SUMMARY FOR FE-09-06
SELECTED AND POSSIBLE CONTRIBUTING FACTORS

SELECTED FACTORS

Railroad: Burlington Northern Santa Fe Corporation (BNSF)
Location: Memphis, Tennessee
Region: 3

Month: July
Date: July 11, 2006
Time: 12:50 p.m., CST

Data for Fatally Injured Employee(s)

Car Inspector
52 years old
23 years, 10 months of service
Last rules training: April 13, 2006
Last safety training: Feb. 7, 2006
Last physical: May 9, 2003

Data for All Employees (Craft, Positions, Activity)

Craft: Maintenance of Equipment

Positions:

Fatally injured Car Inspector
Another Car Inspector
Car Shop Lead Man
Tower Yard Master

Activity

Searching for a defective rail car which the Car Inspectors were assigned to repair.

EVENT

A Car Inspector was struck by on-track equipment
while searching for a defective rail car.

SUMMARY FOR FE-09-06 CONTINUED

POSSIBLE CONTRIBUTING FACTORS

PCF No. 1

The fatally injured Car Inspector failed to stay outside the fouling limits of a hump yard track.

REPORT: **FE-09-2006**

RAILROAD: Burlington Northern Santa Fe Corporation (BNSF)

LOCATION: Memphis, Tennessee

DATE & TIME: July 11, 2006; 12:50 p.m., CST

EVENT[1]: A Car Inspector was struck by on-track equipment while searching for a defective rail car.

EMPLOYEE:	Craft**:**	Maintenance of Equipment
	Occupation:	Car Inspector
	Age:	52
	Length of Service:	23 years, 10 months (BNSF 13 Years, 10 months, Trailer Train (TTX) 10 years)
	Last Rules Training:	April 13, 2006
	Last Safety Training:	Feb. 7, 2006
	Last Physical:	May 9, 2003

CIRCUMSTANCES PRIOR TO THE ACCIDENT

On July 11, 2006, at 7 a.m., CST, two Car Inspectors went on duty at the BNSF Tennessee Yard, in Memphis, Tennessee. Both men were assigned to wheel truck 17174, a mechanical repair job, located in Memphis Yard. These positions required specialized training and an LCD driver's licence issued by the Tennessee Department of Transportation. The Car Inspectors had been working this job assignment for eight months.

After a safety briefing by the Car Shop Lead Man, the Car Inspectors were given their daily work assignments. Their first job was to retrieve a disabled alternate terrain vehicle (ATV) in the Memphis Yard. They loaded the disabled ATV onto their work truck and brought it back to the car shop. Once there, the Car Shop Lead Man told them to go to Yale Yard and re-rail a maintenance-of-way crane. After re-railing the crane, they returned to the shop about 11:30 a.m. for lunch.

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[1] "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.

After lunch, they set out to find and repair two different freight cars that were defective. About 12:15 p.m., they repaired one of the cars located behind the car shop at the south end of the Memphis Storage Track. This car had a defective hand hold. The other defective freight car was believed to be on Track No. 2051, which is a bowl track in the Memphis Hump Yard. This track parallels a service access road. They drove their work truck into the hump yard and parked on the access road beside two standing cars (AOK 181556 & FURX 124206). The cab of truck 17174 was facing south toward the hump tower. Both men departed the truck and walked north beside Track No. 2051, looking for a defective car with a bent uncoupling lever.

In the accident area, the access road is straight and is oriented north to south. The road surface is constructed of stone ballast and dirt and is about 26 feet in width. Due to vehicular traffic over the access road, most of the stone ballast had been pushed toward the field side of Track No. 2051, elevating the shoulder portion of the road bed several inches. The combination of dirt and stone has allowed some vegetation, mostly grass and weeds, to grow 6 to 10 inches within the track shoulder.

The weather at the time of accident was clear and sunny. The temperature was about 85° F.

THE ACCIDENT

The Car Inspectors, unable to find the defective car, headed back toward their wheel truck. As they approached the rear of the truck, one Car Inspector headed toward the driver's side while the other moved toward the passenger's side. As the passenger Car Inspector entered the truck, he looked up in the direction of the hump tower and noticed a rolling freight car traversing down Track No. 2051. He looked into the truck, but did not see the driver. He immediately yelled a warning to him that a car was just humped down Track No. 2051. Within seconds, the humped car (CEFX 30498), a loaded gondola, coupled onto the two empty standing cars parked next to their truck. The impact of the coupling moved the two standing cars northward about 60 feet, striking the driver. The other Car Inspector ran around the front of the truck and found the injured Car Inspector lying face down between the wheel truck and the tie ends. He immediately called the Car Shop Lead Man and reported the incident. He also called the General Foreman's office, whose staff called 911 emergency service for an ambulance. The Car Shop Lead Man was the first person to arrive at the accident scene.

A Memphis fire truck and ambulance arrived at the accident site about 1:15 p.m. The ambulance took the injured Car Inspector to the Regional Medical Center Emergency Room. While being transported to the emergency room, the Car Inspector went into cardiopulmonary arrest. The ambulance attendants administered CPR and arrived at the medical center at 1:40 p.m. The Car Inspector was pronounced dead at 1:44 p.m. by an on-duty physician.

