



Inspection Processes and Results



Stephen Berkshire – Chief Inspector
MID

Tuesday, March 26th, 2019
12:00 Noon – 13:00 P.M.



MID History

"...and new Rule 124 added, to provide a system of checking by the A.R.A. Mechanical Inspection Department and authority for refund of proper charges detected by such checks, in the Interchange Rules instead of the Supplementary Regulations." Rule 124 was continued in place in 1934 when A.R.A. became the A.A.R.


88 Years - 2019



MID - Benefits

- ◆ Safe and efficient interchange of equipment
- ◆ Increased utilization of fixed assets and rolling stock
- ◆ Industry self-regulation
- ◆ The support of a seasoned technical inspection/auditing team, with a 88 year tradition of serving the Rail Industry's needs





MID Inspections

AAR Inspection Report					
D.	Scrap Inspection	Maj	Mod	Min	Rule Violation
Scrap Material Inspections					
a. Component Materials		# Inspected		Interchange Rules 83, 120	
	Condemn	Non-Condemn			
1	Air hoses				
2	Adapters				
3	Brake shoes				
4	Truck bolsters				
5	Brake beams				
6	Coupler knuckles				
7	Coupler bodies				
8	Coupler yokes				
9	Coupler component				
10	Draft gears				
11	Truck tide frames				
12	Truck springs				
13	Other?				
E. Repair Practices					
1. Air Brake					
a.	Air Brake Test Information verified for cars on repair track?				Interchange Rules 2 - 13
b.	Single Car Air Brake Tests performed for cause and reported as required?				
c.	Single Car Test device, Brake cylinder pressure gage and 28mm test coupling in-date?				
d.	Brake Cylinder measurement tap applied?				
e.	Daily Test of SCABT device properly demonstrated?				
f.	Single Car Air Brake Test properly demonstrated?				
g.	Hand Brake inspected & lubricated as required?				
h.	Proper piston travel and Decals/Stickers as required?				
i.	Air hose clearance and trolley arrangements proper?				
j.	Model 3050, 3050-A, 3200 & 3200-A Sloan angle cocks removed at time of SCABT?				
k.	Is set & release done in compliance with Field Manual?				
l.	Are they checking & cleaning the reflective material properly?				
m.	Other?				
2. Coupler/Draft Gear					
a.	Draft systems inspected for defective conditions?				Interchange Rules 16-22
b.	Use of coupler gages adequately demonstrated?				
c.	Coupler and draft components being removed for condemnable defects?				
d.	With coupler removed is the facility using the cushion unit yoke endcap wear gage?				
e.	Other?				

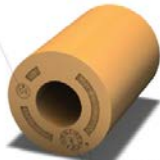
GUIDE FOR CERTIFICATION AND INSPECTION OF WHEEL SHOPS					
Routine <input checked="" type="checkbox"/> Special <input type="checkbox"/> Shop Certification <input type="checkbox"/> Follow up inspection <input type="checkbox"/>					
M-1003 Approved <input checked="" type="checkbox"/> ISO Approved <input type="checkbox"/>					
SR = See Report Attachments Y/N N/A NI = Not Inspected					
#	MOUNTED WHEELS	Maj	Mod	Min	
1	Equipment and Practices (Mounted Sets Checked for Best Condition, 0.001 for each 1" separation from roller to dial indicator. Minimum of 2.5" apart) Two dial indicators required if checked between centers. Checked for Tread Defects, Axle body nicks & gouges removed (*MAXIMUM 25 EA.), 1/8" depth limit. (Repairs made using a 2-in. radius or larger) MPI repaired areas and journal fillets by wet method. All axles with surface defects 1/8 in. deep or deeper must be scrapped or repaired using the full-body machining technique according to paragraph Rule 1.1.2 or 1.1.13.3. Spacing & Mounted Pairs (Back-to-Back - 52-1316" to 53-316", & Tape Sizes-Same Size, etc.) within 1 tape for turns sets, the same tape sizes for new mounts. Rule 1.4.6				
2	Total number of Mounted Wheel Sets Inspected:				
3	* IF ROLLER BEARINGS NOT INSTALLED AND WHEELS STORED, HAS RUST PREVENTATIVE BEEN APPLIED. Rule 1.7.4				
4	* COMPLETED METAL SETS POSITIONED PROPERLY AND NO METAL TO METAL CONTACT DURING HANDLING. Rule 1.7.6.2				
#	WHEEL LATHES	Maj	Mod	Min	
6	Machine Tolerances (Plane 0.04" & Radial 0.030", Flanges thickness should not exceed 2/16" from one flange to the other Rule 1.5.4				
7	Equipment and Practices (Within One Tape Size, Witness Grooves -3/64" Max., etc.) NARROW /WIDE FLANGE BACK TO BACK CORRECT? Rule 1.5.3				
8	Flange Contours (AAR 1-B Profile Verified with 1/32" Gage, Excessive Feed Marks - 1/8" Limit, etc.) Rule 1.4.7.2.5				
9	Tape Sizes (Tape Sizes Verified With Tape Gage, One tape difference max, etc.) 1 tape difference maximum. Rule 1.5.4				
10	Are refinished treads being UT per Ultrasonic section of this form				
11	Total number of Wheel Lathes: _____ Total number of newly machined wheelsets: _____				
#	ULTRASONIC INSPECTION PROCEDURES & EQUIPMENT	Maj	Mod	Min	
12	Equipment and Practices (5 MHz Transducer, Automatic Flaw Alarm, Detect flaws Between 1/4" & 2", Suitable Couplant, After final machining, Reference Standard simulating defects, Using DAC, Written Approved Procedure by Level III, etc.) TYPE MASTER USED (WHEEL, etc.)				
13	Recalibration (Damage to system, change in transducers, cables etc., Loss of power, every 8 hours, etc.) Rule 2.10.4.1				
14	Operators SNT-TC-1A Certified (Equipment Set-Up requires Level II SNT-TC-1A Qualified, Level III available, Proof of Certification, etc.) Rule 2.10.8.1				
15	Total number of inspection equipment: _____ Total number of Wheel sets Checked: _____				

