST") Act.

RSI's members have played a critical role in ensuring the timely replacement or retrofit of DOT-111s in flammable liquids service to meet the FAST Act deadlines. Since 2015, tank car manufacturers have added more than 48,000 newly manufactured DOT-117s to the North American fleet to replace DOT-111s. The rail industry has already phased out all DOT-111's and CPC-1232's engaged in flammable liquid service transporting crude oil. The deadline for the phase-out of all legacy DOT-111's in flammable liquid service transporting ethanol is May 1, 2023. As required by the FAST Act, RSI and its members are committed to phasing out the remaining DOT-111 tank cars transporting other Class 3 flammable liquids in Packing Group I by May 1, 2025. Further, we are committed to phase out the remaining DOT-111 tank cars transporting other Class 3 flammable liquids in Packing Groups II and III by May 1, 2029, as set forth in the FAST Act.

RSI is aware that Congress is considering acceleration of the FAST Act phase-out timelines. Should Congress move forward with such an acceleration, RSI urges Congress to consider a range of factors that impact industry's capacity to build new tank cars and to retrofit existing tank cars. Such factors include industry labor and supply chain conditions, current tank car facility certifications and reduced manufacturing footprints which cannot be quickly expanded, and other federally required mandates (such as adhering to tank car inspection and repair intervals and the federal requirements for the construction of new tank cars to transport materials that are toxic-by-inhalation). In addition, tank car manufacturers must maintain the ability to meet demand for other tank car types such as DOT-105s, and DOT-112s for materials such as, liquefied petroleum gas, and other commodities. Steady demand also exists for other class tank cars carrying hazardous and non-hazardous materials (e.g., sulfuric acid, sodium hydroxide liquid, liquid fertilizers, biodiesel, vegetable oil, and corn syrup). Many of these materials are the essential building-blocks for downstream manufacturing of other products.

RSI has collected and aggregated data from its members that make up the RSI-CTC to estimate the industry's capacity as of March 2023 to build new tank cars or to carry out retrofits of existing tank cars.⁴ This analysis is included as Appendix A to these comments and identifies the critical assumptions and context factored into RSI's capacity analysis.

Based on the AAR's 2022Q3 flammable liquids report, there are approximately 35,500 existing DOT-111 tank cars in the North American fleet in flammable liquids service that cannot be used to ship flammable liquids after May 1, 2029 (the FAST Act phase-out date). As noted in Appendix A, even if the industry did nothing but build and/or retrofit DOT-117's—which, as noted above, is not feasible or could result in a serious economic harm to industries relying on materials that are the building-blocks used to manufacture downstream products—it would take several years to replace all of these cars. Thus, if DOT-111 phase-out timelines are accelerated too quickly, it will cause a shortage of cars needed to move other critical materials.

Further, following phase out of DOT-111s transporting crude oil and ethanol, the remaining DOT-111 tank cars in flammable liquids service are primarily transporting specialty petrochemical products, such as aviation jet fuel, diesel fuel, gasoline, methanol, petroleum distillates, xylene, and toluene. These products are offered into transportation by hundreds of companies and in much smaller volumes (e.g., one to five tank cars in a shipper's fleet). The shippers of these products have defined tank car specifications and requirements that differ from one shipper to another. Consequently, there will be smaller new car orders for

⁴ In this context, retrofit means modifying an existing DOT-111 tank car to meet the DOT-117R specification requirements by adding one or more of the following: thermal protection, a steel jacket, full height head shields, improved top fittings protection, a specified pressure relief valve, and a disengaging bottom outlet valve handle.

these cars from multiple shippers that have varying requirements in valves, fittings, interior coatings, paint, and requirements for length and width of the car to meet the shipper's specific infrastructure requirements. The result is several engineering design and supply-side factors that require consideration and may impact total production capacity. Simply stated, given the variety of specialty-chemical tank cars, each with unique shipper requirements, engineering design work and production flow to replace these tank cars will not be at the same capacity realized for the crude oil and ethanol builds in earlier years.

