



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: June 6, 2006

In reply refer to: R-06-7

Honorable Joseph H. Boardman
Administrator
Federal Railroad Administration
1120 Vermont Avenue, N.W.
Washington, D.C. 20590

On December 7, 2003, about 12:12 a.m., central standard time, a Union Pacific Railroad (UP) switching foreman was struck and killed by two locomotives at the UP's East Yard in San Antonio, Texas.¹ The two locomotives were operated as a single unit under the foreman's control. He was operating the locomotives from the ground using a remote control transmitter. He usually had a helper. However, the night the accident occurred, the helper position was not filled because of a crew dispatch problem, so the foreman worked alone. He was moving the locomotives from track 32 to train yard track 3, where he was assigned to switch² 44 railroad cars. When the accident occurred, the locomotives were traveling about 11 mph and were moving back over the track they had just traversed rather than over the route leading to the destination (train yard track 3).

The National Transportation Safety Board determines that the probable cause of the December 7, 2003, yard accident in San Antonio, Texas, was the foreman's inattentiveness to the location of the locomotives and the switch position and the lack of adequate oversight by the Union Pacific Railroad of power-assisted switch installation, maintenance, and operations at its East Yard.

During the course of the investigation, it became apparent that there had been wiring errors when the power-assisted switch machines were originally installed at San Antonio East Yard, about 2 1/2 years before the accident. Before the accident, 4 of the 10 switch boxes at the west end of East Yard were wired so that the electrical disconnect switch did not cut off the electrical power from the switch machine, which would have created a safety hazard for personnel servicing the switches and for mechanical crews working on, under, or between rail cars or locomotives. During the postaccident inspection, a second defect was discovered involving 10-gauge multistrand wire that was inserted into the terminal blocks on all 10 power-assisted switch machines at the west end of East Yard. The manufacturer's specification requires 14-gauge solid wire, which is smaller than 10-gauge wire and has different clamping and conducting properties. The improper wire was used during the original switch installation. The

¹ For additional information, see National Transportation Safety Board, *Railroad Switching Foreman Struck by Locomotives, San Antonio, Texas, December 7, 2003*, Railroad Accident Brief NTSB/RAB-06/02 (Washington, DC: NTSB, 2006).

² *Switch* means to move cars to other tracks based on their destinations.

switch machine manufacturer advised the Safety Board that an incorrectly sized wire often results in intermittent electrical contact.

There was no formal or documented commissioning or turnover procedure when the power-assisted switch machines were installed at East Yard.³ (The purpose of a formal commissioning or turnover process for new equipment is to verify that installation procedures were correctly followed and to keep a record of the functional tests demonstrating that the equipment is safe and ready for service.) The local signal maintenance manager described the transition from installation to operation as an “informal process.” Had there been a formal commissioning procedure, the installation defects in these switches might have been discovered before the accident.

Federal regulations require railroads to inspect and maintain records about switches on signaled tracks; however, the regulations do not require railroads to inspect and maintain records about switches on nonsignaled tracks, such as those in railroad yards. The UP is not required by Federal regulations either to establish a regular inspection cycle for or to keep maintenance records about yard power-assisted switch machines. The Safety Board notes that the lack of regulations should not prevent establishing a regular maintenance cycle and keeping records of inspections. However, in this case, the absence of any regulatory requirement was likely a factor in the railroad’s decision not to implement a formal maintenance program for the power-assisted switch machines. Without maintenance records, it is difficult to know which monthly inspections are being conducted and whether a particular piece of equipment or class of equipment has safety defects. Had a formal maintenance program been in place and records kept, it would have afforded the opportunity to identify and correct the recurring problems of these switch machines.

Therefore, the National Transportation Safety Board makes the following safety recommendation to the Federal Railroad Administration:

Require railroads to implement for all power-assisted switch machines, regardless of location, a formal commissioning procedure and a formal maintenance program that includes records of inspections, tests, maintenance, and repairs.
(R-06-7)

The Safety Board would appreciate a response from you within 90 days addressing the actions you have taken or intend to take to implement our recommendation. The Safety Board also issued two recommendations to the UP. In your response to the recommendation in this letter, please refer to Safety Recommendation R-06-7. If you need additional information, you may call (202) 314-6177.

³ Had this switch been on a signaled mainline track, it would have been subject to the commissioning (turnover) procedure required by the Federal Railroad Administration.

Acting Chairman ROSENKER and Members ENGLEMAN CONNERS, HERSMAN, and HIGGINS concurred in this recommendation. Member Deborah A. P. Hersman filed a concurring statement that is included in the Board's final brief on this accident.

[Original Signed]

By: Mark V. Rosenker
Acting Chairman