



FRA Audit Report

Pan Am Railways (GRS) Class II

FRA Audit No:
2022 GRS Special Audit 04-1

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Table of Contents

Preface.....	1
Executive Summary	1
Significant Findings	3
Audit Findings by Discipline	5
Grade Crossing & Trespass Outreach Division	5
Hazardous Materials Division.....	8
Motive Power & Equipment Division	10
Operating Practices Division	12
Safety Partnerships Division	13
Signal & Train Control Division	16
Track Division	21
Conclusion	24
Exhibit A: Scope and Methodology.....	25
Exhibit B: List of Acronyms.....	28
Exhibit C: FRA’s Major Contributors to This Report	30
Appendix A: Grade Crossing’s Observations.....	31
Appendix B: FRA Letter to Pan Am.....	37
Appendix C: Auditee’s Response	39

PREFACE

The Federal Railroad Administration (FRA) is not solely an auditing organization. Therefore, this performance audit does not strictly adhere to generally accepted government auditing standards (GAGAS). However, this performance audit was planned and performed to obtain sufficient and appropriate evidence, and to provide a reasonable basis for our findings and conclusions based on our audit objectives.

EXECUTIVE SUMMARY

Pan Am Railways (Pan Am) is the largest regional freight railroad in the U.S. As a Class II railroad, Pan Am operates in New England from Maine to Rotterdam Junction, New York. The railroad started in 1981, as Guilford Transportation Industries; through many acquisitions with various railroads over the years, the railroad was rebranded as Pan Am in 2006. Today, Pan Am has a combined system of approximately 1,700 route miles with many connections to other railroads. Pan Am has connections to four eastern Class I rail systems (Canadian National, Canadian Pacific, CSX, and Norfolk Southern), as well as connections to over 20 regional and short line railroads. Pan Am is responsible for transporting commodities such as: grain, coal, sand, gravel, food products, lumber, paper and pulp, chemicals, plastics, petroleum, scrap metal, automobile parts, intermodal trailers, and containers, etc.

Leading up to the audit, FRA had critical safety concerns with Pan Am's safety and the apparent failure of Pan Am's leadership to take action to develop a positive safety culture throughout the organization. Two tragic fatal accidents, the Pan Am employee fatality that occurred on May 19, 2021, in Newington, NH, and the more recent employee injury that occurred on January 11, 2022, in South Portland, ME, as well as numerous injuries. FRA did not see sufficient corrective actions taken by Pan Am, and on February 11, 2022, FRA's Chief Safety Officer sent a letter to Pan Am describing our concerns (See Appendix B).

A new and significant development occurred in the summer of 2020, when Pan Am went up for sale. In November 2020, CSX reported that it planned to acquire Pan Am for \$700 million. Pan Am had an aging locomotive fleet, with about 100 locomotives averaging about 40 years old. CSX stated that it would sell some of those locomotives and evaluate those remaining. In April 2021, CSX filed a revised application to the Surface Transportation Board, providing additional information that did not appear in the first application and is required for significant transaction applications. The Surface Transportation Board (STB) accepted the revision in July 2021 and held a public hearing on the revised application for CSX to acquire Pan Am in mid-January 2022. The Department of Transportation (DOT) and the FRA submitted their approval of the CSX Safety Integration Plan (SIP) pursuant to Title 49 Code of Federal Regulations (CFR) Section 244 to the STB on December 21, 2021. The STB announced a decision approving the revised merger application filed by CSX to acquire control of Pan Am Systems, Inc., and its short-line railroad subsidiaries (Pan Am) on April 14, 2022. On June 1, 2022, the CSX acquisition of Pan Am began, which expanded CSX into new markets in Vermont, New Hampshire, and Maine.

SIGNIFICANT FINDINGS

This audit report identifies 12 findings FRA discovered during the audit, as well as 13 recommendations for improvement. Due to the length of the audit report, a brief summary of our most significant findings are highlighted below by topic.

- Grade Crossing & Trespass Outreach

The *Grade Crossing & Trespass Outreach* Division (Grade Crossing) found some defects during the Pan Am audit, such as emergency notification system signage issues; however, there were no significant findings in this area.

- Hazardous Materials

The *Hazardous Materials* Division (Hazmat) auditors found that Pan Am had several areas of non-compliance. For instance, Pan Am employees were moving placarded rail cars without buffer cars separating them from the locomotives traversing public crossings. Also, the training records reviewed did not meet the certification in the recordkeeping requirement of the regulation.

- Motive Power and Equipment

Motive Power and Equipment Division (MP&E) found that defective conditions were not always addressed in a timely manner at Pan Am. For instance, FRA noted that Pan Am leaves defective equipment in service, instead of immediately notifying their mechanical department or removing the defective equipment from service. This is a serious safety issue that needs to be addressed.

- Operating Practices

The *Operating Practices* Division (OP) did not identify any significant findings. Pan Am's training records showed 86% of their certified conductors and engineers received training on newly implemented safety rules. However, during FRA auditor observations, we noted some instances of non-compliance with the new safety rules and interviewed

some employees that reported they did not receive the new safety rule updates. Nevertheless, with the recent merger between CSX and Pan Am, it appears CSX is already working on these training and compliance issues.

- Safety Partnerships

Safety Partnerships Division (SPD) found two issues with Pan Am during their review of the recently enacted Part 243 regulation. Both issues appear to stem from Pan Am's lack of awareness of the requirements that took effect on May 1, 2021. FRA notes that extensive outreach was performed to prepare railroads for these new requirements. To prepare railroads for this new regulation, FRA held seminars, attended railroad conferences, posted information on social media, and held webinars hosted by the National Railroad Construction and Maintenance Association (NRC) and the American Short Line and Regional Railroad Association (ASLRRA).

- Signal and Train Control

The *Signal and Train Control* Division (S&TC) found instances where significant changes to highway- rail grade crossings (HRGC) were made, but Pan Am failed to update its circuit plans.

- Track

The *Track* Division found Pan Am failed to maintain a safe rail neutral temperature, and to comply with proper maintenance of rail joints, crossties, and bridge timbers.

