U.S. Department
of Transportation
**Federal Railroad
Administration**

Railroad Employee Fatalities Investigated by the Federal Railroad Administration in 1982

Office of Safety

DOT/FRA/RRS

September 1984

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INTRODUCTION

This report represents the Federal Railroad Administration's findings in the investigation of railroad employee fatalities during 1982. Not included are fatalities that occurred during train operation accidents; these are reported under another type of investigation.

The purpose of this report is to direct public attention to the hazards inherent in day-to-day operations of railroads. It provides information in support of the overall Federal program to promote the safety of railroad employees. It also furthers the cause of safety by supplying all interested parties information which will help prevent recurrent accidents.

Joseph W. Walsh
Chairman
Railroad Safety Board

CAUSE DIGEST

CAUSE DIGEST

SUMMARY OF ACCIDENTS INVESTIGATED
INVOLVING ONE OR MORE FATALITIES

RAILROAD	ACCIDENTS
AMTRAK	2
ATSF	2
BN	14
BO	1
CCO	1
CGA	1
CNW	4
CO	1
CR	11
CV	1
HBT	1
ICG	1
LI	1
LN	1
MP	2
NW	5
PW	1
SCL	2
SOO	1
SOU	2
SP	4
TRRA	1
UP	2
UTAH	1
WP	1

ACCIDENT INVESTIGATION REPORTS

REPORT: 1

RAILROAD: Chesapeake and Ohio Railway Company

LOCATION: Gladstone, Virginia

DATE: January 1, 1982

The Accident

A 61-year-old conductor was fatally injured on January 1, 1982, at about 6:05 p.m., in Gladstone, Virginia. Employed by the Chesapeake and Ohio Railway Company, the conductor had 30 years of service. The weather was cloudy, and the temperature was 40°F.

Background

The Gladstone Yard is a flat switching yard with a slight descending grade in an eastward direction. Yard crews work around the clock in this yard performing routine switching operations under the jurisdiction of a yardmaster. Mainline trains enter and leave the yard under the authority of the yardmaster. There are established yard limits.

The employee last attended an Operating Rules Class on June 23, 1980, and a Safety Rules Class on October 12, 1981.

Circumstances of the Accident

Prior to the accident the employee had been called at 12:30 p.m., January 1, 1982, as conductor on Extra 3763 West operating from Richmond to Gladstone, Virginia. Extra 3763 departed Richmond at 12:45 p.m. and arrived at the east end of Gladstone Yard at 4:40 p.m.

Because of congestion in the yard, Extra 3763 West was held outside the yard. Extra 3763 West was later released by the yardmaster after the route was lined by a yard crew. With darkness setting in, the front brakeman was on the ground walking westward checking the switches. The train was moving 3 to 5 mph. The brakeman was uncertain whether No. 3 switch was properly lined and seeing the lead unit approaching, gave the engineer a "stop" signal with his latern. The engineer applied the train brake and stopped the train. The conductor, at that time, was out of his seat making an adjustment to the stover on the caboose when the slack ran in and he was thrown down, striking the back of his head on the floor.

The brakeman in the caboose went to assist the conductor and found him stunned, and was told that he had a headache and dizziness. The brakeman and a yard crewman took him to the nearby YMCA, where a rescue squad was called and he was then taken to a hospital. The conductor was examined and found that he had a Subdural Hematoma and a swollen brain. He died in the hospital on January 16, 1982.

Applicable Rules

ON LOCOMOTIVES AND CAR

82. When on cabooses, cars, or locomotives, employees must exercise care to avoid injury from slack action or from sudden start or stop. In cabooses or locomotives, they must remain seated when duties permit, and wear seat belts when provided.

(Chessie System Safety Rules)

Analysis

As Extra 3763 West was moving into the yard, the front brakeman gave the engineer a stop signal and as the slack ran in, the conductor was thrown down, striking his head on the floor of the caboose.

Cause

The failure of the employee to assume a safe and proper position when riding in a caboose.

REPORT: 2

RAILROAD: Norfolk and Western Railway Company

LOCATION: Tilton, Illinois

DATE: January 8, 1982

The Accident

A 27-year-old carman was fatally injured on January 8, 1982, at about 12:15 p.m. in the trailer (TOFC) yard in Tilton, Illinois. Employed by the Norfolk and Western Railway Company, the carman had 8 years of service. The weather was clear and the temperature was 20° F.

Background

At the Tilton Yard, a private contractor loads and unloads TOFC's from flat cars via a portable ramp positioned at one end of a cut of cars. When the contractor is finished loading or unloading, the portable ramp is moved with a highway tractor. A hitch is provided on the ramp for this purpose. When the ramp is to be moved, the hitch is in an up position enabling the tractor to back under it and move the ramp. When the ramp is being used for loading, the hitch is in a down position between the treadways of the ramp. The hitch is locked in the up position with a locking pin, inserted in a diagonal support tube.

Each morning as the carmen go on duty, a safety rule of the day is discussed. The last formal instruction that the carman received was on November 10, 1981, which covered intermodal safety. He passed his last physical examination on June 27, 1978.

Circumstances of the Accident

Shortly before the accident, three carmen completed inspection of the cars that were to be loaded. A contractor's employee then asked the carmen if they could do something about the ice and snow in and around the support tube of the hitch on the ramp. The three carmen inspected the ramp and decided that they could burn holes in the metal plate under the hitch thereby allowing the ice and snow to run out when melted. After consulting with their foreman, they started to burn the necessary holes. The carman was kneeling on the ground with the upper portion of his body extended between two legs of the hitch, and was operating the burning torch. A second carman, who had been scraping ice from the location where they were burning the holes, was standing on one of the treadways immediately adjacent to the hitch. The third carman was standing hear the truck containing the acetylene and oxygen tanks.

Without warning, the hitch fell down crushing the carman. The two carmen standing near, later stated that the hitch fell so fast that they did not see it fall.

Applicable Rules

Not applicable.

Analysis

The two uninjured carmen stated that they had never worked on this piece of equipment before and that they were not aware that their was a locking pin that should have been inserted in the support tube. They stated that the ramp had been in the same position all during the period that they were inspecting the cars and that the hitch was in the up position during that time.

Post-accident inspection of the hitch by carrier officers revealed that the hitch could not be raised to a lockable position. The holes through which a locking pin should have been placed were misaligned 1 1/2 inches. The support tube was then removed by the carrier and inspected. That inspection revealed that the support tube was partially filled with solid ice, and was holding the hitch in an upright position. The locking pin, which should have been in the support tube, was found buried in the snow on another part of the hitch.

Apparently, the combined actions of the torch and the chipping of ice by the second carman loosened the ice holding the support tube allowing it to fall.

Cause

The accident was caused by the failure of the carmen to take some action to prevent the hitch from falling to the down position. A contributing factor was the carmen's lack of familiarity with the equipment.

REPORT: 3

RAILROAD: Consolidated Rail Corporaiton

LOCATION: Elkhart, Indiana

DATE: January 16, 1982

The Accident

A 61-year-old trackman and a 66-year-old trackman were fatally injured on January 16, 1982, at about 9:30 p.m., in Elkhart, Indiana. Employed by the Consolidated Rail Corporation (Conrail), the two employees each had 24 years of service.

Background

The Elkhart Yard consists of westbound and eastbound receiving, classification, and departure yards. Automatic switching is performed at the Master Tower which is located at the hump, and controlled by a computer for classification and retarding. Cars in this yard area are humped from east to west. The hump has twin master retarders, each of which leads to four retarder groups with nine tracks in each group. The groups are numbered 1 through 8, beginning at the north.

The accident occurred on track No. 22 in the group 3 retarder. The trackmen were ordered to follow jet-snow-blowers in group 1 and 2 retarders, and spread pollymelt in the switch areas to melt the snow. Visibility was only about 600 to 700 feet, due to snow being blown by winds gusting from 15 to 20 mph. The temperature was $-13^{o}F$.

The carrier requires each foreman to hold a short safety meeting each day immediately after his employees go on duty to discuss the Rule-of-the-Day. A safety meeting was not held on the day of the accident.

Both trackmen were employed for 24 years, and worked in the Elkhart area most of the time. They had been issued safety rule books but were not required to take the safety rule examination.

Circumstances of the Accident

On the day of the accident, the two trackmen reported for duty at the tool house at 3 p.m. Their supervisor instructed them to work on track groups 1 and 2. He did not, however, inform them that the adjacent group 3 was in service.

Shortly before the accident the supervisor in his truck, located approximately 200 feet from the group 3 retarder, noticed both trackmen had strayed over into the group 3 retarder. He immediately left his vehicle to warn the employees that they were in an area not protected from switching operations. It was at the time that both men were struck by a box car being switched into the group 3 retarder, on track No. 22. The first man was run over by the box car, and the second man was struck and carried down the track for a distance of approximately 800 feet.

Both trackmen were pronounced dead on arrival at the Elkhart General Hospital, by the county coroner.

Applicable Rules

3202. Employees working on track, who are not protected by foreman or watchman looking out for trains, must look out for trains themselved. They will assume a position and perform work in such a manner that will permit making frequent observations in both direcions . . . .

3213. . . . . .

(d) In Yard:

. . . . . .

2. Clear track on which working on approach of a train on that track.

(Conrail Safety Rules Maintenance of Way and Structures Employees)

Analysis

The two trackmen were killed when struck by the "B" end of a box car after it moved through group 3 retarder onto track No. 22.

The car retarder operator in the CRO Tower did not observe the two men who had strayed out of the protected group 1 and 2 and began working on group 3, approximately 75 feet south of group 2, account of the limited visibility due to blowing snow.

A blood sample was taken from the body of one of the employees and analysis showed no evidence of alcohol. A sample was not obtainable from the second employee.

Cause

A wind chill factor of -55°F, blowing snow, apparently reduced the employee's attentiveness to expect movement of equipment on any track, at any time. A contributing factor was the foreman's failure to inform the trackmen that group 3 retarder was in operation.

REPORT: 4

RAILROAD: Clinchfield Railroad Company

LOCATION: Chesnee, South Carolina

DATE: January 17, 1982

The Accident

A 33-year-old locomotive fireman was fatally injured on January 17, 1982, at about 12:35 a.m. near Chesnee, South Carolina. Employed by the Clinchfield Railroad Company, the fireman had 11 years of service.

Background

At the accident site the north-south single main track is crossed by an east-west rural dirt road. From the north a second rural dirt road, approximately parallel to and west of the main track, terminates at its junction with the east-west road. Both roads are tangent and approximately level, expect for an ascending grade in the crossing approach.

The temperature at the time of the accident was 20°F, the sky was clear, and there were accumulations of ice and snow on the ground.

The fireman was employed as a brakeman on October 17, 1979, and was promoted to an engineer on October 19, 1977. He attended an operating rules review class in October 1979 and passed an operating rules examination in December 1981.

Circumstances of the Accident

The driver of an automobile, moving southward on the road paralleling the track at an estimated speed of 50 mph, lost control of the vehicle when he attempted to make a left turn at the intersection and continue across the railroad. The automobile came to rest headed south with its wheels off the south edge of the crossing and immobolized. The vehicle was left unattended as the driver and a passenger departed the scene to seek assistance.

Northbound freight train No. 97, consisting of three locomotives 65 loads, and a caboose, approached the crossing at approximately 40 mph with the fireman seated at the controls on the east side of the locomotive cab. The locomotive crew saw the automobile on the crossing and the fireman placed the train brakes in emergency when the train was about 1,500 feet from the crossing.

The lead locomotive struck the automobile, continued northward to the Brice siding switch, derailed to the east, and struck the south end of two covered hopper cars parked on the siding. The second locomotive and the 9th through 22nd cars were derailed. The two covered hopper cars in the siding were also derailed.

The fireman was killed as a result of crushing injuries to his chest, pelvic, head, and neck areas that occurred when the locomotive cab was extensively damaged due to striking the two covered hopper cars in the siding.

Applicable Rules

Article 7. Speed Restrictions

Section 46-361. General Rule; maximum speed limits; where lower speed required.

(a) General rule.--No person shall drive a vehicle on a highway at a speed greater than is reasonable and prudent under the conditions and having regard to the actual and potential hazards then existing . . . .

. . . . . .

(c) When lower speeds require.--The driver of every vehicle shall, consistent with the requirements of paragraph (a), drive at an appropriate reduced speed . . . and when special hazard exists with respect to . . . or by reason of weather or highway conditions.

(South Carolina Uniform Act Regulating Traffic on the Highways)

Analysis

Train No. 97 was being operated in accordance with the applicable rules. The operator of the automobile failed to drive at a safe speed with regard to the condition of the roadway and the route to be traversed. Once the vehicle became immobilized he failed to exercise prudent judgment when he left the vehicle unattended, and did not notify the railroad that the track was obstructed.

Cause

The accident was caused by an unattended automobile stopped on the grade crossing in front of an approaching train.

REPORT: 5

RAILROAD: Chicago and North Western Transportation Company

LOCATION: Enterprise, Iowa

DATE: January 18, 1982

The Accident

A 52-year-old track laborer was fatally injured on January 18, 1982, at about 12:55 p.m. at Enterprise, Iowa. Employed by the Chicago and North Western Transportation Comany, the laborer had 22 months of service. The weather was cloudy, and there was heavy snow covering the ground.

Background

On the day of the accident, the track crew, consisting of a foreman and one laborer, went on duty at 7:30 a.m. The crew was instructed to remove snow from switches.

The accident occurred at the south siding switch in single track territory over which movement is governed by an automatic block signal system, timetable, train orders and special instructions. The line in the area consists of a single main track that runs north to south, with a 6,000-feet siding and a 1,100-feet elevator track that runs parallel east of the main track. The main track is tangent, and the grade is 0.70 percent ascending to the south.

The track laborer had his last physical examination on April 15, 1980.

Circumstances of the Accident

At about 12:40 p.m., the track crew returned from their lunch break. The foreman got a line-up, and the laborer involved in the accident was last seen walking toward the south siding switch.

Train CNW Extra 6828 South, consisting of three locomotives and 92 cars, passed the south siding switch at about 12:55 p.m. moving at a speed of about 25-30 mph.

Nearing the accident area, the engineer was operating the train from the west side of the control compartment of the lead locomotive. The front brakeperson was located in the rear seat on the east side and an engineer pilot was in the front seat.

The headlight was on bright, and just prior to the accident site the horn was sounded for a road crossing. The engine crew, just after passing the crossing, observed the motionless track laborer laying next to the rail along the main track by the south switch, and was unaware that their train may have struck the track laborer.

The track laborer was pronounced dead at the accident site.

Applicable Rules

Not applicable.

Analysis

The post-accident investigation of the area disclosed no unusual track or surrounding terrain conditions which could have caused or contributed to the accident.

The track laborer was last seen by the foreman several minutes prior to the accident, and he appeared normal in all respects. There were no witnesses to the accident, which made an exact determination of the cause impossible.

A coroner's examination of the track laborer's body revealed no alcohol or barbiturates in the blood. The autopsy showed traumatic injuries to the head and atherosclerotic heart disease with evidence of old myocardial fibrosis. It was the opinion of the pathologist that the victim developed arrhythmia and collapse secondary to coronary insufficiency.

Cause

The fatal accident was caused when the track laborer was struck by a passing train.

The medical examiner's report stated that atherosclerotic heart disease with old myocardial fibrosis apparently caused the employee to collapse prior to the injury.

REPORT: 6

RAILROAD: National Railroad Passenger Corporation

LOCATION: Odenton, Maryland

DATE: January 19, 1982

The Accident

A 27-year-old track inspector was killed on January 19, 1982, at about 8:45 a.m. south of Odenton, Maryland. Employed by the National Railroad Passenger Corporation, the inspector had approximately 5 years of service.

Background

The accident occurred on the main line between Baltimore, Maryland and Washington, D.C., which consists of three main tracks running northeast to southwest. The tracks are numbered 1, 2, and 3 from east to west. There is a 0.99 percent decending grade southward approaching the accident site. Electric motive power operates on all three tracks, using the overhead catenary power supply.

Track No. 1 is signalled for nothward movement only. Track No. 3 is signalled for southward movement only. Track No. 2 is signalled for movements in both directions. There is a signal bridge at the site which spans all three tracks, located 48 feet south of point of impact.

The accident site lies 1,050 feet from a tangent, along a left curve for southward movement, with an outside rail elevation of 5.5 to 6 inches on track No. 2.

The track inspector last attended a safety rules class on October 9, 1981. His last physical examination, with a visual and hearing test, took place on August 11, 1980.

Circumstances of the Accident

The track inspector reported for duty at 7 a.m. and was instructed to inspect track No. 3 from Mile Post 118 to Mile Post 110.

At 8:28 a.m., the track inspector reported a 5 inch pull apart at Mile Post 115.8 on track No. 3. He carried a portable radio to make such reports, but the batteries were apparently weak since this report had to be relayed to Grove Interlocking Station

by the Engineer of Track at Odenton. Upon receipt of this report, the operator at Grove (Mile Post 112.4) applied a blocking device to the traffic controls to prevent a southward movement from using the portion of track No. 3 containing the reported defect.

At 8:47 a.m., the engine crew of southward passenger train No. 471 observed a person between tracks No. 2 and No. 3 from a distance of about 1,700 feet north of the signal bridge. The horn was sounded twice. The track inspector apparently became aware of the approaching train and moved away from track No. 3 and onto track No. 2. The train brakes were applied in emergency at a speed of 100 mph. The track inspector attempted to avoid the train after realizing it was on track No. 2. He was struck by the left front corner of the engine.

The point of impact was on the east side of track No. 2 at a point 48 feet north of the signal bridge. The body was thrown 152 feet to a point on the east side of track No. 1, which lies 104 feet south of the signal bridge.

Applicable Rules

4127 (c) Upon the approach of a train on any main track clear the train-occupied track and the near adjacent track, preferably clear of all main tracks. When not clear of all tracks stand erect and maintain sufficient lookout in both directions to see on which tracks other trains approach, in order to clear if necessary, to prevent being trapped. IN HIGH SPEED TERRITORY AND ALSO WHERE VIEW IS RESTRICTED CLEAR ALL MAIN TRACKS ON APPROACH OF A TRAIN ON ANY MAIN TRACK. IN SO DOING KEEP CLEAR OF ANY TRACK ADJOINING MAIN TRACKS.

(Amtrak Safety Rules and Instructions Maintenance of Way (Employees)

Analysis

It appears that the track inspector became aware of the approaching train when the horn was sounded. Statements from the engine crew indicate that they first observed the person about 12 seconds before impact. After the horn was sounded, it is estimated the track inspector had about 8 seconds warning. Since both track No. 3 and track No. 2 are normally used for southward movements no valid reason can be found to explain the failure of the track inspector to clear both of these tracks. The importance of this failure is magnified by the fact that the person was located where track curvature makes it difficult to determine which track is being used until a train is within 1,000 feet or so of the viewer.

Cause

The employee failed to clear the path of an oncoming train even though he was apparently aware of the train's approach.

REPORT: 7

RAILROAD: Terminal Railroad Association of St. Louis

LOCATION: Venice, Illinois

DATE: January 28, 1982

The Accident

A 57-year-old switch foreman was fatally injured on January 28, 1982, at about 12:40 a.m., in Venice, Illinois. Employed by the Terminal Railroad Association of St. Louis, the switch foreman had 29 years of service.

Background

The accident occurred on Bowl Track 39, near the middle of Madison Yard in Venice. That yard consists of 40 tracks numbered 13 through 52, west to east. Switching instructions are transmitted and received by radio, and a yard speaker system.

On the day of the accident, the crew consisted of a switch foreman, two switchmen, an engineer, and a fireman. It went on duty at Venice, at 10:30 p.m. on January 27, 1982.

The switchman was last examined on operating and safety rules on April 15, 1981.

Circumstances of the Accident

Shortly before and at the time of the accident, the switching locomotive, an EMD 1200 horsepower unit, was being operated by the fireman, a promoted engineer who had 29 years of service. The assigned engineer was occupying the fireman's seat. One switchman was in the yard office, and the other was at the south end of the bowl track.

The switch foreman was working on the west side of Bowl Track No. 39 approximately 1,500 feet from the south end of the 2,600 foot track. He had made three or four moves and was directing the movement by radio communication during the process of coupling the 13th and 14th cars from the south end of track No. 39. After directing the operating engineer to shove back, he placed his lantern and hand set radio on the south end platform step of the 14th car. The employee apparently stepped between cars to align couplers and was caught between the striker casting and a coupler of the two freight cars.

Applicable Rules

24. Do not place any part of body between coupler horn and end sill of car, regardless of whether the car is equipped with standard draft gear arrangement, sliding sill arrangement or end-of-car cushioning device. Never cross between moving equipment. Employes near cars equipped with moveable center sills must take precautions to avoid injury in case of movement, even though car is standing.

(Terminal Railroad Association of St. Louis Safety Rules)

Analysis

The switch foreman was last heard on the hand set radio instructing the operating engineer to shove back. That radio transmission was confirmed by other crew members working in the immediate area. He then placed his body between the two freight cars apparently to adjust the coupler on the south end of the 14th car, either not realizing that the cut of cars was still moving north, or assuming that he had sufficient time to make the adjustments before the cars were coupled.

Cause

The accident was caused by failure of the switch foreman to make certain that equipment was not going to move, and to check for moving cars before going between standing cars.

REPORT: 8

RAILROAD: Atchison, Topeka and Santa Fe Railway Company

LOCATION: Perry, Oklahoma

DATE: February 10, 1982

The Accident

A 36-year-old bridge and building foreman was fatally injured on February 10, 1982, at about 6:50 p.m. in Perry, Oklahoma. Employed by the Atchison, Topeka and Santa Fe Railway Company, the foreman had 10 years of service.

Background

At Perry, Oklahoma, the single track main line, and a parallel siding, cross Calf Creek on separate timber trestles. The accident occurred while bridge and building crews were replacing a burned wooden pile trestle on the siding across Calf Creek.

A 50-ton Ohio crane was being used for movement of track panels onto the new trestle. The crane is equipped with a hammer lead (guide), a hammer load line and a pile load line. The crane is also equipped with a footbrake for each line located on the cab floor and a brake drum air release button for each line, located to the upper left side of the control panel. The buttons are approximately 2 inches apart.

Circumstances of the Accident

The crane operator, taking hand signal directions from the roadmaster, raised the lead and hammer approximately 18 feet above the rail, picked up the track panel with the pile load line and proceeded out onto the trestle, tilting the lead and hammer to the left of center, approximately 7 feet. The hammer weighing 8,750 pounds is 15 feet 3 3/4 inches long. The foreman had stepped down to the left onto a piling cap to watch the placement of the final 14-foot track panel.

Arriving at the placement location, the crane operator received the roadmaster's signal to lower the track panel. With his foot on the pile load line foot brake, the crane operator, reached over to the brake drum air release control buttons and pulled the wrong button, releasing the hammer which fell through and free of the lead (guide), striking the piling cap.

