



National Transportation Safety Board

Railroad Accident Brief

Bay Area Rapid Transit Train 963

Struck Roadway Workers

Accident No.:	DCA14FR001
Location:	Walnut Creek, California
Date:	October 19, 2013
Time:	1:44 p.m. Pacific daylight time
Train:	Train 963
Railroad:	Bay Area Rapid Transit District (BART)
Property Damage:	\$76,000
Fatalities:	2
Type of Accident:	Employee fatalities

On Saturday, October 19, 2013, at 1:44 p.m. Pacific daylight time, Bay Area Rapid Transit District (BART) train 963 struck and killed two engineering employees while they were working on BART's main tracks near Walnut Creek, California.¹² The train, which included four passenger cars, was travelling north on the Pittsburg/Bay Point-SFO (San Francisco International Airport) Line between the Walnut Creek and Pleasant Hill stations.³ It was one of two trains being operated by BART managers because BART's union employees were on strike. Both trains were transporting management employees, who were being trained as substitute operators and system maintenance workers. No paying passengers were being transported by either train.

¹ All times in this brief are Pacific daylight time.

² One person worked for BART, and the other worked as a contractor.

³ In this report, all train movements and track references will refer to timetable direction.



Figure 1: Accident scene. (Photo by ABC News)

At the time of the accident, there were six BART employees on the train: the supervisor who was training the operator trainees, two operator trainees, and three equipment maintenance employees. An operator trainee was operating the train at the time of the accident. No one on the train was injured. It was a sunny, clear afternoon, and the temperature was 70°F.

Investigation

The BART train control and supervisory system was made up of four major parts: the operations control center, the integrated computer system, an automatic train control (ATC) system, and on-board automatic train operations computers. The ATC system was designed to control train movement and maintain train separation. Investigators determined that the train control and supervisory systems were functioning properly at the time of the accident.

At the time of the accident, train operators and roadway workers were required to comply with BART's *Operations Rules and Procedures* manual. Additionally, roadway workers were required to complete wayside safety training and certification as part of BART's Wayside Safety Program. The Wayside Safety Program consisted of general safety practices.⁴ One safety practice, known as "simple approval," provided control center authorization for employees to enter the roadway with no additional protective measures or restrictions provided by the control center. When simple approval authorization was requested, the control center reminded workers that they were required to provide their own protection and not interfere with mainline or yard operations. Under simple approval, roadway workers were required to be aware of train and

⁴ Roadway refers to the strip of land under and adjacent to the railroad tracks. Roadway may also refer to right-of-way and wayside.

equipment movements and provide their own protection. Roadway workers were prohibited from performing work without a watchman/lookout when they were close enough to a rail to be struck by a moving train or other equipment.⁵ The watchman's sole responsibility was to watch for approaching trains or equipment—on any track, at any time, and in any direction.

On October 18, 2013, a minor defect was noted on the C-1 track near Walnut Creek.⁶ The next day, two engineering department employees planned to take measurements at the defect's location. The employees—a BART manager and a BART contract employee—were working as roadway workers because of the strike. They requested and received simple approval authority from the control center to enter the roadway in accordance with BART rules.⁷

On-Board Image and Audio Recorders

A digital audio and video recorder was mounted above the operator's seat in the lead car and positioned to record the operator and the car control panel.

NTSB investigators reviewed the video and observed that at 1:43:45 p.m. train 963 entered and quickly exited the Walnut Creek Station in the direction of the Pleasant Hill Station without stopping.⁸ Eight seconds later, the train accelerated to 44 mph. The train's speed increased to 68 mph within 28 seconds. At 1:44:23, the operator trainee repeatedly pushed the red emergency stop button and repeatedly shouted, "Look out!" and "No, no, no!" The train struck the two employees who were working within the gage of the track 4.7 seconds later.

Urgent Recommendations

On December 18, 2013, the NTSB made the following urgent safety recommendations to the Federal Transit Administration (FTA):

Issue a directive to all transit properties requiring redundant protection for roadway workers, such as positive train control, secondary warning devices, or shunting. (R-13-39) (Urgent)

Issue a directive to require all transit properties to review their wayside worker rules and procedures and revise them as necessary to eliminate any authorization that depends solely on the roadway worker to provide protection from trains and moving equipment. (R-13-40) (Urgent)

Safety Recommendation R-13-39 and R-13-40 are currently classified as "Open—Acceptable Response."

On September 24, 2015, the NTSB issued a special investigation report on the recent increase in deaths among railroad and rail transit roadway workers on or near tracks.

⁵ BART calls this "fouling the track." The Federal Railroad Administration further defines fouling the track as placing an individual within 4 feet of the nearest rail.

⁶ The two main tracks were designated as C-1 and C-2.

⁷ BART, *Operations Rules and Procedures*, "Section VI – Operations Jurisdictions and Clearances, 6200-Simple Approval," rev. 6.2, January 2008.

⁸ No stop was required at Walnut Creek.

The Special Investigation Report on Railroad and Rail Transit Roadway Worker Protection provides the details of 14 accidents in 2013 that resulted in the deaths of 15 roadway workers (including the BART Walnut Creek accident on October 19, 2013). The number of deaths in 2013, the findings from investigations of those deaths, and the increasing number of fatalities prompted the NTSB to look more closely at the issue of roadway worker safety and to recommend actions to address these issues.

