U.S. Department
of Transportation

**Federal Railroad
Administration**

Certain Fatalities Investigated By The Federal Railroad Administration First Quarter 1987

Office of Safety
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ACCIDENTS REPORTS ACT - 45 USC 41

Section 41

"Neither the report required by Section 38 of this title nor any report of the investigation provided for in Section 40 of this title nor any part thereof shall be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report or investigation."

TABLE OF CONTENTS

INTRODUCTION

This report represents the Federal Railroad Administration's findings in its investigation of ten railroad employee fatalities suffered during the first quarter of 1987. Not included are the employee fatalities that occurred as a result of train derailments, collisions, or rail-highway crossing accidents; these are reported in the 1987 Summary of Accidents Investigated by the Federal Railroad Administration.

The purpose of this report is to direct public attention to hazards that exist in the day-to-day operation of railroads, to guide the overall Federal program to promote the safety of railroad employees, and to supply rail management, rail labor, and all other interested parties with information and analysis for use in training and other action to prevent similar accidents.

With this issue, FRA is changing the publication format to assist in the distribution of these reports. The reports will now be published quarterly and will be better suited to individual use.

J. W. Walsh
Associated Administrator
for Safety

CAUSE DIGEST

SUMMARY OF ACCIDENTS INVESTIGATED INVOLVING ONE OR MORE FATALITIES

RAILROAD	ACCIDENTS
ATSF	1
BOCT	1
CNW	2
CO	1
CR	1
MNCR	1
NW	1
SP	1
SSW	1

Accident Investigation Reports

REPORT: 1

RAILROAD: Southern Pacific Transportation Company (SP)

LOCATION: Cabazon, California

DATE, TIME: January 13, 1987, 9 p.m.

PROBABLE CAUSE: The employee failed to maintain control of his motor vehicle.

A probable contributing factor was the impairment of the employee by alcohol.

EMPLOYEE: Occupation . . . . . Trainmaster

Age . . . . . 37 years

Length of Service . . . . . 15 years

Last Rules Training . . . . October 21, 1986

Last Safety Training . . . . October 21, 1986

Last Physical Examination. . October 5, 1984

Circumstances Prior to the Accident

The accident occurred on Interstate Highway 10, about 4,600 feet east of Main Street, Cabazon, CA. The trainmaster was driving a white, 1985 Dodge Ram Charger, California license 1RFN908, registered to SP.

On the day of the accident, the trainmaster departed his Yuma, AZ, office at approximately 1 p.m. He intended to conduct train crew efficiency tests and yard checks in his territory while en route to an SP alcohol-drug awareness seminar scheduled for the following day in West Colton, CA.

At 4:45 p.m. that afternoon, another SP employee met with the trainmaster at a convenience market in Coachella, CA, about 120 miles west of Yuma, where yard status information was exchanged. Around 5 p.m., the two parted company, with the trainmaster saying he was " . . . going to get something to eat . . . ."

The Accident

At about 9 p.m., a truck driver operating his vehicle at 45-50 mph in the right lane of the westbound four-lane

interstate highway said he observed a vehicle pass him, moving in the same direction in the adjacent lane, traveling between 55-60 mph. Approximately 200 feet ahead, the truck driver saw the westbound vehicle drift to the left across the other lanes, go off the road, then strike and mount a highway guardrail. The vehicle straddled the guardrail for about 80 feet, and struck a concrete revetment bordering the east wall of a flood control channel. The vehicle continued westward over the wash, still straddling the bridge guardrail, for about 60 feet until it struck the top of the concrete wall bordering the west side of the channel where it fell about 15 feet into the dry creek bed below. The vehicle came to rest, front down, leaning against the retaining wall at about a 60-degree angle. The vehicle's gasoline tank evidently ruptured, and the vehicle was engulfed in flames. When the truck driver reached the vehicle, the trainmaster had evidently extricated himself from the vehicle and was nearby on his back. The trainmaster had major burns over his body and was conscious, asking for water.

Post-Accident Investigation

The trainmaster was transported by ambulance to San Bernardino County Hospital, where he was admitted with second and third degree burns over 70 percent of his body. According to police reports, a blood-alcohol test was administered two hours and 40 minutes after the accident. Those test results indicated a blood-alcohol concentration of 0.11 percent at the time the specimen was collected.

The initial California Highway Patrol accident report also indicated that the investigating officer charged the trainmaster with violation of California Vehicle Code Section 23152(a), " . . .(Driving) under the Influence . . . " based upon observations at the accident scene and associated statements of witnesses.

The trainmaster died from complications arising from injuries sustained in the accident, at about 2 a.m., January 16, 1987, 53 hours after the incident.

A witness testified that the trainmaster had consumed several alcoholic drinks at a restaurant in Indio, CA between 6:30 p.m. and 8:30 p.m. on the night of the accident.

Applicable Rules

State of California Vehicle Code
Article 2. Offenses Involving Alcohol
Drugs

Alcohol or Drugs: Driver

23152. (a) It is unlawful for any person who is under the influence of an alcoholic beverage . . . to drive a vehicle.

(b) It is unlawful for any person who has 0.10 percent or more, by weight, of alcohol in his or her blood, to drive a vehicle.

. . . . . .

