RAILWAY SUPPLY INSTITUTE

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RSI Quality Newsletter

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INSIDE THIS ISSUE

WELCOME

Submitted by Randy Thomure – RSI

Welcome to the first edition of the newly revised and expanded RSI Quality Newsletter. Based on feedback from our readers and contributors, this newsletter will now include a broader array of topics beyond just freight cars. The goal of the RSI – Quality Assurance Committee is to ensure that these newsletters will both educate and inform our readers on quality topics, methods, tools, and services. We will be drawing on the expertise and contributions of RSI's extensive membership, which spans the entire rail supply industry from maintenance of way, through locomotives and cars all the way to new and innovative products and services. This pool of knowledge provides an opportunity for you to benefit from their expertise and experience to learn about the latest happenings in the industry. A critical piece of this newsletter continues to be your feedback, so please let us know what articles you would like to see so that we can increase the value of these newsletters to you. Again, welcome and please share with others.

NON-DESTRUCTIVE TESTING – PROCEDURE QUALIFICATION RECORD

Submitted by Gary Alderson – Alltranstek, LLC

Per AAR M-1003, all special process activities including nondestructive testing, must meet the requirements of the applicable element of the QA manual and other applicable specifications(s), in this case M-1002 located in MSRP C-III. This article describes the process of completing one of the requirements for nondestructive testing.

A Nondestructive Testing (NDT) - Procedure Qualification Record (PQR) is required for Nondestructive Testing Procedures. The Association of American Railroads, Manual of Standards and Recommended Practice, M-1002, Section C-III, Specification for Tank Cars describes the requirements to be followed by the NDT Level III when developing the

nondestructive testing procedure. Appendix T should be referred to by the NDT Level III to ensure the NDT procedure meets M-1002 requirements.

Paragraph 1.18 of Appendix T in the C-III manual is titled 'NDT Procedure Requirements'. The requirements for the NDT procedure are described in paragraph 1.18. The NDT Level III must approve the NDT Procedure. The NDT Level III shall be certified in the NDT method that the procedure will be used for. For instance, the NDT Level III must be certified as a Level III in Ultrasonic Testing (UT) to approve the UT procedure. The requirements for the NDT method are also listed in Appendix T and shall be followed in addition to paragraph 1.18 and 1.19.

Paragraph 1.19 of Appendix T states the NDT Level III shall be responsible for the qualification and the technical approval of all NDT procedures. Tank car manufacturers and tank car repair shops have an NDT Level III who approves the company NDT procedures. Current requirements are for tank car NDT procedures. Other NDT performed in the rail industry, for example, Specification M-220 of AAR MSRP Section S, does not require an NDT PQR when using Magnetic Particle Testing (MT).

When a new NDT method is desired to be utilized for tank cars or tank car tanks, the NDT Level III shall approve the procedure and complete the procedure qualification record before the NDT method can be used. The NDT Level III is also required to ensure personnel are properly trained and qualified before the NDT method is used. Appendix T currently allows an individual certified to AWS-CWI, SCWI, or CSA W178.2 to approve visual weld inspection procedures. Based on recent discussions within the AAR Appendix T task force, this will be changed to only allow the NDT Level III in visual testing (VT) and CSA W178.2 to perform this function.

Paragraph 1.19.2 of Appendix T describes how to document the NDT examination when performing all NDT, which includes the test conducted, to complete the procedure qualification record.

Have an Idea for an Article?

Please submit your drafts to Donna Jacobi at **djacobi@amstedrail.com** or Gary Alderson at **alderson@alltranstek.com.**

Intersted in Joining RSI QAC?

Contact Randy Thomure at **thomure@rsiweb.org**.

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Contact Randy Thomure at **thomure@rsiweb.org**.

Paragraph 1.19.3 of Appendix T describes the item or component to be used during the procedure qualification. "The item may be a component, or a specimen not intended for service". For example, a valve with a known leak can be used for a bubble leak procedure. Or another example would be a groove weld test plate with known flaws for the UT procedure qualification. These steps must be described in the company procedure for qualification of NDT procedures and within the company quality assurance program or system.

Paragraphs 1.19.4 through 1.19.5.3 of Appendix T describe how the demonstration of the procedure qualification is completed. The NDT Level III witnesses the NDT Level II perform the test. The test is completed per the NDT procedure and the NDT form related to the procedure is completed by the NDT Level II. The NDT procedure is considered qualified when the results of the demonstration indicate the ability to detect discontinuities to the satisfaction of the NDT Level III. The NDT Level III and the NDT Level II shall sign the Procedure Qualification Record.