The hammer, parts of the piling cap, and the foreman fell to the creekbed below.

The foreman sustained a broken neck and was officially pronounced dead on arrival at the Perry Memorial Hospital.

Applicable Rules

232. Walking, standing or working under crane boom or piledriver lead is prohibited, except when necessary in performance of duty and then only after notifying operator.

234. Employes working in conjunction with or in the immediate vicinity of lifting operations must keep clear of swinging boom or cab. Be alert for unexpected swing of load.

When guiding loads, stay in clear.

(Atchison, Topeka and Santa Fe Railway Company Safety Rules for Santa Fe Employes)

Analysis

The foreman was standing in close proximity to the area where the crane was placing the track panels when the piledriver hammer was inadvertently released and struck the immediate area where he was standing.

The location and nearness of the two brake drum air release buttons on the control panel were relocated after the accident.

Cause

The forman's failure to stand clear of working equipment.

A contributing factor was the close proximity of the two brake drum air release buttons.

REPORT: 9

RAILROAD: Southern Railway Company

LOCATION: Union, South Carolina

DATE: February 12, 1982

The Accident

A 31-year-old brakeman was fatally injured on February 12, 1982, at about 3:30 a.m. on the Monarch Mill Company's siding in Union, South Carolina. Employed by the Southern Railway Company, the brakeman had 2 years of service. A misting rain was falling.

Background

The accident occurred on the industrial track on Monarch Mill property. In the accident area, an auxiliary track parallels the main track on the north. Near the west end of the auxiliary track, a spur track diverges northward therefrom, and extends to Monarch Mill. The entrance to the mill property is protected by a chain-link fence and gate. A close-clearance gate post is located on the west side of the track at the entrance to the mill property. At the point at which it enters mill property, and for a considerable distance northward, the spur track traverses a 7-degree curve to the left. At the point of accident, a brick and concrete loading dock, approximately 4 1/2 feet high and 175 feet long, begins and parallels the spur track on the west. Northward, from the south end of the loading dock and adjacent gate post, clearance between those structures and the spur track decreases appreciable due to track curvature.

The brakeman was last examined and passed the carrier's operating rules and safety rules test on February 8, 1982. His last physical examination was administered and passed on October 31, 1979.

Circumstances of the Accident

On the day of the accident, local freight train No. 87 arrived at Union at or about 2:30 a.m. The crew consisted of an engineer, a conductor, and two brakeman. The crew had been instructed to pick up one box car, and place another, at Monarch Mill. The conductor lined the switches for entry to the track and then walked to the mill to inspect the car which was to be picked up.

The three locomotives, with a single box car coupled to its leading end, moved northward on the spur track. The brakeman was controlling the movement through radio communication with the engineer. It appears that the brakeman was riding at the leading end of the west side of the car. The engineer was seated

at the east side of the lead locomotive control compartment. As the consist entered the mill property, the engineer stopped its movement because he had not heard any recent radio transmissions from the brakeman. The engineer contacted the conductor, who shortly found the brakeman pinned between the loading dock and the box car near the mid-point of the west side of the car, about 19 feet north of the south end of the loading dock.

Applicable Rules

> M. Some platforms, bridges and other structures, switch stands and tunnels will not clear a person on the top or side of a car or engine. Employees must become familiar with these and other places and protect themselves from injury . . . .
>
> GR-13. Employees must not:
>
> (a) Ride on close-clearance side or on end of equipment moving adjacent to platform, building, or close-clearance structure, or stand between moving equipment and adjacent platform, building, or close-clearance structure.
>
> (Southern Railway Operating Rules)

Analysis

Northward, from the south end of the loading dock and adjacent gate post, the clearance decreased from about 17 inches, to about 8 3/4 inches at the point where the brakeman was pinned between the loading dock and the side of the box car. A sign, warning of close clearance between track and trackside structures, is posted on the chain-link fence on the west side of the track at the entrance to the mill property.

There were no witnesses to the accident. It could not be determined whether the brakeman was riding on the leading end, west side of the car being pushed, or whether he was walking beside the car. The brakeman, apparently, was familiar with the physical characteristics of the mill, having prior experience switching cars at that location. However, the employee had only recently returned to road service after working from the yard extra board, and he may not have remembered the close-clearance structure located on the west side of the track at the entrance to the mill property.

Cause

The accident was caused by the failure of the brakeman to place himself in a position away from the close-clearance loading dock, during the movement.

REPORT: 10

RAILROAD: Consolidated Rail Corporation

LOCATION: Canton, Ohio

DATE: February 18, 1982

The Accident

A 55-year-old brakeman was fatally injured on February 18, 1982, at about 8:30 p.m. at Canton, Ohio. Employed by the Consolidated Rail Corporation, the brakeman had 29 years of service.

Background

The brakeman was a member of a yard switching assignment, consisting of a conductor, two brakemen, and engineer. The crew had been on duty 5 hours and 30 minutes after completing the required off-duty period.

The accident occurred on No. 2 westbound main track at Mile Post 99, Stark Station, Canton, Ohio. This is a double track main line over which trains operate by timetable, train orders, and a automatic block signal system. The tracks are tangent for 2.2 miles east from point of accident. The maximum authorized speed is 70 mph for passenger trains and 50 mph for freight trains. At Stark Station the "O" track connects with No. 1 eastbound main by means of a manually operated switch located on the south side of the track.

The brakeman was last examined on Rules of the Transportation Department and Safety Rules on December 16, 1981. His last physical examination was administered December 3, 1981.

Circumstances of the Accident

Prior to the accident the crew shoved their yard switching train east on the "O" track, and stopped clear of the point at which the "O" track connects with the No. 1 eastbound main. Their train consisted of a caboose, four freight cars and two locomotives, in that order. The two brakemen were positioned at a switch, while the conductor telephoned for permission for their train to occupy the eastbound main track and proceed east. After the permission was received, one brakeman opened the switch at which time the other brakeman stepped to the north between the eastbound and westbound main tracks and gave the engineer a hand signal to back up. As a 2-unit locomotive consist was approaching from the east on the westbound main track the conductor and brakeman shouted a warning to the brakeman

but were not sure if the warning was heard. The yard train had moved about 2 car lengths when the locomotive consist passed at about 40 mph, at which time the engineer on the yard switch crew observed papers flying from the point at which the subject brakeman was last seen.

The crew of the locomotive consist, an engineer and fireman, observed the yard crew and signalled two short blasts of the locomotive horn. The bell was ringing and headlight was on bright. When the locomotive consist passed the accident point, the engineer and fireman heard a thump but did not realize that the brakeman had been struck until the conductor of the yard switch crew communicated on the radio. The locomotive consist stopped 4,381 feet west of the "0" track switch. The locomotive crew inspected the left front of their lead locomotive and found the brakeman's hat on the handhold.

Applicable Rules

1304. Expect equipment to move on any track, in any direction, at any time. Therefore, employees must look in both directions before:

(a) Fouling or crossing track.

(Conrail Safety Rules Train, Locomotive and other Transportation Employees)

Analysis

At the time of the accident the brakeman was standing or walking in the path of the approaching 2-unit locomotive consist. He was apparently looking west and was unaware of the approaching locomotives.

Cause

The accident was caused by the failure of the brakeman to move clear of the westbound main track.

REPORT: 11

RAILROAD: Soo Line Railroad Company

LOCATION: Arden Hills, Minnesota

DATE: February 22, 1982

The Incident

A 27-year-old brakeman committed suicide on February 22, 1982, about 3:10 p.m. at Arden Hills, Minnesota. Employed by the Soo Line Railroad Company, the brakeman had approximately 5 years of service.

Background

On the day of the incident, a transfer freight train crew consisting of a conductor, two brakemen, an engineer, and a fireman reported for duty at Shoreham Yard, Minneapolis, Minnesota, at 7:30 a.m.

About 3:10 p.m., after being on duty 7 hours and 40 minutes, the crew was engaged in the placement of cars on the industry auxiliary track in Arden Hills. The movement was a shoving movement northward on the lead track with the intent to shove the cars beyond the access switch, uncouple the locomotives and move them southward on the industry track.

Circumstances of the Incident

Shortly before the incident, the engineer and fireman were in their respective positions in the controlling locomotive. The brakeman was riding on the leading side ladder on the west side of the leading car, the second brakeman was riding on a trailing side ladder of the same car. The switching movement speed was about 5 mph.

The brakeman dismounted from the side ladder of the car as the car moved past the access switch, apparently without incident. He was seen by the other brakeman near the switch lock, then abruptly threw his gloves to the ground. He then rapidly moved eastward from the switch toward the moving equipment and placed himself in a prone position with his torso over the west rail at the time that the second car from the locomotive was moving over the switch. The second brakeman immediately utilized his portable radio to instruct the engineer to stop the movement. Before the stop could be accomplished, the west wheels on the trailing truck of the second car, all the west wheels on the head car, and a portion of the west wheels of a locomotive had passed over the brakeman.

Applicable Rules

Not applicable.

Analysis

Following a civil investigation, medical authorities determined that the death was due to suicide.

Cause

The employee committed suicide.

REPORT: 12

RAILROAD: Burlington Northern

LOCATION: Mt. Morris, Illinois

DATE: February 22, 1982

The Accident

A 35-year-old conductor was fatally injured on February 22, 1982, at about 4:50 p.m. at Mt. Morris, Illinois. Employed by the Burlington Northern, the conductor had 12 years of service.

Background

The accident occurred on the lead track that provides access to the Kable Printing Company plant. Two gates located at the entrance to the plant provide security. The gates when closed are locked at the center of the lead track. The gates are designed to be opened northward, and secured by latches to metal posts on either side of the track.

The conductor was a member of a road switcher assignment, consisting of a conductor, a brakeman, and an engineer. The crew had been on duty for 9 hours and 50 minutes after completing the required off duty period.

The conductor was last examined and passed the Consolidated Code of Operating Rules Test on May 9, 1981. His last physical examination was administered on December 1, 1978.

Circumstances of the Accident

The locomotive was coupled to 10 freight cars and was moving them northward on the lead track. The gates on the lead track were opened southward and not secured. The train crews are required to open and close the gates. The movement was being directed by radios which were operating as intended. The conductor was riding on the side of an undetermined car as they were being pulled northward. Just prior to the accident the brakeman got off the locomotive at a switch. Shortly after, the conductor notified the engineer, by radio, that his arm was cut off. The brakeman walked back and found the conductor laying on the ground near the gate. The conductor said the gate hit him. There were no witnesses to the accident. He died about 6:30 a.m., February 23, 1982.

Applicable Rules

M. . . . . .

Employees must inform themselves as to the location of structures of obstructions where clearances are close.

. . . . . .

(The Consolidated Code of Operating Rules)

GETTING ON AND OFF MOVING EQUIPMENT

71. Employees must:

. . . . . .

e. Look in the direction equipment is moving to avoid striking structures or objects above or alongside track.

. . . . . .

(Burlington Northern Railroad Safety Rules and General Rules)

Analysis

It is the responsibility of train crews to open and close the gates. At the time of the accident the gates were opened southward, and, therefore, unsecured. Since the gates were not in a secured position, the distance between a car and the gate was impaired.

Marks on the L2 wheel of the sixth car from the locomotive showed evidence of having passed over the conductor. It appears that the conductor was hit by the gate due to the close clearances.

Cause

The employee riding the side of a moving car came in contact with fixed object, which knocked him off the side of the car, then under a car and was run over.

A contributory cause was the failure to secure the gates in the open position as required.

REPORT: 13

RAILROAD: Consolidated Rail Corporation

LOCATION: Chicago, Illinois

DATE: February 24, 1982

The Accident

A 40-year-old conductor was fatally injured on February 24, 1982, at about 6:45 p.m., in Chicago, Illinois. Employed by the Consolidated Rail Corporation (CR), the conductor had 17 years of service.

Background

The accident occurred at a private road grade crossing with the CR Calumet River Line, leading to an industrial plant. The crossing is protected by four large stop signs, two large circular railroad warning signs, and two small, constantly burning, red lamps mounted above the warning signs. The crossing is asphalt 30 feet wide. Visibility is unrestricted to highway users stopping at any of the stop signs.

The conductor was a member of a switching assignment consisting of the conductor, an engineer, and a brakeman. The crew went on duty at 3:59 p.m. It performed industrial switching until immediately before the accident.

The employee last attended an annual instruction class on the "Rules of the Transportation Department" on November 25, 1981. No test was given. His last physical examination was administered and passed on July 5, 1979.

Circumstances of the Accident

At the time of the accident, the crew was returning to 110th Street Yard with the locomotives shoving three cars. The car in the lead was box car MP 267702. The conductor was riding the ladder on the southwest corner of this car over the crossing. The engineer was operating from the west side of the locomotive and could see the conductor's lantern. As the train approached the crossing at a speed of 5 mph, the conductor informed the engineer by radio that it was all right to shove over the crossing. About 10 seconds later, the conductor informed the engineer that a truck was approaching the crossing and that it did not appear that the truck was going to stop. The engineer made a service reduction of the train's air brake system, blew the whistle, and then placed the train's air brake system in emergency position.

The train struck the highway vehicle just behind the tractor cab. Total movement after the train air brake system had been placed in emergency position was approximately 35 feet.

The conductor was found pinned between the box car and the truck. He suffered crushing injuries and died instantly.

Applicable Rules

Not applicable.

Analysis

At the time of the accident neither of the grade crossing red lamps were operating. The only light on the end of the equipment was provided by the conductor's railroad lantern. The truck driver made no attempt to stop at the crossing.

The locomotive headlight was lit on medium position but the locomotive was coupled to another box car blocking the headlight. There is some background lighting from the plant but no street lighting at the crossing.

From the post accident position of the conductor, it appears that he attempted to go around the leading end of the box car to avoid being struck. Had he dismounted from the car it is likely that he would have been struck on the ground. The car was equipped with short ladders making it impossible to climb higher on the car.

Cause

The accident was caused by the failure of the highway user to stop clear of the crossing.

REPORT: 14

RAILROAD: Norfolk and Western Railway Company

LOCATION: Potts Valley Connection, Virginia

DATE: March 1, 1982

The Accident

A 54-year-old carpenter was fatally injured on March 1, 1982, at about 3:30 p.m., in Potts Valley Connection, Virginia. Employed by the Norfolk and Western Railway Company, the carpenter had 36 years of service.

Background

The scene of the accident is located 1.2 miles west of Ripplemead, Virginia on Bridge 2401 on the Potts Valley Branch line.

A Radford Division bridge crew was making repairs to the steel of the northern truss span of Bridge 2401. This bridge is 572 feet long across the New River and consists of three 61-feet plate grider spans on the south end, two 110-feet truss spans, and two 85-feet plate girder spans on the north end of the bridge. The accident occurred near the connecting point between the two truss spans near the middle of the river.

The carpenter held various occupations in the Maintenance-of-Way Department with positions as section laborer, assistant section foreman, section foreman and first rate carpenter.

Circumstances of the Accident

About 3:30 p.m., the carpenter and another bridge gang employee had pushed a track cart, loaded with an extension ladder, onto the middle of the bridge and had unloaded one section of the ladder onto the bridge deck near the ends of the bridge ties. At the time of the accident, the carpenter had his feet positioned on each side of the wooden guard timber that is attached to the bridge ties near the end of the ties. He was facing north and his left foot was most probably on top of the tie plate. Before he attempted to pick up the second section of the ladder, the heel of his left foot rocked back from the level of the tie plate to the level of the steel floor beam, an elevation difference of 1 1/2 inches. The carpenter, then thinking he was falling backwards, turned and stepped out onto the 10-inch wide steel floor beam with his right foot, beyond the end of the bridge ties. As shown by scuff of his boot, his left foot then struck the bottom cord of the truss as he fell off the bridge on the

east side. He fell 32 feet face down to the top most corner of the concrete bridge pier footer located about 1-foot above the water level of the river and then rolled into the water.

After the carpenter fell into the water, the river current carried him downstream about 300 feet before he was pulled from the river by the bridge crew foreman and another employee. He was unconscious when pulled from the water but was revived shortly thereafter by fellow employees, and remained conscious until the lifesaving rescue team arrived. He was pronounced dead after arriving at a hospital at about 4:45 p.m.

Applicable Rules

GENERAL RULES

G. The use of alcohol beverages, intoxicants, or narcotics by employees subject to duty, or their possession or use while on duty or on Company property is prohibited.

(Norfolk and Western Railway Company Operating Rules)

1156. Except when a scaffold or other protection is provided, a safety belt, safety net or guard rope must be used during work:

. . . . . .

(d) In dangerous positions on bridges or other structures.

(Norfolk and Western Railway Company Safety Rules and Rules of General Conduct)

Analysis

The accident happened on the truss span adjacent to the span undergoing repair and would most probably not have been protected by a safety net. The carpenter did have a safety belt around his waist, but was not hooked to the bridge structure.

According to the Medical Examiner's report the employee did consume a large volume of an alcoholic substance before or during his normal work time.

A survey of the employee's service record does show that he was dismissed from service in 1973, and restored to service in 1974 for violating the carrier's General Rule G that prohibits the use of alcohol while on duty.

None of the carpenter's fellow employees interviewed, nor either of the two supervisors present at the time of the accident noticed the smell of alcohol on the employee on the day of the accident. According to all persons interviewed, the employee was performing his duties in a satisfactory manner.

The bridge did have some snow on the deck at work time but the snow was removed before work began, according to other employees at the site. There was no wind.

The carrier interprets the safety rule requiring safety nets for employees working in dangerous positions, as not applicable in this case.

Cause

The accident was caused by the employee losing balance and falling from the bridge deck.

A contributing factor was a 0.36 percent alcohol content by weight in the victims blood.

REPORT: 15

RAILROAD: Seaboard Coast Line Railroad

LOCATION: Como, North Carolina

DATE: March 8, 1982

The Accident

A 59-year-old welder helper was fatally injured on March 8, 1982, at about 7:05 a.m. near Como, North Carolina. Employed by the Seaboard Coast Line Railroad (SCL), the helper had 20 years of service.

Background

The accident occurred on U.S. Highway 258, 1.9 miles east of Como, North Carolina, in Hertford County.

The welder was driving the company truck and the helper was in the passenger's seat.

The welder helper was last examined on the carrier's operating rules on June 16, 1980.

Circumstances of the Accident

The welder left his home in Rocky Mount, North Carolina, in the SCL Company's truck at about 4.45 a.m. on the day of the accident. After picking up the helper, they ate breakfast, fueled the truck, and departed Rocky Mount about 5:30 a.m., en route to Suffolk, Virginia, a distance of about 100 miles.

At approximately 7:05 a.m., the truck, traveling east at a speed of about 50 mph, left the highway on the right shoulder, traveled 323 feet on the shoulder and down an embankment, struck a drainage ditch, traveled another 71 feet, struck the second drainage ditch, flipped over, and came to rest on its left side, facing west, 15 feet from the edge of the highway. The welder and his helper were thrown from the truck during the accident. The truck bed separated from the frame and landed on the body of the helper causing cardiac contusion.

Applicable Rules

56. Employees riding in vehicles equipped with seat belts must have belts fastened in position.

(Seaboard Coast Line Railroad Company Safety Rules for Engineering and Maintenance of Way Employees)

6. No employee shall drive, or continue to drive, a vehicle while his ability or alertness is impaired through fatigue, illness, prescription drugs or other cause.

(Seaboard Coast Line Railroad Company Rules and Instructions Governing The Use and Operation of Highway Motor Vehicles)

Analysis

While driving a company truck to the work location, the welder fell asleep at the wheel. The truck ran off the right shoulder of the highway, struck two drainage ditches, flipped over, and threw the welder and his helper out of the cab. Seat belts were not being used by either occupant.

Cause

The welder fell asleep while driving to the work site, and caused the single vehicle highway accident.

REPORT: 16

RAILROAD: Southern Pacific Transportation Company

LOCATION: Watsonville Junction, California

DATE: March 8, 1982

The Accident

A 29-year-old lineman was fatally injured on March 8, 1982, at about 12:15 p.m., in Watsonville Junction, California. Employed by the Southern Pacific Transportation Company, the lineman had 12 years of service.

Background

On the day of the accident the Communication Department crew consisted of a foreman and four linemen. Their assignment was to remove abandoned pole line wires in the Watsonville Junction Yard.

At Watsonville Junction, there was an eight-wire abandoned pole line crossing a double track main line. The westerly pole was a "corner" pole, 45 feet in length, located approximately 14 feet from the centerline of the nearest track. The eight-wire abandoned pole line extended further generally in a northerly direction. The terrain in the accident area is practically level.

The lineman was present at a carrier safety meeting December 19, 1981, in San Jose, California. The meeting provided a 1-hour group discussion on the basics of pole line safety. All communication department personnel are issued a document entitled "Pole Climbers Guide Book."

Circumstances of the Accident

The Communication Department crew was split into two groups the morning of the accident. The lineman and two associates were removing the wires from the poles at the abandoned pole line crossing south of the station. The lineman was near the top of the westerly corner pole. He had removed about half of the wires and lowered them to the ground. He was in the process of cutting and removing the remaining wires from the pole. An associate lineman, on the ground, about 30 feet from the pole, heard an unusual noise, and observed the pole with the lineman near the top falling to the ground. He shouted to the lineman on the pole advising him to swing around the falling pole to prevent the pole from landing on top. Pole and lineman fell on the near track. The lineman sustained a fatal head injury.

Post-accident examination indicated that the pole, installed in 1955, was equipped with two cross-arms and that the timber had been treated with creosote. The pole was full of center-rot up to about 18 inches above ground. The exterior treated timber shell, around the center-rot, at the ground line, was between 1 and 1 1/2 inches thich.

An examination of the lineman's 12-year service record stated that he had served 4 years as a communication department foreman. It also stated that he had been demoted to lineman because of unsafe practices as a foreman.

Applicable Rules

. . . . . .

Condition of Pole

The base of the pole should be tested with a sharp pointed bar to assure that it is not rotted, broken or splintered, or otherwise unsafe to climb. Make this test completely around the base of the pole.

. . . . . .

(THE POLE CLIMBER'S GUIDE BOOK, Southern Pacific Transportation Company, December 2, 1979)

Analysis

The "Pole Climbers Guide Book" details specific instructions covering the examination of a pole to be conducted prior to climbing the pole. It is conceivable that the lineman could not have determined that this pole was unsafe from the prescribed examination.

Cause

The accident was caused by the failure of a pole made unsound by center-rot at the ground line.

REPORT: 17

RAILROAD: Southern Railway Company

LOCATION: Knoxville, Tennessee

DATE: March 16, 1982

The Accident

A 51-year-old carman was fatally injured on March 16, 1982, at about 2:25 p.m. in the Coster Car back shop in Knoxville, Tennessee. Employed by the Southern Railway Company, the carman had 33 years of service.

Background

The accident occurred on a wreck set off stand in the Coster Car Back Shop, adjacent to Track 1. The deceased and another carman had been assigned to repair SOU 85350, a heavily damaged covered hopper car, and had been working for duty at 7 a.m., and had been on duty 7 hours and 25 minutes at the time of the accident.