In any prosecution under this subdivision, it is a rebuttable presumption that the person had 0.10 percent or more, by weight, of alcohol in his or her blood at the time of driving the vehicle if the person had 0.10 percent or more, by weight, of alcohol in his or her blood at the time of the performance of a chemical test within three hours after the driving.

General Code of Operating Rules
Southern Pacific Transportation Company, effective October 28, 1985

. . . . . .

G. The use of alcoholic beverages, intoxicants . . . by employees subject to duty, when on duty or on Company property is prohibited.

Employees must not report for duty, or be on Company property under the influence of or use while on duty . . . any . . . alcoholic beverage, intoxicant . . . that will in any way adversely affect their alertness, coordination, reaction, response or safety.

REPORT: 2

RAILROAD: CSX Transportation, Incorporated (CSX)

LOCATION: Largo, Florida

DATE, TIME: January 26, 1987, 11:58 p.m.

PROBABLE CAUSE: The employee placed himself in an unsafe position while pushing a freight car with a pole.

EMPLOYEE:

Occupation	Brakeman
Age.	46 years
Length of service.	18 years
Last Rule Training	October 16, 1986
Last Safety Training	No record
Last Physical Examination. .	December 24, 1986

Circumstances Prior to the Accident

The accident occurred at Largo, Florida, approximately 100 feet south of the main line clearance point with the Duval Industrial Spur switch. From the north, the spur turns out to the left with a 15-degree curve, having a 1.0-percent-descending grade southward.

On the day of the accident, the crew of the Clearwater Switcher (T-819) reported for duty at 9:30 p.m. at Clearwater, after receiving proper off-duty periods. The crew consisted of an engineer, conductor, flagman, and brakeman. The southbound train departed Clearwater with one locomotive and 35 cars and performed switching assignments prior to arrival at the Duval Spur at 11:15 p.m. for switching service. The crew, while pulling 13 cars, was attempting to drop the ten rear cars into the Duval Spur after pulling the locomotive and three cars by the facing-point switch leading into the siding. The cars stopped before the rear car of the ten had cleared, leaving the locomotive and remaining three cars stranded south of the clearance point. In an attempt to clear the switch into the spur, the flagman and brakeman decided to shove the tenth, or fouling, car northward out of the spur by using a 5-foot long, 4-by-6-inch piece of wood they found lying in the vicinity of the right of way. At the time of the accident, it was dark and cloudy.

The Accident

The flagman located on the west side of the main track placed the pole between the end of the third car behind the locomotive, Refrigerator Car SCL 996507, and the side of the tenth car in the spur, Refrigerator Car SCL 993488. The brakeman was located on the east side of the main track between the two cars directing the movement by radio. Several short moves were made by moving the pole along the side of the tenth car until it was possible to place the pole between the end of the tenth car and the end of the lead car of the three ahead of the locomotive.

The flagman placed the pole between the ends of the two cars, and the brakeman gave the order to move. As the movement started, slack caused the pole to fall to the ground. The brakeman, not realizing the pole had fallen, told the engineer to continue to shove. The flagman, realizing the brakeman was in a dangerous position, called out for the brakeman to move and radioed the engineer to stop. Before the movement could be stopped, the brakeman was crushed between the ends of the two cars. The Pinellas County Emergency Service was notified and arrived at 12:09 a.m. The paramedic pronounced the brakeman dead at the scene at 12:15 a.m.

Post-Accident Investigation

Post-accident statements of the train crewmembers indicate that dropping of cars is a common practice, and occasionally they would have to pole a car into the clear.

In this instance, poling of the car was necessary because no other locomotives were available in the area. The crewmembers are familiar with this type of switching movement, and it could not be determined why the brakeman placed himself in such an unsafe position.

Results of toxicological testing of the deceased and of the surviving crewmembers were negative.

Applicable Rules

The carrier has no specific rules for this type of operation.

REPORT: 3

RAILROAD: The Atchison, Topeka and Santa Fe Railway Company (ATSF)

LOCATION: Somerville, Texas

DATE, TIME: January 30, 1987, 1:15 p.m.

PROBABLE CAUSE: Employee was struck by flying debris from rip saw.

EMPLOYEE: Occupation . . . . . Lift Truck Operator

Age . . . . . 40 years

Length of Service . . . . 21 years

Last Rules Training . . . February 27, 1975

Last Safety Training . . . January 28, 1987

Last Physical Examination. June 16, 1965

Circumstances Prior to the Accident

On the day of the accident, a lift truck operator and two laborers went on duty at 7 a.m. at the ATSF's Somerville Centralized Tie Plant, and were told to cut vapor-drying strips. The three men went to the building where the gang rip saw was located. The laborer, who was to operate the saw, oiled, checked, and set the saw for cutting vapor-drying strips. A machinist came and checked the saw for the proper settings, turned on the blower and told them to start cutting. The lift truck operator took the board from the wood rack and placed them on the infeed rollers. The operator of the gang rip saw started feeding the boards into the saw; the other laborer removed the cut strips from the outfeed rollers and handed the remaining uncut board over the saw to the lift truck operator. This process continued until they stopped for lunch at 12 noon. After lunch, the laborer that was working on the outfeed side started operating the saw, and a third laborer was assigned to help with the cutting. At this time there were the saw operator, lift truck operator, and two outfeed laborers, one on each side of the outfeed roller rack.

