

**SUMMARY FOR FE-22-02**  
**SELECTED AND POSSIBLE CONTRIBUTING FACTORS**

**SELECTED FACTORS**

**Railroad:** CSX Transportation, Incorporated  
**Location:** Madisonville, Kentucky  
**Region:** 3

**Month:** September  
**Date:** Sept. 2, 2002  
**Time:** 4:05 a.m., CST

**Data for All Fatally Injured Employee(s)**

Conductor  
50 years old  
24 years of service  
Last rules training: March 13, 2002  
Last safety training: March 13, 2002  
Last physical: Aug. 20, 1978

**Data for All Employees (Craft, Positions, Activity)**

**Craft:** Transportation and Engine

**Positions:**

**Train No. Q65101**

Conductor  
Engineer

Yard Clerk  
Clerk Trainee  
Dispatcher

**Activity:** Switching

**EVENT**

A Conductor was fatally injured when struck  
by moving equipment during switching operations.

## **SUMMARY OF FE-22-02 CONTINUED**

### **POSSIBLE CONTRIBUTING FACTORS**

#### **PCF No. 1**

The Conductor failed to verify whether switches were properly aligned prior to the switching movement just before the fatal collision. When he noticed the problem, he crossed in front of the movement to properly align the switch and was struck by the equipment.

#### **PCF No. 2**

The Conductor did not comply with the railroad's operating rules requiring him to be alert and keep clear of the movement of cars, and to look in both directions before crossing or fouling a track.

#### **PCF No. 3**

After instructing the Engineer to commence a shoving movement, the Conductor stepped in front of the moving equipment. He failed to inform the Engineer first and request "3-step protection," as required by railroad operating rules. This protection includes the Engineer applying the train's air brakes, the Engineer placing the throttle in the neutral position, and the Engineer closing the diesel fuel feed line.

**REPORT:** FE-22-2002

**RAILROAD:** CSX Transportation, Incorporated

**LOCATION:** Madisonville, Kentucky

**DATE & TIME:** Sept. 2, 2002; 4:05 a.m., CST

**EVENT<sup>1</sup>:** The Conductor was fatally injured when struck by moving equipment during switching operations.

**EMPLOYEE:**

Craft:	Transportation and Engine (T&E)
Activity:	Switching
Occupation:	Conductor
Age:	50 years
Length of Service:	24 years
Last Rules Training:	March 13, 2002
Last Safety Training:	March 13, 2002
Last Physical:	Aug. 20, 1978

### **CIRCUMSTANCES PRIOR TO THE ACCIDENT**

The home terminal for the employee was Evansville, Indiana. He reported for duty at 6:30 a.m. on Sept. 1, 2002 as the Conductor of Train No. Q65101 operating from Evansville to Nashville, Tennessee. He and the Engineer experienced an uneventful trip from Evansville to Nashville. They were released to take rest in Nashville at 2:30 p.m. on Sept. 1, 2002. Information available to the crew members indicated that they would probably be called to return to duty immediately upon expiration of their statutory rest periods following this trip. The Conductor and the Engineer went to a local restaurant for a meal and returned to the motel to begin their rest period. They were called at 8:39 p.m. and instructed to return to duty at 10:30 p.m. to operate Train No. Q59602 from Nashville to Evansville. The crew members reported as instructed, performed the normal initial terminal duties, and departed Nashville at 11:55 p.m. bound for Evansville.

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<sup>1</sup> “Event is defined as “occurrence that immediately precedes and directly results in the fatality.” Possible contributing factors are identified in the following report and attached summary.

Their 5,045-foot, 3,463-ton train comprised 10 loads and 68 empties. The crew members experienced an uneventful trip, arriving at Madisonville, Kentucky at 3:04 a.m. on Sept. 2, 2002.

The accident occurred on the north switching lead of the Madisonville Atkinson Yard. The yard in the vicinity of the accident was well lighted and level with no obvious hazards such as ditches, holes, or other obstacles to walking such as scrap rail or cross ties. There had been no rain for some time, and the area was dry. The switches were marked with numbers to eliminate confusion involving track numbers. There were no structures in the immediate vicinity of the track. Tracks in this location were oriented in a north-south direction. At the north end of the yard there were four tracks as follows from east to west: the cut-off main, power siding, No. 1 extension, and Earlington Main. There was a crossover from the power siding to the No. 1 extension and a facing point movement southbound from the power siding to the extension. South of the extension end of the crossover was the switching lead. Tracks originating from the switching lead included Nos. 1, 2, 4, 6, and 8. Tracks Nos. 3, 5, 7, and 9 branched off from Tracks Nos. 2, 4, 6, and 8, respectively, approximately two car lengths from the lead switches.

