FE-25-98 (document link)

SUMMARY FOR FE-25-98:
SELECTED AND POSSIBLE CONTRIBUTING FACTORS

SELECTED FACTORS

Railroad: Iowa Interstate Railroad
Location: Rock Island, Illinois
Region: Region 4

Month: October
Date: 10/08/98
Time: 3:25 p.m., CST

Data for Fatally Injured (Employee(s)

Trackman
41 years old
Six months of total railroad service
Last rules training: None
Last safety training: None
Last physical: March 1998

Data for All Employees (Craft, Positions, Activity)

Craft: MOW

Positions:

Trackman
Bureau Section Foreman
Roadmaster (Supervisor)
Tie Gang
Operator

Activity: Tie installation on a ballast deck bridge.

SUMMARY FOR FE-25-98 CONTINUED

POSSIBLE CONTRIBUTING FACTORS

EVENT

While plating cross ties on a ballast deck bridge, a Trackman fell into the water and drowned.

PCF No. 1

The incident occurred when the Trackman lost his balance and fell through a large opening (two feet by 11 feet) into water with strong currents and undertows.

PCF No. 2

The height and length of the bridge qualified it to be covered under FRA's Bridge Worker Safety regulations. However, the railroad employees did not comply with these regulations. None of the employees was wearing personal fall arrest equipment. No equipment (i.e. lanyards, body harnesses, or rail sliders) was offered or distributed to any of the employees.

PCF No. 3

No qualified or competent employee was on site to supervise, plan, or evaluate the work. The Supervisor, who had been with the gang most of the day, left at 1:45 p.m. to attend to other duties. He discussed appointing an Employee-in-Charge, but apparently did not do so.

PCF No. 4

Employees received no training in the usage of fall arrest equipment, tie-off techniques, or rescue/retrieval techniques. None of the previous job briefings covered the perils of working on bridges over swiftly moving water, nor did they include discussion of a rescue plan in the event of a fall. The above are required under FRA's Bridge Worker Safety regulations.

REPORT:	FE-25-98	
RAILROAD:	Iowa Interstate Railroad (IAIS)	
LOCATION:	Rock Island, Illinois	
DATE & TIME:	Oct. 8, 1998, 3:25 p.m., CST	
PROBABLE CAUSE:	While plating crossties on a ballast deck bridge over the Sylvan Slough, the Trackman lost his balance, fell into swiftly flowing water, and drowned.	
EMPLOYEE:	Occupation:	Trackman
	Age:	41 Years
	Length of Service:	Six months total railroad experience
	Last Rules Training:	None
	Last Safety Training:	None
	Last Physical:	March 24, 1998

CIRCUMSTANCES PRIOR TO THE ACCIDENT

The Trackman regularly reported for duty at 7 a.m., Monday through Friday. On Oct. 8, 1998, he met the Bureau Section Foreman (Foreman) at the Foreman's residence and rode to Rock Island with him in a company vehicle. Upon arriving at Rock Island, the Trackman and the Foreman had a brief conversation with the Roadmaster (Supervisor) about the day's assignments and location of the Tie Gang's equipment. They proceeded to the tie-up point and assisted with the tie installation efforts throughout the day.

The Tie Gang came out of the Arsenal Switch (milepost 181.7) that morning to install ties between that switch and the west end of Rock Island Yard (milepost 181.4). The bridge over Sylvan Slough lies between those two points of the railroad (milepost 181.6). The Tie Gang was set up to work in an easterly direction. After approximately one hour, the gang cleared the single main track at the Arsenal switch.

The employees worked different jobs within the structure of assignments necessary to complete the tie installation process. Typically, employees would work the forward (lead) jobs in the tie installation and then pick up tasks behind the gang activity as it progressed eastward. It is significant to note that the Supervisor, who had been with the gang most of the day, left the job

site to attend to other responsibilities (he departed at approximately 1:45 p.m.). Before departing the work site, he discussed placing another previously designated employee as the Employee in Charge (EIC).

The Trackman was working on a single main track within yard limits (non-signal territory) near the center portion of the bridge. The accident site was 193 feet and six inches west of the east abutment; the bridge's length was 602 feet. The through plate girder structure had openings approximately 24 inches by 11 feet along both sides of the bridge. Due to the previous and ongoing tie installation, the ground was not level where the ties had been installed.

Ballast sections outside the rails were uneven because the ballast had not been regulated. Uneven footing in conjunction with tie installation was a normal condition.

The weather was clear, sunny, and warm, with a temperature of 70º F. The wind was calm.

THE ACCIDENT

The Operator, who was the only eyewitness to the accident, was working next to the Trackman installing plates on crossties prior to returning to his responsibilities on a tamper. The Operator asked the Trackman, who acknowledged the request, to continue installing the plates on the crossties while he caught up with tamping the ties.

Prior to the accident, the Trackman was in a standing position straddling the south rail, in the vicinity of a rail lifter machine (plater). The Trackman was facing eastward (in the direction of the work), and as he turned to look behind him (westward), he lost his balance and fell southward, with the back of his legs and back hitting first, contacting the outside ballast section between the outer edge of the south rail and the retaining plate.

The Trackman's momentum during the fall carried him into an opening (approximately 24 inches wide by 11 feet long) between the ballast deck's retaining plate and the through plate girder structure (the inside vertical face of the girder).

The Trackman fell into the opening in a folded position with his feet and legs pointing upward; then he disappeared from view. After shutting off his tamper and moving to the opening, the Operator observed the Trackman holding onto the edge of one of the bridge's lower structural beams. The Operator talked with the Trackman very briefly and ran eastward for help by shouting and waving his arms to attract attention. As soon as other employees responded, the Operator returned to the point of the accident. Upon arriving at the opening, he observed the water swirling where the Trackman had entered. The time was 3:25 p.m.