MD03-CL-REV 01-16-19

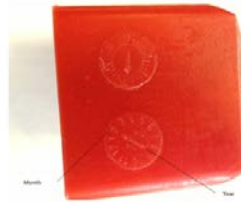
Association of American Railroads			
S-477	Manual of Standards and Recommended Practices	MD02	
APPENDIX A A GUIDE FOR SHOP CERTIFICATION INSPECTORS FOR APPROVED CONTROL VALVES			
Name of Company: Company Name			
Location of Air Brake Shop: City, State			
Company Initials: Company Initials			
Shop Code Letters: Shop Code Letters			
Date of Inspection: Month, Day, & Year			
Type of Air Brake Valves Reconditioned: List type of valves			
Type of Inspection: List Type of Inspection Shop Approved <input type="checkbox"/> M-1003 Certified <input type="checkbox"/> Shop Disapproval <input type="checkbox"/> Recommend Follow-up Inspection <input type="checkbox"/>			
Company Representative(s): Name & Title Name & Title			
Inspector: Inspectors Name & Title			
The following items constitute general guidance for a shop inspector. The inspector must also ensure that control valve procedures are in compliance with the applicable shop maintenance manual.			
1.	Copy of Maintenance Instruction, latest revision is available and work is being performed in accordance with instructions? 2391, Sup. 3 & 4 3/07; NYR-429 3/30/18 Rev. 11; NYR-332 7/23/18 Rev. 17	Y	N
2.	Copy of Test Instruction, latest revision is available at test rack and is being used? 5039-19, Sup. 1 9/94 & 2 6/17; C Test Codes are used at all facilities except NYAB facilities. NYT-1199-C 8/30/18 Rev. 8; NYT-1200-C 5/28/14 Rev. 6; S Test Codes are only used at NYAB facilities. NYT-1199-S 7/16/2018 Rev. 25; NYT-1200-S 5/23/14 Rev. 19	E	O
3.	Copy of Gauge Instruction, latest revision is available as required, condemning gauges are available at appropriate locations and work is being performed in accordance with instructions? 2391, Sup. 3 3/07; 2356-3 Sup. 1 5/96		
4.	All cleaning and re-lubrication of valve portions is done at a suitable bench in a clean well-lighted location? 2391 Sup. 3 & 4; NYR-332; NYR-429		
5.	Valve portions and parts are being adequately cleaned? 2391, Sup. 3 & 4; NYR-332; NYR-429		
6.	Removable chokes are being removed for cleaning, new filter filters are being applied, and threads are lubricated for reapplication. 2391 Sup. 3; NYR-332; NYR-429		
7.	Approved lubricants are being used? 2391 Sup. 3 & 4; NYR-332; NYR-429		
8.	Approved thread sealant is being used? 2391 Sup. 3 & 4; NYR-332; NYR-429		
9.	Modifications to control valves are being made in accordance with the maintenance instructions in Paragraph 2.2 above? 2391, Sup. 3 & 4; NYR-332; NYR-429		
10.	Test racks are being properly tested in accordance with test specifications in Paragraph 2.3 above, and dates being tagged or stenciled on the rack? 5039-19, Sup. 1 & 2		
11.	An occasional retest and examination of valve portions is made to determine if portions have been properly tested and repaired. 5039-19, Sup. 1 & 2, Rule 7.5.5; NYT-1199-C; NYT-1200-C; NYT-1199-S; & NYT-1200-S		
12.	Is new rubber material being used? Are shelf life and storage requirements being met? Are rubber parts manufactured by an M-1003 certified facility? 2391, Sup. 3 & 4; NYR-429; NYR-332; PM 4.B.4		
13.	Shop air supply is clean, dry and adequate?		
14.	Observe that special tools being used are not damaging parts? 2391 Sup. 3 & 4; NYR-429; NYR-332		
15.	Approved shipping covers being used? 2391, Sup. 3 & 4; NYR-429; NYR-332		