The Accident

About 1:15 p.m., a board that was almost completely ripped, split, causing the saw to partially stall. When the saw recovered, it repelled ripped pieces of vapor-drying strips out

the infeed side. One piece of wood penetrated the left forearm of the saw operator, and another piece of wood penetrated the left side of the chest of the lift truck operator, who was standing about nine feet from the infeed side of the saw. The two men were taken by ambulance to St. Jude Hospital in Brenham, Texas. The lift truck operator died at 5 p.m. during surgery. The saw operator recovered from his injury.

Post-accident Investigation

The cause of death was listed as a "penetrating wound of foreign object (splinter) through left chest wall, lung, (and) heart."

The gang rip saw is located inside a 20-foot by 20-foot building at the Somerville Tie Plant. The saw is a Model RF 10 manufactured by Paulson Enterprises, Inc., with an electric Lincoln 40 horsepower motor. The saw has five 16-inch carbon tip blades that turn at 4,200 revolutions per minute. The saw has a self-feed sprocket located between the kickback safety guards, and an outfeed hold-down roller. These are all enclosed in the saw cabinet. The vapor-drying strips are 1/2-inch by 5/8-inch cut from oak boards not less than four feet or more than eight feet in length. The boards are started by pushing them under the first kickback safety guards and the self-feeding sprocket, then the self-feeding takes over, and the next board is lined up behind the one being ripped. The board that split on the infeed side was still under the inside kickback safety guards. Whether the following board to be ripped was under the outside kickback safety guards could not be determined.

Carrier officials inspected the saw and found no apparent defects and could offer no explanation of the occurrence.

Applicable Rules

No applicable carrier or
Federal Railroad Administration rules.

REPORT: 4

RAILROAD: The Baltimore and Ohio Chicago Terminal Railroad Company (BOCT)

LOCATION: McCook, Illinois

DATE, TIME: February 13, 1987, 1:15 p.m.

PROBABLE CAUSE: Failure to properly control movement.

A contributing factor was the failure to apply a sufficient number of handbrakes on cars left standing.

EMPLOYEE:

Occupation	Switchman
Age	57 years
Length of Service	35 years
Last Rules Training	May 31, 1986
Last Safety Training	May 31, 1986
Last Physical Examination	August 15, 1985

Circumstances Prior to the Accident

On the day of the accident, Run No. 27, a switching assignment consisting of an engineer, yard foreman, and two switchmen, reported for duty at 6:30 a.m. in Riverdale, IL, after completing proper off-duty periods. Run No. 27 arrived at the Reynolds Metal Company yard at McCook, IL, to perform switching at approximately 11 a.m.

In the accident area, there are four industry tracks, designated A through D from west to east, running south to north. There is a 10-degree, 30-minute curve to the east where the tracks merge at the north end. The tracks descend on a one percent grade to the north. Flat switching is accomplished on these tracks.

The Accident

After arrival at McCook, the crew obtained switching assignments and started switching cars at the north end of the four tracks. Then the crew performed the remainder of the morning switching assignments at the south end. Shortly after noon, the crew finished switching at the south end and stopped for lunch. At approximately 1 p.m., the crew was instructed to proceed through

Track C to Track No. 14, which is located in another area of the yard. The locomotive had one box car coupled to its south end and four covered gondolas (coil steel) cars coupled to its north end. The movement started northward on Track C at approximately 8 mph. The subject switchman was positioned on the northeast corner platform of the north car and was directing the engineer by hand signals which were supplemented by radio. The yard foreman and the other switchman were on the locomotive. As the movement neared the north end where Track D enters Track C on a right-hand curve, the cars standing on Track D blocked the engineer's view of the subject switchman from the locomotive. Shortly thereafter, the subject switchman directed on his portable radio, "That will do. Stop." The engineer applied the locomotive brakes and stopped the movement. The time was approximately 1:15 p.m.

Suspecting that an accident had occurred, the yard foreman and switchman proceeded northward where they observed the cars on Track D were fouling Track C. The switchman was killed instantly when the car he was riding struck the northernmost car on Track D, which was fouling Track C by approximately 50 feet.

Post-accident Investigation

During the morning switching, while working at the north end, the crew "kicked" four cars into Track D, coupling to two cars already standing at the north end of the track. They later "kicked" six cars in from the south end of the track which also coupled to the two cars. An additional gondola, which did not couple to the cars in Track D, was placed on the north end of Track D before lunch. Apparently, as the crew switched cars into Track D from the south end, the cars rolled out then or sometime shortly thereafter and fouled Track C.

No mechanical defects were found on the cars or locomotives that would have contributed to the cause. Post-accident investigation developed that the locomotive radio would not transmit but would properly receive.

Results of toxicological testing of the deceased and of the surviving crewmembers were negative.

Applicable Rules

Chessie System Railroads -
Operating Rules*

Movement of Trains

103-F. A sufficient number of handbrakes must be applied to hold cars and/or engines standing on any track; if brakes are inoperative, wheels must be blocked.

105. Trains using other than main tracks or controlled signaled sidings must proceed prepared to stop within one-half the range of vision, short of train, engine or switch not properly lined.

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* At the time of the accident, BOCT was governed by Chessie System Railroads Operating Rules.

