FE-09-98 **(document link)**

SUMMARY FOR FE-09-98:
SELECTED AND POSSIBLE CONTRIBUTING FACTORS

SELECTED FACTORS

Railroad: CSX Transportation, Inc.
Location: Cartersville, Georgia
Region: Region 3

Month: March
Date: 03/03/98
Time: 4:15 p.m., EST

Data for Fatally Injured Employee(s)

Bridgeman
57 years old
26 years of service
Last rules training: January 1998
Last safety training: January 1998
Last physical: August 1996

Data for All Employees (Craft, Positions, Activity)

Craft: MOW

Positions:

Bridge Gang 6A66
Foreman
Crane Operator
Truck Driver
Machine Operator
Two Bridgemen

Train Dispatcher

Activity: Removing driftwood from a creek.

SUMMARY FOR FE-09-98 CONTINUED

POSSIBLE CONTRIBUTING FACTORS

EVENT

The Bridgeman was fatally injured when struck by a tree limb that had become entangled in a crane boom.

PCF No. 1

At the time of the incident, the Bridgeman was riding on the outside of the crane, in non-compliance with a railroad operating rule prohibiting extension or suspension of any part of the body beyond the sides of on-track equipment in such a way as to expose oneself to injury.

Background: At the completion of the gang's work, removing driftwood from a creek, the Crane Operator was unable to lower the crane boom. A decision was made to take the crane back to the highway-rail grade crossing where the gang truck was waiting. On the way through a heavily wooded area, a portion of an overhanging tree limb became entangled in the crane's raised boom. When the Crane Operator continued north, the resulting tension caused the limb to break and strike the Bridgeman.

PCF No. 2

In non-compliance with the railroad's operating and safety rules, the Crane Operator transported unseated and unauthorized passengers. The truck driver left his truck on the shoulder of the highway and gained access to the trestle on foot. The rest of the gang (which was transported by the Crane Operator) could have done the same.

PCF. No. 3

The post-accident investigation disclosed that the clutch on the crane had burned out, which prevented it from being lowered.

REPORT:	FE-09-98	
RAILROAD:	CSX Transportation Inc.	
LOCATION:	Cartersville, Georgia	
DATE, TIME:	March 3, 1998, 4:15 p.m., EST	
PROBABLE CAUSE:	The Bridgeman was struck on the head by a tree limb that had become entangled in the crane boom while he was riding on the outside of a crane during a reverse move.	
EMPLOYEE:	Occupation:	Bridgeman
	Age:	57 Years
	Length of Service:	26 Years
	Last Rules Training:	Jan. 19, 1998
	Last Safety Training:	Jan. 19, 1998
	Last Physical Examination:	Aug. 6, 1996

CIRCUMSTANCES PRIOR TO THE ACCIDENT

On March 3, 1998, CSX Transportation's (CSX) Bridge Gang 6A66 went on duty at 7 a.m. in Cartersville, Georgia. The bridge gang comprised a Foreman and five men. After a job briefing, the gang proceeded to a highway-rail grade crossing located at milepost (MP) SGC 636.9 on the Cartersville Subdivision. The Cartersville Subdivision is part of the CSX Atlanta Service Lane with the trackage extending 39.5 miles from Cartersville, Georgia MP SGC641.3 to the end of track at MP SG 635.2 near Cedartown, Georgia.

After arriving at the crossing, the gang placed a Little Giant Crane (equipped with hi-rail) on the track. The crane was facing south. Authority to occupy the track was made under the protection of a 707 Conditional Stop Order issued by the Train Dispatcher. This order was in effect from 0800 to 1700 hours between MP SGC 633.3 and MP SGC 636.9 and was issued to the Foreman, who was the Employee-in-Charge of the gang. One employee was detailed to drive the gang's truck to a private crossing located at MP 633.9. The remaining members of the bridge gang mounted the crane and proceeded south to a trestle at MP SGC 634.0, where their day's work was to remove driftwood from a creek.