AUDIT FINDINGS BY DISCIPLINE

Grade Crossing & Trespass Outreach Division

The Grade Crossing & Trespass Outreach Division (Grade Crossing) focused its part of the audit on Pan Am's compliance with 49 CFR Part 222 – Use of Locomotive Horns at Public Highway-Rail Grade Crossings; Part 225 – Railroad Accidents/Incidents: Reports Classification, and Investigations; and Part 234 – Grade Crossing Safety. Other relevant criteria FRA considered included the American Association of State Highway and Transportation Officials (AASHTO) Green Book¹, and the Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD)².

The Grade Crossing audit covered the states of Vermont, Massachusetts, New York, Connecticut, New Hampshire, and Maine. FRA reviewed the status of approved Section 130 Program projects at several grade crossings. For instance, during the audit in New York, at the Freemans Bridge Road crossing, FRA found the surface was badly deteriorated. The Freemans Bridge Road crossing had previously been approved for Section 130 Program upgrades to the active warning system and surface, but the project was delayed because of plans to add pedestrian grade crossing for a new trail. However, a CSX representative attended the audit and arranged to have Pan Am make temporary repairs to the grade crossing before the start of winter (See Appendix A). Additionally, at the Route 5 overpass in New York, FRA found cement flakes falling, as well as ballast that had fallen from a bridge onto a bike trail next to the highway. Again, since the CSX representative was in attendance, CSX confirmed with Pan Am that the issues observed would be repaired using grant money they received. FRA auditors noted that several of the issues encountered during the audit were immediately addressed by the CSX representative, who accompanied FRA during the inspections of those grade crossings.

¹ AASHTO, *A Policy on Geometric Design of Highways and Streets*, 7th Edition (2018).

² U.S. Department of Transportation, Federal Highway Administration, [Manual on Uniform Traffic Control Devices \(MUTCD\) - FHWA \(dot.gov\)](#), last updated September 14, 2022.

Crossings Inspected/DOT#	Public/Private
052518B	Public
052516M	Private
052515F	Public
052512K	Public
052511D	Public
052510W	Public
052508V	Private
052504T	Private
052497K	Public
052569L	Public
052568E	Private
052571M	Public
052572U	Public
052574H	Public
052567X	Private
052564C	Public
052563V	Public
052547L	Public
052539U	Public
052537F	Public
052534K	Public
052531P	Public
400925R	Private
052529N	Private

Finding 1: Pan Am must improve compliance with emergency notification system (ENS) signage.

During the audit, FRA found several issues with ENS signage (See Appendix A). Most of FRA's grade crossing inspection report summaries found conditions that did not comply with the MUTCD, some geometric challenges, opportunities for grade crossing consolidation/closure, roadway surface issues, vegetation issues, and ENS sign defects. Specifically, FRA found faded signs; crossbucks needing to be replaced (missing reflective tape); crossbucks on the wrong side of the street; missing ENS signs, etc. Without proper ENS signage, the public may not have contact information for reporting unsafe conditions at grade crossings.

Recommendation:

- **Pan Am should periodically inspect ENS signage throughout its territory and take action to ensure compliance with FRA regulations.**

Hazardous Materials Division

At most locations during the audit, FRA's Hazardous Materials (Hazmat) Division auditors engaged in discussions with Pan Am train crews. Overall, Pan Am's crews were found to be properly trained, and they understood and followed federal regulations for the safe handling of hazardous materials. FRA auditors interviewed conductors and engineers, and they were able to answer FRA's questions. When the same conductors and engineers were observed performing their duties, they were able to demonstrate they complied with DOT's Hazardous Materials Regulations (HMR) requirements in most circumstances.

The audit also found Pan Am's train crew employees did not have an adequate knowledge to properly find the necessary safety precautions, which the Emergency Response Guide (ERG) provides in the event of an accident or release of hazardous material from a package. Pan Am employees need to be either taught or refreshed on how to use the ERG. With different hazardous materials being added to trains as CSX changes operations, FRA does not want complacency to occur, or for employees to be unaware of precautions needed to prevent injury to themselves or others.

Finding 1: Pan Am employees are moving placarded cars without buffer cars separating the locomotive traversing public crossings.

49 CFR §172 Subpart H, describes a hazmat employer's responsibilities with respect to the training of its hazmat employees. Additionally, 49 CFR §174.85 specifies the positioning of placarded cars on trains. At a minimum, at least one non-placarded rail car must be placed between the locomotive(s) and the placarded rail car.

At two different locations, Port Smith, New Hampshire, and Rotterdam Junction, New York, Pan Am trains departed the yards to service local industries with loaded placarded tank cars adjacent to the locomotives, when non-placarded cars were in the train. Although these trains were working within yard limits or industrial tracks, in both cases, the trains would cross public crossings. At both locations, Pan Am yardmasters and road foremen asserted that they were only performing switching moves. Nevertheless, the HMR does not recognize yard limits or

industrial track when a train crosses public crossings or an air brake test is required and performed. The consequences of having a loaded placarded rail car adjacent to the locomotive, endangers the health of the train crew in the event of a breach of a package or undesired release of the pressure relief device.

Recommendation:

- **Pan Am employees need to ensure that buffer cars are utilized on trains that traverse public crossings, which deliver or receive cars from customers within yard limits or industrial tracks connected to a servicing rail yard.**

Finding 2: Pan Am’s training records did not show proof that employees received in-depth security training.

FRA Hazmat auditors also looked at Pan Am’s compliance with security awareness and in-depth security training in accordance with 49 CFR §172.704. While reviewing Pan Am’s training materials, auditors noted that most of the training materials were related to security awareness training and not to the in-depth security training requirements for individuals with specific responsibilities. Pan Am’s security plan shows that their dispatchers and train crew members have additional responsibilities as security alert levels change. During the audit, FRA was not provided with in-depth security training documentation for Pan Am’s 206 employees that fall within this category. Additionally, the training records that FRA did review, did not comply with that section’s recordkeeping requirements.

Recommendation:

- **Pan Am should immediately train its dispatchers and train crews that are required to receive in-depth security training.**

Prior to the completion of this report, Pan Am stated that the training of its personnel would be addressed as part of the CSX integration of Pan Am personnel into CSX’s hazardous materials training programs.

