



AMTRAK | Office of
Inspector General
www.amtrakoig.gov

AMERICAN RECOVERY AND REINVESTMENT ACT:

Amtrak Has Taken Positive Steps to Safeguard Funds Used for
Concrete Tie Replacement Program

OIG-E-2013-017 | September 19, 2013





REPORT HIGHLIGHTS

Why We Did This Review

Between 1999 and 2007, Amtrak's Engineering department discovered that more than 1.2 million concrete ties that they had installed on the Northeast Corridor were prematurely cracking. This forced Amtrak to reduce train speeds on some portions of the corridor.

Amtrak's Engineering department has replaced approximately 609,000 of these ties. This effort has cost about \$265 million, as of September 30, 2012, which included about \$50 million provided to Amtrak through the American Recovery and Reinvestment Act of 2009 (ARRA).

Rocla Concrete Tie, Inc. (Rocla), manufactured the defective ties and is manufacturing their replacements. Therefore, this report discusses Amtrak's efforts to safeguard the use of ARRA funds in its concrete tie replacement program, focusing on its oversight of Rocla's production of replacement ties.

For further information, contact Calvin Evans, Assistant Inspector General for Inspections & Evaluations (202) 906-4507

The full report is at www.amtrakoig.gov/reading-room

AMERICAN RECOVERY AND REINVESTMENT ACT: Amtrak Has Taken Positive Steps to Safeguard Funds Used for Concrete Tie Replacement Program (Report No. OIG-E-2013-017, September 19, 2013)

What We Found

Amtrak has taken positive steps to proactively minimize the risk of manufacturing defects in concrete ties.

The company has negotiated a series of contracts with Rocla to reduce the potential financial risks associated with any future defective ties. The most recent contract, signed in June 2010, requires Rocla to maintain a quality assurance system acceptable to Amtrak. This system has been certified annually by two independent organizations. The contract also extends the warranty period during which Amtrak can make claims to be reimbursed for all damages resulting from defectives ties from five to eight years.

Amtrak has maintained its commitment to monitor Rocla's performance, with the same Amtrak engineer overseeing the production since May 2003. This has resulted in no observed defects or reduction of train speeds on the Northeast Corridor as a result of the quality of the ties manufactured and installed since 2003.

Although Amtrak has successfully implemented its quality assurance practices, these practices are not yet fully described in enough detail to enable future Amtrak quality assurance personnel to uniformly continue current practices. During our evaluation, Engineering officials agreed and began to update the quality assurance plan, but this has not yet been completed.

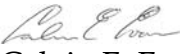
Recommendations

To ensure that Amtrak can continue its effective oversight of the production of the replacement ties, we recommend that the Chief Engineer ensure that the quality assurance plan is updated to fully describe current practices. The Chief Engineer concurred with this recommendation.



Memorandum

To: Bruce R. Pohlot, Chief Engineer

From: 
Calvin E. Evans, Assistant Inspector General, Inspections & Evaluations

Date: September 19, 2013

Subject: *American Recovery and Reinvestment Act: Amtrak Has Taken Positive Steps to Safeguard Funds Used for Concrete Tie Replacement Program (Report No. OIG-E-2013-017)*

Concrete railroad ties¹ provide better track stability than traditional wood ties and therefore enable higher train speeds. Between 1999 and 2007, Amtrak's Engineering department discovered that more than 1.2 million concrete ties that they had installed on the Northeast Corridor between 1990 and 1999 were cracking prematurely. According to Engineering, this represents about half of the total amount of concrete ties on the Northeast Corridor, forcing Amtrak to reduce train speeds on some portions of the corridor.

As of June 30, 2013, the Engineering department has replaced approximately 609,000 defective ties that were manufactured by Rocla Concrete Tie, Inc. (Rocla), between 1990 and 2000. This effort has cost about \$265 million, as of September 30, 2012, of which about \$215 million was funded from the company's general capital grants and about \$50 million was provided to Amtrak through the American Recovery and Reinvestment Act of 2009 (ARRA).² Amtrak plans to replace about 660,000 more ties by the end of fiscal year 2018.