Coster Car Back Shop consists of a building 750 feet long by 210 feet wide with overhead cranes spanning three tracks running through it lengthwise north and south and has a concrete floor. Set off stands are located between Track 1 and the west wall and are used for car requiring repairs.

The carman was first employed as a freight car repairman apprentice on June 11, 1948, and was promoted to carman on February 2, 1955. He attended regular weekly safety meetings, and the last meeting attended was March 10, 1982.

Circumstances of the Accident

The two carmen were on top of the car applying the left longitudinal running board. The subject carman was attempting to weld a running board bracket to the car roof. The other carman, about 5 feet away, observed him positioning the running board in order to weld the support bracket. A ratchet load binder and chain was used as a turnbuckle to pull the running board toward the center of the car. This left the running board raised up about 1/2-inch. He then rested the head of a ball peen hammer on the top flange of the running board bracket. He also placed the pointed end of a metal pry bar in the space between the car roof and through a hatch hinge bracket, and using the hammer head as a fulcrum pryed down on the running board.

The other carman turned his head to protect his eyes from the weld flash and shortly thereafter heard the sound of metal striking metal behind him. Turning to determine the cause of the noise, he observed the carman falling from the roof of the car.

Several employees immediately went to the aid of the injured carman. An ambulance was called and he was taken to St. Mary's Medical Center, Knoxville, Tennessee, where death occurred at 5:30 p.m., attributed to a fractured skull and extensive brain damage.

Applicable Rules

Not applicable.

ANALYSIS

After the accident, a 36-inch metal pry bar was found lying across the running board. A two pound ball peen hammer was on the car roof adjacent to that running board, and nearly perpendicular to the bar. The ratchet load binder had its turnbuckle hook in a hole burned out of the running board. The ratchet was not pulled taunt and the flange of the running board bracket was not in the correct position for welding. The position of these tools indicate that the deceased placed the pointed end of the bar between the car roof and trough hatch hinge bracket to locate the running board bracket for welding, using the hammer as a fulcrum.

Apparently the employee was standing on the running board in a crouched position, prying down on the running board with the bar when he lost his balance and fell from the car roof 15 feet 6 inches to the concrete floor below.

Cause

It appears the pry bar slipped beneath the trough hatch brachet, causing the employee to lose his balance and fall from the roof of the car to the concrete floor.

REPORT: 18

RAILROAD: Burlington Northern

LOCATION: Wray, Colorado

DATE: March 22, 1982

The Accident

A 24-year-old lineman was electrocuted on March 22, 1982, at about 1:20 p.m. near Wray, Colorado. Employed by the Burlington Northern, the lineman had 3 1/2 years of service.

Background

In the accident area the communications and signal pole line is located on the south side of the single main track. The pole line has two ten-pin crossarms. A cable for signal circuits is supported by a messenger wire attached to the poles below the crossarms. The pole on which the accident occurred has a guy wire support on the south side. Both the messenger wire and the guy wire are grounded. A 240-volt signal power line is carried on the two south end pins of the lower crossarm. The weather-proff covering of the signal power line wire was somewhat deteriorated.

The lineman was employed by the railroad on September 5, 1978. After completing an apprenticeship training course, he was promoted to lineman in September 1979. He was last examined on the safety rules on September 5, 1979. Records indicate he had attended all weekly safety meetings since January 1, 1982. His last physical examination was held in September 1978.

Circumstances of the Accident

On the day of the accident the communications line crew, consisting of an acting foreman and two linemen, reported for work at 7:30 a.m. They drove eastward from Wray to survey the pole line. During the trip they discussed the location and handling of the energized signal power line. After lunch they began work changing crossarms about 1 mile west of Wray. The three linemen were on successive poles, with the lineman, later fatally injured, on the pole to the east. Prior to the accident the lineman on the next pole west observed him lowering both signal power line wires from the transfer arm to newly installed crossarm. A short time later the acting foreman noticed him hanging head down suspended by his safety belt. They rushed to the pole and used a rope to lower him to the ground. An emergency medical team was summoned but could not revive him. At 1:50 p.m., the deputy coroner pronounced him dead due to cardiac arrest caused by electrical shock.

Applicable Rules

ELECTRICAL EQUIPMENT

209. All conductors, wires, cables and electrical equipment shall always be considered energized unless positively known to be de-energized and grounded. If not grounded, they are not to be considered de-energized.

210. Employees must not:

. . . . . .

b. While working on or close to energized circuits, wear loose, ragged clothing or shoes with defective soles.

c. Touch any energized electrical conductor or apparatus with person, tool, or other conductive material. If necessary to remove objects therefrom, use prescribed rubber gloves or other known insulator.

. . . . . .

f. Place dependency for safety on weatherproof insulation or wires.

(Burlingron Northern Railroad Safety Rules and General Rules)

Analysis

The lineman was experienced in working with 240-volt signal power lines. The normal railroad safe practice when handling energized signal power line is to tie the outside wire to the insulator before lowering the inside wire. The coroner's report indicates an apparent electrical burn on the palm side of the right hand near the base of the thumb.

The location of the electrical burn indicates the lineman was tying the outside signal power wire when the inside base of his right hand contacted the inside signal power wire. The lineman's leg was apparently grounded against the guy wire when his hand made contact with the power line. The canvas gauntlet of his right glove was torn from the glove in the area of the electrical burn.

Cause

The accident was caused by failure of the lineman to exercise care while handling energized signal power line wires.

REPORT: 19

RAILROAD: Union Pacific Railroad

LOCATION: Payson, Utah

DATE: March 26, 1982

The Accident

A 59-year-old roadway equipment operator helper was fatally injured on March 26, 1982, at 12:30 p.m. in Payson, Utah. Employed by the Union Pacific Railroad, the helper had 40 years of service. The weather was rainy and cloudy.

Background

The accident occurred at the Payson Siding, which is located to the east side of the single main line at Mile Post 735.78 on the Provo Subdivision, of the Utah Division. The siding is 5,420 feet long with no curvature and a descending grade of 0.8 percent to the north. The view to the south of the siding is obscured by a Denver and Rio Grande Western Railroad overpass at Mile Post 735.76. At the point of the accident, the tracks run in a north-south direction.

On March 26, 1982, the crew was called for 7:30 a.m. to work on the Wellman Crane on the Provo Subdivision to pick up scrap along the right-of-way south of Payson, Utah. The crane was operating with a gondola car (UP 31525) coupled to the south end of it and a gondola car (UP 31109) coupled to the north end of it. It was operating between Mile Post 729 and Mile Post 737 under a train order which restricted the speeds of all approaching trains until they had received information from the foreman in charge that all men and equipment were in the clear.

The Wellman Crane 903066, which is not classified as a train, operates on the Utah Division as a self-propelled crane operating with a crew consisting of a crane operator, crane-operator helper, and a conductor-pilot.

The crane-operator helper was last examined and passed the Union Pacific rules class pertaining to roadway equipment operators in January of 1979. His last physical examination was administered and passed on December 13, 1975.

Circumstances of the Accident

At approximately 12 noon while working near Mile Post 733, the crane operator was notified by radio that freight train Extra 5402 East was at Starr, Utah, and that the Wellman Crane 903066 should move to the Payson Siding and tie up in the clear. After tying up in the clear, the conductor-pilot positioned himself between the south gondola and the south end of the siding in order to give the train a roll-by inspection. The crane operator and helper positioned themselves at a point just to the east of the south end of the crane. The south end of the south car was positioned about 60 feet from the fouling point of the south end of the siding.

Extra 5402 East with 109 cars and 4 locomotives had received a roll-by inspection at Mile Post 732.75 by a section crew working there with no exceptions taken. The train proceeded onward and was traveling at a speed of 26 mph to negotiate a 6-degree curve when the 44th car from the front end (UP 493461) derailed at Mile Post 733.07. The train crew was unaware of the derailed car and the train proceeded northward picking up speed until they were passing the Payson Siding at a speed of 39 mph.

When the derailed car came into the view of the conductor-pilot, he shouted a warning and ran to the east. The crane operator also saw the car derailed and grabbing the helper by the arm he also shouted a warning and started to run to the east. The operator fell over a barbed wire fence and proceeded to crawl on his hands and knees. Looking backward he observed the helper just to the east of the fence on his back with his arms and legs reaching up as if to catch something. At this time, the gondola (UP 31525) which had been sideswiped by the derailing train overturned crushing the helper. He was pronounced dead at the scene by the ambulance attendant at 1:15 p.m.

Applicable Rules

Not applicable.

Analysis

The Wellman Crane crew had positioned themselved in the best apparent position to safely await the passing of the train.

The train crew handled and obseved their train in a safe and suitable manner.

The carrier has determined the cause of the derailment to be an improperly repaired center plate on the first derailed car (UP 493461). The carrier is currently taking steps to determine that all center plates to this type which have had similar repairs are inspected to insure they were repaired properly.

Cause

The accident was caused by the overturning gondola crushing the crane-operator helper. The derailed freight car was improperly repaired and was a contributing factor.

REPORT: 20

RAILROAD: Houston Belt & Terminal Railway Company

LOCATION: Houston, Texas

DATE: April 4, 1982

The Accident

A 42-year-old switchman was fatally injured on April 4, 1982, at about 1:14 a.m., in Settegast Yard, Houston, Texas. Employed by the Houston Belt & Terminal Railway Company, the switchman had 12 years of service.

Background

The accident occurred on the B-Lead of Settegast Yard between switches No. 26 and No. 27. The B-Lead consists of 14 tracks connected to a lead at both ends. The tracks in the accident area are numbered consecutively 17 through 30, east to west. All tracks have a slight descending grade north to south.

The yard switching crew consisting of a switch foreman, two switchmen, and an engineer had been on duty 2 hours and 15 minutes after completing the required off-duty period.

The switchman was last examined on the Uniform Code of Operating Rules on September 23, 1981. He last attended a safety meeting on March 12, 1982.

Circumstances of the Accident

In switching cars north to south on the B-Lead, the crew had pulled 23 cars out of track No. 24 and intended to switch seven of these cars to track No. 30.

The switchman was riding in the lead car of the seven cars that were to be switched to track No. 30. The foreman gave the engineer a back-up signal, and the other switchman lifted the lever to uncouple the south seven cars. After moving the 23 cars approximately 3 car-lengths, the switchman closest to the engine gave the engineer a stop signal. When the engineer applied the brakes, the train slack ran out and "jerked" all 23 cars. Then the crew realized that the coupler knuckle lock had dropped into a locking position.

A witness stated that when the movement stopped, the switchman apparently lost his balance and fell under the car. The switchman was found under the second south car, 270 feet south of switch No. 24. The switchman sustained multiple injuries, including a severed right leg, left foot, and left hand. Houston Fire Department paramedics arrived at 1:25 a.m., and pronounced him dead at the accident scene.

Applicable Rules

. . . . . .

33 (g). Employes must watch and be prepared for sudden starting, stopping, lurch or jerk when on equipment.

. . . . . .

136. When on engines, cars, cabooses or other equipment, be prepared and protect against sudden stops or starts and slack action....

(Houston Belt and Terminal Railway Uniform Code of Safety Rules)

Analysis

A post-accident investigation indicated that the coupler was operating properly.

A witness stated that he observed the employee losing his balance and ultimately falling under the car when the slack ran out and "jerked" the 23 cars.

Cause

The accident was caused by the failure of the switchman to place himself in a safe position and to be prepared for a sudden stop in the moving equipment.

REPORT: 21

RAILROAD: Consolidated Rail Corporation

LOCATION: Claybank, Ohio

DATE: April 7, 1982

The Accident

A 32-year-old brakeman was killed on April 7, 1982, at about 9:10 p.m., on the Peabody Coal Company mine track at Claybank, Ohio. Employed by the Consolidated Rail Corporation (CR), the brakeman had 11 years of service.

Background

The crew for train UPW-84 went on duty at 5:15 p.m., in Columbus, Ohio after it had completed the required off-duty period. The crew consisted of an engineer, a head brakeman, a flagman and a conductor. The crew had been on duty for 3 hours and 55 minutes prior to the accident.

The Peabody Coal Company Yard has three tracks numbered 1, 2 and 3, from the east. The lead track from CR's main track has a curve to the left, a curve to the right, and is on a 1.28-percent descending grade.

The brakeman was last instructed on the operating rules and safety rules on August 19, 1981. His last physical examination was administered on April 28, 1981.

Circumstances of the Accident

On the afternoon of April 7, 1982, coal company employees loaded 36 cars on track 2. The loaded cars and three empty cars were then moved northward by the coal company employees in order to clear the tipple on track 2. However, the employees failed to secure the cars in a position that would clear switching operations on track 1.

Train No. UPW-84 arrived at the mine track at 8:15 p.m. and commenced switching operations. The train crew was directed to place 36 empty cars on track 1. The track was clear for the initial switching movement onto track 1. Since the coal company employees were unaware of the impaired clearance on track 1, the CR crew was not notified.

During the initial switching movement onto track 1, the brakeman was riding on the northeast corner of the lead car. The crew had failed to check that the lead track was clear for movement onto track 1; and while traveling at about 4 mph, the lead car collided with the car on track 2 that was fouling the lead track. The two cars derailed.

The brakeman was found under the lead car after the derailment. Either the brakeman dismounted or was thrown from the car due to the collision. There were no witnesses to the accident. He sustained a crushed skull and massive chest injuries and was pronounced dead at the scene.

Applicable Rules

. . . . . .

103. When pushing cars, ... , a member of crew must take a conspicuous position on the leading car to govern and protect movement....

(Consolidated Rail Corporation Rules of the Transportation Department)

Analysis

The Peabody Coal Mine Company employees moved loaded cars on track 2 and fouled track 1. Since they were unaware that they had fouled track 1, they did not advise the CR crew of that fact when the switching operation started.

The brakeman was riding on the northeast corner of the lead car of the 36 empty cars that were to be placed on track 1. The CR crew failed to ascertain that the lead track was clear for movement onto track 1 before starting the movement.

Cause

The brakeman was killed because he failed to place himself in a position to govern and protect the car movement onto track 1.

The fouling of track 1 by the coal company employees was a contributing factor.

REPORT: 22

RAILROAD: Burlington Northern

LOCATION: Bucklin, Missouri

DATE: April 8, 1982

The Accident

A 46-year-old brakeman was fatally injured on April 8, 1982, at about 3:45 a.m., in Bucklin, Missouri. Employed by the Burlington Northern (BN), the brakeman had 21 years of service.

Background

The accident occurred on the BN portion of an interchange track that connects to the Atchison, Topeka, and Santa Fe Railway Company. The interchange track is 2,123 feet long, with a descending grade toward the BN of 1.9 percent. The alignment of the track at the point of accident is tangent.

After reporting for duty, the crew performed switching operations in Brookfield, Missouri, for approximately one hour. It left Brookfield on a freight train (No. 70 East), consisting of 2 locomotives and 72 cars. The crew consisted of a conductor, two brakemen, an engineer, and a fireman. The crew had been on duty 1 hour and 55 minutes at the time of the accident.

The brakeman was last examined on the BN Consolidated Code of Operating Rules on January 24, 1980. He was a promoted conductor and regularly attended safety meetings, the last being on March 23, 1982. His last physical examination was administered on January 30, 1980.

Circumstances of the Accident

On arrival at Bucklin, Missouri, the crew stopped the train on the main track, uncoupled the two locomotives from the train, and proceeded towards the interchange track to pick up two empty covered hopper cars. After coupling the locomotives to the cars, the brakemen released the handbrakes and drained the air from the brake system on the two cars. With the two cars trailing the locomotives, the consist backed down the descending grade and stopped at a point approximately 200 feet east of the siding track switch. The crew had planned to place the two cars on the other end of the locomotives for the purpose of coupling them to the other cars in the train. The crew was going to set a handbrake on the two cars, uncouple the locomotives, and enter the siding with the locomotives. A brakeman would release the handbrake on the two cars, and the cars would roll down the grade onto the siding. A coupling could then be made between the cars and locomotives.

The handbrake that was used was located on the near end of the rear car, ACFX 48689, where the two cars were coupled. The first brakeman was standing on the ground at the brake end of the car when he told the other brakeman on the other side of the track that he was ready. The second brakeman walked to the locomotives and uncoupled them from the cars. The locomotives were then moved downgrade about 70 feet when the second brakeman noticed that the two cars were rolling towards the locomotives. The locomotives were stopped, and a coupling was made with the cars. The brakeman who had uncoupled the locomotives from the cars, crossed over the track, walked back, and found the first brakeman lying on the track under the truck of the rear car. The brakeman's left leg was severed at the knee. Emergency assistance was requested, and the brakeman was transported to a hospital in Marcelline, Missouri, where he died at 5:10 a.m.

An inspection of the two cars was conducted at the scene. There were no equipment defects that would have contributed to the accident.

Applicable Rules

. . . . . .

M. Employes must exercise care to prevent injury to themselves or others.

. . . . . .

(The Consolidated Code of Operating Rules)

Analysis

Inspection of the handbrake after the accident showed that it was only partially applied. There was no witness to the accident.

Apparently, the brakeman slipped and lost his handhold while applying the handbrake on ACFX 48689. He fell to the track structure and the wheels of the lead truck on the north side of the car passed over his left leg.

Cause

The brakeman apparently slipped and lost his handhold while he was applying a handbrake on a moving freight car.

REPORT: 23

RAILROAD: National Railroad Passenger Corporation

LOCATION: Claymont, Delaware

DATE: April 19, 1982

The Accident

A 27-year-old lineman was electrocuted on April 19, 1982, at about 12:48 a.m., near Claymont, Delaware. Employed by National Railroad Passenger Corporation (Amtrak), the lineman had 2 1/2 years of service.

Background

On the night of the accident, the work crew consisted of a foreman, a substation foreman, and four linemen. They reported for duty shortly before midnight on April 18, 1982, at the maintenance-of-way base in Wilmington, Delaware. The crew drove two trucks to the work site at the "Bell" interlocking, about 4 miles north of Wilmington. The electrified Amtrak main line consists of four main tracks at this location; the tracks north and south are numbered 3, 2, 1 and 4, from east to west.

Circumstances of the Accident

The accident occurred on the lower level of the southbound home signal bridge of the Bell interlocking, about 400 feet north of Bell tower. The lineman was directed by the foreman to take a grounding pole up to the southbound home signal bridge, attach the earth-clamp to the bridge, and wait for clearance. (Clearance means that the power has been shut off.) The lineman climbed the ladder to the lower level of the bridge, carrying the grounding pole and crossed over two "live" tracks to reach track No. 1. For an undetermined reason the earth-clamp fell over the side of the bridge and touched the 11,000-volt messenger wire. The resulting surge of electricity electrocuted the lineman and knocked him through the open lattice-work on the side of the bridge, where he remained, hanging by his feet.

Applicable Rules

Not applicable.

Analysis

The lineman climbed to the lower level of the home signal bridge carrying a grounding device and proceeded to the work area. He either tripped, slipped, fell, or was laying the grounding pole down when the earth-clamp fell over the side of the bridge, coming into contact with the 11,000-volt wire and electrocuting the lineman.

Cause

The lineman was electrocuted due to the inadvertant contact of the grounding device with the high-voltage line.

REPORT: 24

RAILROAD: Norfolk and Western Railway Company

LOCATION: Lynchburg, Virginia

DATE: April 24, 1982

The Accident

A 24-year-old brakeman was fatally injured on April 24, 1982, at about 1:30 p.m., at Kinney Yard in Lynchburg, Virginia. Employed by the Norfolk and Western Railway Company, the brakeman had 2 1/2 years of service.

Background

On April 24, 1982, Extra 228 West departed Crewe, Virginia, at 7:20 a.m. and arrived at Kinney Yard in Lynchburg at 1 p.m.

The Kinney Yard is a flat switching yard with a 0.7 percent grade descending eastward. A yard crew is assigned between the hours of 6 p.m. and 2 a.m. to perform routine switching operations under the jurisdiction of a yardmaster. Mainline crews enter and leave the yard under the direction of the yardmaster.

The brakeman last attended an operating rules class and a safety rules class on November 3, 1981. His last physical examination was administered on August 6, 1981.

Circumstances of the Accident

The road crew on Extra 228 West planned to switch 19 cars from the train to yard track No. 1. The conductor got off the train at the yard office, and the rear brakeman cut the caboose off the train on the passing siding near the No. 9 crossover switch. The front brakeman left the train and lined the entrance switch to the yard; he was told to line the derail and prepare for an eastward move. The rear brakeman stated that he saw the front brakeman line the derail and give a hand signal for the eastward movement. This was the last time the front brakeman was seen.

At that time, a westbound train was approaching with cars that had sticking air brakes. The rear brakeman watched the westbound train. Moments later, when he turned to the eastward movement of Extra 228, he saw a car jump up about 18 inches. The rear brakeman radioed the engineer to stop the train, and then requested a carman who was observing the westbound train to accompany him to inspect the cars of Extra 228.

While walking westward the rear brakeman and carman saw the front brakeman lying face down on the ground between the rails of track No. 1. The front brakeman suffered injuries to the abdomen, left thigh, and genital areas. His right arm was fractured, and he received multiple injuries to other parts of the body. He was taken to Lynchburg General Hospital and pronounced dead.

The first and second wheels on the south side of the lead truck of the first car on track No. 1 showed evidence of having passed over the brakeman. Although there were no witnesses to the accident, the brakeman was apparently unlocking the lock on the derail when he was run over.

The derail was torn from the rail and crossties and broken into two pieces. The derail was locked in the correct position.

Applicable Rules

General Rules

M. Employees must exercise care to avoid injury to themselves or others.

. . . . . .

Employees must expect the movement of trains, engines, cars, or other moving equipment on any track, at any time, in either direction.

Operating Rules

104. The position of a switch or derail being used is the responsibility of the employee handling it....

(Norfolk and Western Railway Company Operating Rules)

1074. Employees must not stand in front of approaching equipment....

1111. When operating hand throw switches and derails, take the following precautions:

. . . . . .

(d) Take position facing the switch or derail squarely. Avoid a twisted or awkward position. Avoiding slipping, tripping or falling.

(Norfolk and Western Railway Company Safety Rules and Rules of General Conduct)

Analysis

The rear brakeman stated he saw the front brakeman unlock the derail and give a hand signal for the eastward movement. The derail, however, was found locked. Apparently, the brakeman was unlocking the derail when he was struck by the equipment.

Cause

The accident was caused by the failure of the front brakeman to stand clear of rolling equipment. A contributing factor was the brakeman's failure to remove the derail before signaling the engineer to begin movement.

REPORT: 25

RAILROAD: Burlington Northern

LOCATION: Texas, Wyoming

DATE: April 29, 1982

The Accident

A 62-year-old section laborer was fatally injured on April 29, 1982, at about 2:14 p.m., in Texas, Wyoming. Employed by the Burlington Northern, the laborer had 35 years of service.