Motive Power & Equipment Division

FRA's Motive Power and Equipment (MP&E) Division focused on three objectives: (1) assess the safety compliance for Pan Am's locomotive fleet in service; (2) observe federally required brake tests, daily inspections, mechanical inspections, and blue flag protection used by mechanical employees and crews designated to perform inspections on freight cars and locomotives. and (3) observe Single Car Airbrake Tests (SCABT) at key locations and assess compliance with corresponding testing and records requirements. Generally, MP&E reviewed Pan Am's compliance with the following 49 CFR Parts: 215 – Freight Car Safety Standards; 218 – Railroad Operating Practices (Blue Flag Protection); 229 – Railroad Locomotive Safety Standards; 231 – Railroad Safety Appliance Standards; and 232 – Brake System Safety Standards.

MP&E auditors visited two mechanical shops, one in Waterville, ME, and the other in East Deerfield, MA. In total, 16 locomotives were inspected for compliance with Part 229 resulting in 18 defects found and one recommended violation. In Waterville, FRA inspected eight locomotives finding 12 defects. A few examples of the defects found are excessive oil in engine rooms, safety decals worn off and unreadable, and locomotive car body door latches out of adjustment that fail to latch. FRA also inspected eight locomotives in East Deerfield finding six defects. One defect was recommended to FRA's Office of Chief Counsel as a violation for excessive oil on the locomotive's running boards, handrails, and windshields. In addition, FRA inspected freight cars during these visits, but did not find any defects.

Finding 1: Pan Am does not always take actions necessary to remediate defective conditions.

Transportation crews on locomotives typically performed the federally required inspections of their equipment; however, defective conditions were not always reported to the mechanical department for repair and equipment was not always removed from service until repairs could be made. These conditions expose crews to increased hazards, potential property damage, and injuries due to knowingly defective equipment remaining in service. The lack of communication

between the mechanical department and transportation department will regularly receive follow-up inspections from FRA.

Recommendation:

- **Ensure effective and timely communication between the transportation and mechanical departments regarding defective conditions identified by members of the transportation department.**

Operating Practices Division

Pan Am is required by 49 CFR Parts 217, 240, and 242 to have a training program, where each employee is provided field training and general safety training for different activities pertaining to safety rules and regulations. These rules and regulations cover topics such as: shove moves, use of switches, derails, riding equipment, securement, and tripping hazards. Additionally, on June 28, 2022, Pan Am implemented new safety rules identified in the new FRA Office of Railroad Safety's Division Notice Number 4-127 (Safety Bulletin).

During the audit, Operating Practices (OP) auditors conducted nine inspections, covering 37 Pan Am employees. Of the 37 Pan Am employees observed, only four were not in compliance with one part of the new safety rules. Our records review of Pan Am's training program also showed that 86% of their certified conductors and engineers had been trained on the new safety rules. However, our auditors noted that when they interviewed approximately eight mechanical employees, both supervision and craft, they stated that they had not received any of the Division Notices or safety rule changes in Division Notice Number 4-127.

Due to the current merger of CSX and Pan Am, no recommendations are noted by the OP division at this time. OP has continued to inspect the Pan Am operations and crews that are now fully transitioned to CSX, and have confirmed that new CSX management is emphasizing training and compliance with safety critical rules. OP auditors found Pan Am crews were asking more questions and were more engaged than during prior audits and inspections. Pan Am crews also expressed to FRA that they no longer feel threatened with retaliation if work is delayed or not performed because of safety concerns. Overall, during our audit Pan Am crews expressed that they felt CSX prioritizes safety more than Pan Am had in the past.

Safety Partnerships Division

FRA's Safety Partnerships Division (SPD) conducted a limited scope review of Pan Am, to determine compliance with Title 49 CFR Part 243 - Training, Qualification, and Oversight for Safety-Related Railroad Employees (Part 243). Part 243 is a newer regulation that went into effect for smaller railroads (including Pan Am) on May 1, 2021. To prepare railroads for this regulation, FRA held seminars, attended railroad conferences, posted information on social media, and conducted webinars hosted by NRC and ASLRRA.

FRA's review focused specifically on whether Pan Am complied with the following requirements:

1. § 243.101(d)(3) –The tasks and related steps associated with on-the-job training (OJT) exercises for a particular category or subcategory of employee shall be maintained together in one manual, checklist, or similar document.
2. § 243.109(d)(1)(i) – Required Pan Am to serve a copy of its Part 243 submissions to the president of each labor organization that represents Pan Am's employees subject to Part 243.
3. § 243.203 – Qualification status records for all new hires employed after May 1, 2021.
4. § 243.205 – Periodic oversight plan and observation/testing records.
5. § 243.209 – A listing of railroad contractors utilized by Pan Am.

Finding 1: Pan Am failed to serve a simultaneous filing of training programs with its labor unions.

Pan Am failed to comply with the § 243.109(d)(1) requirement to provide a simultaneous filing of its training programs under Part 243 to the president of each labor union representing impacted Pan Am employees. Pan Am's leadership explained that, due to the newness of the regulation, they were unaware of all the requirements under Part 243. Failure to provide labor unions with a simultaneous filing of training programs inhibits their ability to provide feedback to FRA and Pan Am on training content. When labor unions are not provided the ability to

comment on initial training programs; previously approved programs being modified; or new portions or revisions to approved training programs, they miss the opportunity to have a voice in addressing potential issues with the training materials that directly affect their members. This failure also impacted FRA because the Associate Administrator for Railroad Safety/Chief Safety Officer did not have comments from the labor unions while reviewing Pan Am's training program.

Recommendation:

- **Pan Am should immediately submit filings with railroad labor unions.**

Prior to the completion of this report, Pan Am remediated the issue by providing documentation to appropriate railroad labor officials upon FRA notification.

Finding 2: Pan Am partially failed to record the qualification designation(s) of existing employees.

Pan Am partially failed to comply with both the § 243.201 requirement to fully describe the qualification designation(s) for existing employees and the § 243.203 requirement to maintain qualification status records. Like with Finding 1, Pan Am's leadership claims it was not aware of this requirement, even though SPD has been doing Part 243 education and outreach for all sectors of the regulated community since 2017. SPD has presented at ASLRRA webinars, conferences, committee meetings, and small group workshops. SPD has also participated in well over 30 public speaking events for the short line community alone, as well as provided education and outreach for northeast corridor passenger/commuter railroads since 2017.