Additionally, the same facilities that are responsible for retrofitting the DOT-111 tank cars are the same facilities responsible for performing required inspection and repair activities necessary to maintain compliance of the existing freight and tank car fleet. Tank cars undergo scheduled maintenance per DOT regulations and AAR rules at least once every 10-years (commonly referred to as "requalification").⁵ Many of the tank car facilities that are AAR-certified to perform maintenance activities are the same facilities that will be called upon to retrofit certain of the existing DOT-111 cars mentioned above.

In addition to regulatory compliance requirements for tank cars, tank car facilities also handle the routine maintenance of other freight car types (*e.g.*, open- and closed-top hopper cars and gondola cars). Examples may include freight car componentry, interior coatings and linings, exterior paint, general repair, and other service-related events. Capacity is needed to ensure the North American tank car fleet operates efficiently, and railcar shortages are minimal. Any modification to the FAST Act timelines must account for these factors, including the required scheduled maintenance activities (*e.g.*, requalification) that are necessary to maintaining the North American fleet.

Based on the capacity analysis provided in Appendix A, the RSI believes that an acceleration to May 1, 2028, may be feasible for total phase out of DOT-111's in flammable liquids service, however, further acceleration beyond that date risks substantial disruption to industry and supply chains nationwide and may trigger railcar shortages across the nation.

Conclusion

RSI and its members are committed to the safe transportation of rail freight including the movement of flammable liquids and other hazardous materials by rail, and we stand ready to support this Committee as it works to strengthen rail safety. We appreciate the opportunity to provide these comments and will continue working with Congress, the U.S. DOT, and our industry partners to enhance rail safety.

⁵ 49 C.F.R. Part 180, Subpart F.

Appendix A

Tank Car Manufacturing and Retrofit Capacity Analysis

Prepared by the Railway Supply Institute

The Railway Supply Institute (“RSI”) is the international trade association of the railway supply industry. Its members supply all types of goods and services to freight and passenger railroads, rail shippers, and freight car manufacturers and lessors. RSI members collectively build more than ninety-five percent (95%) of all new railroad tank cars and own and supply for lease over seventy percent (70%) of railroad tank cars operating in North America.¹

RSI has collected and aggregated data from its members that make up the RSI Committee on Tank Cars (“RSI-CTC”)² to estimate the industry’s capacity as of March 2023 to build new tank cars (see Section I below) or to carry out retrofits of existing tank cars (see Section II below) in conformance with the DOT-117R standard as shown below.³ Based on the assumptions and context described below, RSI’s preliminary conclusion is that an acceleration of the FAST Act deadlines to May 1, 2028 (as proposed in H.R. 1633) may be technically and operationally feasible. See attachment A for detailed analysis. Further, RSI’s preliminary analysis at this time is that it would not be feasible to accelerate the FAST Act deadlines further, particularly to 2025, absent the significant adverse consequences described below.

I. New Tank Car Build Capacity

Critical Assumptions: To analyze new build capacity, RSI members assumed the following:

- **Current Footprint.** Current tank car facility certifications and manufacturing footprints will remain the same (*i.e.*, as they exist in March 2023). No greenfield facilities will be constructed.
- **Supply Chain.** Manufacturers continue to face supply chain challenges and disruptions, including delayed procurement of materials and componentry. Longer lead times can delay production and cause planning challenges. RSI assumes supply chain conditions will be relatively similar in the next several years to those present as of March 2023. It is possible supply chain challenges may gradually abate during 2024/2025. As was witnessed by tank car manufacturers during the COVID pandemic, additional, unforeseen supply chain disruptions could affect new tank car build capacity.
- **Labor Conditions.** The rail industry continues to face labor challenges/shortages. RSI assumes labor conditions will be relatively similar in the next several years to those present as of March 2023. It is possible labor shortages may gradually abate during 2024/2025. Additional, unforeseen labor shortages could affect new tank car build capacity.

¹ The remaining 30% of tank cars are owned by shippers and other car lessors.