REPORT: 5

RAILROAD: Metro North Commuter Railroad

LOCATION: Ossining, New York

DATE, TIME: February 27, 1987, 10:05 a.m.

PROBABLE CAUSE: Fire.

EMPLOYEE: Occupation . . . . . Pipefitter

Age 29

Length of Service . . . . . 6 1/2 years

Last Safety Training . . . . February 17, 1987

Last Physical Examination. . May 8, 1985

Circumstances Prior to the Accident

The accident occurred in the attic area of the carrier's passenger station at Ossining, New York, located on the Hudson Line 31 miles north of New York, New York. The station is a three-level brick structure elevated over four main line tracks. The ground level consists of tracks and passenger platforms. The second level consists of a ticket office, waiting room, baggage room, and boiler room. The third level consists of an unpartitioned attic. Access to the attic is solely by means of a trap door and a ladder.

Just prior to the fire, two welders using an electric arc welder were repairing a lock and hasp assembly on a metal door frame on the outside of the boiler room.

At the same time, two pipefitters were working in the attic installing new pipes for the station's heating system.

Accident

At about 10:05 a.m., a third pipefitter, who was returning to the work area with supplies, noticed smoke within the boiler room and immediately alerted the pipefitters who were working in the attic. One of the pipefitters in the attic escaped, while the other was unable to vacate the area and was overcome by smoke.

Post-Accident Investigation

Prior to the fire, the pipefitters were unaware that the welders were working at the station. The welders stated that they were

making repairs on the outside of the boiler room with the door closed when they realized that door was on fire. When they opened the door, the boiler room was engulfed in flames. Apparently, the intensity of the heat from the electric arc welding of the metal door frame ignited the interior wooden structure of the door. Subsequently, when the welders opened the door, it created a draft that caused the fire and smoke to spread quickly into the attic. The design of the attic prevented the pipefitter from evacuating in time.

Applicable Rules

No applicable carrier or Federal Railroad Administration rules.

REPORT: 6

RAILROAD: Consolidated Rail Corporation

LOCATION: Altoona, Pennsylvania

DATE, TIME: March 5, 1987, 10:15 a.m.

PROBABLE CAUSE: Employee was crushed during an attempt to remove a cable from moving equipment.

EMPLOYEE: Occupation . . . . . Trainman

Age . . . . . 63 years

Length of Service. . . . . 35 years

Last Rules Training. . . . . October 22, 1986

Last Safety Training . . . . March 4, 1987

Last Physical Examination. . November 1, 1986

Circumstances Prior to the Accident

In the accident area, there are two parallel tangent tracks that extend north and south. From the west to east, the tracks are Cove Secondary and Industrial Siding; off the Industrial Siding is a switch leading southward into two industrial tracks that are used for car placement on the east and west sides of the South Altoona Material Distribution Center. The terrain in the accident area is practically level. However, there is a descending grade from the Industrial Siding entrance switch southward into the two industrial tracks.

Switch crew YAAL-20 reported for duty at 3:00 p.m. on the day of the accident after receiving proper off-duty periods. The crew, consisting of an engineer, reserve engineer, conductor, and trainman, was placing six box cars at the Altoona Material Distribution Center. The crew initially attempted to make a "drop switch" of six box cars, by pulling the cars, uncoupling the locomotive and pulling beyond the switch. After the locomotive had cleared, a trainman would realign the switch, and the cars would roll into the Distribution Center Track. However, the cars lost momentum and stalled, leaving three cars on the Industrial Siding and three cars just south of the switch entering into the Distribution Center. The subject trainman then searched for and found two lengths of wire cable and attached them together to provide sufficient length to attach the cable between the locomotive knuckle on the north end and the southwest sill step of the south car. The south car, when pulled by the

cable, rolled free into the industrial track, and the trainman secured the car by setting the hand brake. The second south car was uncoupled from the remaining four cars and pulled by attaching the cable between the southwest corner and the locomotive. After pulling, it also rolled down and coupled to the first car in the industrial track. In each instance, the cable was removed from the car by the trainman after the pull started the car rolling into the track. The third car was then uncoupled, and with the cable looped around the sill step at the southwest corner of the box car and attached to the coupler of the locomotive, the pull was made. The conductor was at the north end of the car and had just uncoupled the subject car, and the trainman was at the south end of the car. Both employees were positioned on the east side of the Industrial Siding. Control of the movements was by both hand signals and radio. Both employees had radios. The trainman was last seen by the reserve engineer, who was operating from the east side of Locomotive No. CR 9344 at the time of the accident.

The Accident

According to the reserve engineer, while pulling, he received a hand signal from the trainman to stop for cable removal. The locomotive stopped on the Industrial Siding, but the front portion of the locomotive did not have enough clearance to allow Car No. CR 170208 to roll into the industrial track, and the southwest corner of the box car struck the northeast corner of the locomotive. At that instant, the trainman crossed in front of the locomotive and was killed instantly. He apparently was either checking the clearance or attempting to remove the cable from the moving equipment, and he was crushed between the equipment. The conductor walked southward and found the trainman lying between the east rail of the Industrial Siding and the west rail of the industrial track entering into the Distribution Center.

Post-Accident Investigation

Inspection of Car No. CR 170208 revealed the southwest ("AR") sill step bent inward from looping of cable around it, the southwest ("R4") journal box lid with cable mark indications, and the south ("A") end coupler with shiny metal indications on top of coupler.