This finding specifically relates to manual Learning Management System (LMS) input issues. Designating employees' qualifications serves to document what each employee is qualified to do as a Safety-Related Railroad Employee (SRRE). Before Part 243 went into effect, FRA had to filter through multiple employee training records to decipher what training a particular employee had received. However, with the enactment of Part 243, railroads are required to maintain records demonstrating SRRE qualification status and make those records available to both FRA

and the employee, thereby establishing a clearer process for determining what a particular employee is qualified to perform as an SRRE. Pan Am's failure to fully describe all the qualification designation(s) of Pan Am SRREs therefore impedes FRA's and the employees' ability to understand which safety-related tasks they are qualified to perform.

Recommendation:

- **Complete all ongoing updates to the LMS to clearly document the qualification designation(s) of all occupational category and subcategory of Pan Am employees.**

Prior to the completion of this report, Pan Am remediated the issue by completing updates in the LMS clearly showing all qualification designation(s) for its SRRE's.

Signal & Train Control Division

The first objective of the Signal & Train Control Division's (S&TC) portion of the audit was to determine the level of Pan Am's compliance with 49 CFR Parts 228, 234, and 236.

The second objective was to review records and reports to validate compliance with 49 CFR Part 236, Subpart I:

- Positive Train Control (PTC) System Performance, Including Reporting (Enforcements, Initialization Failures, Cut Outs, and Malfunctions).
- Configuration Management (New or Updated Control Plans and Critical Features Verification and Validation (V&V) Processes).
- Validation of Current Positive Train Control Implementation Plan (PTCIP) and Positive Train Control Safety Plan (PTCSP) Documentation.
- PTC Training by Disciplines.

During the audit, FRA observed train dispatcher operations and duties to support PTC operations. It was determined that the Computer Aided Dispatch (CAD) system was not properly integrated with the Safety Temporary Speed Restrictions (TSR) Server to notify the PTC system of the placement of a TSR. Train dispatchers are required to input the TSR manually into the TSR server after entering the information into the CAD system. This caused duplication of the TSR and increased the potential for human error. It was also determined that the TSR records did not clearly convey whether and how Maintenance-of-Way personnel were provided proper protection at certain locations.

FRA's review of maintenance and testing records also revealed that these records are held at multiple locations based on the supervisor's geographical location, and not in a centralized location. This limited FRA's ability to determine compliance with testing, maintenance, or operation requirements of a PTC system. FRA was unable to access configuration management records and the railroad's Operations and Maintenance Manual as the railroad's representative was unable to gain access to the railroad's internal SharePoint site. FRA regulations

(§236.1039(c)) require hardware, software, and firmware revisions to be documented in the Operations and Maintenance Manual according to the railroad's configuration management control plan. FRA regulations (§236.1039(a)) also require the railroad to make its Operations and Maintenance Manual readily available for inspection by FRA and FRA-certified state inspectors.

Finding 1: Pan Am made significant changes to the HRGCs but did not update circuit plans for the locations.

FRA found that Pan Am was not in compliance with 49 CFR § 234.201, which requires circuit plans to be legible and correct. FRA auditors found significant changes were made at several highway/rail grade crossings (HRGCs), but the circuit plans had not been updated to reflect these changes. The most significant changes would include the replacement of one type of HRGC warning systems with a completely different type of HRGC warning system.

This would completely change the wiring within the HRGC. As a result of this failure to timely update these circuit plans, employees do not have accurate information, increasing the likelihood that they could put in place changes that degrade the safe operation of the crossing warning system.

Recommendation:

- **Review HRGCs and update circuit plan for legibility and correctness.**

During the close out meeting, Pan Am and CSX agreed that this was a serious concern and would make it a top priority to review each location to verify that the circuit plans were correct. FR's recent inspection has confirmed that 51% of the circuit plans have been corrected. FRA will continue to inspections to verify this issue has been resolved.

Finding 2: Pan Am did not properly integrate its CAD system with its TSR server to notify the PTC system of the placement of a TSR.

FRA auditors found Pan Am's CAD system was not properly integrated with its TSR server. Pan Am's CAD system does not notify its PTC system of TSRs placed into the CAD system as required.

As a result of not properly integrating its CAD system and TSR server, Pan Am train dispatchers are required to input TSRs manually into the TSR server after entering the information into the CAD system. This increases the potential for human error and could degrade the safe operation of Pan Am's PTC system.

Recommendation:

- **Integrate the CAD system and TSR server such that a TSR placed into the CAD system is automatically placed in TSR without additional human interaction.**

During the close out meeting, Pan Am and CSX agreed that this was a serious concern and would make it a top priority to properly integrate Pan Am's CAD system and TSR server. FRA has recently followed up with CSX on this issue and understand that a program of work is underway to make the modifications. FRA will continue to monitor progress and will witness testing of the new integrated systems once complete.

Finding 3: Pan Am did not implement a complete PTC training plan.

FRA found that Pan Am was not in compliance with 49 CFR § 236.1043(a), which specifies the minimum training structure and delivery requirements for PTC systems. FRA auditors found Pan Am did not implement a complete PTC training plan. Specifically, Pan Am's PTC training plan did not identify the specific goals of the training program, the target population, or the criteria for determining successful completion of training modules.

As a result of having an incomplete training plan, employees may not be properly trained on the operation, installation, maintenance, repair, modification, inspection, and testing of safety-critical elements of Pan Am's PTC system. Lack of proper training could degrade the safe operation of Pan Am's PTC system.

Recommendation:

- **Review PTC training plan and update the plan to include required training structure and delivery information.**

During the close out meeting, Pan Am and CSX agreed that this was a serious concern and would make it a priority to review the PTC training plan and update it to include the required information. FRA has followed up with CSX regarding PTC training and will be performing an audit in early 2024 to confirm the resolution of this recommendation.

Finding 4: Pan Am did not maintain PTC training records at a designated location.

FRA found that Pan Am was not in compliance with 49 CFR § 236.1043(b), which specifies how PTC training records shall be kept. FRA auditors found Pan Am did not have a designated location to keep PTC training records. The records were kept at multiple locations and were not available for inspection and replication by FRA as required.

Not having a designated location for PTC training records increases the possibility of employees not receiving the proper initial or required refresher training. Lack of proper training could degrade the safe operation of Pan Am's PTC system.