Rocla is manufacturing the replacement ties using new specifications that Amtrak developed in 2003. Rocla was required to complete a series of qualifying tests in 2003 before Amtrak approved it to start producing replacement ties.

¹ Railroad ties are used to support and stabilize the rails on a railway track. In 1978, Amtrak started to replace wood ties with concrete railroad ties.

² Public Law 111-5.

Amtrak Office of Inspector General
American Recovery and Reinvestment Act: Amtrak Has Taken Positive Steps to Safeguard Funds Used for Concrete Tie Replacement Program
Report No. OIG-E-2013-017, September 19, 2013

This report discusses Amtrak's efforts to safeguard the use of ARRA funds in its concrete tie replacement program, focusing on its oversight of the production of replacement ties by Rocla. For a discussion of our scope and methodology, see Appendix I.

THE RISK OF PROCURING DEFECTIVE TIES HAS BEEN REDUCED

Amtrak has taken positive steps to proactively minimize the risk of concrete tie manufacturing defects (as shown in Figure 1). The company has negotiated a series of contracts with Rocla to reduce the potential financial risks associated with future defective ties, with the most recent contract signed in June 2010. Amtrak has also implemented and maintained an effective quality assurance process that has resulted in no observed defects related to the quality of the ties manufactured and installed since 2003. However, its current quality assurance plan does not yet fully describe its current practices.

Figure 1: Defective Concrete Ties Removed from Track*



* Engineering officials told us that large pieces do not break off the ties until they are removed from the track; however, the breaks indicate the degree of cracking found in the defective ties.

Source: Amtrak Engineering Department, June 7, 2012

Amtrak Office of Inspector General
**American Recovery and Reinvestment Act: Amtrak Has Taken Positive Steps to
Safeguard Funds Used for Concrete Tie Replacement Program**
Report No. OIG-E-2013-017, September 19, 2013

2010 Contract Reduced Amtrak's Risk

Amtrak finalized a new concrete tie supply contract with Rocla in June 2010. The company has committed approximately \$53 million on this contract, as of June 3, 2013, to procure replacement ties manufactured in accordance with the 2003 specifications.³ The contract contains provisions to reduce the potential financial risks to Amtrak by:

- **Requiring Rocla to maintain a quality assurance system acceptable to Amtrak.** This system is based on Rocla's quality assurance manual, which provides guidance to all Rocla employees, and is managed by a quality assurance manager who has been working at Rocla's production facility since 2003. In addition to conducting its own internal quality audits each year, Rocla has maintained its concrete production process certifications with the Precast/Prestressed Concrete Institute and the Association of American Railroads. Both of these organizations conduct annual reviews of Rocla's operations.
- **Extending the warranty period.** The contract extends the period in which Amtrak can make claims to be reimbursed for all damages resulting from defectives ties from five to eight years. This includes the costs to procure and remove the defective ties. After the 8-year period, Amtrak can be reimbursed only for the procurement cost of the defective tie through the 20-year warranty period.

Amtrak Rigorously Monitors Rocla's Performance

Amtrak has maintained its commitment to monitor Rocla's performance and ensure that the replacement ties are properly manufactured. In May 2003, Engineering developed quality assurance processes to monitor the contractor's performance and to ensure that the requirements of the contract are met. Amtrak's Deputy Chief Engineer-Track is responsible for overseeing the contractor's daily performance on behalf of

³ In 2008, Amtrak brought in a third party to evaluate the specifications, which validated that the revised design would meet Amtrak's requirements.

Amtrak Office of Inspector General
**American Recovery and Reinvestment Act: Amtrak Has Taken Positive Steps to
Safeguard Funds Used for Concrete Tie Replacement Program**
Report No. OIG-E-2013-017, September 19, 2013

Amtrak's procurement office, and he assigned a senior engineer to oversee the manufacturing of the replacement ties on a daily basis.