Yearly Date:
04 = 2004



Weekly Date:
Dot by 4 and
Triangle by 7
is 47th Week



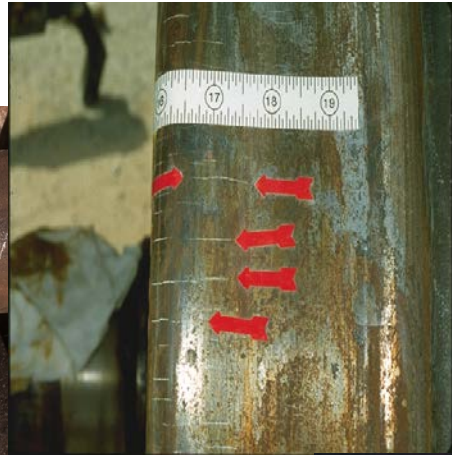


◆ EHMS / UMLR / INTERNET

◆ Need this access for ...

- Required information
- Updating information
- CID registration
- MD forms
- QA forms







GENERAL WELDING REQUIREMENTS



welding processes require personnel to prepare the material so it as free as possible from rust, scale, or oil. This provides a clean surface to perform a good sound weld

AMS D15.10/10.1M 2012 AMEX-0

**SAMPLE FORM FOR WELDING PROCEDURE SPECIFICATION (WPS)
(For Carbon, Low Alloy, and Stainless Steel Sheet Metal)**

Company name _____ By _____
 Welding procedure specification no. _____ Rev. _____ Date _____
 Supporting procedure qualification test record(s) no. _____
 WELDING PROCESS(es) _____ Type _____ (Submerged, manual, etc.)
 Mode of transfer for CGMWT _____ (Shielding, spray, etc.)

JOINTS _____ **COATINGS** _____
 Type of welded joint(s) _____
 Type _____
 Thickness _____
 Backing Yes No _____
 Backing material type _____ Sketch of joint Details
 Groove selected from: _____
 One side _____ Both sides _____

BASE METAL
 Material specification type and grade _____
 Sheet steel _____
 Support steel _____
 Thickness range _____
 Sheet steel _____
 Support steel _____
 Thickness _____
 Base metal preparation _____

FILLER METAL
 Specification _____
 Classification _____
 POSITION(S) _____
 Position of groove _____ Preheat temperature min. _____
 Position of root _____ Preheat temperature max. _____
 Progression _____