The impact between Locomotive No. CR 9344 and Car No. CR 170208 damaged both vertical handholds on the northeast (right front) corner of Locomotive No. CR 9344 and bent the "A" end ladder stile inward on Car No. CR 170208. Inspection of the equipment revealed no defects that could be considered a contributing factor to the accident.

The radios used by the crew were tested and found to be

functioning as intended.

Results of toxicological testing of the deceased and on the surviving crewmembers were negative.

Applicable Rules

CONSOLIDATED RAIL CORPORATION
RULES OF THE TRANSPORTATION DEPARTMENT

Rule 12 - Hand signals must be given from a point where they may be plainly seen, in a manner that can be understood and sufficiently in advance to permit compliance.

If there is doubt concerning the meaning of a signal, or for whom it is intended, it must be regarded as a stop signal.

Rule 130B - Running switches (often referred to as a drop of cars) should be avoided if practicable. Such moves must not be made with cars containing hazardous materials, passengers, or livestock, nor to a track occupied by such cars or to a track leading to a trestle or building.

REPORT: 7

RAILROAD: St. Louis Southwestern Railway Company

LOCATION: Overland, Missouri

DATE, TIME: March 13, 1987, 8:40 a.m.

PROBABLE CAUSE: An uncontrolled movement of three freight cars on a 0.98-percent-descending grade for reasons unknown.

EMPLOYEE: Occupation . . . . . Track Foreman

Age . . . . . 61 years

Length of Service . . . . . 31 years

Last Rules Training . . . . May 30, 1986

Last Safety Training . . . . May 20, 1986

Last Physical Examination. . April 14, 1983

Circumstances Prior to the Accident

A maintenance-of-way track crew working within yard limits was engaged in surfacing the single main track with a production tamper in the metropolitan area of St. Louis, Missouri. The four-man crew, consisting of the foreman, a machine operator, and two trackmen, commenced work at 7 a.m. and about an hour and 50 minutes later was surfacing the main track in a westward direction at milepost 11.3.

After receiving proper off-duty periods, a five-man yard switch crew went on duty at 7:59 a.m. at Lackland Yard. At about 8:20 a.m., the yard switch crew placed three coupled freight cars onto the main track up grade and about 1.2 miles west of the track surfacing crew. The air hoses were coupled, and according to the switch foreman of the crew, a handbrake had been applied on the east car, a loaded covered hopper car. The middle car was an empty box car and the third car on the west was an empty covered hopper car.

During another switching movement, the crew placed a single car onto the main track just to the west of the three cars. A coupling was not made, and the single car was left standing about a foot short of a coupling with the three cars. All of the cars were located on a 0.98-percent-descending grade to the east. No attempt was made to couple the cars before the switch crew left the Lackland Yard area for additional switching at an industrial area. After leaving the cars on the main track, the switch crew

performed additional switching in Lackland Yard and then, at about 8:35 a.m., proceeded to an industrial area for additional switching. The four cars were left unattended on the main track. The engineer and one switchman stated they observed the cars standing on the main track when they left Lackland Yard.

The track foreman had an understanding with the switch crew foreman about the working limits of the production tamper and the location of the red "stop" flag at milepost 11.7. As an additional precaution, torpedoes were placed on the rail about 0.7 of a mile to the west of the "stop" flag to alert any oncoming switch or train crew to the tamper.

The weather was clear and calm, and the temperature was about 51 degrees F.

The Accident

The track foreman and two trackmen were working in the track just west of the tamper trying to remove a track spike at a rail joint. Sometime after the switch crew departed Lackland Yard for the industrial area, the three cars coupled together on the main track commenced rolling downgrade to the east. At about 8:40 a.m., the runaway cars rounded a 2-degree curve and traveled a distance of 502 feet on tangent track before striking the three men working, and colliding with the production tamper at milepost 11.3. The men were unable to hear the torpedoes explode or the approaching cars because of noise from the tamper. The track foreman was killed; the tamper operator and one trackman were severely injured. The other trackman was slightly injured.

Post-Accident Investigation

An FRA examination of the three runaway cars involved in the collision with the production tamper revealed that the handbrake wheel on the middle car had been turned two revolutions but that this was not sufficient enough to activate the brakes. The remaining two cars did not have the handbrakes applied. A small, short discharge of air was noted when the release valve was pulled and held on the middle car. The train line angle cock on the east end of the east car was sheared off in the collision with the tamper. This angle cock was closed. All other angle cocks on the three cars were cars were aligned for use of air.

Post-accident investigation determined that the handbrakes on all three cars worked and any one of the three brakes, when set, would prevent movement of the three cars. The angle cock on the east end of the east car that was damaged in the collision with the tamper was replaced, and air brake tests were conducted to simulate the switching situation described by the switch crew. The angle cock on the east end of the east car was closed, and the locomotive on the west end of the three car cut charged the

air brake system with 90 pounds of air pressure. The cars were placed into emergency by uncoupling the locomotive. The brakes on all wheels applied, but the brakes on the east car released after a few minutes. The brakes on the two other cars, however, worked properly and remained applied. Based on this investigation it is possible that the air brake systems on the cars were not fully charged when left on the main track, and it is also possible the handbrakes were not fully applied.