POST-ACCIDENT INVESTIGATION

The Memphis Terminal Yard tracks are geographically laid out northwest to southeast. The BNSF timetable direction is North to South. Timetable direction is used for this report. The Tennessee Yard has 54 class tracks, six intermodal tracks, and 14 departure yard tracks. Two main tracks lead into the yard from the north end, and two main tracks leave the yard from the south end. Tracks Nos. 2051 to 2055 are bowl tracks and are part of the hump yard. Freight cars released from the hump track by Crest Tower descend (south to north) into the bowl track. Cars humped onto Track No. 2051 are bad ordered cars destined for the car shop.

The Tower Yard Master in Crest Tower is responsible for directing freight cars from the hump track onto the bowl tracks. He can block out specific bowl tracks from humping operations by using a network program called Pro-Yard. Car department employees, when working a hump yard track, use the following procedure: They first notify the Crest Tower Yard Master about which track they will be working; the Yard Master applies a blocking device in the tower; then the car department employees set up temporary derails and blue flags for the appropriate track.

BNSF Crest Tower's list of cars and times they humped to Track No. 2051 on the day of the incident, July 11, 2006, follows:

BN 219278	10:00:48 a.m.
BN 453428	10:03:41 a.m.
TTPX 804672	10:27:44 a.m.
BN 621578	10:28:43 a.m.
AOK 181556	10:32:19 a.m.
FURX 824206	12:24:37 p.m.
CEFX 30498	12:48:46 p.m.
CSXT 224590	12:54:06 p.m.

The following information is the sequence of events beginning when wheel truck 17174 entered Memphis Hump Yard:

The AOK 181556 and FURX 824206 were 30-ton, covered gondolas. The Car Inspectors parked next to these two empty standing cars on Track No. 2051.

BN 219278, BN 453428, TTPX 804672, and BN 621578 were a cut of four standing cars first looked at by the Car Inspectors. These cars were positioned north of their vehicle on Track No. 2051. Not finding the defective car, they returned to their truck, walking on the service road. When the Car Inspectors reached the rear of the wheel truck, the deceased headed toward the driver's side and the other Car Inspectors headed toward the passenger's side.

CEFX 30498, a 124-ton, loaded gondola, was humped at 12:48:46 p.m. and observed by the passenger Car Inspector while he entered wheel truck 17174. This loaded car coupled onto AOK 181556 and FURX 824206. The impact of the coupling caused the cars to suddenly lunge

northward about 60 feet, striking the Car Inspector. Car AOK 181556 had blood marks on the north end, right side of the No. 1 wheel and the BR sill step. After striking the Car Inspector, this gondola car stopped at about 40 feet. The injured Car Inspector managed to roll over and was positioned face down between the tie ends and the access road. His hard hat, safety glasses, and a bad order tag were found in the gage of the tack under the car. Additional blood marks were observed on the ties and rail under the gondola.

The CSXT 224590 covered hopper was humped six minutes after the incident, coupling onto CEFX 30498. This occurred while the other Car Inspector and Car Shop Lead Man were attending the injured Car Inspector. The impact from the coupling moved the standing cars several feet. Track No. 2051 was then blocked at 12:58 p.m. about 10 minutes after the incident by Crest Tower.

The width of the truck, including the mirrors, was 110 inches with the driver's side door, which was opened 129 inches. The door measured about 42 inches from the ground to the bottom of the door. The truck is equipped with a tool crest and welder, located near the cab. An inspection of the driver's side door on wheel truck 17174 revealed no fresh marks, scratches, or dents. The truck was covered with a light coat of dust.

Post-Accident Toxicological Forensic Testing, mandated by the Federal Railroad Administration (FRA), was conducted on the deceased. The results of the test were negative.

Analysis and Conclusion

A yard records inspection conducted by FRA revealed that open gondola HCSX 104, which had the bent uncoupling lever, was actually on Track No. 301 (track outside the car shop), not on Track No. 2051. A computer search of the BNSF yard records indicated that on the day of the incident, this car was located on Track No. 2051.

Post-accident interviews with the surviving Car Inspector indicated that the incident occurred when the deceased Car Inspector was walking around the back of wheel truck 17174, heading toward the driver's side door. He apparently stepped in front of two standing cars (AOK 181556 and FURX 824206) that were located on Track No. 2051 at the same time the humped car CEFX 30498 coupled on to them. The impact from the coupling shoved the two cars northward about 60 feet, striking the deceased, whose injuries were consistent with the witness statement. The deceased's injuries were on the left side of his body, indicating he was facing south. When car AOK 181556 struck the deceased, the impact threw the Car Inspector under the hopper car. The number one wheel of the car ran over the Car Inspector's left arm and leg, causing a near severance to both. There was also blunt force trauma to his left, mid-chest wall. After the impact, the deceased managed to roll over and was found face down between the tie ends and wheel truck 17174.

Based on the employee interviews and schedule information data provided by BNSF, the Fatigue Avoidance Scheduling Tool (FAST) software calculated that the Car Inspector's alertness level

was 98 percent at the time of the incident. This alertness level was determined using the auto sleep function of the FAST software, due to the fact that specific sleep schedules were not available. This alertness level shows that the deceased Car Inspector was about two percent fatigued at the time of the incident.

There were no actual witnesses to the incident, and it is unclear why the deceased was in the foul of Track No. 2051. BNSF employees who were interviewed indicated that the wheel truck 17174 was not in the foul of Track No. 2051. The passenger Car Inspector said the driver never opened the truck door. No BNSF employee or supervisor said the Car Inspectors were performing inspections or work requiring them to have blue flag protection. What FRA has determined is that the deceased fouled Track No. 2051 and was struck by car AOK 181556.