GAS
 Shielding gas _____ Flow rate _____ Flow rate _____
 Percent mixture _____

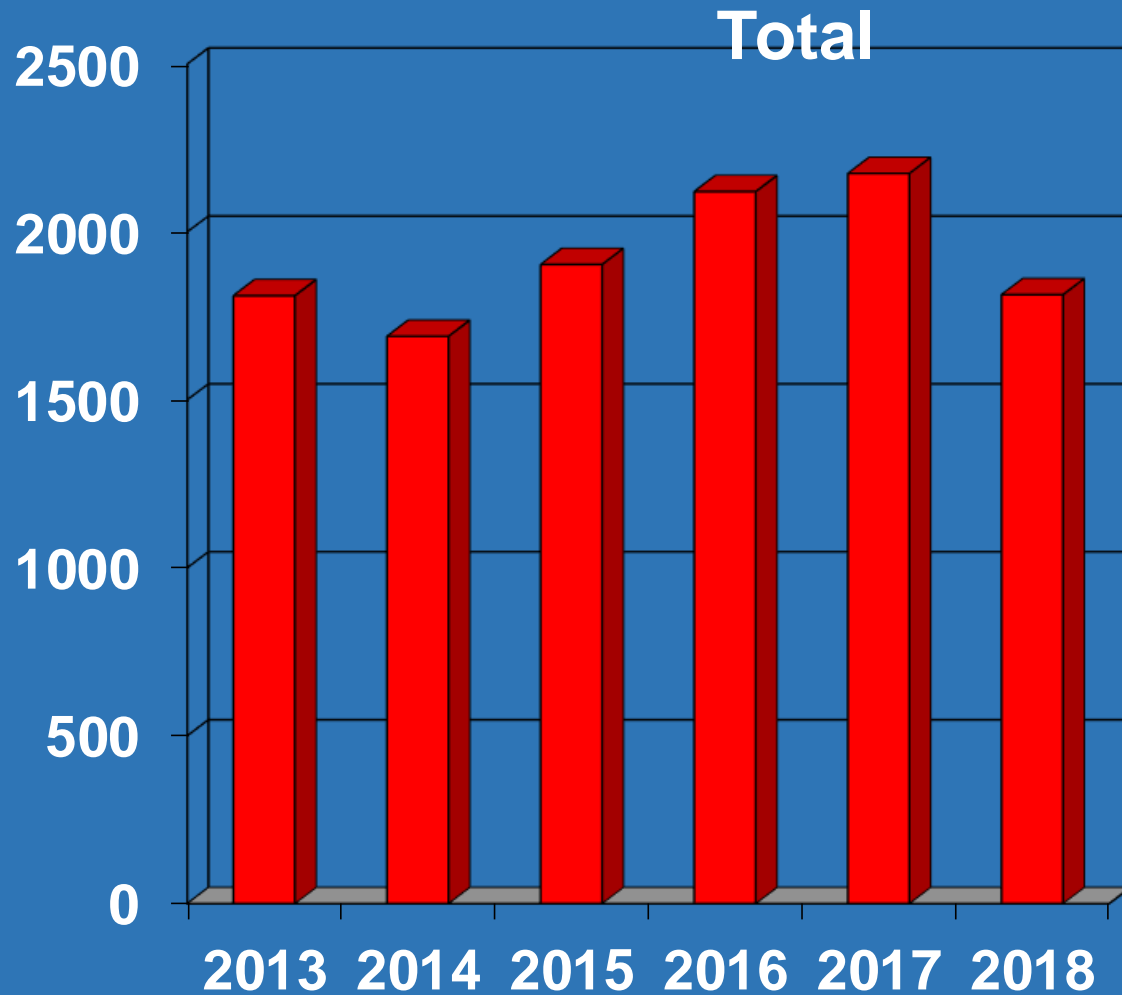
FLUX _____

TECHNIQUE						
Pass No.	Electrode Size	Electrical Characteristics	Travel Speed	Welding Rate	Weld Field (sq in)	
		Amps	Volts			

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in AMS D15.1 (_____) Railroad Welding Specification for Cars and Components.

Authorized by _____ Date _____
 Form D-13A

2013 – 2018 Total Exceptions Noted



2018 – Top Exception Areas Noted

- ◆ Material Storage** 422 = 23.3 %
- ◆ Outbound Inspection** 415 = 22.9 %
- ◆ Wheel Sets** 189 = 10.4 %
- ◆ Air Brake Test or Device** 189 = 10.4 %
- ◆ Publication Items** 78 = 4.3 %

NOTE: Welding items 66 exceptions = 3.6 %

Billing and Gage (both had) 61 exceptions = 3.4 %





Reporting Process



- ***Inspectors document activity from working papers and forward reports to the office of the Chief Inspector MID within 7 days of the particular inspection activity***