After becoming aware of the accident, several co-workers descended on foot from the east end of the bridge to the shoreline. Several accounts indicated the Trackman surfaced after initial entry into the river. He was struggling, went under, and resurfaced. One of the employees entered the river in a rescue attempt. After this employee swam 30 to 40 feet from shore, the Trackman sank out of sight. Swift currents and cold water (65ºF) forced him to turn back, for fear that he would

suffer the same fate. A second employee waded into the water, but was warned by the first employee that a rescue was not safe.

Multiple rescue requests were made by Tie Gang Employees (by calling "911" via cellular telephone or radio). Rock Island Police Department (RIPD) personnel responded to one of the emergency calls. Upon the RIPDs' arrival at the Arsenal Railroad Bridge, members of the Railroad Crew indicated that the Trackman had not been seen for five to 10 minutes. An RIPD officer requested that the Rock
Island Communication Center (RI-COMM) contact the Arsenal Police, Davenport Fire Department, Bettendorf Dive Team, and Search and Rescue.

The Davenport Fire Department (DFD) personnel received a telephone call at 3:37 p.m. alerting them that a construction worker had fallen from a bridge. Initially, DFD believed that the fall had occurred at the Crescent Bridge (Highway 92). DFD was redirected to the correct accident site, and proceeded upriver from Marquette Ramp. An Arsenal Rescue boat and personnel responded, as well. Both teams worked the area to retrieve the Trackman. The body was recovered at 5:30 p.m., 200 yards down river, according to reports. Attempts to revive the Trackman proved unsuccessful. The Trackman had been submerged for approximately two hours.

A Rock Island Emergency Response ambulance transported the Trackman's body to Trinity Medical Center West; however, that hospital's cooler was inoperable, so the deceased was taken to Wheelan's Funeral Home pending an autopsy. The employee was pronounced "dead on arrival."

POST-ACCIDENT INVESTIGATION

On Oct. 9, 1998, FRA began its investigation into the fatality. FRA did not take any exceptions to the equipment used. Investigators concluded that the Tie Gang's equipment did not contribute to the accident. The Operator's account details that the Trackman was partially outside the limits of the outer rails of the track on the bridge just prior to falling.

Initial interviews with Maintenance-of-Way (MOW) employees and supervisors resulted in conflicting reports about the quality and content of job briefings and the participation of MOW and contractor employees at these briefings. Subsequent interviews confirmed that adequate job briefings on Bridge Worker Safety regulations did not take place. Interviews also revealed a general lack of knowledge by some engineering personnel relative to hazard recognition and preventative measures required while working on a railroad bridge. In addition, the investigation revealed that the railroad's prompt rescue efforts, except for the one employee's failed attempt, seemed ill conceived or non-existent.

After observing the general layout of the work site and point of the accident, investigators measured the distance from the outer edge of the south rail, over which the Trackman was standing, to the edge of the opening at 56 ½ inches. The opening measured 24 inches wide and approximately 11 feet long. The opening was obviously large enough for a body to pass

through. The water below the bridge exhibited swift currents. Reportedly, undertow currents were common knowledge for the area, as several accidents had occurred on that portion of the river annually.

The distance from the top of the retaining plate to the top surface of the lower edge (the flange/tee portion) of the beam directly below was 53 inches. (This was the edge the employee was holding onto prior to falling.) The distance from the top of the retaining plate to the top of the edge of the outer girder beam (lower portion) was approximately 62 inches. The distance from the top edge of the retaining plate to the surface of the water was approximately 28 feet and two inches.

The distance of the Trackman's fall was 17 feet (as calculated by the overall distance of 28 feet and two inches minus the distance from the edge of the beam underneath the retaining plate and the height of the Trackman, approximately six feet and two inches). The height and length of the bridge qualified the bridge under FRA's Bridge Worker Protection regulations.

The Arsenal Police (AP), Rock Island City Police Department (RIPD), local Coroner's office, and the Iowa Interstate Railroad (IAIS) conducted investigations into circumstances surrounding the employee's death. IAIS officials telephoned the National Transportation Safety Board (NTSB) personnel on Oct. 9, 1998, to advise them of the known details surrounding the accident. NTSB did not investigate.

Toxicological testing was ordered by the Coroner's office. The toxicology tests were negative. The Rock Island County Department of Public Health listed asphyxia due to drowning as the cause of death.

APPLICABLE RULES

Interviews revealed that none of the employees was wearing personal fall arrest equipment. FRA regulations required that fall arrest equipment be worn, that employees be trained in their usage and tie-off techniques, and that the railroad provide for a prompt rescue after a fall.

In addition, interviews revealed that employees were not sufficiently trained in hazard recognition, equipment usage, tie-off techniques, or rescue/retrieval techniques. No qualified or competent employee was on site to supervise, plan, or evaluate the work. None of the employees indicated that any discussion took place relative to the hazards while working on the bridge. None of the previous job briefings covered the perils associated with working on the bridge over swift water. No rescue plan or discussion took place as a preventative measure in the event of a fall. No equipment (i.e. lanyards, body harnesses, or rail sliders) was offered or distributed to employees while working on the bridge for their use or protection.

Non-compliance with FRA regulations seriously compromised the employees' safety and rescue attempts. Lack of training and poor communication have been determined to be root causes contributing to an overall lack of recognition of the hazardous conditions associated with work performed on the Sylvan Slough bridge.