² The RSI-CTC is made up of RSI-member companies that build, own, and/or lease the majority of the tank cars in the North America. RSI-CTC members consist of: American Industrial Transport; CIT Rail; GATX Corporation; The Greenbrier Companies; SMBC Rail Services, LLC; Trinity Rail Group, LLC; and Union Tank Car Company.

³ 49 C.F.R. §179.202-13 (identifying specific tank car features required for the 117R specification).

- **Freight Cars.** Freight car manufacturing capacity would not be converted to tank car manufacturing capacity.

Estimated Total Number of New Tank Car Builds: US, Canada, and Mexico ⁴				
Year	Booked	Estimated Baseline Demand for Tank Cars (All Types)	Estimated Additional Tank Car New Build Capacity (All Types)	Estimated Total Capacity
2023	9,277	(included in booked)	1,642	10,919
2024	~1,790	8,000	5,210	15,000
2025	~1,500	8,000	5,500	15,000
2026	~1,500	8,000	6,000	15,500
2027	~1,500	8,000	7,000	16,500
2028	~1,500	8,000	8,000	17,500
2029	~1,500	8,000	8,000	17,500

NOTE: The table above does not include retrofit capacity estimates, which are discussed in the Section II, below.

Fundamental Context for New Build Capacity Estimates:

- **Allocation of Open Capacity.** Allocation of 100% of open capacity to manufacturing new tank cars for flammable liquid service is not feasible from both an economic and technical perspective.
 - A significant portion of non-DOT-117 tank cars must be built to meet demand from rail traffic growth and replacement of tank cars that have reached the end of their useful life. **Ordinary replacement/growth demand for tank cars in North America is approximately 8,000 tank cars per year.**
 - Allocation of 100% of open capacity to manufacturing new DOT-117s could have substantial adverse downstream supply chain impacts and unintended consequences on the movement of critical commodities across the North American rail network.
 - Manufacturers must maintain the ability to meet demand for other tank car specification types such as DOT-105s and DOT-112s for natural gas liquids, home heating fuels, and other pressurized commodities and DOT-111s for a wide array of crucial building block chemicals. Steady demand also exists for other class tank cars carrying non-hazardous commodities (e.g., liquid fertilizers, vegetable oil, corn syrup). See Attachment B for data on historical allocation of new builds based on tank car deliveries.
- **Impact of Unique Engineering Requirements for Tank Cars Carrying Specialty Chemicals.** Given the variety of specialty-chemical tank cars, each with unique shipper design and commodity-specific requirements, engineering design work and production flow will not be at the capacity realized for the crude oil and ethanol builds in earlier years. Specialty-chemical tank cars in flammable liquid service must undergo specific engineering work that differs between commodities to meet individual shipper requirements (e.g., with respect to length and width dimensions to fit the shipper's loading and offloading infrastructure, weight limitations, and any special valving, fittings, coating, lining, and insulation requirements to safely ship the product).

⁴ All numbers are approximate. RSI cannot estimate the total manufacturing or retrofit capacity for the entire industry as not all tank car manufacturers and companies with tank car repair facilities are RSI members.

- **Other Federally Required Mandates.** The industry capacity also is dependent on the construction of new tank cars for materials toxic-by-inhalation (*i.e.*, HM-246 standard) by 2027. This requirement may impact DOT-117 production/retrofits prior to 2027.

II. Existing Tank Car Retrofit Capacity

Based on the Association of American Railroad's 2022Q3 flammable liquids report, there are approximately 35,500 existing DOT-111 tank cars in flammable liquids service in the North American fleet that by May 1, 2029 (the FAST Act phase-out date) must be (1) retrofitted to the DOT-117R standard, (2) replaced with a DOT 105, 109, 112, 114, 117, or 120 specification tank car, (3) transferred to a non-flammable liquid service; or (4) decommissioned.

Monthly Capacity: Using the assumptions below, RSI-member companies estimate their aggregate monthly capacity to perform full-scope retrofits to modify an existing tank car that is feasible to convert to a DOT-117R100W is approximately 230-260 tank cars per month.