Recommendation:

- **Designate a location to keep PTC training records and review records to ensure all employees have received proper initial and refresher PTC training.**
- **CSX should get involved to verify Pan Am employees are properly trained.**

During the close out meeting, Pan Am and CSX agreed that this was a serious concern and would make it a priority to review each employee's training records and designate a location where training records must be kept. FRA has followed up with CSX regarding PTC training records and will be performing an audit in early 2024 to confirm the resolution of this recommendation.

Track Division

The objectives of the Track Division's portion of the audit were to determine Pan Am's compliance with 49 CFR Parts 213 and 214. During the two weeks that the Track Division conducted its audit, it recorded 1,399 inspection units, and documented 2,209 defects, 12 of which were recommended for civil penalty. The majority of FRA's findings are centered on two primary issues: (1) the effectiveness of Pan Am's monitoring of their Continuous Welded Rail (CWR) plan, and (2) deferred maintenance of rail joints.

Finding 1: Pan Am's systems fail to comply with CWR procedures concerning maintaining a safe rail neutral temperature.

FRA audited areas on the Freight Main Lines (FML) on BM, MEC, and PAS of the Pan Am's railway system. During onsite verification inspections for rail plug cut-ins, FRA found unreliable reporting data demonstrating a lack of CWR follow-up monitoring. In particular, all field locations of rail cut-ins below Pan Am's Designated Rail Laying Temperature (DRLT) of 90 degrees could not be tracked. There were no expansion marks or information present at these locations, as required by Section 3.2, de-stressing procedures, of Pan Am's CWR plan. The CWR adjustment records did not reflect the actual work performed, specifically, there were no records of a safe rail neutral temperature (RNT) being established at these locations. Thus, Pan Am failed to follow the procedures in their own CWR plan.

FRA also reviewed Pan Am's FML CWR records from May 1, 2021, to May 1, 2022. The records for many of these locations did not provide the rail temperature, rail end gap, rail added or removed, or the final RNT after work was performed; all information that is required by Pan Am's CWR program. Each Pan Am District (MEC, BM, PAS) was cited for failure to comply with CWR procedures concerning maintaining a safe RNT. FRA also noted many instances of rail defect reports failing to record initial remedial actions and CWR Joint Inspection Reports missing key information. This missing information is necessary to ensure correct remedial action is taken when a rail defect is identified, but also demonstrates a lack of Pan Am's monitoring of proper CWR reporting.

Recommendation:

- **CSX must continue its systematic approach to improve the current Pan Am System and ensure compliance with all FRA regulations.**

FRA is continuing to inspect Pan Am system trackage, with inspection frequency correlated to focus on high-incidence areas, to ensure CSX continues to bring the Pan Am System into compliance.

Finding 2: Pan Am deferred maintenance on rail joints, failing to maintain FRA compliance.

Sections of the Pan Am's mainline rely on 39-inch sectional rail with bolted rail joints, which requires higher maintenance than CWR due to the rail joints. When railroads fail to properly maintain rail joints, this can lead to broken joint bars, track surface defects, rail end fatigue, and more. Reviewing areas on the FML on BM, MEC, and PAS, FRA auditors noted 241 loose and/or damaged rail joints on the BM and MEC section of the FML, with many accompanying battered rail ends. A significant number of these were located on the MEC between Danville and Waterville (FML milepost 113 and 165). It is FRA's understanding that this segment, as well as others, are included in an upgrading program presently being addressed by CSX. Rail joints are critical track components that must be maintained properly to allow railroad rolling stock to safely transition rail discontinuity. Failure to ensure proper maintenance of this critical component could lead to an increased risk of rail-end mismatch and derailment.

Recommendation:

- **CSX must continue with rehabilitation plans to upgrade this segment of track identified during the audit, along with improved inspection training and management inspection oversight.**

FRA is continuing to inspect Pan Am system trackage, with inspection frequency correlated to focus on high-incidence areas to ensure CSX continues to bring the Pan Am System into compliance.

CONCLUSION

This audit of Pan Am took place during CSX's acquisition of Pan Am. With our multi-discipline approach to this audit, two discipline areas stood out with noteworthy issues: Motive Power & Equipment and Track. Both areas found very serious safety issues that Pan Am and CSX must address immediately.

Other FRA disciplines also identified some serious safety issues. For instance, Signal and Train Control found Pan Am's inability of their Temporary Speed Restrictions to ensure Maintenance-of-Way personnel are properly protected a serious safety issue. They also found Pan Am out of compliance with federal regulations that require a complete Positive Train Control training plan.

Our Safety Partnerships Division understands that training is a core component that helps prevent human errors. With the new requirements under 49 CFR Part 243, which became effective May 1, 2021, FRA took proactive measures to educate smaller railroads, such as Pan Am, on the new requirements. Despite these measures, Pan Am still failed to meet the basic requirements under this new regulation.

Though there are other safety concerns discussed in this report, FRA audit teams found a cooperative working relationship between Pan Am and CSX's management teams. Pan Am and CSX's management teams assured FRA that they would address the issues FRA raised. The FRA's Office of Safety, Safety Management Team (SMT) 9 has monthly reviews with CSX Safety, where updates to the SIP implementation plan are tracked and updated. Office of Safety inspectors and SMT 9 conducts spot checks to validate compliance with the SIP.

EXHIBIT A: SCOPE & METHODOLOGY

The *Grade Crossing* Division's portion of the audit took place in the states of New York, Vermont, Massachusetts, Connecticut, New Hampshire, and Maine. The grade crossings inspected were selected after reviewing FRA accident/incident data, with input from CSX, New York State Department of Transportation (NYSDOT), Vermont Agency of Transportation (VTrans), Massachusetts Department of Transportation, Connecticut Department of Transportation, New Hampshire Department of Transportation, and Maine Department of Transportation. The Grade Crossing auditors performed their audit between September 6-29, 2022.

The *Hazmat* Division conducted their audit during the weeks of August 23 – September 1, 2022. Prior to the commencement of Hazmat's audit, CSX acquired major portions of Pan Am, resulting in CSX officers on the property throughout the audit.

The *MP&E* Division conducted their portion of Pan Am's audit during the week of June 12-17, 2022, 24 hours a day. MP&E visited Pan Am mechanical shops in Waterville, Maine and East Deerfield, MA.

