National Transportation Safety Board
Washington, D.C. 20594

Railroad Accident Brief

Railroad Accident Number:	DCA-02-FR-005
Rail System:	Chicago Transit Authority
Train:	Green Line train run 2
Accident Type:	Train/Worker Incident
Location:	Chicago, Illinois
Date and Time:	February 26, 2002, 4:50 a.m.[1]
Fatalities/Injuries:	2 injuries

Synopsis

On Tuesday, February 26, 2002, at approximately 4:50 a.m., Chicago Transit Authority (CTA) Green Line train run 2 struck two signal maintainers who were working near tower 18, which is on the section of the Chicago Loop that is above the intersection of Lake and Wells Streets in Chicago, Illinois. The Loop is elevated, and one maintainer fell from the structure, landing on a parked car and then the street. Seriously injured, he and the other maintainer were taken to a local hospital by ambulance. At the hospital, he was admitted for further treatment; the other maintainer was treated and released. At the time of the accident, it was dark, the skies were cloudy, snow was falling lightly, and the temperature was 36 ^{o} F.

The Accident

On the morning of the accident, two night-shift signal maintainers were repairing a switch at tower 18. Between 4:00 and 4:30 a.m., two day-shift maintainers joined them. As the two crews conferred about the progress of the repair, Green Line train run 1 approached the tower. A trainee was operating the train, and a train operator/line instructor[2] was observing. Both crewmembers on the train later stated that they had not heard the control center's radioed advisory that workers were on the track structure at tower 18. The line instructor said that as the train approached the tower with a *proceed* (green) signal, he observed wayside maintenance personnel from about 150 feet away and told the trainee to stop the train, which he did. One of the maintainers gave the train a hand signal to proceed, and the train continued on its way. Shortly after the train left, the night-shift maintainers also left.

[1] All times referred to in this report are central standard time.

[2] Line instructors are working train operators who provide on-the-job training to operator trainees.

The day-shift maintainers continued to work. Just before the accident, they removed a defective part and started to install a replacement. According to both men, they were squatting over the switch machine. One was facing the center of the track and attaching wires, while the other was facing the Loop with his back to the normal direction of train movements. He was shining a flashlight on the work area.

The accident train approached the tower on a *proceed* signal. One maintainer later said that he remembered being hit by the train, while the other later said that he was hit by "something." A train operator/line instructor was operating the train, and a trainee was observing. Both later said that they had not seen any wayside workers. They said that they had heard noise that the student described as a "thump" in the vicinity of the accident and caught a "glimpse" of something.

Both maintainers later stated that they had not seen or heard the train as it approached. After being struck, one of the maintainers fell from the structure. The other fell to the deck of a platform on the outside of the structure. He used his radio to tell the control center that he and the other maintainer had been "hit by the train." Emergency medical personnel were dispatched to the scene, and an ambulance took both men to a local hospital.

In the meantime, the accident train continued past the tower and stopped at the next station, Clark and Lake, where the crewmembers inspected the train from the platform and found no damage. They continued on their way until they heard the radio report that workers had been struck by a train. They stopped their train at the next station and reported to a supervisor.

According to the operator of the accident train, nothing had distracted her from her duties, and she had been facing forward and watching the track before the train arrived at tower 18. The trainee supported her account. Both crewmembers said that they had not heard the control center's radioed advisory that workers were on the track structure at tower 18.

The Investigation

The braking system on the accident train was tested and found to function as designed. A postaccident inspection of the leading car of the train found no defects in the windshield, defroster, wipers, lights, or other equipment that might have impaired visibility. The radio on the train was tested and found to send and receive properly.

Sight distance tests determined that from the accident site, an approaching train was visible for over 1/2 mile, and one of the night-shift maintainers told investigators that he had seen an approaching train at Clinton station, which is approximately 1/2 mile away, 20 minutes before the accident. The injured maintainers had been wearing CTA-issued reflective safety vests. Tests also showed that a person wearing a standard CTA reflective vest while crouched over the switch was visible to an approaching train that

was about 50 feet away. A person wearing a vest and standing at the switch was visible to a train from about 150 feet away.

The injured maintainers stated they did not have a portable flashing yellow light with which to warn approaching trains. CTA rules require the use of such a light, and records indicate that lights had been issued to the maintainers.

According to CTA rules, "employees must expect trains to run on any track, in either direction, at any time." The CTA did not have any written rules providing for interlocking signals to be used to protect workers on the wayside. The maintainers said that they had expected the tower operator to protect them by holding trains as they worked on the switch. The tower operator stated that there was no provision for holding trains for maintainers and that he had expected them to watch for trains and to stay clear when trains approached. Both of the injured maintainers and one of the night-shift maintainers said that in some past instances when they had worked on the right-of way at interlockings, they had either asked a tower operator to hold trains or manipulated interlocking equipment themselves to cause signals to display stop indications.

At the time of the accident, the CTA did not have any written procedures requiring that a safety lookout be designated. The manager of signal maintenance told Safety Board investigators that when two maintainers are working on the track, one of them is intended to be designated the safety lookout. One of the night-shift maintainers told investigators that in his experience, one maintainer on a two-person crew is designated the lookout. The injured maintainers both said that they had thought that they were equally responsible for watching for trains and that neither had been specifically designated the lookout.

The company did have written procedures requiring that protective work zones be set up with a flagman. These procedures, however, were applicable only when three or more workers were working on the right-of-way for more than 20 minutes and, therefore, did not apply to the work the injured maintainers had been doing.

The CTA told National Transportation Safety Board investigators that it has implemented new procedures that require the conducting of pre-entry safety discussions among crewmembers before they foul the right-of-way and the designating of a safety lookout. The CTA has also begun an ongoing program of management right-of-way field safety rules compliance audits and is in the process of evaluating the use of interlocking equipment to establish areas of worker protection. While the evaluation is underway, the CTA is requiring crews to make face-to-face contact with the tower operator before commencing work in an interlocking.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the accident was the failure of the signal maintainers to watch for approaching trains and their failure to obey the Chicago Transit Authority's requirement that they increase their visibility by displaying a flashing yellow warning light. Contributing to the maintainers' reduced awareness of oncoming trains was the absence of clear requirements regarding the designation of safety lookouts and the use of interlocking signals to protect work areas.

Adopted: February 6, 2004