Critical Assumptions: In addition to those assumptions listed above in Section I, to analyze DOT-117R retrofit capacity, RSI members assumed the following:

- **Retrofit Defined.** Retrofit means modifying an existing DOT-111 tank car to meet the DOT-117R specification requirements by adding one or more of the following: thermal protection, a steel jacket, full height head shields, improved top fittings protection, a specified pressure relief valve, and a disengaging bottom outlet valve handle.
- **Existing Tank Cars with Most DOT-117R features.** Approximately 5,000 existing DOT-111 tank cars were built between ~2012-2014 with nearly all of the features of a DOT-117R. These tank cars (known as jacketed CPC-1232s) are currently equipped with full height head shields and top fittings protection and only require the addition of a disengaging bottom outlet valve handle to meet the baseline DOT-117R specification requirements. RSI assumes these limited scope retrofits could occur during the next scheduled maintenance event; and therefore, these retrofits are not included in the monthly retrofit capacity estimate below.⁵
- **Fleet Compliance and Maintenance.** Tank car facilities will continue to meet required compliance obligations necessary to maintain compliance of the existing tank car fleet. (See below). In addition to regulatory compliance requirements, tank car facilities also handle the routine maintenance of tank cars and in some cases freight cars. Examples may include tank car fittings modifications, freight car componentry, interior coatings and linings, exterior paint, general repair, and other service-related events. Capacity is needed to ensure the industry fleet operates efficiently, and railcar shortages are minimal.

Fundamental Context for Retrofit Capacity Estimates:

- **What happens if DOT-111 phase-out deadlines are accelerated too quickly, making compliance infeasible?** If DOT-111 tank cars are forced to be prematurely withdrawn from flammable liquids service and placed in storage, there will be a shortage of cars needed to move flammable liquids. This could potentially have substantial adverse consequences on the supply chain for a variety of fuels, including gasoline, diesel, jet fuel, and other commodities such as toluene and xylene.

⁵ Limited scope retrofit in this context refers to the addition of a disengaging bottom outlet valve handle to a jacketed CPC-1232 tank car to meet the DOT-117R specification.

- **Required Compliance Obligations.** Tank cars undergo periodic inspection and tests per DOT regulations and AAR rules at least once every 10-years (commonly referred to as “requalification”).⁶ Many of the tank car facilities that are AAR-certified to perform such scheduled and non-scheduled maintenance activities are the same facilities that will be called upon to retrofit certain of the existing DOT-111 cars to the DOT-117R specification mentioned above. In some cases, these same facilities may also be responsible for manufacturing new tank cars. If the tank car industry cannot meet required compliance obligations, car owners will be forced to withdraw cars from service, place such units in storage, and await availability of shop capacity to perform needed inspections, repairs, and evaluations prior to returning to active service. Significant adverse impacts on the downstream supply chain and movement of critical materials for downstream manufacturing would likely result. The peak years for scheduled maintenance activities are 2023 and 2024.
- **Out-of-Service Time/Limiting Factors.** It takes between two to three months to perform a full-scope retrofit on a tank car to meet the DOT-117R standard based on the following conditions: railroad service, labor, and the supply chain of parts. Retrofit capacity may be further limited by other steps in the retrofit process (e.g., tank car cleaning, painting, and coating and lining processes).
- **Limited Scope Retrofits.** Limited scope retrofits are planned to occur during scheduled maintenance activities. Accelerated retrofit of tank cars that only require minor modifications will cause significant disruption as it would require unplanned moves to a tank car facility, resulting in unplanned additional out-of-service time of two-three months per tank car.

⁶ 49 C.F.R. Part 180, Subpart F.