A review of the railroad's accident records revealed a derailment at Lackland Yard on August 18, 1985, when, allegedly, persons unknown released the air and handbrakes on two cars, causing them to run over a derail. Another accident attributed to vandalism occurred at milepost on November 25, 1985, when a switch that had been tampered with caused the injury of one person, severe damage to a locomotive, and the derailment of five cars.

Results of toxicological testing of the deceased and of the surviving crewmembers were negative.

Applicable Rules

GENERAL CODE OF OPERATING RULES

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MOVEMENT OF TRAINS AND ENGINES

. . . . . .

103(k). Test Handbrakes: Employees must know how to operate the type of brakes they are to use. When necessary to control or prevent movement of cars by handbrakes, test must be made to know that handbrakes are operative before they are depended upon.

103(l). Securing cars or engines: The air brakes must not be depended upon to hold a train, engine or cars in place when left unattended.

When train, engine or cars are left standing, a sufficient number of handbrakes must be applied to prevent movement with air brakes released. If handbrakes are not adequate, wheels must be blocked.

Before an engine is detached from a train or cut of cars that are to be left standing on a grade, slack must be bunched and a sufficient number of handbrakes must be set on the descending end of train or cars to secure the detached portion.

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REPORT: 8

RAILROAD: Norfolk and Western Railway Company

LOCATION: New Haven, Indiana

DATE, TIME: March 28, 1987, approximately 10:45 a.m.

PROBABLE CAUSE: Loss of secure handhold and/or footing due to close clearance with a fallen box car door.

EMPLOYEE:

Occupation	Yard Brakeman
Age	36 years
Length of Service	16 years
Last Rules Training	February, 1986
Last Safety Training	February, 1987
Last Physical Examination	October, 1986

Circumstances Prior to the Accident

On the day of the accident, after the required off-duty periods, a yard crew consisting of an engineer, a conductor, and two yard brakemen (a "field man" (victim) and a "pin puller") reported for duty at East Wayne Yard, New Haven, Indiana, at 7:15 a.m. East Wayne Yard is a flat switching yard (as opposed to a hump yard). The weather conditions were clear with a temperature of 40° F. When reporting for duty, the yardmaster informed the crew that during the previous shift a door had fallen from a box car slated for repair and that the door was located between Track Nos. 17 and 18.

After performing various switching assignments, the crew was assigned to switch Track No. 12. Working at the west end of the yard, the crew pulled 27 cars westward out of Track No. 12 and shoved 13 cars to clear into Track No. 21, and the field man controlled the movement by hand held radio. The remaining 14 cars were then flat switched into various tracks. One car was switched to Track No. 12, two cars back to Track No. 21, five cars to Track No. 15, one car to Track No. 16, and five cars to Track No. 15. During the switching, the field man's duties included opening knuckles and setting handbrakes on the cars in order to prevent movement onto the switching lead out the east end of the yard. The crew then pulled a second cut of cars out of Track 12 and began flat switching. The conductor stated that he last saw the field man walking west between Track Nos. 16 and 17 preparing to cross Track No. 17 to board the cut of cars entering Track No. 18.

The Accident

After the conductor saw the field man, four cars were then switched to Track No. 18, five cars were switched to Track No. 16, one car was switched to Track No. 10, and one car was switched to Track No. 18. At approximately 10:25 a.m., a car inspector was walking through the yard to obtain a blue signal from a post at the west end of Track Nos. 18 and 19 when he observed a body lying across the north rail of Track No. 18 about 200 yards from the switch leading into the track. Apparently, the field man had been killed instantly when struck by the four cars switched into Track No. 18 approximately 20 minutes earlier.

Post-Accident Investigation

Post-accident investigation revealed that the field man had been struck by the north wheel on the east end of Car No. SOU 15200, a box car. This was the second car of the four-car cut that had been switched to Track 18. In the accident area, there was a sliding type door from Box Car No. ICG 567620, measuring 10' by 10'6", between Tracks 17 and 18, leaning upright against a covered hopper car on the adjacent Track No. 17. There was no evidence of contact between the door and the victim. The clearance between the door and the box car measured 16 inches at the closest point. There is a possibility that the victim did physically contact the door because of its proximity to the accident location. From available evidence, it appears that the victim was attempting to board the four-car cut entering Track No. 18 to set a hand brake as it entered the track, and either slipped, or struck the door, and fell under the rolling cars.

Post-accident inspections of the involved cars revealed no mechanical defects that would have contributed to the cause of the accident.

Results of toxicological testing of the deceased and of the surviving crewmembers were negative with the exception of those of one employee. The pin puller's blood was found to contain 2.5 ng/ml delta-9-tetrahydrocannabinol and 33 ng/ml of the carboxylic acid metabolite of delta-9-tetrahydrocannabinol; his urine was found to contain 217 ng/ml of the carboxylic acid metabolite of delta-9-tetrahydrocannabinol. No other drugs or alcohol were identified. There is no evidence to indicate that the actions of the pin puller contributed to the cause of the accident.

Applicable Rules

The Norfolk and Western Railway Company Safety Rules and Rules of General Conduct

Working On Or About Tracks

1051. Employees on or about tracks must be alert, watchful and keep out of danger, exercising care to avoid injury to themselves and others. Nothing in these rules is to be construed as relieving any employee from performing full duty in this respect.