Background

The single maintrack in the accident area is tangent, with unlimited visibility in both directions. A siding track parallels the main track to the south.

The laborer's last physical examination was passed on June 30, 1981. He last attended a safety meeting on April 26, 1982.

Circumstances of the Accident

The section laborer was assigned to act as lookout for a track welder, to warn the welder of approaching trains. The welder was working on the switch frog at the west end of the siding when he was warned of the approach of a westbound train by the laborer. However, the laborer did not see the approaching train until it was so close that the welder was only able to move clear of the main track leaving his equipment behind. The laborer then turned and stepped back to retrieve the equipment on the track. He was struck by the oncoming train. He was pronounced dead by the county coroner at the accident scene.

Applicable Rules

800(A). When working on or near tracks subject to use that are not protected under Rules 14 or 14(c), a lookout must be assigned when view is restricted for any reason or storm conditions exist or when noise of tools, machinery, or equipment interferes with hearing.

. . . . . .

The foreman in charge must select a responsible employe to act exclusively as lookout. The foreman must know the lookout has placed himself to observe approaching movements in sufficient time to warn employes working on or about tracks and permit those employes to clear the movement. Where conditions require, more than one lookout must be assigned.

802. On the approach of a train, employes who are working on or about the tracks, shall move promptly to a place of safety, preferably clear of all tracks.

(Burlington Northern -- Rules of the Maintenance of Way Department Operating Department)

Analysis

The laborer did not see the train approaching until it was so close that the welder was only one able to clear the main track, leaving his equipment behind. The laborer attempted to retrive the equipment and was struck by the train.

Cause

The accident was caused by the laborer's failure to place himself a safe distance from the approaching train.

REPORT: 26

RAILROAD: Western Pacific Railroad Company

LOCATION: Camp Rodgers, California

DATE: April 30, 1982

The Accident

A 54-year-old carman was fatally injured on April 30, 1982, at about 10:15 a.m., in Camp Rodgers, California. Employed by the Western Pacific Railroad Company, the carman had 11 years of service.

Background

The terrain in the accident area is mountainous. The track is laid on a hillside embankment about 150 feet wide, with an approximate "2 to 1 slope." About 3,115 feet east of the Camp Rodgers station sign, two railroad cars were off the track lying on the embankment. They were the remains of an earlier derailment. One, a boxcar, was resting perpendicular to the track. Its interior floor and walls had been destroyed by fire during the derailment.

All Mechanical Department employees are issued a copy of the Operating Rule Book and the General and Safety Rules of the Mechanical Department. The carman was present on April 26, 1982, in Portola, California, when the rules of the week were discussed.

Circumstances of the Accident

On the day of the accident, the Mechanical Department crew consisted of two carmen. Their assignment was to dismantle the two cars on the embankment. After about an hour, the associate carman took a work break and climbed to the top of the grade. He called to the other carman to come up. When he received no answer, he went down to the boxcar and found the carman pinned beneath the fallen roof and side of the car.

The surviving carman called an ambulance. It arrived at about 12 p.m. and took the injured carman to a hospital in Quincy, California, where he was pronounced dead.

There were no witnesses to the accident. A post-accident investigation disclosed that at the time of the accident, the carman was using a torch to dismantle the boxcar from the inside. After he made his last cut on the side, the roof and side collapsed, pinning him between the collapsed roof and side of the car.

The carman's supervisor said he had discussed the dismantling of the boxcar with the carman earlier that morning. The supervisor told the carman not to work inside the car; he felt it would be safer to work on the outside. The carman apparently disobeyed his supervisor's instructions and placed himself in an unsafe position, not insuring self-protection in the event that the roof collapsed.

Applicable Rules

GENERAL RULES

. . . . . .

4. Carelessness, negligence or indifference in the performance of duties will not be condoned.

(The Western Pacific Railroad Company The General and Safety Rules)

Analysis

Although the carman had been told to work outside the car he was dismantling, he continued to work inside the car and, after completing his final cut on the side of the car, the roof and side of the car collapsed and pinned him underneath.

Cause

Failure of the carman to place himself in a safe position.

REPORT: 27

RAILROAD: Utah Railway Company

LOCATION: Martin, Utah

DATE: May 11, 1982

The Accident

A 57-year-old track laborer was fatally injured on May 11, 1982, at about 1:25 p.m., near Martin, Utah. Employed by the Utah Railway Company, the laborer had 24 years of service.

Background

On the day of the accident, the laborer reported for duty at 7 a.m. At about 1:25 p.m., a machine operator was operating a crane commonly called a "speed swing." It is a self-propelled vehicle and is equipped with four rubber tire wheels for ground operation and four flanged-steel wheels for track operation. The rubber tire wheels turn backward to make the flanged steel wheels turn forward.

The accident occurred on a crossover at Milepost 0.5 about 0.3 mile west of Martin, Utah, when the "speed swing" was being operated on the rails.

Either the roadmaster or the section foreman conducts a safety meeting with employees every morning before work. The laborer attended the safety meeting on the day of the accident. He had his last physical examination on October 10, 1968.

Circumstances of the Accident

The roadmaster stated that he instructed the machine operator and the laborer to pick up some timber at the west end of the yard. They were returning with the timber on the eastbound track, which required traversing a crossover to the westbound track to reach a storage area. The laborer was riding on a flat-surfaced platform approximately 2 1/4 feet wide by 5 1/2 feet long on the right side of the crane cab. The machine operator stopped so that the laborer could line a crossover switch. After the laborer lined the switch, he climbed back on the platform and the machine operator began to move the machine forward. At that time the laborer apparently lost his balance and fell from the machine, straddling the rubber tire wheel and the flanged-steel wheel. His right leg was inside and underneath the flanged-steel wheel while the rest of his body was outside of the flanged-steel wheel. As he was dragged for 164 feet, his right leg and groin were crushed by the flanged-steel wheel.

The laborer was taken to the Castleview Hospital in Price, Utah, where he was pronounced dead on arrival.

Applicable Rules

14. When on equipment, watch and be prepared for sudden starting, stopping, lurch or jerk.

(Rio Grande Safety Rules Operating Department)

Analysis

The laborer did not tell the machine operator that he was ready to move forward. The machine operator did not confirm that the laborer was on the platform before he started to move the machine, and he did not ask the laborer if he was ready to proceed.

When the machine started to move, the laborer lost his balance and fell under the machine.

Cause

Failure of the laborer to secure a safe position on the crane while it was in motion. A contributing factor was the failure of the machine operator to alert the laborer of the movement.

REPORT: 28

RAILROAD: Burlington Northern

LOCATION: Coburg, Montana

DATE: May 14, 1982

The Accident

A 53-year-old conductor was fatally injured on May 14, 1982, at about 4:55 p.m., in Coburg, Montana. Employed by Burlington Northern, the conductor had 34 years of service.

Background

Coburg, Montana is 4.9 miles east of Savoy, the nearest station. At Coburg, a storage track 7,013 feet long parallels the single main track to the south. On the day of the accident, there were 12 cars near the east end of the storage track. Two feet separated the fourth and the fifth car on the east end.

A crew was called at 12:15 p.m. at Havre, Montana, for duty on a local freight train known as the "Maltaturn." The crew consisted of an engineer, a conductor, and two brakemen.

The conductor was last examined on the Consolidated Code of Operating Rules on July 10, 1980. His last physical and visual examinations were administered on October 27, 1980. The employee was a member of the Montana Division safety committee. He was issued a copy of Burlington Northern Safety Rules on September 23, 1981, and acknowledged receipt.

Circumstances of the Accident

The train departed Havre at 1:20 p.m., operating as Extra 1813 East. After performing local switching operations en route, it arrived at Coburg at about 4:50 p.m. with two locomotives, four cars, and a caboose. After it stopped on the main track near the east end of the storage track, the rear brakeman cut the caboose off the train on the main track. The locomotives and four cars moved east over the storage track switch, then backed in against the stored cars. While the locomotives and cars were moving from the main to the storage track, the conductor and rear brakeman walked west along the south side of the storage track. The rear brakeman called the conductor's attention to the two-foot opening between the fourth and fifth cars. The conductor said he would make the coupling while the brakeman went back to detach the rear car. The front brakeman coupled the locomotives and cars to the east end of the standing cars. After the coupling was completed, the conductor was not

in sight. The two brakemen walked toward each other from opposite ends of the cars and discovered the conductor between the couplers where the opening had been. He was conscious and allegedly asked the brakemen to uncouple the cars and "let me die." The cars were separated, and the conductor fell to the ground. He was subsequently pronounced dead at the accident scene by a local physician.

Applicable Rules

ON OR ABOUT TRACKS

58. Employees must:
a. Expect the movement of trains, locomotives, cars, or other movable equipment at any time, on any track, in either direction.

. . . . . .

COUPLING AND UNCOUPLING

. . . . . .

151. Walking between moving cars for any reason is prohibited. Stay entirely clear when locomotive or cars, are being coupled or uncoupled.

. . . . . .

156. When adjustment is necessary to drawbar, knuckle or locking block, prior to making coupling or when coupling fails, locomotive or cars must be separated not less than 50 feet and stopped before going between cars.

(Burlington Northern Railroad Safety Rules and General Rules)

Analysis

A post-accident investigation of the accident area and the equipment involved disclosed no conditions or defects that might have contributed to the accident. There were no witnesses to the employee's action, and the exact circumstances of the accident could not be determined.

Cause

The accident was caused by the employee placing himself between two cars separated by less than a safe distance.

REPORT: 29

RAILROAD: Consolidated Rail Corporation

LOCATION: Newark, New Jersey

DATE: May 20, 1982

The Accident

A 39-year-old brakeman was fatally injured on May 20, 1982, at about 12:10 p.m., in the Oak Island Yard, in Newark, New Jersey. Employed by Consolidated Rail Corporation (CR), the brakeman had 16 1/2 years of service.

Background

The Oak Island Yard is a hump yard shaped like a bowl. In the accident area, there are 31 classification tracks, numbered 4 through 64 from north to south. All tracks have a descending grade from the west (hump end), as well a lesser descending grade from the east. Retarders control car movement, as the cars are humped. On the day of the accident, the brakeman was called from the Extra List to work as a extra fieldman with the regularly assigned fieldman on the east end of the yard. The fieldman worked with the regularly assigned hump crew but had separate assignments. The duties of fieldmen are to secure cars on the east end of the yard after the cars are humped.

CR issues a book of operating rules and a book of safety rules to each employee. In addition, the carrier has a Safety-Rule-of-the-Day program and a safety observation program conducted by the supervisors. The brakeman had nine safety contacts by supervisor safety observation.

The brakeman was last examined on CR's Book of Rules on May 7, 1981. He had his last physical examination on September 15, 1981. His last air brake examination was held on September 8, 1980.

Circumstances of the Accident

At approximately 11:50 a.m., the brakeman was notified, via radio, that the hump crew was going to shove the cars on track No. 62 to the east end of the yard, and then shove the cars on track No. 60 to the east end. The instructions were acknowledged by the brakeman. The brakeman was last seen walking west between tracks No. 58 and No. 60. The radio tape revealed that the brakeman was notified at approximately 12:06 p.m. that the movement on track No. 60 had started east and that the handbrake on the east end car was on the south side of the car. This transmission was acknowledged by a "Roger." At 12:13 p.m., a yard crew member entered the east end of the classification yard and discovered the severed body of the brakeman on track No. 60. There were no witnesses, and the final actions of the brakeman were unknown.

The brakeman was apparently on the north side of track No. 60 as the cars approached. The handbrake on the east-end car was on the south side of the car. The brakeman probably attempted to board the north side of the moving cars on either the west end of the first car or the east end of the second car to cross between the cars and reach the handbrake to secure the cars.

The brakeman fell between the first and second cars, landing on the north rail. He was pronounced dead at the scene. A post-accident investigation disclosed no car or track defects that could have contributed to the accident.

Applicable Rules

GENERAL NOTICE

Safety is of the first importance in the discharge of duty.

. . . . . .

The Company does not expect its employees to incur any risk when conditions arise which are not covered by the rules; employees are expected to use sound judgment in the application of the principles of safety.

. . . . . .

ON OR ABOUT EQUIPMENT

1700. Place feet firmly and have secure handhold when:

(a) Getting on or off equipment.

. . . . . .

(c) Crossing over between equipment.

. . . . . .

(k) Any other operation or situation on the ground or on the equipment when necessary to maintain stability.

. . . . . .

1710. Cross over between standing or moving equipment only when necessary in the performance of duty....

(CONRAIL Safety Rules Train, Locomotive and Other Transportation Employees)

Analysis

The brakeman was notified that the movement of the cars on track No. 60 had started eastward and that the handbrake on the east car was located on the south side of the car. He was probably attempting to board the moving cars on the north side and cross over between the first and second cars, when he slipped and fell between the two cars.

Cause

The accident was caused by the brakeman's failure to secure a firm handhold while crossing over moving equipment.

REPORT: 30

RAILROAD: Southern Pacific Transportation Company

LOCATION: Corsicana, Texas

DATE: May 25, 1982

The Accident

A 43-year-old equipment supervisor was fatally injured on May 25, 1982, at about 5:05 a.m., near Corsicana, Texas. Employed by the Southern Pacific Transportation Company, the equipment supervisor had 19 years of service.

Background

On Tuesday, May 25, 1982, the equipment supervisor left his residence at Palmer, Texas, at about 4 a.m., in a company leased pickup truck en route to Austin, Texas, to a work assignment.

The accident occurred 5.3 miles south of Corsicana, Texas in the vicinity of Interstate Highway 45 (I-45) mile marker No. 223. I-45 is a four lane divided and controlled access highway.

Circumstances of the Accident

The employee was operating the vehicle on the right lane of the southbound lanes at an estimated speed of 55 mph. The vehicle struck the rear of a tractor trailer that was being operated southward at about 40 mph. The right tires on the tractor and trailer were moving on the shoulder of the southbound lanes.

The collision crushed the hood and grill of the pickup truck. The rear of the cab section was pushed forwarded by a file cabinet and a tool box that were not secured and came through the rear of the cab, pinning the employee between the back of the seat and the steering wheel and dash board.

The vehicle was equipped with seat belt and shoulder harness body restraints, but the employee failed to use them.

The employee was pronounced dead from injuries sustained in the accident at the scene of the accident. The accident site showed no signs of tire skid marks from the pickup truck or road irregularity, that could have contributed to the accident.

Applicable Rules

M245...

. . . . . .

(b) - All tools, equipment or materials must be properly placed and secured on all moving vehicles.

. . . . . .

M247 - It is the responsibility of each passenger to wear seat belts where they are provided.

(SPTC Rules and Regulations for the Maintenance-of-Way and Structures)

Analysis

The employee apparently misjudged the speed of the slow-moving tractor trailer truck, which resulted in his vehicle striking the rear of the trailer.

The lading carried in the pickup bed was not secured allowing it to shift forward into the cab section.

Cause

The employee failed to maintain proper control of his vehicle and keep a safe distance from the vehicle in front of him.

Contributing factors were failure of the employee to secure lading carried in the bed of the pickup truck and fasten the seat belt and shoulder harness body restraint.

REPORT: 31

RAILROAD: Central Vermont Railway

LOCATION: Amherst, Massachusetts

DATE: May 26, 1982

The Accident

A 60-year-old machine operator was fatally injured on May 26, 1982, at about 10:10 a.m., in Amherst, Massachusetts. Employed by the Central Vermont Railway, the operator had 26 years of service.

Background

The accident area consists of a main track, extending north and south, and a yard track parallel to the main track on the east side. From the north on the main track, there are in succession: a tangent 550 feet long; a 3-degree curve to the left 800 feet to the point of accident and 2,800 feet beyond. The grade for southward trains is 1.20 percent descending.

Railroad Street crosses the main and yard tracks at an angle of 65-degrees 30-minutes. The crossing is protected by two crossbucks and indicate that there two tracks. From the east end of Railroad Street there are, in succession: a tangent several hundred feet long; and a 13-degree curve to the left approaching the point of accident. The grade for westward motor vehicles is 10 percent ascending.

The view of southbound trains from a westbound motor vehicle is restricted because of the track curvature, vegetation, and structures on the east side of the main track.

The machine operator was last examined on the carrier's operating rules on May 4, 1982. His last physical examination was on August 17, 1981. He attended his last safety class on February 17, 1982.

Circumstances of the Accident

Extra 4442 South consisting of 3 locomotives, 34 cars, and a caboose departed Brattleboro, Vermont, at 9:05 a.m.

The engineer and the head brakeman were in the lead locomotive which was being operated with the long hood forward. The rear brakeman was in the second locomotive, and the conductor was in the caboose. As the train approached Railroad Street, the headlight was lighted, the bell was ringing, and the whistle was blowing.

The machine operator went on duty at 7 a.m. and was instructed to move a crane to East Northfield, Massachusetts. (The crane can operate either on the track or on a highway.)

The machine operator drove the crane on the highway from Palmer, Massachusetts, to Amherst. The crane was to be placed on the main track and continue to East Northfield after Extra 4442 South left Amherst. The machine operator did not inquire about the location of the train but drove the crane over the crossing, and was struck by Extra 4442 South. It could not be determined why the machine operator did not stop at the crossing. The machine operator was taken to a nearby hospital where he was pronounced dead at 10:30 a.m.

Applicable Rules

3181. Operators of motor vehicles must obey all motor vehicle laws.

3193. A proceed indication or absence of indication at the protected crossing does not relieve operator of the responsibility of knowing it is safe to cross railroad grade crossing.

(CV Safety Rules Maintenance of Way and Structures, Communications and Signal Employees)

S 15. Precautions at railroad crossings;

> ... every person operating a motor vehicle upon approaching a railroad crossing at grade shall reduce the speed of the vehicle to a reasonable and proper rate before proceeding over the crossing, and shall proceed over the crossing at such rate of speed and with such care as is reasonable and proper under the circumstances....
>
> . . . . . .

(Massachusetts General Laws Annotated, Volume II, Chapters 89 to 90)

. . . . . .

Analysis

When the machine operator arrived at the road crossing in Amherst, he did not stop at the crossing and was struck by Extra 4442 South.

Cause

Failure of the machine operator to stop at a highway grade crossing.

REPORT: 32

RAILROAD: Norfolk and Western Railway Company

LOCATION: Dismal, Virginia

DATE: May 27, 1982

The Incident

A 39-year-old division engineer and a 33-year-old roadmaster were fatally injured on May 27, 1982, at about 12:30 p.m., in Dismal, Virginia. Employed by the Norfolk and Western Railway Company (NW), both men had 12 years of service.

Background

Following heavy rains and floods, the Jewell Smokeless Coal Company loaned its helicopter and pilot to NW employees for the purpose of assessing damages to the track and roadbed. The 32-year-old pilot, who also died in the crash, had 10 years experience as a helicopter pilot.

Circumstances of the Incident

The helicopter left the Jewell Smokeless Coal Company in Vansant, Virginia, at approximately 11:45 a.m. At 12:30 p.m., the helicopter struck a high-tension power line and crashed. The weather at the time of the crash was cloudy and 79° F.

Applicable Rules

Not applicable.

Analysis

Not applicable.

Cause

The county coroner pronounced the three men dead at the accident site as a result of injuries sustained when the helicopter struck the power line and crashed.

REPORT: 33

RAILROAD: Chicago and North Western Transportation Company

LOCATION: Chicago, Illinois

DATE: June 8, 1982

The Accident

A 57-year-old bridge and building supervisor was fatally injured on June 8, 1982, at about 1:11 p.m., at the Clybourn station in Chicago, Illinois. Employed by the Chicago and North Western Transportation Company (CNW), the supervisor had 10 years of service.

Background

The Clybourn station has three main tracks that run in a north-south direction. From the north, the track is tangent for 2 miles, a 3-degree curve to the right 660 feet long, and a tangent for a considerable distance beyond. The track grade is practically level. The platform is on the south end of the curve. A subway canopy in the middle of this platform partially blocks a view of the trains.

On the day of the accident, the bridge and building crew consisted of a foreman and five laborers. The crew, on duty since 7:30 a.m., was in the process of installing concrete forms and braces on the edge of the platform between tracks No. 1 and No. 2.

The accident occurred on the east edge of the platform between tracks No. 1 and No. 2.

Circumstances of the Accident

The bridge and building supervisor was instructed to go to the Clybourn station, with his transit to set up a grade for the concrete forms. He arrived at Clybourn about 12:45 p.m., and put his transit on the platform east of track No. 3.

He crossed the tracks to the platform where the crew was working and conversed with the foreman.

Train No. 147E was on track No. 2, moving southward to the CNW terminal station for loading.

At approximately 1:09 p.m., the supervisor walked north on the platform and began marking the east edge of the platform with a yellow marker. He was last seen facing east, in a stopped position marking the platform near the subway canopy. Train No. 147E struck the supervisor on the left side of his head. He was pronounced dead at the scene.

Applicable Rules

WORKING ON OR ABOUT TRACKS

219. Employes whose duties require them to work near main tracks, running tracks in yards, car repair tracks and similar places, must at all times be on the alert for moving engines, cars or trains....

229. When walking out of doorways or around corners or when going around obstructions that necessitate entering upon or crossing tracks, look in every direction necessary to know that the way is clear.

. . . . . .

(Chicago and North Western Transportation Company General Regulations and Safety Rules)

Analysis

A post-accident investigation revealed that the supervisor and crew were not aware of the approaching train on track No. 2. And the supervisor's view was obstructed by the subway canopy.

Cause

The accident was caused by the failure of the supervisor to observe the approaching train.

REPORT: 34

RAILROAD: Missouri Pacific Railroad Company

LOCATION: Wynne, Arkansas

DATE: June 9, 1982

The Accident

A 25-year-old trackman was killed on June 9, 1982, at about 2 p.m., in Wynne, Arkansas. Employed by the Missouri Pacific Railroad Company, the trackman had 2 years of service.

Background

On the day of the accident, a section crew, consisting of a track foreman and seven trackmen, was inserting filter fabric under a switch.

Manually operated (15-ton capacity) track jacks were used to raise the track panel about 10 inches, in order to place a section of filter fabric under the ties. The jacks were dropped, then moved ahead as the procedure was repeated through the switch area. A raised jack is dropped by cocking a trip lever and applying downward pressure on a track lining bar that is inserted in the jack handle. This allows the raised jack bar and the supported track panel to drop, unrestrained, to the ground.

Circumstances of the Accident

The section crew had placed the filter fabric under a section of track and tripped the jacks in order to allow the track panel to drop to the ground. The trackman, standing on the left side of the track jack, facing the track panel, cocked the trip lever on the jack, called a warning to the nearby trackmen, applied downward pressure on the lining bar, and tripped the jack. However, the trackman did not place the jack-tripping lever in the correct position, and the track panel did not drop to the ground. The weight of the track panel on the jack caused the jack handle and lining bar to thrust upward. The lining bar swung in an arc, passing between the trackman's right arm and body, and the trackman was struck at the base of his skull. He was pronounced dead at the accident scene.