Attachment A

Tank Car Capacity Analysis - Detailed Table

Year	Booked	Estimated Baseline Demand for Tank Cars (All Types) ¹	Estimated Additional Tank Car New Build Capacity (All Types) ^{2, 3}	Estimated Total Capacity ⁴	Cumulative Additional Tank Car New Build Capacity (100% to DOT-117s) ⁵	Cumulative Additional Tank Car New Build Capacity (85% to DOT-117s) ⁶	Annual Estimated Retrofit Capacity (230/mo) ⁷	Cumulative Retrofit Capacity	Total Cumulative Capacity ^{8, 9}
2023	9,277	(included in booked)	1,642	10,919	1,642	1,396	2,760	2,760	4,156
2024	~1,790	8,000	5,210	15,000	6,852	5,824	2,760	5,520	11,344
2025	~1,500	8,000	5,500	15,000	12,352	10,499	2,760	8,280	18,779
2026	~1,500	8,000	6,000	15,500	18,352	15,599	2,760	11,040	26,639
2027	~1,500	8,000	7,000	16,500	25,352	21,549	2,760	13,800	35,349
2028	~1,500	8,000	8,000	17,500	33,352	28,349	2,760	16,560	44,909
2029	~1,500	8,000	8,000	17,500	-	-	-	-	-

Notes

¹ Represents the estimated number of new tank car builds necessary to replace natural attrition in the fleet (e.g., tank cars at end of life) and accommodate modest growth. This amount will vary depending on yearly demand.

² Represents the additional manufacturing capacity available to respond to regulatory change based on the current manufacturing footprints.

³ Additional new build capacity in 2023 will continue to decrease from 1,642 as the year progresses.

⁴ Given the supply chain and labor constraints that impact the industry, the 50% increase from ~10,000 to ~15,000 in 2024 is an aggressive expansion of capacity and likely represents a best-case scenario.

⁵ Allocating 100% of all additional new build capacity to DOT-117s is not feasible for the reasons explained in this white paper.

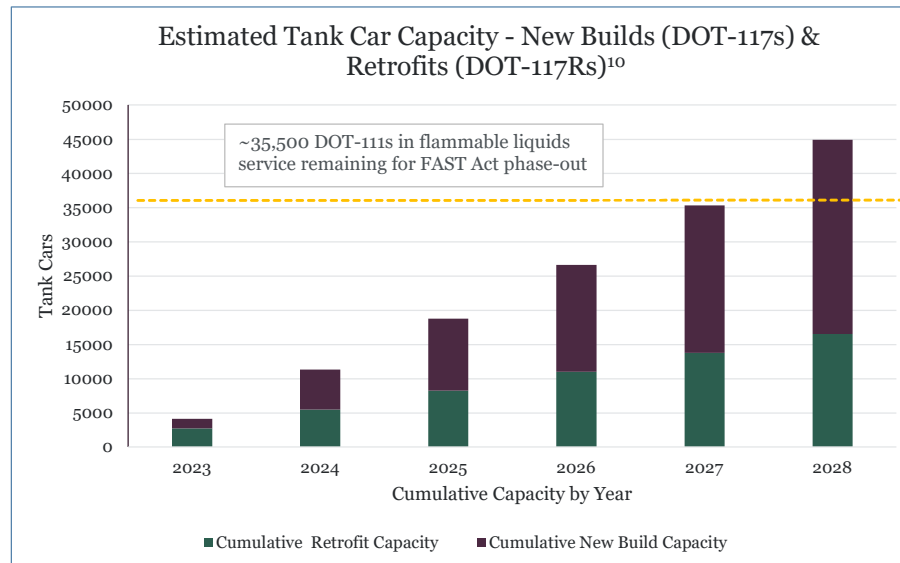
⁶ Represents cumulative additional tank car new build capacity if 85% is allocated to DOT-117s and 15% is reserved for all other tank car types.

⁷ Represents industry capacity for retrofits, but RSI can not predict whether car owners will elect to retrofit or replace with a new build. Therefore it is unlikely that retrofits will continue at the steady rate of 230 per month because car owners are likely to select new builds for a larger section of the legacy DOT-111 fleet that remains in service as of 2022Q3.