At the time of the accident, the sky was dark and clear, and the temperature was 72° F.

### **THE ACCIDENT**

The crew members had stopped their train at the yard office after arriving at Madisonville. They remained at the yard office from approximately 3:10 a.m. until about 3:40 a.m. During this time, they had used the computer to determine the location of opposing trains and talked to the Yard Clerk and a new Clerk Trainee about various subjects, including what tracks were available to make their 7-car set in the north end of the yard. The Engineer had performed a walk-around inspection of the locomotives at this time, while the Conductor was in the yard office talking with the Clerk and Clerk Trainee. The Conductor and Engineer departed the yard office and conducted a job briefing concerning what was to be done about the set off in the north end of the yard. There were five locomotives on the train, two of which were on line; the seven rail cars immediately behind the locomotives were to be set off at Madisonville on Tracks Nos. 1, 4, or 8. The Clerk had informed the Conductor that these tracks should be clear and that the only problem with using any of them was that Track No. 1 might still be spiked and tagged with a maintenance-of-way tag as being out of service due to some track work which may not have been completed. As they were headed north, the Engineer was on the right (east) side of the movement, and the Conductor was on the left (west) side, next to the yard tracks. They were headed north through the yard on the power siding track.

When they reached the north end, the Conductor dismounted the locomotive on the west side. He separated the train behind the seventh rail car and instructed the Engineer to pull northward to clear the crossover to the switching lead. The Conductor was controlling the movement by radio communication. He instructed the Engineer to stop after clearing the north crossover switch.

The No. 1 yard track switch was spiked and tagged as out of service by maintenance-of-way forces. The Conductor then operated both crossover switches to line the movement onto the No. 4 yard track. At this time, crew members of another northbound train on the Earlington Main Track, which was passing on the west side of the yard, observed the Conductor as he was operating these crossover switches. After operating these switches, the Conductor contacted the Engineer and instructed him that the switches were lined onto Track No. 4. He indicated that he was clear of the track, and instructed the Engineer to shove onto Track No. 4.

The Engineer then commenced a southbound movement. The maximum authorized speed was 10 mph and the event recording tapes indicated that the Engineer had reached a top speed of 9 mph. The Engineer indicated that he had shoved what he considered an appropriate distance of about 10 or 12 car lengths when he attempted to contact the Conductor by asking him how it looked back there. He received no answer and he began to slow down. He had slowed to 3 mph when he impacted the rail cars which were already on Track No. 3.

The Engineer continued to attempt contact with the Conductor. When he received no response, he contacted the Dispatcher, informed him of the circumstances, and told the Dispatcher that he was going back to look for the Conductor and inspect the train. The Engineer indicated that he thought the movement might have derailed due to the coupling which felt hard to him. He dismounted on the west side and walked back to the coupling on Track No. 3 where he found nothing wrong. The Engineer then crossed over to the east side and walked back toward the locomotives. He indicated that he had walked only a few cars, maybe three or four, when he saw a severed leg beside the track. He then ran back to the locomotive looking for the Conductor but did not see him. He called the Dispatcher and notified him of the emergency.

Emergency personnel from the Regional Medical Center, which was only about 200 to 300 yards from the railroad at this location, responded to the scene. The torso of the fatally injured employee was found beneath the locomotives on the switching lead. The Kentucky State Police responded and treated the situation as a crime scene until evidence was developed indicating that the fatality was accidental. The Conductor was pronounced dead at the scene of the accident by the Hopkins County Coroner.

### **POST-ACCIDENT INVESTIGATION**

Findings of the post-accident investigation indicated that the train movement had actually been lined onto Track No. 3 instead of Track No. 4. However, evidence indicated that the employee was struck on the lead before the movement had entered any storage tracks. The Conductor had been struck by the equipment approximately six or seven car lengths after the southbound movement had been started.

The movement, which continued onto Track No.3, struck the equipment standing on Track No. 3. The total distance moved was approximately 16 car lengths. The last crew to use the

north end switching lead indicated that they had made their last move on Track No. 3 and that lead switches should have been lined for Track No. 3.

The fatally injured employee had worked the Henderson subdivision for almost four years and had actually worked this job assignment, which normally carried a set off for Madisonville Yard, 13 times during 2002. The Engineer said he did not notice any abnormal behavior on the part of the Conductor during the trip to Nashville or on the return trip up to the time of the accident. None of their discussions had indicated that the Conductor was preoccupied with any personal problems or had anything on his mind that would divert his attention unnecessarily. The Engineer indicated that he appeared alert and attentive to duty each time he had observed him. They had just spent about 30 or 45 minutes in the yard office prior to going to the north end of the yard. They were in no hurry, and he could not conceive why the Conductor would place himself in such a position.