The *OP* Division looked at Pan Am's safety rules and training recently implemented under Division Notice Number 4-127. OP auditors inspected Pan Am yard locations and reviewed training records of their employees. OP auditors concentrated their focus on safety rules with particular emphasis on riding equipment, tripping hazards, manager provided field training for riding equipment, and general safety training. Due to Pan Am's history of injuries and general safety concerns, OP auditors also focused on Pan Am's compliance with recently implemented safety rules, which restrict certain previously allowed activities regarding getting on and off moving equipment.

During the week of July 25, 2022, OP auditors visited Pan Am's largest intermodal terminal in Mechanicville, NY; one of Pan Am's largest switching yards in East Deerfield, MA; and Pan Am's second largest switching yard and the location of their most recent serious injury in

Portland, ME. Auditors also reviewed training records for Pan Am's engineers and conductors to verify employees receive classroom training and field manager on-site training in accordance with Pan Am's 49 CFR Parts 240 and 242 certification programs.

On June 15, 2022, *SPD* contacted Pan Am and requested training materials that would help determine Pan Am's compliance with 49 CFR Part 243. Specifically, SPD requested digital copies of manuals and checklists provided to new hires employed after May 1, 2021; proof that Pan Am provided the presidents of each labor union with its Part 243 submissions; digital copies of new employees' information for those hired after May 1, 2021; a copy of the test plan and records associated with periodic oversight for all engineering and mechanical employees from May 1, 2021 through May 1, 2022; and, a list of contractors used from May 1, 2021 through May 1, 2022 (excluding contractors that Pan Am trained or qualified). SPD requested all documentation be submitted to FRA by close of business July 15, 2022.

Just two days before the submission deadline, Pan Am requested additional time to submit the requested information. On July 18, Pan Am provided a variety of documents via email; however, upon review of the information submitted, SPD realized the information provided was not what was requested. On August 2, 2022, SPD requested a meeting with Pan Am officials to clarify expectations. On August 5, 2022, SPD and Pan Am held a meeting, and the requested information was provided via email after clarifying expectations.

The *S&TC* Division conducted its audit of the Pan Am system between August 8 - 12, 2022. The audit consisted of inspections in 3 States (Maine, Vermont, and Massachusetts) on multiple subdivisions over a span of 4 days.

FRA's *Track* Division performed their portion of the Pan Am audit during the weeks of June 6 and June 17, 2022. Track auditors visited the following locations: (1) New York – Mechanicsville Yard, Hudson River Bridge, Rotterdam Yard, Freight Main Line; (2) Massachusetts – East Deerfield Yard, East Deerfield Loop Track, Freight Main Line, Lawrence Yard, Boston Area Tracks, Worcester Main Line, Fitchburg Yard, Gardner Yard, Conn River Main, Adams Branch; Springfield Terminal (3) Connecticut – Waterbury Branch, Terryville

Loop, Plainville Yard, Canal Industrial; (4) Maine – Bucksport Branch, Freight Main Line, Rumford Branch, Mountain Branch, Brunswick Branch, Rigby Yard, East Augusta, Hinckley Branch; and (5) New Hampshire – Portsmouth Branch, Northern Main Line, Hillsboro Branch.

EXHIBIT B: LIST OF ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ASLRRA	American Short Line and Regional Railroad Association
BM	Boston and Maine
CAD	Computer Aided Dispatch
CFR	Code of Federal Regulations
CWR	Continuous Welded Rail
DOT	Department of Transportation
DRLT	Designated Rail Laying Temperature
ENS	Emergency Notification System
ERG	Emergency Response Guide
FML	Freight Main Line
FRA	Federal Railroad Administration
GAGAS	Generally Accepted Government Auditing Standards
Hazmat	Hazardous Materials
HMR	Hazardous Materials Regulations
HRGC	Highway-Rail Grade Crossing
LMS	Learning Management System
MEC	Maine Central
MP&E	Motive Power and Equipment
MUTCD	Manual on Uniform Traffic Control Devices
NRC	National Railroad Construction and Maintenance Association
OJT	On-The-Job Training

OP	Operating Practices
PAR	Pan Am Railway
PAS	Pan Am Southern
PTC	Positive Train Control
PTCIP	Positive Train Control Implementation Plan
PTCSP	Positive Train Control Safety Plan
RNT	Rail Neutral Temperature
S&TC	Signal and Train Control
SCABT	Single Car Airbrake Tests
SIP	Safety Integration Plan
SMT	Safety Management Team
SPD	Safety Partnership Division
SRRE	Safety Related Railroad Employee
ST	Springfield Terminal
STB	Surface Transportation Board
TSR	Temporary Speed Restriction
V&V	Verification and Validation

EXHIBIT C: FRA'S MAJOR CONTRIBUTORS TO THIS REPORT

Karl Alexy	Associate Administrator for Railroad Safety/Chief Safety Officer
Carolyn Hayward-Williams	Director - Office of Railroad Systems and Technology
Charles King	Director - Office of Railroad Infrastructure and Mechanical
Mike Long	Director - Office of Regional Operations and Outreach
Mark Patterson	Director - Office of Data Analysis and Program Support
Miriam Kloeppel	Staff Director - Audit Management Division
Tanya Rucker	Program Analyst - Audit Management Division
James Payne	Staff Director – Grade Crossing & Trespass Outreach Division
Lou Frangella	Supervisory Railroad Safety Specialist – Grade Crossing & Trespass Outreach Division
Mark Maday	Staff Director – Hazardous Materials Division
Lawrence Massaro	Railroad Safety Specialist – Hazardous Materials Division
Gary Fairbanks	Staff Director - Motive Power & Equipment Division
Douglas Yates	Deputy Staff Director - Motive Power & Equipment Division
Christian Holt	Staff Director - Operating Practices Division
Zach Allen	Railroad Safety Specialist - Operating Practices Division
Rick Kiester	Railroad Safety Specialist – Operating Practices Division
Robert Castiglione	Staff Director - Safety Partnerships Division
Cory Johnson	Human Performance Railroad Technical Specialist – Safety Partnerships Division
Gabe Neal	Staff Director - Signal, Train Control and Crossing Division
Chris Noblett	Supervisory Railroad Safety Specialist – Signal, Train Control and Crossing Division
Yujiang Zhang	Staff Director - Track Division
Michael Pirato	Deputy Staff Director - Track Division

APPENDIX A: GRADE CROSSING OBSERVATIONS

Grade Crossing Inspection and Evaluation, September 14, 2022, Pownal, Vermont, Williamstown and North Adams, Massachusetts. (This section of the former Pan Am territory (B&M) will be part of the new Berkshire and Eastern Railroad (BAER).