If an NDT Level II is not available, an NDT Level III can complete the test, and the other NDT Level III can witness the test.

The qualification must be documented on a Procedure Qualification Record (figure T.1) of Appendix T. The NDT procedure form must also be completed. All signatures are required by the NDT Level II and NDT Level III. The procedure qualification record is maintained until one of the essential variables listed in paragraph 1.18 changes. When the essential variable changes, the procedure must be revised and a new NDT PQR completed.

Note: Gary Alderson is an ASNT NDT Level III with 30 plus years of experience in the tank car industry. This article concerning Nondestructive Testing (NDT) Procedure Qualification Record (PQR) is Gary's opinion of how one should review Appendix T of MSRP M-1002 for instructions on completing the NDT PQR. It is not an official interpretation of the AAR Manual of Standards and Recommended Practices.

Q&A WITH RSI QUALITY ASSURANCE COMMITTEE

Q: What is the Code of Federal Regulations?

A: According to govinfo.gov, "The Code of Federal Regulations (CFR) is the codification of the general and permanent rules published in the Federal Register by the departments and agencies of the Federal Government."

For our purposes, we can define codification as the collection and systematic arrangement, usually by subject, of the laws of a state or country, or the statutory provisions, rules, and regulations that govern a specific area or subject of law or practice. The term codification denotes the creation of codes, which are compilations of written statutes, rules, and regulations that inform the public of acceptable and unacceptable behavior.

The online CFR, otherwise known as eCFR (https://www.ecfr.gov) is a joint project authorized by several federal agencies to provide the American public with enhanced access to Government information and is updated on a daily basis. Access to eCFR is free.

Q: How is it organized?

A: The eCFR is divided into 50 titles that represent broad areas subject to Federal regulation. Each title is divided into chapters, which usually bear the name of the issuing agency. Each chapter is further subdivided into parts and subparts that cover specific regulatory areas.

From a rail industry standpoint Title 49 Transportation is the principle set of rules and regulations issued by the Departments of Transportation and Homeland Security, which defined the administrative laws regarding transportation and transportation related security.

Q: What is applicable to the rail industry?

A: Title 49 Transportation contains several parts that define specific regulations relating to rail transportation, which includes applicable information from the following Regulatory Entities:

- Pipeline and Hazardous Materials Safety Administration (PHMSA)
- Federal Railroad Administration (FRA)
- National Railroad Passenger Corporation (AMTRAK)
- National Transportation Safety Board (NTSB)
- Surface Transportation Board (STB)

The PHMSA and the FRA entities are the primary sources of regulatory requirements pertaining to railcar manufacturing, repair, and those that are related to railway suppliers. For additional information about the PHMSA regulations, access the following Parts:

- Part 171 – General Information, Regulations, and Definitions
- Part 172—Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, And Security Plans
- Part 173—Shippers—General Requirements for Shipments And Packagings
- Part 174—Carriage by Rail
- Part 179—Specifications for Tank Cars
- Part 180—Continuing Qualification and Maintenance of Packagings

EVOLUTION OF THE TANK CAR TECHNICAL FACILITY CERTIFICATION

Submitted by Tom Delafosse – Salco Products

Introduction

On January 1, 2020, the Association of American Railroads' (AAR) revisions to the requirements in Appendix B of AAR Manual of Standards and Recommended Practices (MSRP), Section C-III Specifications for Tank Cars (M-1002) and related changes to certain Chapter 1 definitions officially went into effect for the tank car industry (hereafter, "Appendix B"). These revisions were proposed on November 22, 2019, in Casualty Prevention Circular ("CPC") 1353 and finalized on December 20, 2019, in CPC-1354. CPC-1354 revises the tank car facility certification requirements for companies that manufacture tank car closures, fittings, and fittings assemblies, and any protective coatings applied to them, including any of the sub-processes that go into the manufacture of these components. The revisions to Appendix B that were ultimately adopted by the AAR are substantially different from the revisions that AAR originally planned to implement on January 1, 2020, which were identified in CPC-1338, issued on October 24, 2018. As explained in more detail below, the final Appendix B revisions that went into effect on January 1, 2020, fit more logically with the needs of improving safety and efficiency in the industry. Had AAR revised Appendix B as proposed in October 2018 (CPC-1338),

RSI/CMA RAIL EXPO AND TECHNICAL CONFERENCE

Save the date for the RSI/CMA 2020 Rail Expo and Technical Conference. The conference will be held September 8 - 11 in Chicago, IL at the Chicago Hyatt Regency. On September 9, there will be a full day of quality seminars that will be available to all conference attendees at no additional cost.

industry would have faced a potential increase in the cost of rail transportation and increasingly onerous AAR facility certification requirements.