Prior to accepting the call for Train Q65101 from Evansville to Nashville, the Conductor had been off since August 29, at 1:10 p.m. He had been subjected to 37 efficiency tests during the previous 12 months with four failures for Rules 2201, 2004, SA-SP7, and 55, none of which were relevant to the incident. He also had been tested on 103/104 rules and radio rules a number of times and found to be in compliance.

The injury, accident, and discipline history of the Conductor and the Engineer were furnished by the railroad. The Conductor received four personal injuries and was involved in three accidents. The Engineer received no personal injuries and was involved in one accident. No discipline history was recorded in the data base for either employee. None of the accidents involving the Conductor or Engineer was human factor-related.

FRA's mandated, post-accident toxicological tests were negative for both the Engineer and the Conductor.

The post-mortem examination report completed by the Kentucky State Medical Examiner's Office indicated that the fatally injured employee died of "massive blunt crush injury."

The investigators examined several theories as to what had occurred, including the Conductor's position on the east or west side of the movement prior to the incident and why he would have attempted to cross in front of moving equipment. The last people known to have seen him alive were the crew members of the northbound train passing him on the Earlington Main Track as he aligned the crossover switches from the power siding to the switching lead. They placed him on the west side of the switching lead at the south end of the crossover as they passed. Subsequently, he had informed the Engineer via radio communication that the switches were lined onto Track No. 4 and he was clear of the track, and had instructed the Engineer to shove to the clear on No. 4. The explanation which seemed the most plausible to the investigators was that the Conductor was on the east side of the switching lead after his radio communication to the Engineer. If he was on the west side, he would not have had to cross in front of the equipment to align the number 2/3 lead switch, which was improperly aligned. He had placed

himself on the east side for his own convenience to be in position to operate the angle cock between the locomotive and lead car after the shoving movement was complete without having to lean over the draw bar between the lead car and locomotive. He then started walking southward along the east side of the lead to be in position at the clearance point of Track No. 4 where he would make the separation between the locomotives and rail cars. As he was making his way southward, he noted that he had mistaken the 2/3 lead switch for the 3/4 lead switch, and the movement he was controlling was not properly aligned onto Track No. 4, as he had told the Engineer. Then, without taking note of the proximity of the approaching movement on the switching lead, he crossed in front of the movement to properly align the switch. The equipment struck him approximately 25 feet north of the 2/3 lead switch as he was crossing the lead. Seven rail cars and two locomotives of the movement passed over him resulting in massive and fatal trauma.

### **APPLICABLE RULES**

There are a number of rules which apply to this situation. The first is CSX Transportation, Inc.'s Operating Rule 104-C which states that "employees lining switches must ascertain that the route is lined for the movement." The reason for including this rule is that the improperly aligned switch distracted the Conductor and therefore contributed to the ultimate outcome. CSX's Transportation Safety Rule 2051 requires employees working on or about tracks to be alert and keep clear of the movement of cars, and to look in both directions before crossing or fouling a track. Safety Rule 2052 requires employees crossing tracks to take the shortest route and secure "3-step protection" in accordance with Rule 2053A (concerning safe passage around and between rail cars) if crossing the track within 25 feet of the end of the equipment with a locomotive attached. Three-step protection requirements include the following: The Engineer applies the train's air brakes; the Engineer places the throttle in the neutral position; and the Engineer closes the diesel fuel feed line before a member of the train crew enters the red or danger zone. (Since the Conductor did not notify the Engineer before moving in front of moving equipment and requesting such protection, the Engineer did not provide it.)

Radio rules were not considered relevant to this incident. The Conductor had informed the Engineer that he was in the clear, and that he was aligned onto Track No. 4. The job briefing which the Conductor and Engineer had conducted on the way to the north end of the yard provided information that Tracks Nos. 1, 4, and 8 were clear. The Engineer was thoroughly familiar with the area and knew the distances involved. Also, the distance covered from the initiation of the southbound movement to the impact with the Conductor was approximately six rail car lengths, and the distance visible from the initiation of the movement to the clearance point of Track No. 4 was approximately 12 car lengths. The Engineer indicated that he shoved what he considered an appropriate distance, 10 or 12 car lengths, and then attempted to contact the Conductor for further information. When contact with the Conductor could not be established, he began slowing down in preparation to stop.