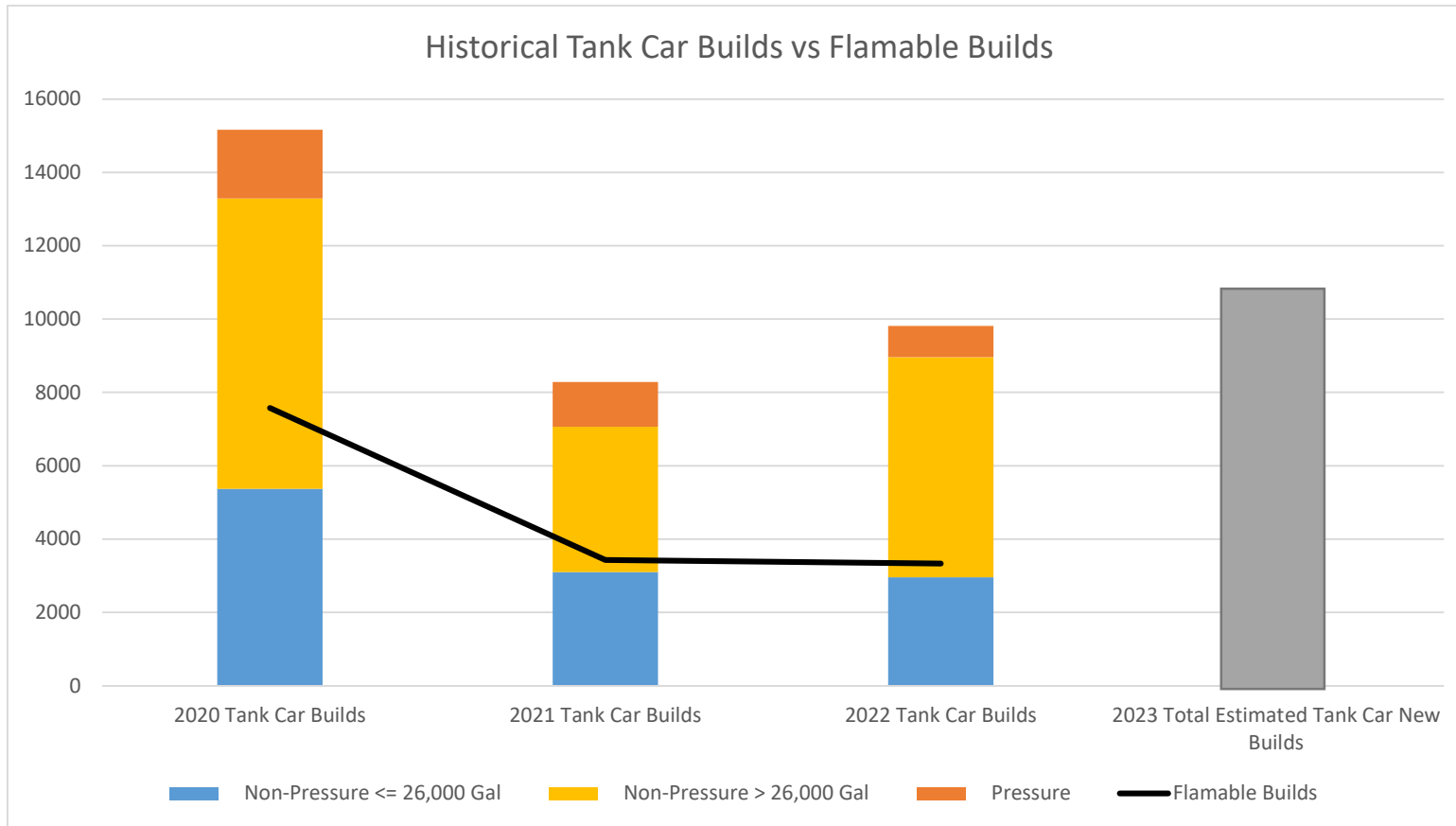
⁸ Represents the sum of Column H (85% of add'l new build capacity allocated to DOT-117s) and Column J.

⁹ **A May 1, 2028 phase out deadline for DOT-111s in flammable liquids service is feasible based on the assumptions in this table and attached white paper.**

¹⁰ Represents total cumulative capacity assuming 85% allocation of additional to new build capacity to DOT-117s (sum of Column H and Column J)



Attachment B



Source: American Railcar Institute and AAR "Status of North American Flammable Liquid Fleet 3rd Quarter 2022" (Dec. 19, 2022)