The senior engineer, who has been in this role since May 2003, routinely reports on Rocla's tie production to his supervisors and the contracting officer responsible for the supply contract. These reports include weekly production and shipment statistics, which are used to monitor tie inventory and modify production schedules, as necessary, to meet the needs of the replacement program. The senior engineer also reports on his inspections of Rocla's quality control procedures. Figures 2-4 show some examples of the procedures used to monitor tie production.

***Figure 2: Amtrak Engineer Performing General Inspection of
Concrete Ties During the Removal of Ties from Molds***



Source: Amtrak OIG, taken during a site visit to a Rocla facility in Bear, Delaware, on June 11, 2013

Amtrak Office of Inspector General
American Recovery and Reinvestment Act: Amtrak Has Taken Positive Steps to Safeguard Funds Used for Concrete Tie Replacement Program
Report No. OIG-E-2013-017, September 19, 2013

Figure 3: Amtrak Engineer Reviewing Rocla's Concrete Tie Production Data*



* This photo shows Amtrak's senior engineer reviewing whether the concrete was produced within the specified temperature range.

Source: Amtrak OIG, taken during a site visit to a Rocla facility in Bear, Delaware, on June 11, 2013

Figure 4: Amtrak Engineer Reviewing Strength Tests of Concrete Ties



Source: Amtrak OIG, taken during a site visit to a Rocla facility in Bear, Delaware, on June 11, 2013

Amtrak Office of Inspector General
**American Recovery and Reinvestment Act: Amtrak Has Taken Positive Steps to
Safeguard Funds Used for Concrete Tie Replacement Program**
Report No. OIG-E-2013-017, September 19, 2013

These efforts have resulted in almost all of the ties meeting Amtrak's requirements. Through Rocla's and Amtrak's inspection processes, significantly less than one percent of the ties produced by Rocla have been rejected. For example, we reviewed Rocla's April 2013 production records for 6,840 ties and found that only 11 were rejected because of visible defects.

Additionally, according to Amtrak officials, as of June 12, 2013, no quality-related defects have been observed in replacement ties that were installed on the Northeast Corridor; therefore, Amtrak has not had to issue any slow orders due to ties manufactured after 2003. To validate this, we reviewed 11 slow orders that were in effect on June 12, 2013, due to concrete tie problems.⁴ For each of the slow orders, Amtrak was able to trace the ties causing the slow orders to track and inspection charts, confirming that the ties were manufactured prior to 2003.

Although Amtrak has successfully implemented its quality assurance practices, these practices are not yet fully described in enough detail to enable future Amtrak quality assurance personnel to uniformly continue current practices. For example, the current plan does not include a complete description of how to verify whether the temperature of the concrete during production is within specifications. During our evaluation, Engineering officials agreed and began to update the quality assurance plan, but this has not yet been completed.

CONCLUSIONS AND RECOMMENDATION

The efforts of Amtrak and Rocla to minimize the risk of defective ties have contributed to safeguarding the ARRA funds used for Amtrak's tie replacement program. To ensure that Amtrak can continue its effective oversight of the production of the replacement ties, we recommend that the Chief Engineer ensure that the quality assurance plan is updated to fully describe current practices.

⁴ These slow orders were issued between July 9, 2010 and May 24, 2013.

Amtrak Office of Inspector General
**American Recovery and Reinvestment Act: Amtrak Has Taken Positive Steps to
Safeguard Funds Used for Concrete Tie Replacement Program**
Report No. OIG-E-2013-017, September 19, 2013

MANAGEMENT COMMENTS AND OIG ANALYSIS

Amtrak's Chief Engineer provided us with comments on a draft of this report on September 12, 2013, in which he concurred with our recommendation and established a time frame in which Amtrak will implement it (see Appendix II). We consider his comments responsive to our recommendation.