DOT #	Observations
052518B – VT-346 - Public	Grade Crossing (GX) met requirements

Recommendations: None

DOT#	Observations
052516M – Farm - Private	ENS sign faded

Recommendations: 96 inspection report sent to the railroad will show a defect for the faded sign, which requires CSX to install new ENS signs.

DOT#	Observations
052515F – Dean Rd – Public	Stop bars and pavement markings missing; W10-1 sign missing on east approach to crossing.

Actions to be taken by State agency: VTrans to contact Town to advise them to install pavement markings and stop lines. VTrans will also advise the Town to replace the W10-1 sign.

DOT #	Observations
052512K – Lincoln St – Public	ENS signs faded, 2 nd track signs posted incorrectly (one track has been removed), Crossbuck sign on west side of GX requires replacement, no retro-reflective tape on back of crossbuck signs and posts. Crossbuck post on west side of GX on wrong side of street, Crossbuck post on east side of GX should be moved closer to GX. Both crossbuck signs should have breakaway posts.

Recommendations: 96 inspection report sent to the railroad will show a defect for the faded ENS signs, which requires CSX to replace the ENS signs and comments on all other issues at the GX

DOT #	Observations
052511D – Main St - Public	Stop bars and pavement markings missing.

Action to be taken by State agency: VTrans to contact Town to advise them to install pavement markings and stop lines.

DOT #	Observations
052510W – Orchard St - Public	W10-1 signs missing
Action to be taken by State agency: VTrans will advise Town to replace the missing W10-1 signs.	

DOT #	Observations
052508V- Race Track East – Private	Lat/Long coordinates incorrect, W10-3 signs missing in each direction on State Highway. Both ENS signs are faded and should be changed.

Recommendations/Action to be taken by State agency: VTrans will determine if the W10-3 signs are required for this private GX. 96 inspection report sent to the railroad will show a defect for the faded ENS signs, which requires CSX to replace the ENS signs with a comment that the Lat/Long is incorrect on the inventory.

VTrans representative did not enter Massachusetts for the remaining GX inspections.

DOT #	Observations
052504T – Moores Crossing – Private	GX met requirements.

Recommendations: None.

DOT #	Observations
052504T – Sewage Plant – Private sign	Locked gate on east side of GX with one ENS posted that is missing a DOT #. The GX does not appear to be in use.

Recommendations: 96 inspection report sent to the railroad will show a defect for a non-compliant ENS sign, and missing sign on west side of GX. The non-compliant sign can be replaced or corrected, and the missing sign must be replaced.

DOT #	Observations
052497K – Protection Ave – Public Missing	Pavement Markings and stop lines missing. W10-1 sign on east side of GX.

Action to be taken by Public Authority: Town needs to install pavement markings and stop lines and replace the missing W10-1 sign.

Grade Crossing Inspection and Evaluation, September 15, 2022, Glenville, Scotia, and Clifton Park, NY. (This section of the former Pan Am territory (B&M) will be part of the new Berkshire and Eastern Railroad (BAER)).

DOT #**Observations**

052569L -Freemans Bridge Rd – Public

Surface badly deteriorated. Has been approved for Section 130 Program upgrades of active warning system and surface, but the project was delayed due to new plans to add pedestrian GXs for a new trail.

Actions to be taken by railroad: CSX is arranging to have Pan Am make temporary repairs to the GX surface before winter. CSX will be working with NYSDOT and BAER to complete the Section 130 projects already approved on this line in 2023.

DOT #**Observations**

052568E – Auto Yard – Private

GX surface requires paving and one ENS sign missing.

Recommendations: 96 inspection report sent to the railroad will show a defect for a missing ENS sign, requiring it to be replaced, with a comment concerning the surface.

DOT #**Observations**

052571M – Vley Rd – Public

Faded pavement markings and stop lines, W10-1 signs should be evaluated for proper distance from the GX. This GX has been approved for Section 130 Program upgrades to the active warning devices and surface.

Actions to be taken by State agency and railroad: NYSDOT to address pavement markings, stop lines, and W10-1 signs with the Village. CSX representative to work with BAER to complete the Section 130 project.

DOT #**Observations**

052572U – Sacandaga Rd - Public

Pavement markings need renewal. GX has been approved for a Section 130 Program upgrade to the active warning system and surface.

Actions to be taken by State agency and railroad: NYSDOT to address pavement markings with the Village. CSX to work with BAER to complete the Section 130 project.

DOT #**Observations**

052574H – Rt 5 Overpass

Cement is flaking from the supports of the railroad bridge, plus ballast has fallen from the bridge onto the bike trail under the bridge next to the highway.

Actions to be taken by State agency and railroad: NYSDOT to look up the bridge agreement. CSX has confirmed with Pan Am that they have received a grant to repair the bridge supports. CSX will follow up with BAER to have the work completed.

DOT #**Observations**

052567X – Ronald Reagan Way – Public lights

Gates should be replaced, and one set of needs to be realigned to face the road. GX approved for a Section 130 Program upgrade of active warning system and surface.

Recommendation and Action to be taken by railroad: 96 inspection report sent to the railroad will comment on the alignment of one set of flashing lights, which the railroad will be required to adjust. CSX representative to work with BAER to complete the section 130 project.

DOT #**Observations**

052564C – Blue Barns Rd – Public

Rough surface (rubber deteriorated), Pavement markings and stop lines need replacement. GX approved for Section 130 Program upgrade of active warning system and surface.

Action to be taken by State agency and railroad: NYSDOT will address pavement markings, Stop Lines and “Do Not Stop on Track” signs with the Town. CSX to work with BAER to complete the Section 130 project.

DOT #**Observations**

052563V – Ashdown Rd – Public

Rough surface (sunken rubber mats), Pavement markings and stop bars need replacement. GX approved for Section 130 Program upgrades to active warning devices and surface.

Actions to be taken by State agency and railroad: NYSDOT to address pavement markings and Stop lines with the Town. CSX to work with BAER to complete the Section 130 project.

Grade Crossing Inspection and Evaluation, September 16, 2022, Mechanicville and Schaghticoke, NY. (This section of the former Pan Am territory (B&M) will be part of the new Berkshire and Eastern Railroad (BAER)).