A post-accident investigation of the track jack disclosed that there were no defects that would cause a malfunction. A design feature of the Simplex A17 track jack allows the jack to be cocked and tripped without securing the mechanism when the load is dropped. This allows the jack to catch, and when the jack is raised 5 inches, and supports heavy loads, the jack handle and lining bar are forced upward. Neither the manufacturer of the jack nor the carrier has issued instructions for the safe operation of the tripping mechanism or has given any warning of the potential hazard involved.

Applicable Rules

S34...keep yourself properly braced and alert to prevent injury if there is an unexpected movement of bar or lever and keep all parts of your body in the clear.

(Missouri Pacific Railroad Company Rules and Regulations For The Maintenance of Way and Structures)

Analysis

The trackman was tripping a track jack so that a track panel could drop to the ground. He did not place the tripping lever in the correct position, and the track panel did not drop to the ground.

The weight of the track panel on the jack caused the lining bar to lift upward striking the trackman on the head.

Cause

The accident was caused by the failure of the trackman to properly cock the tripping lever of the track jack and to keep clear of the lining bar.

REPORT: 35

RAILROAD: Burlington Northern

LOCATION: Mt. Pleasant, Iowa

DATE: June 11, 1982

The Accident

A 22-year-old bridge and building mechanic was fatally injured on June 11, 1982, at about 12 noon, near Mt. Pleasant, Iowa. Employed by the Burlington Northern, the mechanic had 3 3/4 years of service.

Background

Bridge No. 235.85 is 2.51 miles west of Mt. Pleasant, Iowa. It is a seven-span, open-deck bridge, 403 feet long, and supported by concrete piers. Two steel girders support the two main tracks over the bridge. The repair work started on the westbound main track at the west end of the bridge. The mechanic belonged to a seven-man bridge and building crew that was replacing crossties on the bridge.

The employee had his last physical examination August 25, 1978. He was issued a copy of the Burlington Northern's Safety Rules and Rules of the Maintenance-of-Way Department. Safety rules were reviewed and discussed by the bridge and building crew at weekly safety meetings.

Circumstances of the Accident

At the time of the accident, the mechanic was standing on a 2 inches by 10 inches by 79 inches timber staging-board used to span the 6 feet 1 inch opening between the adjacent westbound and eastbound steel girders. The staging board was placed on the steel stringer flanges 35 1/2 inches below the bridge ties. The employee was not wearing a safety belt, and a safety net had not been installed. He was striking an anchor bolt upward from the bottom of the tie, through a bored hole, when he apparently lost his balance and fell about 50 feet to the ground. He was pronounced dead at the scene of the accident. The staging board was not broken, and it is possible that the board slipped off one of the stringer flanges, causing the employee to fall. The crew members were at other points on the top of the bridge and did not witness the accident.

Applicable Rules

ELEVATED POSITIONS - LADDERS, SCAFFOLDS, ETC.

. . . . . .

433. Employees who work on railroad bridges or other structures 25 feet or more above ground or water must be protected by use of approved safety nets or safety belts and lifelines....

(Burlington Northern Railroad Safety Rules and General Rules)

. . . . . .

382. Use of safety belt or rope, except where scaffold or other protection is provided when working in following locations:

. . . . . .

(d) in dangerous positions on bridges or other structures.

(Burlington Northern Rules of the Maintenance of Way Department -- Operating Department)

Analysis

The mechanic was not wearing a safety belt, and a safety net had not been installed. The employee apparently lost his balance and fell off the staging board. The staging board was not broken and it is possible that the board slipped off the stringer flange.

Cause

The accident was caused when the employee fell from the bridge due to loss of balance. A contributing factor was the failure of the bridge and building crew to use safety nets or safety belts.

REPORT: 36

RAILROAD: Burlington Northern

LOCATION: Hastings, Nebraska

DATE: June 24, 1982

The Accident

A 47-year-old switch foreman was fatally injured on June 24, 1982, at about 5:35 p.m., in Hastings, Nebraska. Employed by the Burlington Northern (BN), the employee had 29 years of service.

Background

The accident occurred on track No. 6 at the east end of the Hastings Yard. The yard consists of 14 classification tracks numbered 1 through 14, north of the double main tracks. The tracks connect to a lead track at the east end of the yard. The lead extends eastward to a crossover that connects the lead track to the main tracks. The track gradient is practically level.

On the day of the accident, the switch crew consisted of a foreman, an engineer, and two switchmen. It went on duty at 3:55 p.m. at the Hastings depot after completing the required off-duty period. The yard locomotive in use was BN 6168, an EMD SD-9 locomotive, with the short hood forward.

Circumstances of the Accident

Shortly before the accident, a switch list given to the crew noted that three cars had to be moved from track No. 6. Two cars were to be placed on track No. 8 and the other car on track No. 7.

The locomotive in which the switch foreman was riding was coupled to the three cars on track No. 6. The switch foreman left the control compartment and started walking northward in the direction of the track No. 8 switch. One switchman was on the rear step of the locomotive on the engineer's side, and the other switchman was walking westward to the rear of the three cars. Upon arriving at the rear of the third car, the second switchman gave the engineer a hand signal to proceed eastward. He saw that the switch for track No. 8 was properly lined and that the switch foreman was walking in a southeasterly direction across track No. 7 a few feet east of the locomotive. The switchman turned and attempted to catch the moving cars, but

before he could do so, the locomotive whistle sounded, and the movement stopped.

The engineer stated he received the proper signal to move eastward. He began the movement, and when he turned to look eastward, he saw the switch foreman walking eastward between the rails of track No. 6 about 3 feet in front of the locomotive. He applied the locomotive air brakes and sounded the whistle. Before the movement could be stopped, the switch foreman was struck and run over. His body was found between the rails under the first car. He was taken to the Mary Lanning Memorial Hospital by ambulance and pronounced dead at 6:25 p.m.

Applicable Rules

ON OR ABOUT TRACKS

58. Employees must:

a. Expect the movement of trains, locomotives, cars, or other movable equipment at any time, on any track, in either direction.

b. Before crossing tracks or stepping out from between equipment, look in both directions for approaching equipment.

59. Employees must not:

a. Walk, stand or be foul of tracks except when required in the performance of duty.

b. Cross tracks immediately in front of moving equipment.

. . . . . .

e. Walk between the rails of any track. . . .

. . . . . .

(Burlington Northern Railroad Safety Rules and General Rules)

Analysis

The engineer was looking westward to receive hand signals from the switchman and did not look eastward until the locomotive and cars were moving. He saw the switch foreman's back and head and applied the brake. The engineer was the only witness to the accident.

The switch foreman was walking eastward between the rails of track No. 6 when he was struck and fatally injured by the locomotive moving eastward on track No. 6.

Cause

The accident was caused by the employee's failure to stay clear of moving equipment.

REPORT: 37

RAILROAD: Consolidated Rail Corporation

LOCATION: New Florence, Pennsylvania

DATE: July 9, 1982

The Accident

A 31-year-old track foreman was fatally injured on July 9, 1982, at about 8:50 a.m., in New Florence, Pennsylvania. Employed by the Consolidated Rail Corporation (CR), the track foreman had seven years of service.

Background

The track foreman was assigned to direct a vegetation spraying operation westward along the CR's main line from New Florence, Pennsylvania.

A Spray Service Industries, Inc., truck equipped for highway and rail operations with a 1,522-gallon-capacity tank departed Latrobe, Pennsylvania, at about 7:45 a.m. It traveled via highway with a Spray Service Industries driver and the railroad track foreman occupying the truck cab. The tank contained about 1,200 gallons of liquid spray.

Approaching the accident site, the road consists of numerous curves and grades. From the north there is a 11-degree 30-minute curve to the right immediately followed by a 16-degree curve to the left. The grade through the curves varies from 8.18 to 8.66 percent, descending.

Circumstances of the Accident

The Spray Service Industries, Inc. truck was traveling southward on Pennsylvania Legislative Route 32011 when the operator lost control of the vehicle on a curve. Skid marks on the pavement indicated that the truck was being operated in excess of 55 mph.

According to witnesses in a northbound vehicle, the truck moving south suddenly appeared in the northbound lane on a right-hand curve. It swerved to the right to avoid colliding with an oncoming vehicle, entered the left-hand curve, crossed over to the southbound lane, struck the guard rail, and overturned.

The truck then struck a bridge abutment, knocked down a telephone pole on the west side of the roadway behind the guard rail, and came to rest against a tree. In the impact, the tank holding the liquid spray separated from the chassis and came to rest in a creek.

The foreman was not using a seat belt and was thrown from the truck cab. He was found unconscious in the creek bed and pronounced dead at the scene.

A post-accident examination of the air-operated braking system on the truck was conducted by an independent insurance adjuster. The examination results revealed that the push rod stroke on the steering axle measured 2 inches -- 1/4-inch in excess of the specified maximum stroke and out of adjustment. The push rod stroke on the rear axle measured 2 inches, which is 1/2-inch less than the specified maximum stroke and the point at which an adjustment should have been performed. The truck's brake system is equipped with a type 9 clamp-ring brake chamber on the steering axle and a type 30 clamp-ring brake chamber on the rear axle.

Applicable Rules

3347. While in vehicle or other self-propelled equipment equipped with seat belts,

(a) Promptly on entering vehicle or equipment adjust belt around self and necessary slack, but not enough to be thrown forward in the event of collision, lurch or sudden stop.

(b) Keep belt secured around self until preparing to leave the vehicle or equipment after it is stopped.

(Conrail Safety Rules for Maintenance of Way Employees)

Analysis

The truck was being operated in excess of 55 mph when the operator lost control of the vehicle on a curve. The vehicle struck a guard rail and overturned.

Results of the post-accident investigation revealed that the truck's braking system on the truck was not properly adjusted and that the passenger was not using a seat belt.

Cause

The accident was caused by the operator's failure to control the speed of the tank-truck on the highway curves and descending grades.

Contributing was the failure to adjust the air brake system of the truck according to the manufacturer's specifications and the employee's failure to secure his seat belt properly.

REPORT: 38

RAILROAD: Burlington Northern

LOCATION: Pawnee, Oklahoma

DATE: July 21, 1982

The Accident

A 29-year-old brakeman was fatally injured on July 21, 1983, at about 4:55 p.m., in Pawnee, Oklahoma. Employed by the Burlington Northern (BN), the employee had nine years of service.

Background

The accident occurred on the BN's east-west main track at Mile Post 479.7, about 1.7 miles west of Pawnee, Oklahoma. A single main track belonging to the Atchison, Topeka and Santa Fe Railway Company (ATSF) crosses the BN track at Mile Post 497.7. The crossing is controlled by an automatic interlocking, and BN trains operate on the Second Subdivision by timetable, train order, and clearance authorizations.

The employee was a member of a train crew that consisted of a conductor, a head brakeman, a rear brakeman, and an engineer. The crew went on duty at 6:45 a.m. The train involved in the accident consisted of three locomotives and 71 cars. The lead locomotive had the short hood forward.

The employee was last examined on the "Consolidated Code of Operating Rules" on May 19, 1981, and attended an Operating Rules class on March 30, 1982. His last physical examination was administered on February 8, 1977.

Circumstances of the Accident

At 4:50 p.m., the train was stopped 150 feet from the last governing signal of the automatic interlocking at the ATSF crossing. The head brakeman went to the interlocking control box (on the south side of the BN track) and operated the time release. After 2 minutes, the head brakeman moved to the north side of the BN track and gave the engineer a "proceed" hand signal. The engineer whistled to "proceed," and the train moved toward the crossing at about 10 mph.

The lead locomotive was about 120 feet from the crossing, when the engineer saw the head brakeman standing between the rails of the ATSF track, directly across from the interlocking control box. As the lead locomotive was about 35 feet from the head brakeman, the rear brakeman (riding in the cab) also saw the head brakeman standing between the rails of the ATSF track. The engineer saw the head brakeman raise his left foot and both hands to board the steps of the lead locomotive. The head brakeman placed both hands around the grab irons, with the upper fourth of his body in view; the remainder of his body was blocked from view by the outside mirror of the locomotive.

The engineer saw the brakeman's hands slide down the grab iron in a jerking motion. The engineer then made an emergency application of the air brakes, and the train stopped about 200 feet west of the point where the brakeman attempted to board the locomotive. The brakeman was found about 25 feet beyond with a severed left heel and deep lacerations of the back.

The rear brakeman and conductor summoned emergency assistance via train radio, but the brakeman died at 6:21 p.m. at a local hospital.

A post-accident investigation of the locomotive disclosed no safety appliance defects. Blood stains were found on both sides of the north rail and on the third wheel of the lead locomotive truck.

A guard rail is fastened to the ATSF west rail about 3 feet in front of the point of injury. Inspection of the guard rail indicated the possibility of the brakeman's entanglement with the guard rail or the guard rail fastenings.

Applicable Rules

68. Before boarding or alighting from moving equipment...; observe footing and clearance and see there are no obstructions....

. . . . . .

71. Employees must:

. . . . . .

d. When getting on use the foot closest to the coming equipment (trailing foot) and place it in the corner of the stirrup or step first.

e. Look in the direction equipment is moving to avoid structures or objects above or alongside track.

. . . . . .

567. Employees must:

a. Not incur risk which can be avoided by exercise of care and judgement.

b. Take time to work safely.

c. Exercise care to prevent injury to themselves or others.

(Burlington Northern Railroad Safety Rules and General Rules)

Analysis

The engineer and rear brakeman saw the head brakeman standing between the rails of the ATSF track. While the train was moving at less than 10 mph, the head brakeman attempted to board the leading locomotive while standing between the rails of the ATSF track.

There was no evidence of safety appliance defects on the locomotive.

Cause

The accident was caused by the brakeman's failure to maintain a secure balance or footing while attempting to board a moving locomotive.

REPORT: 39

RAILROAD: Burlington Northern

LOCATION: Seattle, Washington

DATE: August 12, 1982

The Accident

A 37-year-old clerk was fatally injured on August 12, 1982, at about 3:50 p.m., at Stacy Street Yard, in Seattle, Washington. Employed by Burlington Northern Railroad Company (BN), the employee had 13 years of service.

Background

The Middle Yard, one of three yards in the Stacy Street Yard complex, consists of 21 tracks extending in a north-south direction. Numbered 1 through 21, the tracks are level and tangent. A scale is located on track No. 10 about 1,400 feet north of the yard office building at the south end of the yard.

The employee was issued a copy of "Burlington Northern Railroad Safety Rules and General Rules" on July 22, 1982. Safety Rule classes are not given to clerical employees.

Circumstances of the Accident

On the day of the accident, the employee went on duty at 3 p.m., at the Stacy Street Yard office. His duties included operation of the scale on track No. 10. Shortly after reporting for duty, he was instructed to proceed to the scale and wait for a yard engine with cars to be weighed. The last person to see the clerk before the accident was the yardmaster who saw him walking northward between track Nos. 17 and 18. At about the same time, a yard engine pulled three cars southward from track No. 14, switched one car out and allowed the other two cars to roll back into track No. 14. The yard engine then proceeded to track No. 10 to weigh the cars standing on that track. As the yard engine was moving north on track No. 10, a member of the yard crew heard a voice call for help. Upon investigation, the crew member found the yard clerk lying across the rail of track No. 14. The clerk had been run over by a moving freight car and subsequently died of massive traumatic injuries.

The route chosen by the employee going from the yard office to the scale required that he cross several yard tracks, all of which were occupied by standing freight cars. As he was crossing between the ends of coupled cars on track No. 14, the two cars that were rolling struck the standing cars and caused them to move abruptly. The employee had apparently lost his grip and his footing, fell across the rail, and was run over by the car wheels. It could not be determined why the employee chose this route rather than going along the unoccupied south lead track, then northward along track No. 10 to the scale.

Applicable Rules

ON OR ABOUT TRACKS

58. Employees must:

    a. Expect the movement of trains, locomotives, cars or other movable equipment at any time, on any track, in either direction.

    b. Before crossing tracks or stepping out from between equipment, look in both directions for approaching equipment.

. . . . . .

GETTING ON AND OFF STANDING EQUIPMENT

. . . . . .

67. When absolutely necessary, and only in the performance of duty, employees may cross between standing cars that are coupled together. A secure handgrip must be maintained and every effort must be made to cross where end sill platform is available, keep feet clear of possible coupler movement, and expect slack action at any moment. Side sill step must be used in getting on and off. Feet must not be placed on any movable part of cushioned underframe cars.

(Burlington Northern Railroad Safety Rules and General Rules)

Analysis

The clerk was instructed to go to the scale on track No. 10 and weigh some cars. The route he took from the yard office to the scale required him to cross over several tracks that were occupied by cars.

Cause

The accident was caused by the employee crossing between standing coupled cars.

REPORT: 40

RAILROAD: Baltimore and Ohio Railroad Company

LOCATION: Connellsville, Pennsylvania

DATE: August 13, 1982

The Accident

A 48-year-old brakeman was fatally injured on August 13, 1982, at about 2:24 p.m., in Connellsville Yard, in Connellsville, Pennsylvania. Employed by the Baltimore and Ohio Railroad Company, the brakeman had 11 years of service.

Background

Connellsville Yard is a classification yard with tracks extending in a east-west direction, connected on both ends by switching leads.

The accident occurred at the west end of the westbound receiving yard that consists of five tracks numbered 29, 31, 33, 35, and 37.

The brakeman was last examined on the Rules of the Transportation Department and Safety Rules on April 12, 1982. His last physical examination was administered March 23, 1982. He last attended a safety class on June 30, 1982.

Circumstances of the Accident

The brakeman was a member of a yard switching crew consisting of a conductor, two brakemen, an engineer, and a fireman. The crew had been on duty for 6 hours and 29 minutes after completing the required off-duty period.

On the day of the accident, the yard crew was classifying cars on different yard tracks. When the accident occurred, the crew was at the west end of the yard assembling an eastbound train. The fireman was operating a locomotive that was shoving 95 empty cars eastward at about 5 mph with the short hood forward. The engineer was standing on the ground near the yard office, and the conductor and the other brakeman were at the west end on track No. 33. The brakeman was riding on the south side of the caboose (coupled to the locomotive), on the rear step, directly in front of the locomotive, and in full view of the fireman operating the locomotive. The brakeman told the fireman that he was going to get off the caboose by the westend yard office. The accident occurred as the brakeman attempted to dismount. According to the fireman, the brakeman apparently realized that he was over the switch target of track No. 29 as he attempted to dismount, and tried to pull himself back onto the caboose step. He appeared to lose his grip with his right hand and fell between the caboose and locomotive.

The fireman applied the emergency brakes, and the train stopped approximately three car lengths from the first marks on the ground, after it rolled the brakeman for about 12 feet. The brakeman died as a result of severe injuries inflicted by the locomotive.

A post-accident inspection of the caboose revealed no deviations from safety appliances.

Applicable Rules

73. When getting on or off equipment, employees must face the equipment and have a secure handhold and footing. Watch for equipment on adjacent tracks, close clearances, obstructions, irregularities, or openings on the ground.

. . . . . .

87. Riding on cars, or steps and platforms of locomotives or cabooses without a secure hold is prohibited.

. . . . . .

96. While on moving equipment, employees must maintain a lookout in the direction of movement for obstructions or close clearances along side of track.

(Chessie System Safety Rules - Effective June 15, 1979)

Analysis

The brakeman told the fireman that he was getting off the train near the westend yard office. The brakeman lost his grip on the handhold of the caboose and fell between the caboose and locomotive.

Cause

The accident was caused by the employee's failure to maintain a secure balance, footing, or grip of the caboose handhold while attempting to dismount a moving train.

REPORT: 41

RAILROAD: Consolidated Rail Corporation

LOCATION: Holland, Ohio

DATE: August 20, 1982

The Accident

A 44-year-old brakeman was fatally injured on August 20, 1983, at about 10:30 p.m., in Holland, Ohio. Employed by the Consolidated Rail Corporation (CR), the employee had 12 years of service.

Background

The accident occurred on the westbound main track No. 2, at Mile Post 297.3 in Holland, Ohio. This is a double track mainline over which trains operate under a traffic control system. The tracks are tangent for several miles in both directions.

The employee was last examined on the Rules of the Transportation Department and Safety Rules on March 30, 1981. As a result of furlough, he had worked only 39 days from January 1, 1982, to the date of the accident. His last physical examination was administered February 15, 1980.

Circumstances of the Accident

The brakeman was a member of a road switching crew that consisted of two brakemen, a conductor, and an engineer. After completing the required off-duty period, the crew went on duty at 3 p.m., on August 20, 1982, at Central Union Terminal in Toledo, Ohio. The crew was instructed to operate a train known as the "Bryan Turn" and perform switching service from Toledo to Bryan, Ohio, and then return to Toledo. The train consisted of a locomotive, a caboose, three loaded freight cars, and 27 empty freight cars.

Prior to the accident, the train dispatcher, via radio, notified the crew of the Bryan Turn that he had received a high reading on the hot box detector at Mile Post 229.4. The train stopped at Mile Post 297.3.

Before the train came to a complete stop, the conductor and the rear brakeman went to the west platform of the caboose toward the rear of the train to view the car with the hot box. It was a tank car containing liquified petroleum gas, the second car west of the caboose.

As soon as the train had stopped, the rear brakeman dismounted the south side of the caboose and began walking westward between the rails of track No. 2.

The conductor saw the back of the rear brakeman reflected in the headlight of a westbound train. The train was traveling at about 55 mph on track No. 2. The engineer blew the train whistle at a highway crossing about 1,750 feet east of the point of accident; the headlight of the train was on bright.

The conductor jumped off the caboose, shouted to the brakeman to get out of the way, and then moved to the right to position himself between the caboose and a gondola car. The brakeman was struck in the back by the westbound train and sustained fatal injuries. When hit, the brakeman was looking at the journal of the tank car containing liquified petroleum gas, and appeared to be unaware of the approaching train.

Applicable Rules

1304. Expect equipment to move on any track, in any direction, at any time. Therefore, employees must look in both directions before:

(a) Fouling or crossing track....
(d) Getting on or off standing or moving equipment....

(Consolidated Rail Corporation Safety Rules - Train, Locomotive, and other Transportation Employees - Effective July, 1978)

Analysis

At the time of the accident, the brakeman was between the rails of track No. 2 looking at the journal of the tank car and apparently was unaware of the approaching westbound train on track No. 2.

Cause

The accident was caused by the failure of the brakeman to move clear of an approaching train.

REPORT: 42

RAILROAD: Chicago and North Western Transportation Company

LOCATION: South Pekin, Illinois

DATE: August 29, 1982

The Accident

A 37-year-old switchman was fatally injured on August 29, 1982, at about 2:45 a.m., in South Pekin, Illinois. Employed by the Chicago and North Western Transportation Company, the employee had 2 years, 11 months of service.

Background

The accident occurred on track No. 14 of the South Pekin Yard. This section of the yard consists of eight parallel and level tracks, numbered 13 through 20, consecutively, from the west. They extend in a north-south direction from a switching lead.