At the completion of their work, the Crane Operator was unable to lower the crane boom. A decision was made to take the crane back to the highway-rail grade crossing. The Driver of the gang truck was detailed to take down the Conditional Stop Order boards and return to the crossing. The Foreman instructed the remainder of the gang to mount the crane for the return trip to the crossing. As the crane faced south, the driver's cab was at the left front and was unoccupied. The Crane Operator's cab was at the left rear and occupied by the Crane Operator. The Foreman stood on the left (east) side in front of the Crane Operator's cab. The Bridgeman, who was subsequently injured, stood on the left (east) side behind the Truck Driver's cab. A Machine Operator stood on the left (east) side between these two men. The remaining Bridgeman stood on the right (west) side of the crane.

The crane proceeded slowly north at approximately 5 mph through terrain that was heavily wooded with branches hanging over the track. To the east, the land rose steeply. To the west, the terrain sloped down to a river.

THE ACCIDENT

At about 4:15 p.m., while proceeding northward, a portion of an overhanging tree limb became entangled in the crane's raised boom near MP SGC 634.4. As the crane continued north, it forced tension on the limb until it broke, whereupon it swung down in a counter clockwise direction. The Crane Operator shouted a warning. The Bridgeman behind the truck cab was struck on the right side of his head by the limb and knocked to the ground. Other crew members then placed him on the crane and took him by rail to the power plant, 1.1 miles south, where an ambulance met them and transported the employee to Floyd Medical Center in Rome, Georgia. The Bridgeman died at 10:25 p.m., due to multiple skull fractures and a hemorrhagic contusion within the brain.

POST-ACCIDENT INVESTIGATION

The post-accident investigation disclosed that the clutch on the crane had burned out, which prevented the boom from being lowered.

There were no unusual track, ballast, or ground conditions in the accident area. The right-of-way had been recently cleared by a brush cutter. There were overhead branches, but they were high enough that they did not interfere with the normal passage of trains. At the time of the incident, the employee was wearing the safety equipment issued to him by the carrier including hard hat, safety glasses, and work gloves.

A re-enactment of the incident was made at the scene. The crane was returned to the scene and positioned at the point of the incident, and the boom was raised to the same height and angle, as confirmed by the bridge gang. The boom was 41 plus or minus degrees in angle with the horizontal. The tip of the boom was 29 feet above the top of the rail.

The investigators measured the top of the rail to the top of the truck cab and found it to be 109 inches. They recorded a measurement of 30 3/4 inches from the top of the rail to the step on which the fatally injured Bridgeman had stood. The rear view mirror on the left side of the truck cab was in place and undisturbed. There were no scratches on the left side of the truck cab.

Each crew member assumed the position that he was in at the time of the incident. Another individual assumed the position of the fatally injured Bridgeman. All were standing except the Crane Operator, who was seated in his cab.

Two pieces of the same branch were identified as parts of the branch that had struck the fatally injured Bridgeman. The pieces were laying on the east side, 54 inches from the field side of the east rail. These two pieces, including the bushy end of the branch, measured a total of 247 inches. The large end of the entire branch had a diameter of five inches and was 39 inches long.

From the re-enactment, investigators concluded that the fatally injured Bridgeman would have had to be leaning out away from the crane to be struck by the branch.

The bridge gang's truck had been parked near MP SGC 633.9, the location of a private road crossing. Cables across the road prevented vehicles from entering. The truck driver left his truck on the shoulder of the highway and gained access to the trestle on foot. The entire gang, except for the Crane Operator, could have gained ingress and egress by this same route.

APPLICABLE RULES

CSX Safe Way
Effective May 1, 1997

E/M - 13

d. Transport passengers only in designated, permanently installed seats.

CSX Operating Rule Book
Effective May 1, 1997

719 On-track equipment ... Employees in charge must:
1. Ascertain that the occupants are properly seated.

CSX Operating Rule Book
Effective May 1, 1998

2403 Operators are responsible for seeing that unauthorized persons are not carried on equipment and must know that persons authorized to be on equipment are properly positioned before movement is made. Getting on or off equipment in motion is forbidden. Only those whose duties require it will be permitted to ride on machines or equipment. Riders must not occupy an unsafe position, nor extend or suspend any part of their body beyond the sides of the machine in such a way as to expose themselves to injury.