History of Appendix B Revisions and AAR Certification Requirements

During the development of the proposed revisions to Appendix by the AAR Tank Car Committee Appendix B Task Force, two primary controversial issues emerged: (1) new subcontracting provisions for closures, fittings, and fittings assemblies that would require suppliers of items that are bolted to the car and have no moving parts, to obtain AAR facility certification, *thus requiring that the entire closure manufacturing process be performed by an AAR-certified facility*; and, (2) requirements that shipper facilities carrying out pre-trip maintenance would also need to become AAR-certified facilities to continue performing minor pre-trip repairs, required by federal regulations in 49 C.F.R. 173.31(d).

As adopted in 2018, the proposed revisions to Appendix B would have expanded AAR facility certification (i.e., M-1002 and M-1003 certification) to manufacturers of all tank car components, including closures and fittings, and imposed arbitrary constraints and limits around subcontracting of any service that went into the manufacturing process for those tank car components. Such an expansion would have forced small, loyal suppliers, who have provided components to the tank car industry for years without a quality issue, to invest a considerable amount of resources to obtain both an AAR M-1002 (Technical) and M-1003 (Quality Assurance) certification. Based on research done by GRA Incorporated, an expert economic consulting firm with significant experience reviewing the estimated costs and benefits of rules proposed by DOT and other government agencies, an estimated 2/3 of the approximately 150 existing suppliers would either have exited or considered exiting the rail component supply industry rather than undergo AAR certification, severely impacting the supply chain and driving up material costs.

These proposed new AAR certification requirements would also have applied to Rail Shippers, who up until this point had been able to perform basic repair functions, such as eyebolt and rupture disc replacement, as part of their loading and unloading process, in compliance with federal requirements (see 49 C.F.R. 173.31(d) *Examination Before Shipment*). Under the 2018 proposed Appendix B revisions, Rail Shippers would have been limited to using certified mobile units to

perform these basic and standard functions during their loading process if they lacked an AAR-facility certification. The cost of hiring a third party to perform such repairs, and the likely delays in operations that would have ensued while waiting for these basic functions to be completed, could have adversely impacted tank car deliveries and imposed additional costs across the industry.

DOT Revises its Guidance and AAR Changes Course

On October 8, 2019, the United States Department of Transportation (DOT) issued new guidance that clearly limits the scope of entities defined as "tank car facilities" and supersedes the prior guidance that had improperly expanded this term. In a letter to the Railway Supply Institute, the Pipeline and Hazardous Materials Safety Administration (PHMSA) makes clear that (1) tank car component manufacturers do not meet the definition of a "tank car facility" and therefore are not required to have an AAR-approved quality assurance plan (QAP); and (2) facilities that conduct pre-trip inspections are not "tank car facilities" and therefore do not need to maintain an AAR-approved QAP.

In response to this revised guidance from DOT, AAR initiated an effort to modify its proposed changes to Appendix B. In modifying the proposed revisions to Appendix B, AAR, among other things, eliminated facility certification requirements for manufacturers and assemblers of closures and fittings, including the elimination of facility certification for companies that provide the related manufacturing processes. The AAR also did away with the arbitrary subcontracting constraints. This culminated in the issuance of CPC-1354 and represents a positive outcome for the entire industry. These changes improve safety by applying a risk-based approach to facility certification and they ensure that certified tank car manufacturing and repair facilities remain accountable for tank car component quality assurance.

Improving the safety of rail transportation has always been a priority for the industry. We are able to achieve this goal when regulators and industry stakeholders work collaboratively to modify and improve the requirements for the tank car industry.

USEFUL LINKS

Railway Supply Institute

RSI QAC & Previous Newsletters

RSI Tank Car Resource Center

Registry of M-1003 Certified Companies

M-1003 Frequently Asked Questions

American Society for Quality - Training

AAR M-1003 Certification on-line Application

AAR M1003, Section J Specification for Quality Assurance

AAR Training Schedule

AAR Circulars

MSRP Publication Current Revision Status

AAR Online Material Nonconformance Reporting System (Chapter 7)

THE FOLLOWING RSI QAC TEAM MEMBERS WORKED ON THIS NEWSLETTER:

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