The NTSB issued recommendations to the Federal Railroad Administration, the Federal Transit Administration, the Occupational Safety and Health Administration, and the Fatality Analysis of Maintenance-of-Way Employees and Signalmen Committee. The recommendations call for additional training, harmonization of standards, a national inspection program, and greater stakeholder participation in the prevention of roadway worker fatalities, among other measures.⁹

Post-accident Actions

FTA Safety Advisory 14-1

In response to the NTSB's urgent recommendations, the FTA issued Safety Advisory 14-1 *Right-of-Way Worker Protection* on December 19, 2013.¹⁰ Safety Advisory 14-1 is a guidance document.

The FTA also issued a request for information from transit agencies and state safety oversight agencies that will be used to review transit-rail right-of-way worker safeguards.

On March 18, 2014, and on June 26, 2014, the NTSB responded that the FTA needs to issue a directive requiring the recommended protection, review, and revision in order to satisfy Safety Recommendations R-13-39 and R-13-40. Pending issuance of such a directive, these recommendations were classified "Open – Acceptable Response."

California Public Utilities Commission

In 2008, the California Public Utilities Commission (CPUC) opened a rulemaking proceeding after the deaths of two roadway workers on BART and the Sacramento Regional Transit District rail systems.

The purpose of the rulemaking was to determine: (1) whether current protections for rail transit agency roadway workers were adequate, (2) whether the Commission should adopt a General Order implementing new rules for rail transit agency roadway workers, and (3) if rules were necessary, appropriate language to be included in a General Order. At the time of this accident, the CPUC staff's final report to the Commission regarding the negotiated rulemaking process—including a proposed General Order—had been submitted, and the parties were awaiting a proposed Roadway Worker General Order to be issued.

⁹ To review the NTSB's *Special Investigation Report on Railroad and Rail Transit Roadway Worker Protection*, visit <http://www.nts.gov/investigations/AccidentReports/Reports/SIR1403.pdf>.

¹⁰ This advisory contained these elements: (1) background on recent FTA activities and available resources; (2) major findings from investigations into worker fatalities; (3) Right-of-Way Worker Protection Assessment Checklist; (4) Job Safety Briefing Guide; and (5) checklist for verifying implementation of Roadway Worker Program elements in the field.

As a result of this accident, on October 31, 2013, the CPUC issued General Order 175 (GO 175), governing roadway worker protection for rail transit workers in California. GO 175 directly addressed safety issues and concerns identified during the NTSB accident investigation. The new GO 175 prohibits the type of access along the right-of-way that was allowed under BART's simple approval process.

BART Simple Approvals Prohibition

The day after the accident, October 20, 2013, the BART assistant chief transportation officer distributed a memorandum immediately prohibiting simple approvals. The memorandum stated that access to the right-of-way must provide the work crew with protection from moving trains. The memorandum defined and described work area clearances and stated that trains in work areas are restricted to a maximum speed of 27 mph, including all adjacent tracks not separated by a physical barrier. On October 23, 2013, BART's management announced in a press briefing that the use of simple approvals was permanently prohibited.

BART Roadway Worker Protection Program Improvements

At the time of the accident, wayside workers had to provide their own protection under simple approval authorization. Since the accident, BART has instituted new roadway worker protection requirements. These requirements include reducing train speeds in work areas, mandating that a dedicated watchman be present to look for trains, and requiring that an employee-in-charge manage train traffic through work areas and communicate with approaching trains and the control center.

At the request of the BART general manager, the American Public Transportation Association conducted a peer review of BART's Wayside Safety Program in November 2013. The peer review panel consisted of industry experts in wayside safety, including representatives from Washington Metropolitan Transit Authority, New York City Transit, Southeastern Pennsylvania Transit Authority, and Los Angeles County Metropolitan Transportation Authority.¹¹

As a result of the review findings, BART developed and implemented a new Roadway Worker Protection (RWP) Program replacing the former Wayside Safety Program. The CPUC reviewed the new RWP program and found it to be in compliance with GO 175.

BART also established a Roadway Worker Protection Technology Committee to conduct research on early warning technologies currently available in the rail industry. The committee is an interdisciplinary group consisting of representatives from the union representing BART employees, as well as personnel from BART's operations, information technology, law enforcement, and system safety departments.

¹¹ For more details about the Report of the American Public Transportation Association, Peer Review Panel on the BART Wayside Safety Program, visit www.nts.gov/investigations/dms.html and search for NTSB accident ID DCA14FR001.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the accident was the Bay Area Rapid Transit District's use of simple approval for granting roadway worker access to the track, which required the workers to provide their own protection.

For more details about this accident, visit www.nts.gov/investigations/dms.html and search for NTSB accident ID DCA14FR001.

Adopted: April 13, 2015

The NTSB has authority to investigate and establish the facts, circumstances, and cause or probable cause of a railroad accident in which there is a fatality or substantial property damage, or that involves a passenger train. (49 U.S. Code § 1131 - *General authority*)

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties . . . and are not conducted for the purpose of determining the rights or liabilities of any person." 49 *Code of Federal Regulations*, Section 831.4. Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report. 49 *United States Code*, Section 1154(b).