1073. When getting on or off equipment, employees must face the equipment and have secure hand hold and footing. Watch for equipment on adjacent tracks, close clearances, obstructions, irregularities, or openings on the ground. Get on or off side away from main track or close clearance when conditions permit.

REPORT: 9

RAILROAD: Chicago and North Western Transportation Company

LOCATION: Hayward, Wisconsin

DATE, TIME: March 28, 1987, approximately 12:45 p.m.

PROBABLE CAUSE: Failure to avoid a close clearance.

EMPLOYEE:

Occupation	Brakeman
Age	60 years
Length of service	14 years
Last Rules Training	April 25, 1986
Last Safety Training	May, 1984
Last Physical Examination	February 3, 1987

Circumstances Prior to the Accident

After receiving proper off-duty periods, the crew of Train WWN-34 consisting of an engineer, fireman, conductor, front brakeman, and rear brakeman went on duty at 7:00 a.m. On the day of the accident, the weather was clear, dry, and cold, and visibility was good.

Train No. WWN-34 arrived at Louisiana Pacific Corporation Hayward, WI, at approximately 12:15 p.m. to remove loaded box cars from the Louisiana Pacific's warehouse. The industrial spur track leading into the warehouse loading dock is approximately 1/4-mile long extending generally west to east with little or no grade. The cars needing to be spotted in the warehouse were located on the main track. After completing a series of switching moves, five cars were coupled to each end of the two locomotive units. At this point, the two brakemen and the conductor were located near the clearance point of main track and spur. It was at this time, the conductor issued instructions to the train crewmembers. The conductor's instructions were as follows: the rear brakeman would ride on the northeast corner of the leading car into the warehouse loading dock, apply a handbrake to secure the cars, send the movement back to the main track, and close the warehouse door. The front brakeman would remain at the main track switch and wait for the return movement to the main track. The conductor would, during the switching movement, make a list of loaded cars standing on the main track that they had previously pulled from the warehouse. The train crewmembers were all aware of these instructions.

The Accident

At approximately 12:40 p.m., the eastward shove into the warehouse began. The rear brakeman was riding on the northeast corner of the lead car and was controlling the movement by radio communication with the locomotive engineer who was located on the south side of the east locomotive. The cars on the east end of the shove were stopped inside the warehouse at the loading dock. After the cars were placed at the dock, the rear brakeman walked along the north side of the cars and applied a hand brake on the second car from the east end. The rear brakeman then walked to the rear car and made a cut between the fourth and fifth cars, gave instructions to the engineer to back westward pulling the remaining car and then return to the main track. The time was approximately 12:55 p.m.

Upon arrival at the main track, the crew realized that the front brakeman was not at the switch as previously directed by the conductor. Efforts to contact the front brakeman using radio communications failed. The conductor and rear brakeman began to look for the front brakeman.

The rear brakeman returned to the Louisiana Pacific warehouse to look for the front brakeman. Upon entry to the loading dock, the front brakeman was discovered pinned between the first west box car (CNW 91539) and the loading dock. Apparently the victim had boarded the side of this car and ridden the movement into the warehouse. The conductor checked the front brakeman for vital signs. Emergency crews were immediately summoned. The Sawyer County Sheriff's Department and county coroner arrived at the scene at approximately 1:10 p.m., and the victim was pronounced dead.

Post-Accident Investigation

The industrial spur track provides an unobstructed view of both sides of the track upon entry to the warehouse. The industrial spur has an S-type curvature with a dirt road parallel on the north side and affords a virtually unobstructed view on the south side (engineer's vantage point).

The entrance to the warehouse loading dock is marked "No Clearance," and clearance between the car and the entrance way is approximately 15 inches. The clearance between the car and loading dock is progressively narrowed from 15 inches at the entrance to 4 inches within a 25-foot span. The engineer has approximately a 12-car-length view of the warehouse just prior to entry into the loading dock area.

The front brakeman's actions and responses prior to the incident were considered normal. The other crewmembers could not account for the front brakeman's actions contrary to the previous

understanding of his assignment. The radios used during the switching operations were all checked for reliability and found to be in good working order.

Results of toxicological testing of the deceased and of the surviving crewmembers were negative or within medically authorized limits.

Applicable Rules

No applicable FRA or carrier rules.

REPORT: 10

RAILROAD: Chicago and North Western Transportation Company

LOCATION: Edwardsville, Illinois

DATE, TIME: March 31, 1987, 9:57 a.m.

PROBABLE CAUSE: Failure of the occupants of a hi-rail vehicle to clear the main track in a timely manner.

A contributing factor was the operation of the train in excess of carrier authorized speeds.