The switchman last passed a test on Consolidated Code of Operating Rules on June 9, 1982. He passed his last physical examination on September 20, 1979. He last attended a carrier safety meeting on August 23, 1982.

Circumstances of the Accident

A switching crew consisting of an engineer, a foreman, and a switchman went on duty at 11:59 p.m., August 28, 1982. The yardmaster instructed the crew to switch cars off the repair track and place car No. CHEX 63, a covered hopper, on the north end of track No. 14.

At 1:45 a.m., August 29, 1982, the yardmaster told the crew to put the locomotive on the inbound lead and await the arrival of train No. 394. After placing the engine on the inbound lead, the foreman and switchman walked to the yardmaster's office. The yardmaster instructed the foreman and switchman about the switching to be performed on train No. 394 and a switch list was given to the foreman.

At approximately 2 a.m., when train No. 394 arrived South Pekin Yard, the crew placed the train on track No. 15. The switchman was taken by the yardmaster in a company vehicle to pick up the conductor and rear brakeman of train No. 394. After collecting the rear crew, the switchman was taken to the 24th car of train No. 394 and instructed by the yardmaster to make a cut at this car and leave the brakes set on the rear portion of the train. The switchman was last seen by the yardmaster walking northward on the west side of track No. 15; he was bleeding the brakes of the cars on the front portion of the train.

The foreman coupled the yard locomotive to train No. 394 at the north end of track No. 15. He then proceeded southward on the east side of track No. 15, bleeding the brakes of the cars. Upon reaching the 24th car he made a cut as directed and the cars were pulled northward to start switching operations. The first car was switched onto track No. 14. The next three cars were switched to various tracks. The fifth car was switched to track No. 14. The sixth and seventh cars were being switched to track Nos. 17 and 19, respectively, when the foreman tried to radio the switchman.

The engineer on the yard locomotive heard the foreman trying to call the switchman and, not hearing a response, used his radio in an attempt to contact the switchman. No response was received from the switchman. After the yardmaster heard the attempts of the foreman and engineer to contact the switchman, he also tried to reach the switchman. Not receiving any response, he asked the foreman if he could see a light around track No. 15. The foreman saw a light on track No. 15 and started walking towards it. The foreman and yardmaster arrived at the light at the same time and found the switchman lying underneath a covered hopper (CHEX 63) on track No. 14. The switchman was pronounced dead at the scene by the county coroner.

A post-accident inspection of the switchman's hand radio and the covered hopper car disclosed no defects that could have contributed to the accident.

There were no witnesses to the accident, and therefore, it could not be determined why the employee did not remain in the clear of the cars on track No. 14 while working on track No. 15.

Applicable Rules

Rule M.

> Employees must exercise care to prevent injuries to themselves or others. Employees must expect the movement of trains, engines, cars or other movable equipment at any time, on any track, in either direction.

(The Consolidated Code of Operating Rules).

Analysis

The switchman was instructed to bleed the air brakes on standing cars on track No. 15. In the process of performing his duties, he was struck by a moving car on an adjacent track.

There were no witnesses, and the exact circumstances of the accident could not be determined.

Cause

This accident was caused by the failure of the employee to remain clear of moving equipment on an adjacent track.

REPORT: 43

RAILROAD: Seaboard Coast Line Railroad

LOCATION: Rocky Mount, North Carolina

DATE: September 1, 1982

The Accident

A 58-year-old load adjuster was fatally injured on September 1, 1982, at about 3:05 p.m., in Rocky Mount, North Carolina. Employed by the Seaboard Coast Line Railroad the employee had 38 years of service.

Background

The accident occurred on Country Club Road about 0.6 mile north of the intersection of U.S. 64 West. Country Club Road is a two-lane, 24-foot-wide, asphalt-covered road with a painted dividing line and shoulder markers. In the accident area, the road is tangent and level, with a maximum speed limit of 45 mph.

The load adjuster's normal duties consisted of cleaning the yard offices at South Rocky Mount Yard and correcting improperly loaded cars, such as pulpwood, lumber, and pipe.

The load adjuster was classified as a station employee. He was not required to take a rules examination, and there was no record of the issuance of "Safety Rules for Station Employees."

Circumstances of the Accident

At about 2 p.m., on the day of the accident, the load adjuster and another employee were adjusting a load of pulpwood on a car. The chief clerk arrived at the work location and instructed the two employees to report to the terminal trainmaster's apartment to help load some home furnishings on a truck. The truck was a one-ton vehicle with a stake body and steel floor.

At about 3 p.m., the two employees and the trainmaster left the apartment in the truck. The trainmaster was driving; one employee was seated on a piece of furniture facing the rear; the load adjuster was standing at the rear of the truck on the right side facing forward. The truck traveled east on Sunset Avenue for 0.9 mile, turned left on U.S. 64 West for 0.1 mile, and turned right on Country Club Road. The trainmaster stopped the truck at the beginning of Country Club Road to allow the employees to adjust some boxes. The truck then proceeded at about 25 to 30 mph for 0.6 mile. When the truck was passing the Stony Creek Volunteer Fire and Rescue building, the standing load adjuster fell backwards from the moving truck and struck his head on the asphalt pavement. After the rescue squad administered medical assistance at the scene, the load adjuster was taken to a local hospital and pronounced dead at 3:24 p.m. by the county medical examiner.

The employee seated at the rear of the truck was an eyewitness to the accident. He stated that the truck was traveling at about 25 to 30 mph when the standing load adjuster apparently lost his hold on the side of the truck and fell to the pavement.

Applicable Rules

Not applicable.

Analysis

The load adjuster was standing on the rear portion of a moving truck facing forward when he fell backwards off the truck and struck his head on the pavement. The second employee stated that the load adjuster appeared to have lost his grip on the side of the truck and fell.

Cause

The accident was caused when the employee lost his hold of the side of the truck.

REPORT: 44

RAILROAD: Providence and Worcester Railroad Company

LOCATION: Worcester, Massachusetts

DATE: September 2, 1982

The Accident

A 28-year-old conductor was fatally injured on September 2, 1982, at about 1:15 p.m., in Worcester, Massachusetts. Employed by the Providence and Worcester Railroad Company, the conductor had 4 months of service.

Background

Worcester Yard extends in a north-south direction, and in the accident area, there are nine parallel yard tracks numbered 1 through 9 from east to west. The grade is 0.6 percent, descending southward.

The conductor was a member of a yard switching crew, consisting of a conductor, an engineer, and a brakeman. The crew had been on duty for 5 hours and 15 minutes, after completing the required off-duty period.

The conductor had not attended an operating rules instruction class. He passed his last physical examination on April 21, 1982.

Circumstances of the Accident

The crew had performed switching duties in Worcester Yard prior to the accident. The conductor and brakeman were equipped with portable radios. A locomotive was coupled to the south end of 23 cars on track No. 1. The six south cars had the air brakes in service, but the reservoirs on the remaining cars had been bled. The conductor instructed the engineer, via radio, to pull the cars southward. A short time later, the conductor instructed the engineer to stop in order to uncouple the seven rear cars. The brakeman stated that he had previously applied a handbrake on car SP 244143, which was the southernmost car of the seven left standing on track No. 1. The conductor instructed the engineer to pull southward over the switch for track No. 1 with the remaining 16 cars. The conductor then directed the engineer to stop while the switch was lined for a northward move toward track No. 9.

The conductor told the engineer to back northward and shortly thereafter instructed the engineer to stop. The engineer felt an impact, the sound of which was heard by the brakeman who was some distance away. The brakeman went to the point of impact and found the conductor crushed between the south end of car SP 244143 (previously left on track No. 1) and the northeast corner of the lead car of the cars being pushed northward. The conductor was pronounced dead at the scene.

There were no witnesses to the accident. The seven cars on track No. 1 moved unattended into the side of the lead car being shoved northward. The conductor apparently saw the cut of cars rolling free and attempted to stop the movement by securing the handbrake on car SP 244143. The handbrake rod was severed and the housing was forced into the side of the car by the cornering impact, making post-accident tests of the handbrake impossible.

Applicable Rules

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Rule F

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When engines and/or cars are left standing unattended at any location, sufficient handbrakes must be set to prevent movement of such engines and/or cars.

(Providence and Worcester Railroad Company - Rules for Conducting Transportation)

Analysis

Evidently, the handbrake on car SP 244143 failed to hold and the seven cars left standing on track No. 1 rolled southward and were struck by the northward movement. The conductor apparently saw the seven cars moving and was attempting to apply the handbrake when the collision occurred.

Cause

The accident was caused by the unintended movement of the standing cars. A contributing factor may have been a defective handbrake.

REPORT: 45

RAILROAD: Burlington Northern

LOCATION: Spokane, Washington

DATE: September 9, 1982

The Accident

A 47-year-old electrician was fatally injured on September 9, 1982, at about 12:45 p.m., at Hillyard Yard, in Spokane, Washington. Employed by the Burlington Northern, the employee had 30 years of service.

Background

The accident occurred in an interior building, a toolroom containing various types of machinery including lathes, of the Hillyard Diesel Shop. Overhead lighting is furnished by six banks of fluorescent lamps.

The electrician went on duty at 7 a.m. on September 9, 1982, and had been on duty for 5 hours and 45 minutes at the time of the accident.

He last attended a safety meeting on September 9, 1983, and his last physical examination was administered May 7, 1965. He was promoted to the position of Diesel Electrician on September 13, 1959.

Circumstances of the Accident

Because the diesel shop was shutting down, the electrician was disconnecting electrical wires from various machines in the toolroom. He had disconnected the 110-volt power source supplying the overhead direct light to a lathe and taped the wire ends. He then proceeded to disconnect the flex cable conduit underneath the lathe to expose three-phase, 440-volt wires. When the 30-amp-capacity No. 10 wires were exposed, he used 6-inch noninsulated diagonal cutters, in his right hand, to reach under the lathe to cut one of the three wires. His left arm, or part of his upper body, was in contact with the lathe. The circuit breaker box to the lathe, which is marked, was in the "on" position. As the electrician cut one of the wires, an electrical charge passed through his right arm and body to that portion of his body making contact with the lathe.

Emergency medical forces were immediately summoned, but the electrician was pronounced dead on arrival at Holy Family Hospital.

A post-accident investigation disclosed that the electrician was working alone, and the 440-volt circuit was not de-energized. As there were no witnesses to the accident, the exact circumstances could not be determined.

Applicable Rules

WORKING ON OR NEAR ELECTRICAL WIRES OR EQUIPMENT

347. All conductors, wires, cables and electrical equipment shall always be considered energized unless positively known to be de-energized and grounded. If not grounded, they are not to be considered de-energized.

(Burlington Northern Safety Rules)

Analysis

The electrician's left arm or part of his body was in contact with the lathe as he was in the process of cutting energized wires. The circuit breaker box to the lathe was in the "on" position.

Cause

The accident was caused by the electrician's failure to de-energize the 440-volt circuit.

REPORT: 46

RAILROAD: Consolidated Rail Corporation

LOCATION: Cleveland, Ohio

DATE: September 17, 1982

The Accident

A 51-year-old forklift truck operator was fatally injured on September 17, 1982, at about 2:58 p.m., in Cleveland, Ohio. Employed by the Consolidated Rail Corporation, the operator had 14 years of service.

Background

The accident occurred at a new Maintenance of Way storage facility, Collinwood Material Yard, which opened August 1, 1982. The facility was constructed on the former site of a roundhouse which was razed in the mid-1950's.

The carrier issued a book of Safety Rules to the employee on March 24, 1980, and March 10, 1982. The employee attended a safety seminar on March 10, 1982. His last physical examination was administered on October 18, 1973.

Circumstances of the Accident

At approximately 1 p.m., the forklift operator and the foreman began unloading pallets of welding rod, weighing 4,000 pounds each, from a semi-flatbed trailer in the material yard. The operator was piloting a Catepillar forklift truck, which has a No. 469, V40-B series 81M260 (4,000 pounds capacity). Ten pallets had been unloaded prior to the accident.

At about 2:58 p.m., the operator was removing the 11th pallet. He lifted the pallet slightly above the trailer height of 4 feet 10 inches above ground level, backed away from the trailer with the load raised, stopped, shifted into forward gear and the ground collapsed under the right-front wheel of the forklift. The forklift toppled to the right, causing the operator to fall to the ground under the forklift. The foreman used the machine he was operating to raise the toppled forklift and remove the operator. The operator was pronounced dead at the local hospital.

A post-accident inspection of the site revealed two holes in the ground. One, measuring 3 feet deep by 1-1/2 feet in diameter, had been visible for approximately 4 to 5 days prior to the accident and was barricaded with a pallet and stop sign. The second hole, measuring 8-1/2 inches in depth and 2 feet in diameter, was under the right-front wheel of the forklift truck. After the forklift truck was removed, the ground underneath collapsed to a depth of approximately 4 feet. It was discovered that the duct system of the razed roundhouse had collapsed and caused the ground to collapse.

Applicable Rules

Not applicable.

Analysis

The weight of the forklift and the pallets apparently caused the old duct system to collapse.

Cause

The ground collapsed under the forklift truck, causing the operator to fall under the toppling forklift truck.

REPORT: 47

RAILROAD: Southern Pacific Transportation Company

LOCATION: New Iberia, Louisiana

DATE: September 25, 1982

The Accident

A 53-year-old car foreman was fatally injured on September 25, 1982, at about 10 a.m., near New Iberia, Louisiana. Employed by the Southern Pacific Transportation Company, the employee had 32 years of service.

Background

On the day of the accident, the car foreman and two carmen reported for duty at the Lafayette car repair facility at about 6:30 a.m. and departed for Baldwin, Louisiana, in two company vehicles to rerail a car. The work was completed at about 9:30 a.m., and the crew left to return to the Lafayette car repair facility.

Circumstances of the Accident

The car foreman and one carman left in a pickup truck for Lafayette on U.S. Highway 90, a four-lane, controlled-access highway, immediately after 9:30 a.m. At about 9:59 a.m., traveling at an estimated 55 mph, they approached the intersection of U.S. Highway 90 and Darnell Road (Iberia Parish Road No. 211), approximately 4.4 miles southeast of New Iberia. The foreman was driving in the right lane of the westbound portion of the divided highway. As they approached the intersection, the carman noticed a northbound car on Darnell Road cross the eastbound lanes of U.S. 90 without stopping and continue toward the westbound lanes at an estimated speed of 45 mph. The carman mentioned this to the car foreman. The car foreman glanced momentarily in the direction of the northbound car. As the pickup truck entered the intersection, it was struck on the left door by the northbound car, which failed to comply with a stop sign. The collision caused the pickup truck to veer northward and strike the front of a southbound vehicle stopped at a stop sign on Darnell Road. From that point, the pick-up truck collided with the stop sign; it rotated clockwise and rolled over on its side. Both occupants were ejected before the pickup truck came to rest.

The carman was injured; the car foreman was pronounced dead from chest and head injuries at 11:15 a.m. by the Iberia Parish Coroner at Iberia General Hospital.

The pickup truck was equipped with seat belt/shoulder harness body restraints. Post accident investigation indicated that they were not in use when the accident occurred.

Applicable Rules

Rule No. 30

Seat belts will be fastened and adjusted.

(Southern Pacific "Rules for the Safe Operation and Care of Automotive and Trailer Equipment")

Analysis

The operator of the northbound vehicle, apparently became disoriented while turning around, crossed U.S. Highway 90 without stopping as required and struck the pickup truck.

The car foreman and the carman were ejected from the pickup truck as it was turning over. They were not using the seat belt/shoulder harness body restraints.

Cause

The accident was caused by the automobile striking the pickup truck after failing to stop before entering U.S. 90. A contributing factor was the failure of the employees to use the seat belt/shoulder harness body restraints.

REPORT: 48

RAILROAD: Burlington Northern

LOCATION: Upton, Wyoming

DATE: October 13, 1982

The Accident

A 36-year-old signal maintainer was fatally injured on October 13, 1982, at about 2:15 p.m., in Upton, Wyoming. Employed by the Burlington Northern, the employee had 6 years of service.

Background

Two parallel main tracks extend east and west through Upton. In the accident area, these tracks are designated from the north as No. 1 and No. 2 main tracks, respectively. The tracks are tangent and have 28-foot track centers. There is a service road between the main tracks, and a siding track diverges from No. 2 main track to the south, the grade slightly ascending westward. A traffic control system is used to operate trains in either direction on both main tracks.

The employee was last examined on Rules of the Maintenance of Way Department on April 21, 1981. He received his last physical examination on August 20, 1979, and he attended his last safety meeting on January 21, 1982.

Circumstances of the Accident

At the time of the accident, the employee was working on an electric switchheater junction box located 2 feet north of the No. 2 main track, near the west switch of the siding. An eastward freight train was passing on the No. 1 main track.

At a speed of 50 mph, Extra 5028 West approached on the No. 2 main track about 1,750 feet east of the point of the accident. The train crew saw the employee's maintenance-of-way vehicle on the service road between the main tracks, and the engineer sounded the locomotive whistle. At about 500 feet, the train crew saw the signal maintainer bending over the junction box, with his face away from their approaching train. The engineer continued to sound the whistle, but the employee did not respond until the locomotive was almost upon him; at which time he looked back over his shoulder, but, according to the train crew, made no attempt to move. The engineer then applied the emergency brakes, just before the employee was struck by the right front corner of the locomotive. The victim was pronounced dead at the scene by the county coroner.

Applicable Rules

GENERAL RULES

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M...

Employees must expect the movement of trains, engines, cars, or other movable equipment at any time on any track, in either direction.

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GENERAL SAFETY RULES

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802. On the approach of a train, employees who are working on or about the tracks, shall move promptly to a place of safety, preferably clear of all tracks.

(Burlington Northern Rules of the Maintenance of Way Department)

Analysis

The employee, working on a junction box adjacent to the north rail of the No. 2 main track, had his back to the approaching westward train. The noise from an eastward train passing on the adjacent No. 1 main track apparently prevented him from hearing the warning whistle of Extra 5028 West.

Cause

The accident occurred because the employee failed to remain alert to approaching trains. A contributing factor was the noise caused by a passing train on a adjacent track, which prevented the employee from hearing warning signals.

REPORT: 49

RAILROAD: Norfolk and Western Railway Company

LOCATION: Detroit, Michigan

DATE: October 18, 1982

The Accident

A 52-year-old brakeman was fatally injured on October 18, 1982, at about 11:55 p.m., at West End Yard, Detroit, Michigan. Employed by the Norfolk and Western Railway Company (NW), the brakeman had 29 years of service.

Background

The accident area was a switch yard, west of West End Avenue. Known as West End Yard, it consists of yard tracks and industrial leads. It is operated by the Union Belt of Detroit (UB) which is jointly owned by the Norfolk and Western Railway Company, the Chesapeake and Ohio Railway Company, and the Consolidated Rail Corporation. These crews operate under their own individual railroad's timetable, operating, and safety rules, as well as under the UB's Special Instructions.

On the day of the accident, the NW yard crew consisted of an engineer, two brakeman, and a conductor. The crew, designated Crew No. UB-5, went on duty at West End Yard at 11:30 a.m. The men were switching cars from the West End Yard tracks 4 and 8 to No. 16 lead. During switching operations between the Yard and No. 16 lead, the engineer must rely on signals from the front brakeman. The front brakeman, positioned approximately 125 feet east of West End Avenue, was relaying signals to the engineer from the conductor. The conductor stood at the lead switch for the Yard and No. 16 lead, approximately 100 feet west of West End Avenue. The conductor uncoupled the cars and gave the signals for controlling the move. The rear brakeman (or fieldman), situated 500 to 600 feet west of West End Avenue, was responsible for opening knuckles, aligning couplers, and throwing switches in his area.

The brakeman's last physical examination was administered on July 6, 1981. He last attended an operating rules class in October 1981.

Circumstances of the Accident

The crew had finished switching four cars from No. 8 track and started switching cars from No. 4 track. The crew had switched five cars to No. 16 lead when the rear brakeman apparently stepped between the rails to align the coupler on the "B" end of boxcar SOU 549626 (the fifth car). He was then struck by the coupler on the "A" end of boxcar CR 278365 (the sixth car). Three additional cars were switched to No. 16 lead, and the balance of cars were being shoved back onto No. 4 track, when the conductor noticed the rear brakeman's lantern on the ground. The conductor investigated and discovered the rear brakeman lying under the third car from the east end of No. 16 lead.

The rear brakeman had been out of sight for over 5 minutes; however, this was not unusual for the type of switching performed at this yard.

Applicable Rules

COUPLING AND UNCOUPLING LOCOMOTIVES OR CARS

1121. Employees must not go between or in front of moving locomotives or cars to couple or uncouple or to adjust couplers, knuckles, or lock pins.

They must take time while equipment is standing to see that coupling appliances are in place and in good order, and to make any necessary adjustments to ensure proper coupling.

Before going between standing locomotives or cars to couple or uncouple, employees must have a clear understanding to protect against unexpected movement and must wait until slack has adjusted.

Employees must be particularly alert for the unexpected movement of the draft gear on cushion-underframe cars.

Standing locomotives and cars must be separated by at least one-half car length before employees go between them to adjust couplers or to adjust or replace knuckles. When adjusting couplers or knuckles, employees must stand to the side rather than in front of the coupler and must keep their feet clear of the area directly beneath the knuckle.

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(Norfolk and Western Railway Company - Safety Rules and Rules of General Conduct)

Analysis

While the crew was switching cars from tracks No. 4 and 8 in the West End Yard, the rear brakeman apparently stepped between the rails to adjust the coupler on the 5th car on No. 16 lead, and was struck by the 6th car.

Cause

The rear brakeman stepped between the rails to adjust a coupler and failed to notice the approaching car.

REPORT: 50

RAILROAD: Central of Georgia Railroad Company

LOCATION: Bartow, Georgia

DATE: October 26, 1982

The Accident

A 39-year-old Assistant Supervisor of Sonirail Testing was fatally injured on October 26, 1982, at about 8:15 a.m., on State Highway 242, 1.3 miles west of Bartow, Georgia. Employed by the Southern Railway Company the employee had 20 years of service.

Background

State Highway 242 is a 2-lane, 20-foot-wide, blacktop road. The road curves gently to the right, and the view is unrestricted for 0.7 mile approaching the accident site.

At the site, a disabled farm gas truck was parked on the 10-foot shoulder, but protruded 2 feet 3 inches onto the roadway. The disabled vehicle was a GMC 4000 Series 2-ton truck equipped with a high-side steel flatbed dump body. It was unattended and had been parked for about 1 hour before the accident.

The second vehicle, a 1978 GMC pickup truck, was owned by the Central of Georgia Railroad Company. The 57-year-old driver had been employed as a track laborer for 35 years by the Central of Georgia Railroad Company.

Circumstances of the Accident

At approximately 7:30 a.m., on October 26, 1982, the Assistant Supervisor left the yard office in Tennile, Georgia, and got into the passenger seat of the pickup truck. Since he felt tired, he instructed the laborer to drive. According to the laborer, no conversation took place nor was the radio played.