DOT #	Observations
052547L – Viall Ave – Public	No Pavement markings or stop lines.

No “Do Not Stop on Track” signs.

Recommendations: FRA, NYSDOT and BAER should review this GX to determine whether “Do Not Stop on Tracks” signs should be added to this crossing and adjacent GX (DOT # 249526S). City should install pavement markings and stop lines at GX.

DOT #	Observations
052539U – Old Schaghticoke Rd – Public	Pavement markings and stop lines missing. This GX has been approved for a Section 130 Program upgrade to the active warning system and surface.

Actions to be taken by State agency and railroad: NYSDOT to address pavement markings and stop lines with the Town. CSX to work with BAER to complete the Section 130 project.

DOT #	Observations
052537F- Howland Ave Ext – Public	Both W10-1 signs are faded and should be replaced. GX approved for Section 130 Program update of active warning system and surface.

Actions to be taken by State agency and railroad: NYSDOT to address faded W10-1 signs with the Town. CSX to work with BAER to complete the Section 130 project.

DOT #	Observations
052534K – Buttermilk Falls Rd – Public	Met requirements

Recommendations: None

DOT #

052531P – Fishermans Ln - Public

Observations

Met requirements (recently upgraded by Section 130 program funds)

Recommendations: None

DOT #

400925R – Wastewater Plant – Private blocking

Observations

No trespassing signs partially flashing lights. ENS sign on the Wastewater plant side of GX obscured by vegetation. Chain link fence with gate at GX.

Actions to be taken by the Village and wastewater plant: A Village trustee and plant manager were on site and were told about the issues we found. The Village trustee and plant manager agreed to move the No Trespassing signs and trim the vegetation obscuring the ENS sign.

DOT #

052529N – Thompson GX/Dam -Private equipped

Observations

Low volume Private GX with Flashing Lights (9 inch). Timber surface

Actions to be taken by the railroad: CSX to bring this GX to the attention of BAER to determine whether there is a private GX agreement.

APPENDIX B: FRA LETTER TO PAN AM



U.S. Department
of Transportation

**Federal Railroad
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

February 11, 2022

Mr. James Patterson
Executive VP & Operating Officer
Pan Am Railways
1700 Iron Horse Park
North Billerica, MA 01862

Dear Mr. Patterson,

I write to you today to convey the Federal Railroad Administration's (FRA) critical safety concerns with Pan Am's long-term safety record and the apparent failure of Pan Am's leadership to take action to develop a positive safety culture throughout the organization. Two recent tragic accidents, the Pan Am employee fatality that occurred on May 19, 2021, in Newington, NH, and the more recent employee injury that occurred on January 11, 2022, in South Portland, ME, highlight the reason for our concerns. Both events serve as reminders of the dangers railroad employees face during the performance of their duties and the need for railroads to prioritize the safety of their employees. FRA expects Pan Am to take swift action to ensure appropriate measures are put in place to develop a positive and proactive safety culture among all employees and to guard against future employee injuries.

FRA has reviewed Pan Am's operating and safety rules, and Pan Am's operational testing program and associated reporting records. The results of this review have identified both general and specific safety concerns regarding your railroad's implementation of its operating and safety rules, in accordance with 49 CFR § 217.9. For instance:

- FRA has a specific safety concern with the Pan Am's use of the Human Factor cause code H312 associated with instances of bypassed couplers. During the assessment of reporting records, FRA identified eight separate incidents involving bypassed couplers, between November 2020 and April 2021. This cause code holds extreme significance as it is directly associated with the on-duty employee fatality that occurred in May 2021 in Newington, NH, when a conductor was crushed by two rail cars while attempting to adjust a bypassed coupler.
- As a result of the review conducted on records of Operational Tests conducted by Pan Am management, it was noted that no failures were recorded between the months of January and April 2021. FRA views the fact that no defects in operational testing were identified as suspect, and questions the validity of those results.
- FRA continues to have safety concerns with areas of close clearance conditions that exist at locations within the Pan Am system. Areas of close clearance pose a significant safety risk to

employees working at these locations. Locations where switching operations result in equipment physically contacting each other due to poor track conditions, leave employees at greater risk of personal injury. FRA has not identified specific training or procedures being provided to employees dealing with close clearance conditions. While we understand that local management has banned specific equipment that may exacerbate clearance issues, this is not sufficient to completely mitigate the risk of employee injuries resulting from equipment exceeding the clearance envelope for yard tracks.

The lack of action on these critical safety concerns, and Pan Am's poor safety record generally, both demonstrate that significant safety issues are not receiving the serious and thoughtful consideration by railroad leadership that Pan Am's employees, and the public, deserve. Further, accidents and incidents involving employee fatalities and injuries result in painful and lingering memories for other employees, creating challenges in terms of employees' focus and morale as they continue to perform safety critical duties.

FRA has been actively engaged with Pan Am leadership since our April 2021 review, in an attempt to assist Pan Am in addressing numerous critical safety concerns, including those listed above. FRA appreciates Pan Am's willingness to collaborate with FRA on these issues, but it is long past time for Pan Am's leadership to take meaningful action to address these concerns to ensure the safety and health of the railroad employees and the public. It is imperative that Pan Am prioritize their efforts to prevent future accidents and incidents today. Accordingly, I request that Pan Am take immediate action to develop and implement an action plan to address the above-identified safety concerns, to make meaningful improvements to Pan Am's safety record, and to develop and maintain a positive and proactive safety culture throughout the Pan Am organization.

Please contact me upon receipt of this letter to schedule a time when our two teams can meet and discuss our concerns in greater detail, as well as receive information on Pan Am's timeline for developing and implementing the requested safety action plan. I look forward to hearing from you in the near future. I can be reached at karl.alexey@dot.gov or (202) 493-6282.

A handwritten signature in blue ink, appearing to read 'Karl Alexy', with a stylized, flowing script.

Sincerely,

Karl Alexy
Associate Administrator for Railroad Safety
Chief Safety Officer

APPENDIX C: AUDITEE'S RESPONSE

FRA provided CSX leadership with a draft of this audit report of Pan Am on February 2, 2023. We welcomed any comments or responses from CSX by February 17, 2023. FRA reached to CSX on February 20, 2023, and were informed that CSX would not be making any comments regarding the audit report. Therefore, this audit report has been finalized without comments from the auditee.