EMPLOYEE:

Occupation:	Trainmaster/Agent
Age	39 years
Length of Service	17 years
Last Rules Training	April 21, 1986
Last Safety Training	March 18, 1986
Last Physical Examination. .	April 12, 1985

Circumstances Prior to the Accident

A roadmaster headquartered at Benld, Illinois, went on duty at 6:30 a.m., on March 31, 1987. He performed office work and briefed his employees concerning the day's work. Then, at about 8 a.m., the trainmaster/agent arrived for a joint track inspection and for efficiency testing. The roadmaster and trainmaster/agent departed via highway to Madison, IL, in the roadmaster's hi-rail pick-up truck. At about 9:30 a.m., the two men arrived at the Dump Road Crossing (milepost 148), within railroad yard limits at Madison. Permission was requested from the yardmaster at Madison to hi-rail northward toward Benld, and this permission was granted. The yardmaster at that time informed them of a southward train located between Nilwood, IL, (milepost 90.8) and Benld (milepost 111.7). The roadmaster also had in his possession Track Line-up No. 116 of that date which provided train location information. The line-up was issued by the dispatcher at 5:24 a.m. that same day. The roadmaster and trainmaster/agent departed the Dump Road Crossing heading northward at 9:35 a.m. The roadmaster was operating the hi-rail vehicle, and the trainmaster/agent was seated in the right front seat wearing a combination seat belt and shoulder strap.

A Chicago and North Western Transportation Company (CNW) freight train, Extra 6880 South, was the train identified by the

yardmaster as operating southward between Nilwood and Benld. The train had departed South Pekin, IL, (milepost 13.2) at 6:30 a.m. with a four-man crew consisting of an engineer, front brakeman, conductor, and flagman. The train crew had received the required off-duty rest period before reporting for work at South Pekin at 6 a.m. on the day of the accident. The train was made up of two locomotives, 49 loaded cars, 32 empties, and a caboose, for a total of 5,139 tons. No train air brake test was required at South Pekin as the test was performed at the train's originating terminal in Chicago, Illinois. The train's destination was Madison, 136 miles from the crew's originating terminal at South Pekin. The engineer was on the right at the controls of the lead locomotive, and the front brakeman was on the left. The conductor and flagman occupied the caboose.

On this part of the railroad, trains are operated by Direct Traffic Control (DTC) whereby the train dispatcher issues track warrants to authorize train movements into sections of the single main track railroad known as "blocks." Operating employees are also governed by the timetable, special instructions, general and special orders, and other rules contained in the General Code of Operating Rules. This is non-signaled territory. The maximum authorized train speed on this subdivision is 49 mph. It was daylight; the weather was clear; the temperature was about 33° F.

The train entered the area of a 30-mph slow order at milepost 133.5, at 9:52 a.m., and, some four minutes later, the train was operating past Le Claire Siding at approximately 35 mph. After passing the south end of Le Claire Siding at milepost 136.2, the train slowed as it approached a 3-degree 45-minute curve at a speed of about 32 mph, the engineer observed a hi-rail vehicle on the track ahead and immediately made an emergency application of the train air brakes.

The Accident

The hi-rail vehicle was nearing the south end of Le Claire Siding, operating on the 3-degree 45-minute curve at a speed of about 30 mph, according to the roadmaster, when the trainmaster/agent first saw the headlight of the approaching train and shouted for the roadmaster to jump. The roadmaster applied the brakes, tried to shift the vehicle's transmission into reverse, and then jumped.

Extra 6880 South struck the hi-rail vehicle at milepost 136.37 at about 9:57 a.m., approximately 925 feet from the switch into the south end of Le Clair Siding where the hi-rail could have cleared. The trainmaster/agent was seat-belted in the vehicle when the collision occurred and was killed on impact. The momentum of the train carried the hi-rail vehicle 702 feet down the track before stopping. The roadmaster sustained only minor cuts and bruises when he jumped from the moving hi-rail vehicle.

Post-Accident Investigation

CNW Engineering Department rules require that the maximum authorized train speed be used in figuring the train time between stations and then clearing the train 10 minutes earlier. With the information supplied by the yardmaster, the men in the hi-rail were required to assume that the train was at Benld at 9:30 a.m. The running time on the 24.5-mile distance between Benld and Le Claire would have been 30 minutes. Therefore, the hi-rail would have had to be in the clear at Le Claire by 9:50 a.m., approximately 7 minutes before the collision.

According to the operator/clerk located at Madison, the Madison yardmaster was informed by the operator/clerk that Extra 6880 South was by the Nilwood hot box detector located at milepost 90.9 at 8:54 a.m. The dispatcher's train sheet also shows the train's time at Nilwood to be 8:54 a.m.

The speed recorders on both locomotives were determined to be accurately calibrated. The lead locomotive was not supplied with recording tape, but the speed recorder tape from the trailing locomotive, UP 3511, shows that Extra 6880 South was by Benld about 9:22 a.m. and by De Camp (milepost 119.8) at about 9:34 a.m. The speed recorder tape also shows that the maximum authorized speed of 49 mph was exceeded in two instances, and that permanent speed restrictions and temporary speed restrictions were also exceeded.

The sight distance between the train and the truck was about 497 feet.

The train air brakes were inspected and found to function as intended.

Toxicological tests performed on the remains of the deceased and on blood and urine samples provided by the surviving employees were negative.

Applicable Rules

Chicago and North Western
Transportation Company

Rules of the Engineering Department
(Effective April 27, 1986)

TRAIN LOCATION LINE-UPS

1002. The time of trains must be cleared no less than 10 minutes. If the line-up indicates a schedule train is running late, the later time will be used. In figuring the

time of a train between stations, the maximum authorized speed for that train will be used.

General Code of Operating Rules
(Effective April 27, 1986)

106(A). MAXIMUM SPEED: Conductors and engineers are jointly responsible for ascertaining the maximum authorized speed for the operation of their train or engine and such speed must not be exceeded.