Approximately 45 minutes later, the pickup moved eastward towards the accident site. The driver stated that he saw the parked truck ahead but thought it was moving. As he got closer, he saw a car coming from the opposite direction. He further stated that he decided to drive between the car and the truck. Then, the right front of the pickup truck struck the left rear of the farm truck. The farm truck was hurled 13 feet forward by the impact. The right side of the pickup truck was extensively damaged and the passenger died as a result of the injuries he had received. The driver of the pickup truck was taken to Jefferson Hospital in Louisville, Georgia, for tests and observation. He was released with no apparent injuries on November 3, 1982.

Post-accident investigation shows that the parked farm truck was visible for 0.7 mile, west of the point of the accident. The rising sun may have had some effect, but the road conditions were such that the occupants of the pickup truck could detect the presence of the parked vehicle.

The State Highway Patrol estimated the speed of the pickup truck at 50-55 mph; maximum authorized speed at this location is 55 mph. There were no witnesses other than the driver of the pickup truck.

Applicable Rules

Not applicable.

Analysis

The operator of the pickup stated that he saw the parked truck ahead but thought it was moving. He further stated that he decided to drive between the truck and an approaching car.

The parked farm truck was visible for 0.7 mile, west of the point of accident.

Cause

The driver of the pickup truck failed to control his vehicle.

REPORT: 51

RAILROAD: Chicago and North Western Transportation Company

LOCATION: Daggett, Michigan

DATE: October 26, 1982

The Accident

A 31-year-old track foreman was fatally injured on October 26, 1982, at about 8:45 a.m., at Daggett, Michigan. The track foreman was employed by the Chicago and North Western Transportation Company and had 11 years 9 months of service.

Background

The employee reported for work at 7 a.m., on October 26, 1982, in Daggett, Michigan. He, a trackman, and a boom truck operator traveled in a boom truck to MP 75.1, the location of bridge No. 163. Their job consisted of removing a temporary access drive and an 18-inch steel culvert.

The foreman was last examined on the carrier's safety rules on June 30, 1982.

Circumstances of the Accident

At approximately 8:45 a.m., the track foreman was working with the boom truck, lifting the 18-inch steel culvert from the temporary access drive. The track foreman hooked one end of a chain to the culvert and the other end to the boom truck bucket.

The boom truck was parked under a Wisconsin Power and Light Company's power line that carried approximately 25,000 volts (AC).

As the boom truck operator raised the culvert to load it onto the truck, the arm of the boom struck an overhead wire and caused electricity to travel down the boom of the truck. The foreman, placing a chain in the cab of the boom truck, was rendered unconscious and knocked to the ground by the electrical shock.

The trackman saw the accident and alerted the other employees. The assistant foreman administered CPR until the rescue unit arrived. The victim was transported to the Menominee County Hospital in Menominee, Michigan, where at 9:30 a.m., he was pronounced dead of electrocution.

Applicable Rules

ELECTRICAL EQUIPMENT AND POWER PLANTS

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422. Person in charge of derricks or cranes must take special care to safeguard workmen and himself from over head wires.

423. Unless special precautions have been taken, employees working in the vicinity of live wires must remain at a safe distance, depending on voltage and local conditions.

(Chicago and North Western Transportation Company General Regulations and Safety Rules - Effective June 1, 1967)

Analysis

The boom truck was parked under a high-voltage line, and when the boom truck operator raised the arm on the boom, it struck the overhead wire and caused electricity to travel down the boom of the truck.

The track foreman was touching the cab of the boom truck when the electricity passed from the over head wires to the boom truck and then through the foreman's body to the ground.

Cause

The accident was attributed to electrocution.

Contributing factors were the placement of the boom truck under live electrical wires and the failure of the operator to exercise caution while operating the boom under live wires.

REPORT: 52

RAILROAD: Southern Pacific Transportation Company

LOCATION: Gretna, Louisiana

DATE: November 3, 1982

The Accident

A 33-year-old messenger-clerk was fatally injured on November 3, 1982, at about 1:45 p.m., at Gretna, Louisiana. Employed by the Southern Pacific Transportation Company, the messenger-clerk had 6 years of service. It was raining and windy at the time of the accident.

Background

The clerk reported for duty at 7:30 a.m., on November 3, at the freight office, Avondale, Louisiana. He left Avondale at 1 p.m. in a leased vehicle destined for the New Orleans Union Pacific Terminal and Gretna, Louisiana.

The Greater New Orleans Mississippi River Bridge is 52 feet wide with walkways on each side. a 39-inch-high safety rail protects the outside of each walkway. The roadway surface is blacktop and consists of two eastbound lanes, two westbound lanes, and a center emergency lane. The posted speed limit is 40 mph.

Circumstances of the Accident

The accident occurred on the west side of the river where the bridge is approximately 163 feet above Monroe Street, Gretna, Louisiana.

At about 1:45 p.m. as the clerk was returning to New Orleans, he was driving in the left lane of the eastbound lanes moving with the flow of traffic approaching the bridge superstructure and Monroe Street. An accident had occurred in the westbound traffic lanes that caused westbound traffic to stop. A westbound automobile had been hit in the rear by another westbound vehicle that was traveling about 25-35 mph. The collision caused the automobile that was hit to cross the emergency lane and collide with the vehicle driven by the clerk. The clerk's vehicle, out of control, due to the collision, continued approximately 105 feet eastward, crossing the emergency and westbound lanes, and struck the walkway curbe. At that point, his vehicle bounced onto the walkway and safety rail and fell approximately 163 feet to the ground, landing on its top near the base of bridge pier IV. The clerk was pinned in the wreckage for more than an hour and pronounced dead at 3 p.m., by a Jefferson Parish Assistant Coroner.

Applicable Rules

Not applicable.

Analysis

A westbound vehicle was struck in the rear by another vehicle moving at a speed of approximately 25 to 35 mph. The impact of the collision caused the first vehicle to enter the left lane of the eastbound traffic and strike the vehicle driven by the clerk. The force of the impact and the wet roadway caused the clerk's vehicle to skid out of control across the emergency and westbound lanes, and off the bridge.

Cause

The accident occurred when a westbound vehicle was struck in the rear by a following vehicle, causing it to cross the center emergency lane and enter the left land of eastbound traffic and strike the vehicle driven by the clerk.

REPORT: 53

RAILROAD: Burlington Northern

LOCATION: Townley, Alabama

DATE: November 9, 1982

The Accident

A 51-year-old welder's helper was fatally injured on November 9, 1983, at about 8:20 a.m., near Townley, Alabama. Employed by the Burlington Northern, the welder's helper had 23 years of service.

At the accident site, the north and south main tracks had recently been laid with new continuous welded rail. The old rail had been removed, but remained on either side of the track. A private road crosses the track 527 feet north of the accident site. The track curves to the right and ascends slightly from the crossing to the accident site.

A hi-rail Speed Swing crane was brought in to set the used rail upright. The crane travels forward through movement of the rubber tires against a contact gear which propels the hi-rail wheels. When the hi-rail wheels are in use, the rubber tires do not touch the ground. This hi-rail attachment is operated hydraulically and has two cylinders on each end of the machine.

The welder's helper last attended a safety meeting on October 25, 1982.

Circumstances of the Accident

On the day of the accident, the welder's helper reported for work in Jasper, Alabama. The Roadmaster instructed the welder's helper and the welder to meet the operator of the Speed Swing crane in Townley. They were told to upright the rail for inspection at a nearby curve and to cut out some of the better rail for use elsewhere. After the machine was put on the track at Townley, the welder and his helper went on the highway to meet the Speed Swing at the private crossing at the north end of the curve. Since they were only traveling a short distance to the south end of the curve, the two men mounted the Speed Swing at the front end; both stood on the hi-rail axle.

As the Speed Swing moved around the curve at about 5 mph, the rubber tires in the front of the machine dropped to the ground. This sudden movement caused the helper to either lose his balance or, while trying to jump clear, to fall forward, with the upper part of his body falling over the axle. While his upper body was over the axle, the machine was still moving, and the helper became pinned between the axle and the roadbed. Before the Speed Swing would be stopped, the helper suffered crushing internal injuries and was pronounced dead at the scene. The welder jumped clear and was uninjured.

The two employees were familiar with the Speed Swing because they had worked with it many times, and riding on the machine while standing on the axle was common practice in this territory.

Post-accident investigation of the front hi-rail attachment revealed that the piston rod had pulled out of the stationary block on the left cylinder (which moved hi-rail wheels into position). The rod had stripped threads and a broken restraining bolt, but the stripped threads would not have been detected under normal inspection procedures prior to the accident.

The investigation also revealed that the hi-rail attachment had no safety locks or devices in case of hydraulic or cylinder failure.

Applicable Rules

303. Employees are forbidden to ride on ledges, running boards, or any outside structure of cranes or similar machines while moving. On locomotives cranes so equipped, employees may ride on trailing (rear) footboard only when it will not place them between locomotive crane and other equipment.

(Burlington Northern Railroad - Safety Rules and General Rules)

Analysis

It was a common practice for the employees to ride on the machine while standing on the axle.

Inspection of the front hi-rail attachment revealed that the piston rod had pulled out of the stationary block on the left cylinder. In addition, the hi-rail attachment had no safety locks or devices in case of hydraulic or cylinder failures.

Cause

The accident occurred because the loose hydraulic piston caused the front tires of the Speed Swing to drop suddenly to the ground.

As a contributing factor, the welder's helper was riding on the machine while standing in an unauthorized place.

REPORT: 54

RAILROAD: Burlington Northern

LOCATION: Cicero, Illinois

DATE: November 10, 1982

The Accident

A 57-year-old signal inspector was fatally injured on November 10, 1982, at about 5:21 p.m., at Cicero Yard, Cicero, Illinois. Employed by the Burlington Northern, the signal inspector had 37 years of service.

Background

Three almost level main tracks run east to west. The main tracks are numbered consecutively 1 to 3 from north to south, and a crossover had been recently installed from main track No. 3 to the yard. The crossover is connected to main track No. 3 by a power-operated switch. Trains, which are controlled by a centralized traffic control system, operate in both directions on all three main tracks.

From 6 a.m. to 12 midnight, approximately 80 Amtrak and suburban passenger trains travel on the three main tracks in the accident area.

The employee was last examined on the Burlington Northern Rules of the Maintenance of Way Department on February 18, 1981. His last physical examination was administered on October 16, 1981.

Circumstances of the Accident

The accident occurred on main track No. 3. At 7 a.m., the signal inspector went on duty as a member of a crew assigned to test the signals on the newly installed switch. He was told to place a shunt on the east or west signal side of the insulated joint on the power switch to determine if the proper signal indications were displayed and if the power switch was operating properly. The inspector was standing on the ties facing east on the south side of the south rail of main track No. 3.

As the eastbound passenger train No. 292 approached the area on main track No. 3 where the signal inspector stood, its headlight on the control cab car was on "bright." Train No. 292 passed a westbound suburban passenger train on main track No. 2 and when the westbound train went by, the engineer on train 292 saw the signal inspector about one-half car-length from the train. The engineer did not have time to apply the train brakes before the train struck the inspector.

According to statements by the signal supervisor, signal inspectors working under these conditions are neither protected by track and time limits, nor are they issued train lineups from the train dispatcher. Rather, they are required to have an approved watch on their person while on duty and also to have a copy of the Current Chicago Regional Timetable and the Suburban Timetable. Using the watch and the timetable, they are expected to know the arrival times of scheduled trains, and clear the track.

Train No. 292, an equipment train was returning to Chicago from an intermediate station. The departure time at that station and the arrival time in Chicago were the only times shown on the Chicago Regional Timetable. Since the train did not carry passengers, it was not listed in the Suburban Timetable.

Applicable Rules

GENERAL

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M: Employees must expect the movement of trains, engines, cars or other movable equipment at any time, on any track, in either direction.

TIMETABLES

. . . . . .

4(B): Employees who duties are in any way affected by the timetable must, while on duty, have a copy of the current timetable and timetable special instructions in their possession.

(Burlington Northern Rules of Maintenance of Way Department)

ON OR ABOUT TRACKS

58: Employees must:

a. Expect the movement of trains, locomotives, cars, or other movable equipment at any time, on any track, in either direction.

c. Move to a place of safety upon approach of moving equipment on the track upon which they are working or on the adjacent track.

(Burlington Northern Safety Rules)

Analysis

Signal inspectors are neither protected by track and time limits, nor are they issued train lineups from the train dispatcher. Using an approved watch and the current Chicago Regional Timetable and the Suburban Timetable, they are expected to know the arrival times of scheduled trains, and clear the track.

Cause

The accident occurred because the employee failed to stand clear of a suburban passenger train moving eastward on main track No. 3.

REPORT: 55

RAILROAD: Consolidated Rail Corporation

LOCATION: Euclid, Ohio

DATE: November 15, 1982

The Accident

A 56-year-old conductor was seriously injured on November 15, 1982, at about 2 p.m., in Euclid, Ohio, and died on November 16. Employed by the Consolidated Rail Corporation, the conductor had 36 years of service.

Background

The accident occurred on an industrial track inside a building owned by the Lincoln Electric Company. Two stub-end tracks lead into the loading-dock building. The tracks run east to west and are identified as "X" and "Y" tracks. In the accident area, the tracks are tangent and adjacent to a loading dock. The elevation of the dock measures 3 feet 10 inches above the top of the rail. At the accident site, the measurement from the center of the gage of track to the face of the dock is 8 feet, allowing a walkway clearance of approximately 2 feet 6 inches between a standard width boxcar and the face of the dock.

The employee was examined on the Rules of the Transportation Department and the Safety Rules October 22, 1982. His last physical examination was administered on July 8, 1975.

Circumstances of the Accident

The accident occurred inside the loading dock building on "Y" track. The conductor was a member of a yard switching crew consisting of an engineer, a conductor, and a brakeman.

At the time of the accident, the crew was spotting cars for loading at designated locations. They were shoving west and were using radios to communicate with each other.

The conductor was seen walking west in the walkway between the north rail and the face of the dock. He was looking westward in the direction of the movement when he was struck by the leading car, and he fell to the ground between the face of the dock and the north rail. When the train came to rest, the injured man lay at a point adjacent to the opening between the third and fourth cars. His jacket was torn in the back and the strap for his radio was broken. He sustained injuries to the pelvis and other internal injuries.

A post-accident inspection of the boxcar disclosed no defects, and the area along the face of the dock was free of any tripping hazard. However,

this area is very dark and visibility is poor. According to a witness, the conductor was walking west along the face of the dock and was not looking at the movement of equipment at the time of the accident.

Applicable Rules

Rule 1304. Expect equipment to move on any track, in any direction, at any time. Therefore, employees must look in both directions before:

(a) Fouling or crossing track.
(b) Going between or around the end of equipment.

. . . . . .

(Consolidated Rail Corporation Rules - Train, Locomotive, and Other Transportation Employees - Effective July 1978)

Analysis

The conductor was walking westward along the face of the dock and was not looking at the movement. The walkway clearance between a standard width boxcar and the face of the dock is about 2 feet 6 inches.

Cause

The accident was caused by the failure of the conductor to remain a safe distance from the moving equipment.

REPORT: 56

RAILROAD: Atchison, Topeka and Santa Fe Railway Company

LOCATION: Los Angeles, California

DATE: November 29, 1982

The Accident

A 30-year-old switchman was fatally injured on November 29, 1982, at about 8:10 a.m., in Hobart Yard, Los Angeles, California. Employed by the Atchison, Topeka and Santa Fe Railway Company, the switchman had 6 years of service.

Background

Hobart Yard in Los Angeles has 35 tracks which are connected at both ends by other auxiliary and spur tracks. The double main tracks are on the south side of the yard. Track Nos. 21 and 30 are classification yard tracks, with the lead to these tracks designed as a modified hump lead. There is an 0.4-percent descending grade from west to east, and the hand-thrown, ground-level switch stands are on the north side of the lead. The engineer receives signals for movement from a searchlight-type signal mounted on top of a mast, located west of the first yard track switch. The switch foreman relays hand signals from the switchman to the searchlight signal by means of a rotary, hand-operated control switch located in a shanty near the signal.

The switchman was a member of a yard switching crew, consisting of a foreman, two switchmen, two fieldmen, a pin puller, and an engineer. The crew had been on duty 55 minutes after completing the required off-duty period. However, it had been engaged in switching for only 25 minutes prior to the accident because the locomotive was delayed at the roundhouse. Switching was being performed from the west with a consist of 29 cars. The first eight cars on the east end of the consist were to be shoved to track No. 26; the next three cars were to be shoved to track No. 30.

The employee was last examined on the carrier's rules on April 17, 1981. His last physical examination was administered on December 1, 1980.

Circumstances of the Accident

The accident occurred at the switch of track No. 26. The locomotive was shoving the cars when the pin-puller made the uncoupling behind the eighth car. As the locomotive brakes were applied, the eight cars rolled free toward track No. 26. However, when they stalled with the eighth car standing on the switch lead, the remaining cars were shoved against the stalled cars, striking them hard and shoving them ahead. The two consists were then separated by about 5 feet, and moving at about equal speed. The

switchman involved in the accident was last seen stepping between the separated, moving cars. As the locomotive shoved the cars, the switchman's legs were seen dragging on the track structure between the rails. When the movement was stopped by the accompanying nearby switchman, the first switchman's body had been dragged 110 feet. He sustained severe multiple injuries, and shortly afterwards died at the scene of the accident.

Applicable Rules

OR OR ABOUT TRACKS

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38. Do not cross tracks closely in front of moving equipment.

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ON OR ABOUT ENGINES, CARS AND MOVING EQUIPMENT

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62. Before going between cars coupled to motive power...; give proper stop signal and make certain it has been seen, understood, and obeyed. Wait until slack is adjusted....

67. Unless proper protection is provided, do not go between cars...for any reason when clearance between them is close....

(Atchison, Topeka and Santa Fe Railway Company, Safety Rules for Santa Fe Employees)

Analysis

The pin-puller uncoupled the leading eight cars and they rolled free toward track No. 25. The eight cars stalled on the switch lead and the remaining cars were shoved against the stalled cars, striking them hard and shoving them ahead. The two consists were separated by about 5 feet and moving at about equal speed.

Cause

The accident was caused when the switchman stepped between moving cars and was caught between the couplers.

REPORT: 57

RAILROAD: Missouri Pacific Railroad Company

LOCATION: Vanderbuilt, Texas

DATE: December 9, 1982

The Accident

A 32-year-old brakeman and a 33-year-old brakeman were fatally injured on December 9, 1982, at about 9:40 p.m., near Vanderbuilt, Texas. The Missouri Pacific Railroad Company (MP) employees had 10 years 11 months and 10 years 7 months of service, respectively.

Background

Farm-to-Market Road (FM) 616 is a two-lane, blacktop road that measures 22 feet, 6 inches wide, and connects Bloomington to Vanderbuilt, Texas, a distance of 21 miles. The road curves left after it crosses Garcetis Creek Bridge in an ascending grade, with a distance of 1,112.5 feet from the bridge to the point of collision. The road is level and tangent to the end of the accident area. The MP's single main track parallels FM 616 in the accident area.

Circumstances of the Accident

At 7:30 p.m., on December 9, 1982, the MP crew consisting of a conductor, two brakemen, and engineer, and a fireman was called to deadhead from Bloomington to Vanderbuilt, Texas, in order to bring train No. 195 back to Bloomington. The crew reported for duty at 8:30 p.m., received train orders, and departed in a private-contract carry-all van. Seated in the rear were the two brakemen; the conductor and the engineer occupied the middle seat; and the driver and the fireman were in the front seats. Traveling north on FM 616 from Bloomington toward Vanderbuilt, the van stopped approximately 5 miles south of Vanderbuilt.

On the previous day, the fireman on the crew had lost his cap near this point and wanted to look for it. The driver of the carry-all van pulled off FM 616 on the left, or southbound, side. The van was about 6 feet off the road, engine running, and headlights burning. The fireman got his flashlight from the rear of the van and walked west toward the railroad. He noticed a southbound tractor-trailer rapidly approaching the van and realized a collision was imminent. He ran for safety and did not see the actual collision, but witnesses said that they thought the driver of the tractor-trailer had lost control of his vehicle while it was coming out of the curve, just after crossing the Garcetis Creek Bridge, and that the tractor-trailer was speeding.

The southbound tractor-trailer was traveling on FM 616 through a left-hand curve after crossing Garcetis Creek Bridge when the driver saw the headlights of the parked van. Believing the van to be in his lane of the traffic, the driver of the tractor-trailer took evasive action to avoid an accident by steering the tank truck to the right -- the west side of FM 616. Meanwhile, the driver of the carry-all van saw the tank truck moving toward the van, and he drove forward and further to the left in an attempt to move out of the path of the truck. When the driver of the tractor-trailer realized the van was also off FM 616, he attempted to move back to the pavement. The truck-tractor and the trailer went out of control on the curve, jackknifed, and struck the right side of the van, turning it over to rest upside down perpendicular to FM 616. The trailer rolled over the van and came to rest at a point south of the van, also perpendicular to FM 616. The tractor came to rest on the southbound lane of the highway.

Loaded with diesel fuel, the trailer ruptured, and the load spilled on the surrounding area and roadway. Two Texas Department of Public Safety Patrol cars responded, and one of the patrol car's catalytic converters inadvertently set the spilled diesel on fire. The fire consumed the tractor and trailer, but the van did not burn. The two brakemen were pronounced dead of massive head and internal injuries. Hospitalization was required for the conductor suffering from a back injury , the engineer suffering from a back injury and lacerations, and the driver of the tractor-trailer who suffered lacerations.

Post-accident investigation indicates the van driver should have parked on the right or northbound side of FM 616 with the van's headlights off and its emergency flashers on.

Applicable Rules

There were no railroad rules involved. No citations were issued by investigating police officers.

Analysis

The carry-all van driver parked on the southbound side of FM 616 with the van's headlights on, confusing the tractor-trailer operator.

Cause

The accident was caused by failure of the tractor-trailer operator to properly control his vehicle. A contributing cause was the fact that the carry-all had been parked on the left-hand side of the road, with its headlights illuminated, thereby confusing on-coming traffic as to the exact location of the vehicle.

REPORT: 58

RAILROAD: Union Pacific Railroad

LOCATION: Paxton, Nebraska

DATE: December 10, 1982

The Accident

A 43-year-old track machine operator's helper was fatally injured on December 10, 1982, at about 12:55 p.m., near Paxton, Nebraska. Employed by the Union Pacific Railroad, the employee had 3 years 5 months of service.

Background

The accident occurred on an east-west, double track, main line railroad, with a maximum train speed of 60 mph. Approaching the accident area from the east, there are, in succession: (1) a tangent 1,028 feet long; (2) a 2-degree 18-minute curve to the left, 1,117 feet long; and (3) a 200-foot tangent to the point of accident. A 0.30-percent grade ascends to the west in rolling terrain. The initial sight distance between the train's locomotive and the accident area was about one-quarter mile.