We appreciate the courtesies and cooperation that Amtrak representatives extended to us during the course of this review. If you have any questions, please contact me (Calvin.Evans@amtrakoig.gov, 202.906.4507) or Jason Venner, Senior Director (Jason.Venner@amtrakoig.gov, 202.906.4405).

cc: Joseph H. Boardman, President and Chief Executive Officer
Eleanor D. Acheson, Vice President, General Counsel & Corporate Secretary
Dan M. Black, Acting Chief Financial Officer
Stephen J. Gardner, Vice President, NEC Infrastructure and Investment
Development
Polly Hanson, Chief of Police
Matthew F. Hardison, Chief Marketing and Sales
Joseph H. McHugh, Vice President, Government Affairs and Corporate
Communications
Barry Melnkovic, Chief Human Capital Officer
Jason Molfetas, Chief Information Officer
Donald J. Stadtler, Jr., Vice President, Operations
Susan Reinertson, Chief, Emergency Management and Corporate Security
Mark Yachmetz, Chief, Corporate Research & Strategy
John J. Martin, Chief Logistics Officer
Matthew Gagnon, Senior Director, Business Processes and Management Controls
Melantha Page, Senior Audit Liaison

Amtrak Office of Inspector General
**American Recovery and Reinvestment Act: Amtrak Has Taken Positive Steps to
Safeguard Funds Used for Concrete Tie Replacement Program**
Report No. OIG-E-2013-017, September 19, 2013

Appendix I

SCOPE AND METHODOLOGY

This report provides the results of our evaluation of the use of funds provided through ARRA to replace concrete railroad ties. The objective of this report is to discuss the extent of Amtrak's efforts to safeguard the use of ARRA funds in its concrete tie replacement program, focusing on its oversight of the production of replacement ties by Rocla. We performed our work from May through July 2013 in Washington, D.C., Philadelphia, and Bear, Delaware.

To address our objective, we obtained documentation on Amtrak's concrete tie replacement program and information from officials in Amtrak's Engineering, Procurement and Material Management, and Law departments. We reviewed Amtrak's contracts with Rocla and other associated documents, including Law department memorandums and settlement agreements, technical specifications, quality assurance documentation, inspection reports, acceptance reports, and a third-party concrete tie assessment report. We reviewed Engineering's quality assurance plan and evaluated the extent to which the plan followed the requirements specified in Amtrak's procurement manual. We also reviewed and analyzed reports of Amtrak's quality assurance efforts and evaluated the results of the quality assurance process. In addition, we visited Rocla's manufacturing plant in Bear, Delaware and interviewed contractor personnel, reviewed and observed Rocla's quality assurance procedures, and observed Amtrak personnel overseeing the daily production and testing of concrete ties.

We performed this evaluation in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the evaluation to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our objectives.

Internal Controls

In conducting the evaluation, we reviewed Amtrak's controls over its tie replacement program in the context of our objectives. Specifically, we reviewed Amtrak's and

Amtrak Office of Inspector General
**American Recovery and Reinvestment Act: Amtrak Has Taken Positive Steps to
Safeguard Funds Used for Concrete Tie Replacement Program**
Report No. OIG-E-2013-017, September 19, 2013

Rocla's controls over the production of replacement ties. We determined that these controls were adequate, as evidenced by the results of the production process. We presented the results of our review in the body of this report.

Use of Computer-Processed Data

We did not rely on computer-processed data to determine the findings or conclusions of this report.

Prior Reports

We did not rely on any prior reports from OIG or other oversight organizations to determine the findings or conclusions of this report.