- ***Reports are reviewed within fifteen days of receipt from field***
- ***The Chief Inspector MID and/or the Executive Director, Rules and Standards review and process field inspection reports***
- ***Policy prohibits field inspectors from distributing report copies***



Reporting Process

- **Requests for copies of reports should be addressed to:**
 - **Chief MID Mechanical Inspection
Transportation Technology Center, Inc.
55500 DOT Road
Pueblo, Colorado 81001
or via email using the address - mid@aar.com**
- **Policy prohibits field inspectors from distributing report copies**



- ◆ **OTL inspection goal for 2018 was 100 inspections.**
- ◆ **Unfortunately we did not achieve our goal, completing 96 inspections, falling short by 4 inspections.**



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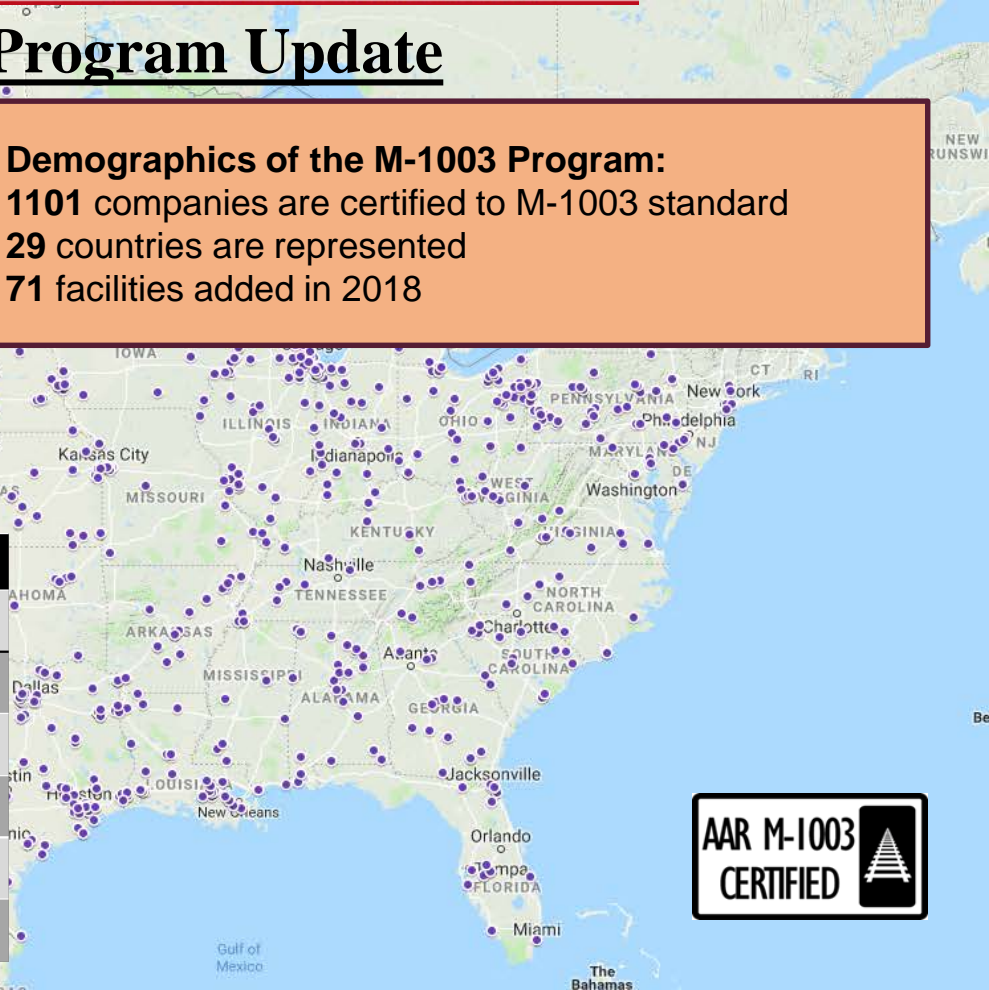




2018 M-1003 Program Update

Demographics of the M-1003 Program:
1101 companies are certified to M-1003 standard
29 countries are represented
71 facilities added in 2018

Country	M-1003 Certified Facilities
United States	813
Canada	86
China	73
Mexico	61
Europe	27
Other	41



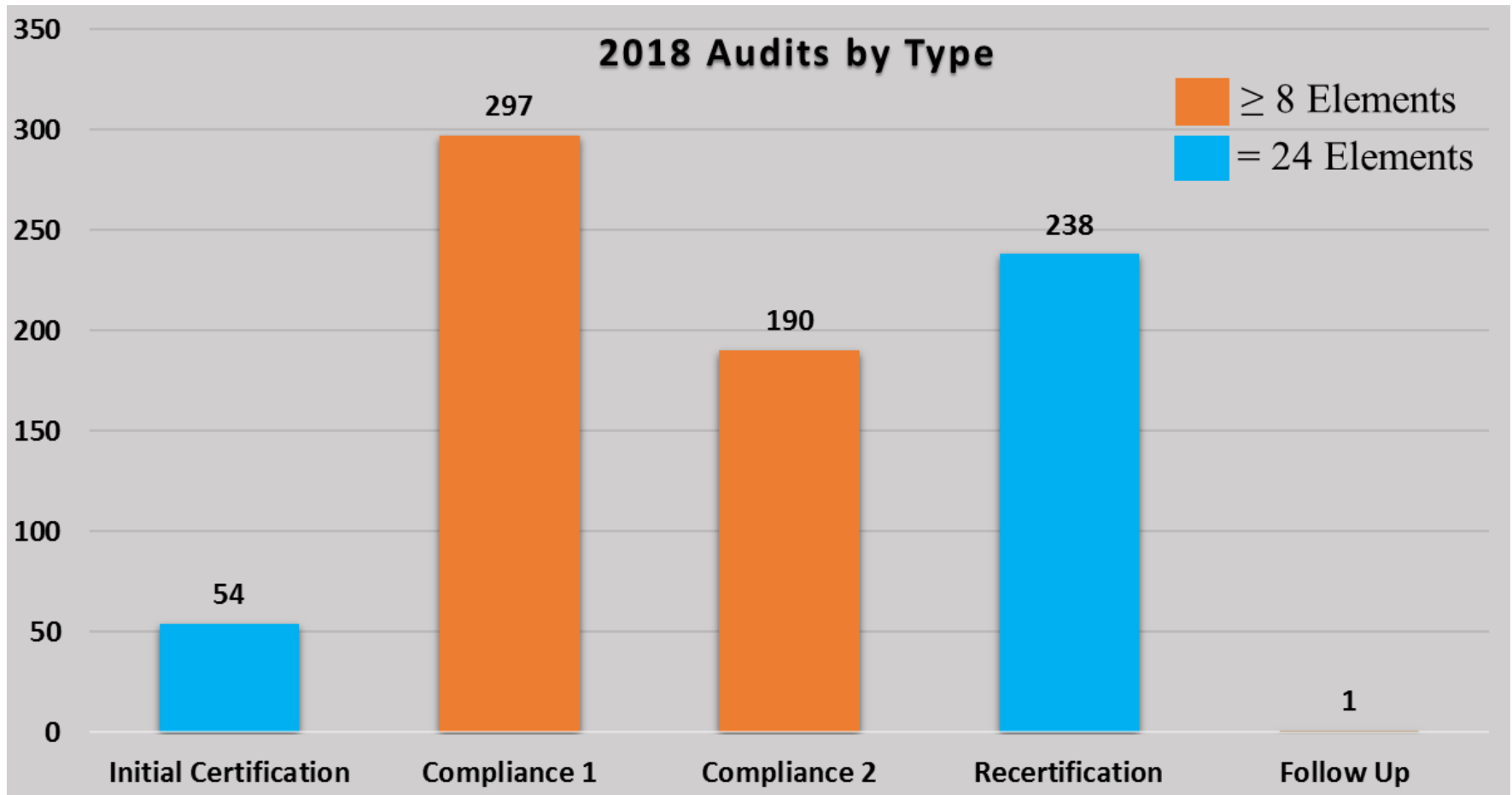
Data reflects:
 January 1, 2019 AAR Registry of M-1003 Certified Facilities