Amtrak Office of Inspector General
**American Recovery and Reinvestment Act: Amtrak Has Taken Positive Steps to
Safeguard Funds Used for Concrete Tie Replacement Program**
Report No. OIG-E-2013-017, September 19, 2013


Appendix II

COMMENTS FROM AMTRAK'S CHIEF ENGINEER



Memorandum

To: Calvin E. Evans, Assistant Inspector General, Inspections and Evaluations

From: Bruce R. Pohlott, Jr., Chief Engineer 

CC: Melantha Paige, William Bates, David Staplin

Date: September 11, 2013

Subject: Response to *American Recovery and Reinvestment Act: Amtrak Has Taken Positive Steps to Safeguard Funds Used for Concrete Tie Replacement Program* (Draft Evaluation Report 011-2013)

I have reviewed the Draft Evaluation Report 011-2013 and concur with the findings and recommendations. I agree that the efforts of the Amtrak Engineering Department to minimize the risk of defective concrete ties have contributed to safeguarding the ARRA funds used for Amtrak's tie replacement program. The risk of procuring defective ties has been greatly reduced, and the 2010 contract for concrete tie procurement has also reduced Amtrak's risk. Amtrak's Engineering Department rigorously monitors Rocla's performance in the production of the new concrete ties.

There are many specifications and procedures, both Rocla's and Amtrak's, that are followed in the production of the new concrete ties. Quality assurance of each of these existing specifications and procedures result in the reduction and elimination of defective tie production. The effective oversight of these specifications and procedures by the Amtrak Engineering Department has proved that the concrete ties produced meet or exceed these requirements.

I concur with the recommendation that the Amtrak Engineering Department update the quality assurance plan to fully describe the current practices for effective oversight of the concrete tie production. The quality assurance plan will contain the practices currently employed to monitor the manufacture of concrete ties, and will illustrate the steps taken in these practices. The update of the quality assurance plan is currently underway, and will be completed by the end of the 2013 calendar year.

Amtrak Office of Inspector General
**American Recovery and Reinvestment Act: Amtrak Has Taken Positive Steps to
Safeguard Funds Used for Concrete Tie Replacement Program**
Report No. OIG-E-2013-017, September 19, 2013

Appendix III

ABBREVIATIONS

ARRA	American Recovery and Reinvestment Act of 2009
OIG	Office of Inspector General
Rocla	Rocla Concrete Tie, Inc.

Amtrak Office of Inspector General
**American Recovery and Reinvestment Act: Amtrak Has Taken Positive Steps to
Safeguard Funds Used for Concrete Tie Replacement Program**
Report No. OIG-E-2013-017, September 19, 2013

Appendix V

OIG TEAM MEMBERS

Calvin Evans, Assistant Inspector General, Inspections and Evaluations

Jason Venner, Senior Director, Inspections and Evaluations

Larry Chisley, Lead Evaluator

Timothy Wells, Principal Operations Analyst

Amtrak Office of Inspector General
**American Recovery and Reinvestment Act: Amtrak Has Taken Positive Steps to
 Safeguard Funds Used for Concrete Tie Replacement Program**
 Report No. OIG-E-2013-017, September 19, 2013

OIG MISSION AND CONTACT INFORMATION

Amtrak OIG's Mission The Amtrak OIG's mission is to provide independent, objective oversight of Amtrak's programs and operations through audits, inspections, evaluations, and investigations focused on recommending improvements to Amtrak's economy, efficiency, and effectiveness; preventing and detecting fraud, waste, and abuse; and providing Congress, Amtrak management, and Amtrak's Board of Directors with timely information about problems and deficiencies relating to Amtrak's programs and operations.

Obtaining Copies of OIG Reports and Testimony Available at our website: www.amtrakoig.gov.

To Report Fraud, Waste, and Abuse Report suspicious or illegal activities to the OIG Hotline (you can remain anonymous):

Web: www.amtrakoig.gov/hotline
 Phone: 800-468-5469

Congressional and Public Affairs Calvin E. Evans
 Assistant Inspector General, Inspections and Evaluations

Mail: Amtrak OIG
 10 G Street NE, 3W-300
 Washington, DC 20002

Phone: 202-906-4507
 E-mail: calvin.evans@amtrakoig.gov