Total AAR Accredited Auditors: 54

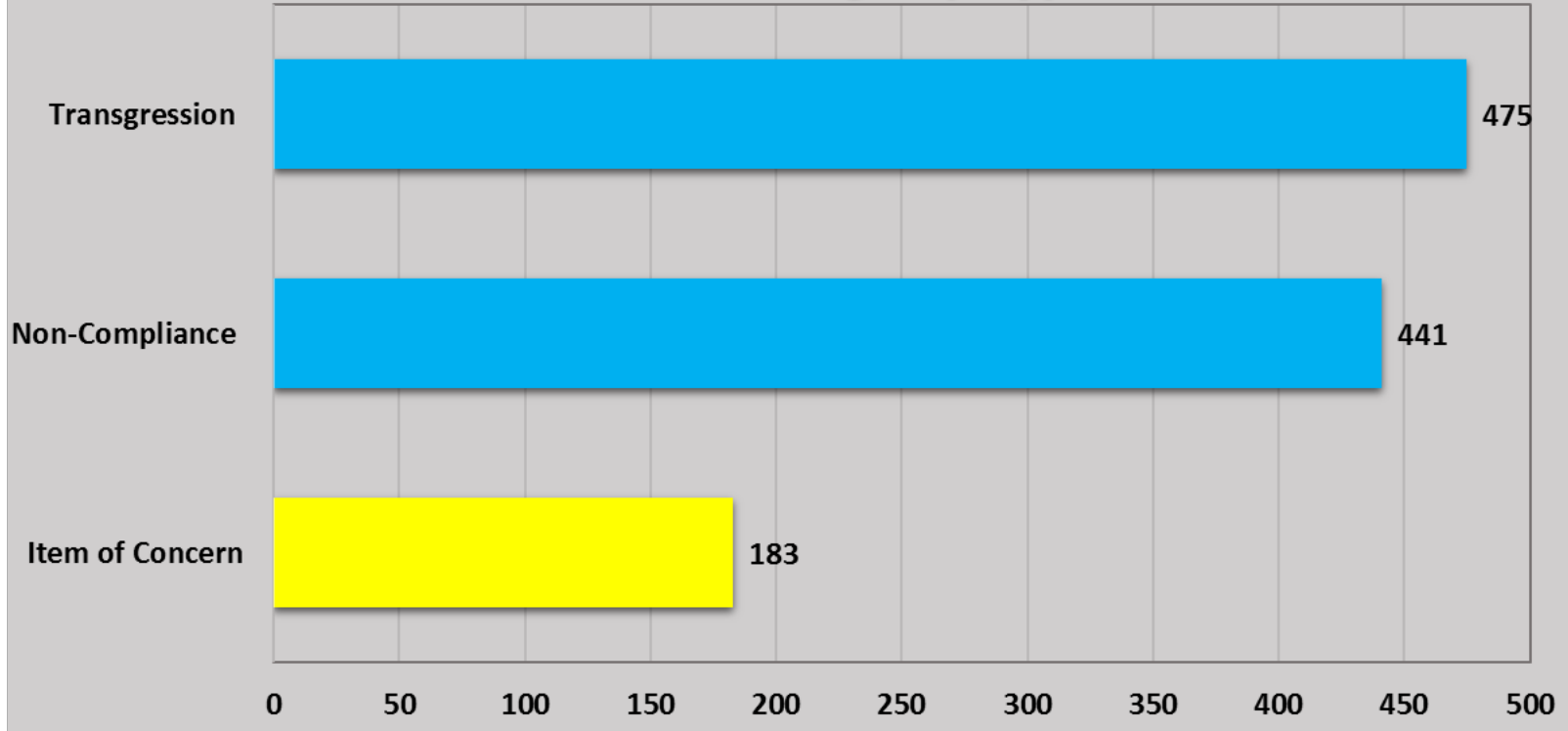
Total Audits: 780

Average # of Findings Per Audit: 1-2





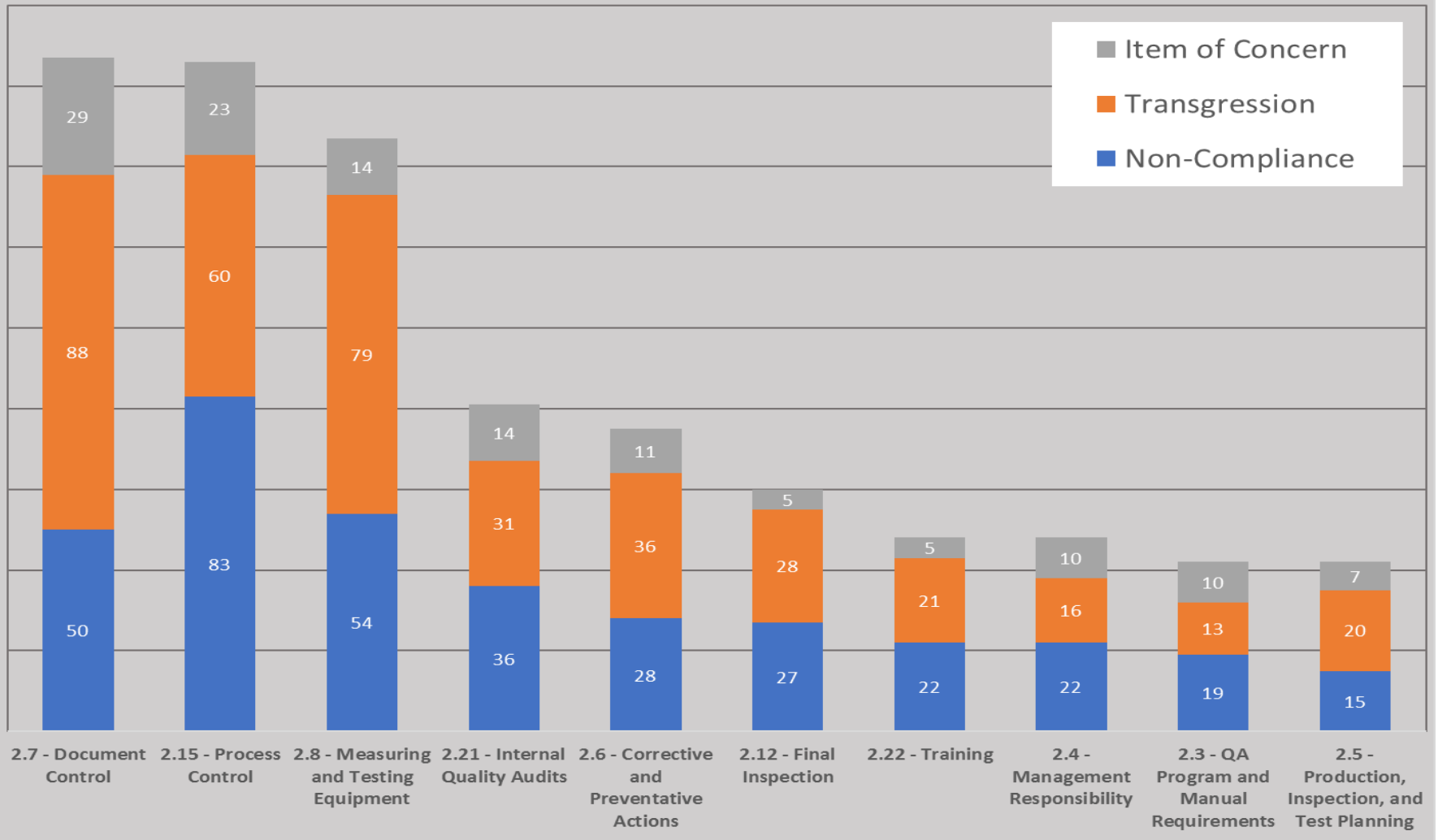
2018 Findings by Type



Noncompliance - 30 day written response
Transgression - 30 day written response
Item of concern - no written response



2018 Top 10 Element Findings by Type



M-1003 Audit Timeframe

1/11/2017

Start: Schedule audit (at least) 60 days prior to certificate date. (Fee letter sent, updated QA Manual, completed QASE, contractor profile requested.)

Notes:

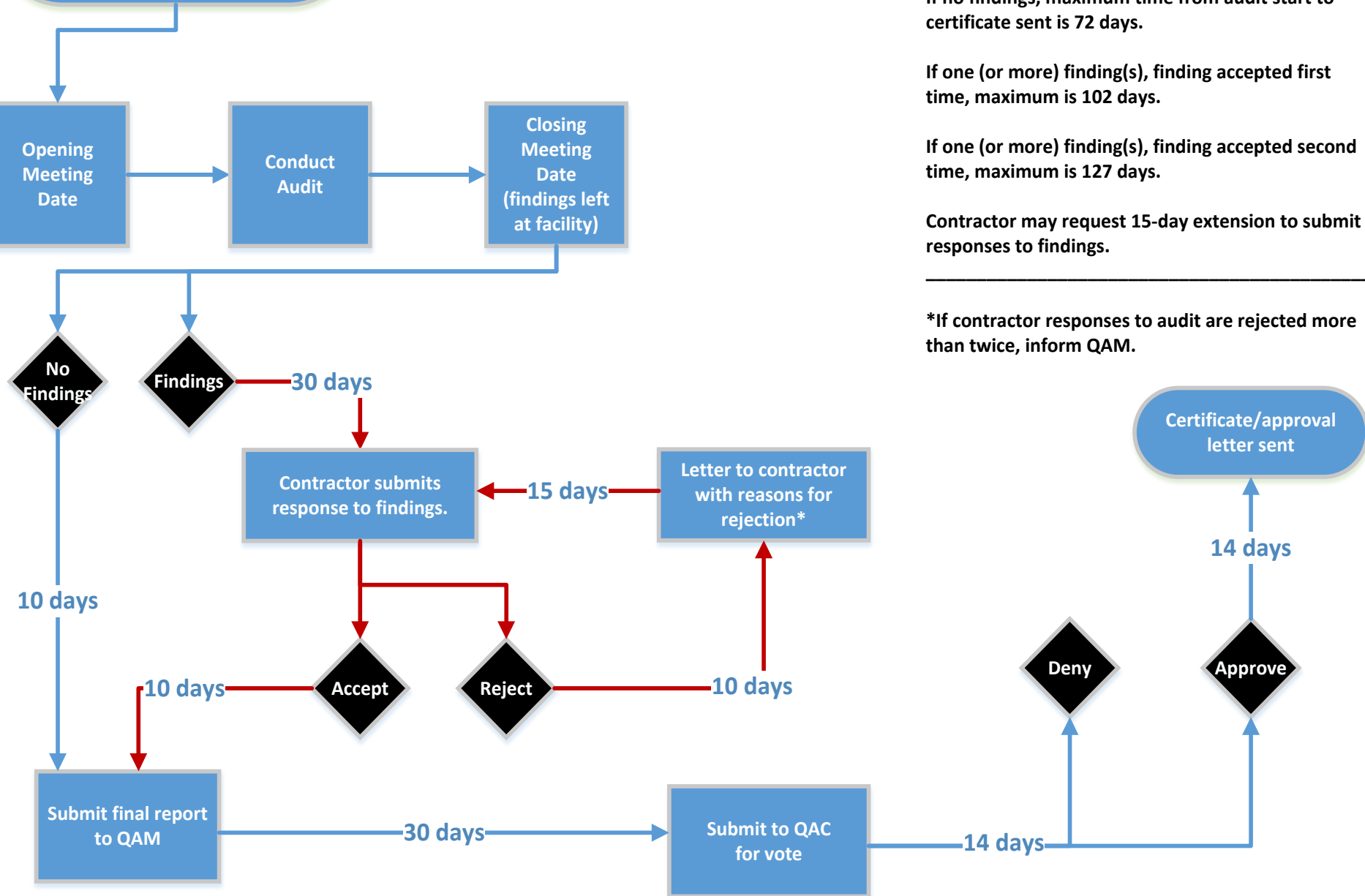
If no findings, maximum time from audit start to certificate sent is 72 days.

If one (or more) finding(s), finding accepted first time, maximum is 102 days.

If one (or more) finding(s), finding accepted second time, maximum is 127 days.

Contractor may request 15-day extension to submit responses to findings.

*If contractor responses to audit are rejected more than twice, inform QAM.





Activities for 2018	Planned
Freight Car Shop Inspections (Routine)	600
TOFC Inspections	56
Air Brake Shop Inspections	30
Wheel Shop Inspections - Non-Member	8
Wheel Shop Inspections - Railroad	10
Wheel Shop Inspections - Private	62
Wheel Shop Inspections - Transit	16
Roller Bearing Shop Inspections - Non-Member	4
Roller Bearing Shop Inspections - Railroad	2
Roller Bearing Shop Inspections - Private	24
Axle Plating Shop Inspection - Private	12
Roller Bearing Mounting Inspections	4
Status 9A (End Cap Removal/Reapp) Inspections	2
Misc. Certification Inspections - As Requested	10
M-214 Inspections	40
M-970 Inspections	14
Rule 88 Inspections - As Requested	14
Special Inspections - As Requested	8
Follow-Up Inspections - As Requested	28
Test Observation Inspections (per day) -As Requested	80
Open Top Loading Inspections	100
Routine Inspection of Freight Car Builders	14
Quality Assurance Audits	318
Joint M-1003 (QA) Audits with BOE	120
SUBTOTAL	1576
Technical Committee Support - Days	30
Training Received & Provided - Days	40
MID Management Support - Days	25
TOTALS	1671



MID 2019 Activity Goals





How Do We Improve?

- ◆ **Self Audits**
- ◆ **Better Training / Mentorship**
- ◆ **Ask Questions of the Worker**





Thank you!

Transportation Technology Center, Inc.
55500 DOT Road
Pueblo, Colorado 81001
www.aar.com

XVII Congreso
EXPORAIL
2019



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