On the day of the accident, a track crew, consisting of a foreman, a machine operator, a machine operator's helper, and three track laborers, was engaged in surfacing main track No. 1 (North track) between MP 323 and MP 325 from east to west, and was using a diesel-powered production tamper at MP 324.4, going in a westward direction. The crew had completed surfacing the 2-degree 18-minute curve and was making a surface runoff on tangent track. The train dispatcher was responsible for providing protection on the North track, under a "Report Permit," and no flags or signs were displayed for trains. The crew was not given flag protection for trains on track No. 2 (South track) since none was required.

The employee last attended a safety meeting on November 4, 1992. Safety meetings are conducted each Monday morning by the crew foreman who keeps a record of each rule discussed. The employee's last physical examination was administered on April 2, 1981.

Circumstances of the Accident

Immediately before the accident, the machine operator's helper descended from the tamper on the south side of the machine, dismounting between the two main tracks where the track centers measured 13 feet 2 inches. Without looking east, he turned and walked westward alongside the north rail of track No. 2 (South track) to the front of the tamper.

The foreman and the three laborers were working about 700 feet to the rear of the tamper when they heard a locomotive whistle and saw the westbound

Extra 2464 West on track No. 2 approaching on the curve to the east. The foreman stated that he observed the machine operator and the operator's helper in the control compartment of the tamper until the train was approximately 500 feet east of the tamper, at which time he saw the operator's helper dismount the tamper. The foreman shouted a warning; however, the noise from the tamper, as well as the helper's safety hat with its winter liner earflaps down, apparently prevented the helper from hearing either the warning or the continuously sounding locomotive whistle. When the train's engineer saw the operator's helper dismount the tamper, he applied the train's air brakes in full service, but moments later the operator's helper was struck by the leading locomotive of Extra 2464 West. The train, traveling at 57 mph, could only provide a sight distance of 16 seconds. The helper was killed instantly.

Applicable Rules

WORKING AROUND LIVE TRACKS

757. Employees must not assume that a train will not arrive before any certain time, nor act under the assurance of any person to that effect. It must be borne in mind that trains may be run at any time.

Employees must not rely on others to warn them and must be on the lookout at all times for approaching trains, cars or vehicles.

When trains are approaching and until they have passed, employees must stand outside and clear of all main tracks and when practicable must be at least 20 feet from the nearest main track....

(Union Pacific Railroad Maintenance-of-Way and Signal Rules)

757(A) Foremen or others in charge of employees working on or about the tracks, must instruct their men to be alert, watchful, and to keep out of danger, and must take necessary precautions to see that men working under their supervision receive warning of approaching trains in time to reach a place of safety.

. . . . . .

(Union Pacific Railroad--Instruction Bulletin, dated March 8, 1977)

730. Most of the equipment assigned to gangs that are provided with enclosed cab are constructed so that personnel can get on or off the machine from either side of the machine. When working in multiple track territories, all personnel must be required to get on or off the machine at all times from the field side of the machine, and never from the side of the machine facing the adjacent live track.

(Union Pacific Railroad -- Instruction Bulletin, dated December 9, 1980)

Analysis

The machine operator's helper failed to comply with the instructions for dismounting the tamper on the field side of the machine. Railroad rules also state that employees must at all times look out for approaching trains. For an unknown reason, the employee dismounted the tamper between the tracks rather than on the field side of the track, and he proceeded to walk westward alongside the north rail at the end of the ties on track No. 2 to the front of the tamper. Because of the cold weather, the machine operator's helper was wearing a safety hat with a winter helmet liner, earflaps down. The noise from the diesel engine on the front end of the tamper and the vibratory tamping of the machine prevented the employee from hearing the sound of the locomotive horn or the shouted warning of the track foreman.

Cause

The accident was caused because the employee walked on the track and failed to see the approaching train.

A contributing factor was the failure of the machine operator's helper to hear the approaching train on the adjacent track as a result of the noise and the earflaps he was wearing because of weather conditions.

REPORT: 59

RAILROAD: Illinois Central Gulf Railroad

LOCATION: Zee, Louisiana

DATE: December 11, 1982

The Accident

A 54-year-old brakeman was fatally injured on December 11, 1982, at about 12:05 p.m., in the Crown Zellerbach Paper Mill, at Zee, Louisiana. Employed by the Illinois Central Gulf Railroad, the brakeman had 31 years of service.

Background

Track No. 5A enters the Crown Zellerbach Paper Mill warehouse. The switch is located about 305 feet east of the warehouse entrance.

A switching crew consisting of an engineer, a fireman, a conductor, and two brakeman were switching cars on track No. 5A. The crew had been on duty for 4 hours and 5 minutes after completing the required off-duty period.

The employee was last examined on the Illinois Central Gulf Railroad Company's Operating Rules on May 19, 1982. His last physical examination was administered on January 13, 1982. He was required to wear eyeglasses at all times while on duty. He was last examined on the safety rules September 9, 1966.

Circumstances of the Accident

The accident occurred on track No. 5A. The train consisting of two locomotives, a caboose, and six empty boxcars shoved onto track No. 5A. The brakeman was riding on the south side of the lead car. The other brakeman was riding the north side. The two brakemen coupled the air hoses. The brakeman on the north side radioed the engineer to pull ahead, and he remained on the road crossing at the warehouse entrance. Once the boxcars started to move out of the warehouse, he did not see the brakeman on the other side. When the last car moved over the switch and showed no indication of stopping, the brakeman standing at the road crossing radioed the engineer to stop. He tried to contact the other brakeman via radio but did not receive a reply. The brakeman saw the other brakeman lying between the rails approximately 125 feet from the warehouse. There was blood on the south wheels of the seventh car. The employee sustained severe and traumatic internal injuries and was pronounced dead at the scene. Although there were no witnesses to the accident, it appears that the brakeman slipped and fell under the moving cars.

Post-accident investigation of the equipment revealed no defects that could have contributed to the accident. The seven trailing cars passed over the brakeman.

Applicable Rules

GENERAL RULES

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F. Employees must:

Exercise care and judgment to avoid risk of injuries.

. . . . . .

Exercise care to prevent injury to themselves and others.

. . . . . .

GETTING ON AND OFF MOVING EQUIPMENT

. . . . . .

226. Employees must:

a) When practicable, get on or off at the rear of the movement

(Safety Rules, Illinois Central Gulf Railroad)

Analysis

There were no witnesses, and the exact circumstances of the accident could not be determined. The blood on the south wheels of the seventh car indicated that this was the car that passed over the brakeman while he was apparently trying to board a car.

Cause

The brakeman failed to board the moving equipment properly and fell under the car.

REPORT: 60

RAILROAD: Louisville and Nashville Railroad Company

LOCATION: Ellijay, Georgia

DATE: December 12, 1982

The Accident

A 57-year-old road foreman of engines was fatally injured on December 12, 1982, at about 3 a.m., near Ellijay, Georgia. Employed by the Louisville and Nashville Railroad Company (L&N), the road foreman had 36 years of service.

Background

The accident occurred on the Copperhill Subdivision main track between Etowah, Tennessee, and Elizabeth, Georgia. At the point of accident, 1.3 miles north of Ellijay, Georgia, there is a 2-degree 46-minute curve to the right and a 2-percent grade descending southward.

On December 11, 1982, a train crew consisting of an engineer, a conductor, a flagman, and a front brakeman went on duty at 10 p.m., at Etowah, Tennessee, and deadheaded to Tate, Georgia, to relieve the crew of train Extra 4016 North.

Following message instructions issued by the chief dispatcher, the road foreman met the crew of Extra 4016 North at Ellijay, to direct and assist it in storing 149 empty hopper cars on the main track several miles north of Ellijay. At Ellijay, a house track 1,673 feet long parallels the main track on the west side.

The employee was last examined on the carrier's Rules of the Operating Department on June 14, 1982. His last physical examination was administered on January 5, 1965.

Circumstances of the Accident

At about 2:45 a.m., when Extra 4016 North arrived at Ellijay, the road foreman, who had arrived earlier via automobile, had the south switch lined for movement to the house track. Three locomotives were removed from the locomotive consist and were operated northward on the house track. Subsequently, the road foreman and the front brakeman operated the train northward on the main track a sufficient distance to allow the rear, or south end, of the train to clear the rail-highway crossing (S.R. 52), located about 600 feet north on the south switch to the house track. The front of the train stopped about 1.3. miles north of the crossing.

After the south end of the train cleared the rail-highway crossing, the engineer moved the three locomotives southward on the house track to the

main track. The road foreman told the engineer to couple the locomotives to the south end of the train but not to cut the air in through the brake pipe.

The road foreman planned to uncouple the two remaining locomotives and the caboose from the north end of the train, after which the engineer would pull the train southward a sufficient distance to allow the road foreman and the front brakeman to operate the two locomotives and caboose southward and enter the house track at the north switch. Then the train crew, under the direction of the road foreman, would shove the train northward on the main track for about 2 miles to where the 149 cars would be stored. The train crew and road foreman would then return to Ellijay, and pick up the remaining two locomotives and the caboose and take the five-locomotive, two-caboose consist south to Atlanta, Georgia.

After the engineer coupled the three locomotives to the south end of the train, the road foreman told the front brakeman to uncouple the two locomotives and the caboose from the north end of the train. The front brakeman closed the angle cocks on the caboose and hopper car LN 188336, and the road foreman moved the consist northward about one-half car length. During this time, the road foreman instructed the engineer to cut the air in through the brake pipe.

The front brakeman was standing at the south end, on the west side of the caboose, waiting for the engineer to pull the train southward when the road foreman walked up to him. As they discussed the subsequent moves, there was an emergency application of the air brakes on the 149 hopper cars. The road foreman told the front brakeman to check the radio on the caboose. While the front brakeman was inside the caboose looking for the main battery switch and preparing to check the radio, he heard a grunt and a moan. Going to the south end of the caboose, he found the road foreman pinned between the couplers of the caboose and the hoper car. The brakes on the two locomotives had slowly leaked off, allowing the locomotive-caboose consist to roll southward on the 2-percent grade.

Post-accident investigation by operating and mechanical department personnel revealed that at the time of the accident, the locomotive brake equipment was in the following positions:

Locomotive 1063

Automatic brake valve handle -- release position
Brake valve cut-out valve -- out position
Independent brake valve handle -- release position
MU-2-A valve -- trail 26 or 24

Locomotive 2750

Automatic brake valve handle -- handle-off position
Brake valve cut-out valve -- out position
Independent brake valve handle -- release position
Dual ported cut-out cock -- out position

Evidently, when the road foreman detached the two locomotives and caboose from the train and moved them northward, he applied the independent brake, cut out the automatic and independent brake, and moved the independent brake valve handle to the release position. Instead of going directly to the trailing locomotive to position the controls for a leading movement, the road foreman walked to the south end of the caboose to discuss subsequent movement with the front brakeman.

An inspection of locomotive 1063 disclosed an air leak at the 24-A double check valve located between the independent application and release pipe (pipe 20) and the relay control pipe (pipe 16). The leak at the mounting bracket gasket of the 24-A double check valve allowed air to escape from the port of the independent application and release pipe (pipe 20) portion of the double check valve.

A test of the brake system was made at the accident site with the controls positioned as outlined above. After 2 minutes and 45 seconds the locomotive brakes released and the consist began to roll southward on the 2-percent grade.

Applicable Rules

31. If it is necessary to cross railroad tracks, look in each direction, keep a minimum of ten feet from standing locomotives and cars. Do not pass between parts of a train or between cars standing close together without making certain that is safe to do so.

(Louisville and Nashville Railroad Company, Transportation Department, Safety Rules)

Analysis

When the road foreman detached the two locomotives and caboose from the train, he evidently applied the independent brake, cut out the automatic and independent brake, and moved the independent brake valve handle to the release position.

An air leak at the mounting bracket gasket of the 24-A double check valve on locomotive 1063 allowed air to escape and after 2 minutes and 45 seconds, the locomotive brakes released. This allowed the consist to roll southward on the 2-percent grade.

Cause

The accident was caused by the failure of the road foreman to remain clear of standing equipment.

A contributing factor was the air leak on locomotive 1063.

REPORT: 61

RAILROAD: Long Island Rail Road

LOCATION: Brooklyn, New York

DATE: December 14, 1982

The Accident

A 23-year-old assistant signalman was fatally injured on December 14, 1982, at about 11 a.m., in Brooklyn, New York. Employed by the Long Island Rail Road (LI), the assistant signalman had 4 1/2 months of service.

Background

Three LI signalmen were assigned to pump the water out of two manholes on the Atlantic Avenue Service road. Their LI truck was parked facing west in the eastbound lane, and its rotating dome and hazard lights were operating. In addition, several safety cones had been set up to protect the work area near the intersection of Atlantic and Schenectady Avenues, which is one block west of the Atlantic-Utica Avenue intersection. After the water was removed from the first manhole, one signalman was loading the pump on the truck while the other two signalmen went to the second manhole located 357 feet east of the first manhole.

The accident occurred on the service road near the intersection of Atlantic and Utica Avenues. Atlantic Avenue runs east and west, with two lanes in each direction divided by a service road directly beneath the elevated railroad.

The assistant signalman received an initial physical examination when he was hired in July 1982.

Circumstances of the Accident

A Con-Edison truck traveling eastbound at slow speed on the service road had crossed to the westbound lane in deference to the safety cones at the first manhole. As the Con-Edison truck approached the second manhole, an unidentified westbound vehicle entered the service road directly into the path of the eastbound Con-Edison truck. The driver of the Con-Edison truck swerved to the right to avoid a collision and struck the two signalmen at the second manhole. The driver of the unidentified vehicle did not stop. Both signalmen were hospitalized. The victim died when he was removed from life support systems the following day.

Post-accident investigation and an eyewitness report revealed the accident resulted from a combination of the following:

1. Slippery road condition.

2. An eastbound truck in the westbound lane because men were working.

3. A westbound vehicle entering the service road just as the eastbound truck approached the second work area.

4. Less than adequate protection at the second work area.

Applicable Rules

3608. Surround by a suitable guard, or assign a man to protect, manhole pit....

(Long Island Rail Road Safety Rules, Engineering Department Employees)

Analysis

An eastbound vehicle was traveling on the westbound lane due to the work that was in progress at a manhole on the eastbound lane. As the vehicle approached the second manhole, a westbound vehicle entered the service road and caused the eastbound vehicle to swerve in order to avoid a collision.

Cause

The assistant signalmen died from multiple skull fractures caused when he was struck by a vehicle swerving on slippery pavement to avoid a collision with another vehicle.

REPORT: 62

RAILROAD: Consolidated Rail Corporation

LOCATION: Lucas, Ohio

DATE: December 20, 1982

The Accident

A 37-year-old brakeman was fatally injured on December 20, 1982, at about 9:52 a.m., in Lucas, Ohio. Employed by the Consolidated Rail Corporation (CR), the brakeman had 18 years of service.

Background

The accident occurred on main track No. 1 adjacent to overhead bridge No. 170.56. The employee was a member of the crew, train Extra 3345 (INPI-9), operating between Crestline, Ohio, and Conway, Pennsylvania, a distance of about 164 miles.

On the day of the accident, the crew consisted of an engineer, a conductor and two brakemen. After the required off-duty period, they went on duty at 7:15 a.m., at Crestline. The train, consisting of two locomotives and 27 freight cars, departed eastward toward Conway a 9:22 a.m.

In the accident area, the main track has a 2-degree 1-minute right curve to the south. Adjacent to the main track, the southbound concrete column of bridge No. 170.56 is located 7 feet 6 inches from the center line of track No. 1.

The employee was last instructed on the Rules of the Transportation Department and Safety Rules on November 10, 1982. His last physical examination was administered on November 30, 1982.

Circumstances of the Accident

After the train departed Crestline, Ohio, and while it was moving through Mansfield, Ohio, a distance of about 14 miles, a section foreman observed that the lading had shifted on flat car CNA 753074 and immediately notified the dispatcher, who, in turn, communicated by radio to the engineer telling him what had been reported. The engineer stopped the train at MP 171.9. Upon stopping, the conductor and rear breakman proceeded to inspect their train. The front brakeman remained on the locomotive with the engineer.

Upon inspection, they found that the ninth car from the rear (an empty auto frame car containing five frame securement racks, stacked vertically and located on the west end of the car) had shifted its lading to the south, and was protruding over the side of the car. The conductor and the rear brakeman determined that the car would have to be removed from their

train, so they decided to continue east to Lucas, MP 169.6, and set the car off there. The conductor and the rear brakeman boarded the ninth car, riding on the west end, approximately in the center of the deck of the car, holding the shifted securement racks. The train proceeded towards Lucas at a speed, estimated by the engineer, of 15 to 20 mph. The speedometer was inoperative.

At 9:52 a.m., the conductor used his radio to notify the engineer to stop the train and call an ambulance; a man was hurt very badly.

Upon investigation, it was determined that the shifted securement racks had struck bridge No. 170.56 on the south side, and knocked the conductor and the rear brakeman to the ground between main track Nos. 1 and 2. The rear brakeman struck his head on the south rail of main track No. 2 and sustained fatal head injuries. The conductor suffered a fractured left seventh rib, a fractured right thumb, a laceration to the left knee requiring 7 sutures, and abrasions of both knees, left forearm, nose, and forehead. The coroner pronounced the rear brakeman dead at the scene at 10:50 a.m.

A post-accident inspection of the ninth car disclosed that the five frame securement racks were not secured by tie-down chains, with the exception of one chain link bracket slot, which appeared to have been torn from the holder at time of contact with bridge No. 170.56. The conductor apparently failed to realize that the shifted racks could not clear the bridge.

Applicable Rules

1703. Do not stand, set, walk or ride on the following:

. . . . . .

(b) A flat car, if other equipment is available, and then not near any edge nor on stirrup unless the flat car has grab iron above level of floor.

(Conrail Safety Rules -- Train, Locomotive and Other Transportation Employees)

Analysis

The conductor and rear brakeman determined that the ninth car would have to be removed from their train due to the shifting of its lading. The protruding lading struck bridge No. 170.56, as the train was moving towards Lucas to set the car off there, and knocked the conductor and rear brakeman to the ground.

Cause

The accident was caused when the lading on flat car CNA 753074 struck a bridge.

Contributing factors were the failure to adequately secure the lading to prevent movement during transportation and the employee's failure to ride on another car.

REPORT: 63

RAILROAD: Burlington Northern

LOCATION: Zap, North Dakota

DATE: December 23, 1982

The Accident

A 30-year-old brakeman was fatally injured on December 23, 1982, at about 2 a.m., in Zap, North Dakota. Employed by Burlington Northern, the brakeman had 8 years of service.

Background

The coal-loading facility, owned by Indianhead Mine, North American Coal Corporation, consists of four tracks north of the Burlington Northern main track. A loading tipple extends over three of the tracks that are designated as track Nos. 1, 2, and 3. The fourth track, designated as the run-around track, is used for switching and purposes other than coal loading. The entire operation is illuminated by mercury vapor overhead lights. Access to the facility is from the east only, and the grade is 1.4 percent, descending eastward.

Carrier rules require biennial rules re-examination for all operating department employees. The employee was last tested on the Consolidated Code of Operating Rules on October 28, 1982. His last physical and visual examinations took place on November 5, 1982. The brakeman was required to wear corrective eyeglasses while on duty and was wearing them at the time of the accident. In addition to the biennial rules examinations, the carrier conducts frequent, informal safety meetings.

Circumstances of the Accident

The employee was the front brakeman of a train crew consisting of an engineer, a fireman, a conductor, and two brakemen. The crew had been on duty 10 hours 50 minutes when their train arrived at Zap at 1:50 a.m. The rear of the train was detached and left standing on the main track. While the conductor remained in the caboose, the rest of the crew (riding the two locomotives and six cars) entered the run-around track and stopped with the front of the locomotive against the east end of a standing cut of hopper cars. Alighting from the locomotive, the front brakeman observed that the coupling had not been made between the locomotive and the cars. He then stepped between the couplers, facing the locomotive, while he attempted to adjust the coupler on the locomotive. The rear brakeman, believing that the cars and locomotive were already coupled, walked to the west end of the first car and released the hand brake that secured the cars against movement on the descending grade. The cars rolled against

the locomotive, crushing the front brakeman between the couplers. He was dead at the scene.

Applicable Rules

COUPLING AND UNCOUPLING

. . . . . .

154. Before going between cars coupled to locomotives, locomotive units, or cars which may move, the following will apply:

. . . . . .

c. If cars are left standing on a descending grade, make certain they are secured against unexpected movement.

d. Have an understanding with other crew members to assure protection against movement.

. . . . . .

156. When adjustment is necessary to drawbar, knuckle or locking block, prior to making coupling or when coupling fails, locomotive or cars must be separated not less than 50 feet and stopped before going between cars.

(Burlington Northern Railroad, Safety Rules and General Rules)

Analysis

There were no mechanical defects that might have contributed to the accident. The two brakemen failed to coordinate their actions before the front brakeman placed himself between the couplers. When the rear brakeman released the hand brake securing the cars against movement, they rolled approximately 6 feet, crushing the front brakeman between the couplers.

Cause

The cause of the accident was the sudden movement of cars while the employee was standing in front of the locomotive coupler.

REPORT: 64

RAILROAD: Consolidated Rail Corporation

LOCATION: Macedonia, Ohio

DATE: December 29, 1982

The Accident

A 43-year-old car repairman was fatally injured on December 29, 1982, at about 11:30 a.m., in Macedonia, Ohio. Employed by the Consolidated Rail Corporation (CR), the employee had 11 years of service.

Background

The car repairman went on duty at 7 a.m., December 29, 1982, in the Macedonia Car Shop Repair Facility. Before performing service, the car repairman attended the carrier's regular morning safety meeting conducted by the shop manager. The carrier assigned two car repairmen, including this employee, to remove bulkheads from bulkhead carriage tracks in high-cube boxcars. This was accomplished by removing the stops from the end of the car until the bulkhead dropped off the carriage track, and fell to the floor of the car.

On January 28, 1982, the employee acknowledged receipt of the carrier's book on Safety Rules for Consolidated Rail Corporation maintenance of equipment employees. The employee's last physical examination was administered on April 19, 1982.

Circumstances of the Accident

The car repairman were pushing the bulkhead west toward the "B" end of boxcar CR 297880 when the bulkhead dropped away from the carriage track. Instead of toppling toward the end of the car, away from the repairman, the bulkhead toppled toward the center of the car in the direction of the car repairmen. The two repairmen shouted to each other and hurriedly moved toward the opposite end of the car. The subject employee lost his footing, and fell to the floor, under the falling bulkhead, which weighed about 2,600 lbs. The employee was crushed and sustained fatal injuries. He was pronounced dead at the scene by the county coroner. The other repairman was uninjured.

Post-accident investigation revealed that CR did not have standard maintenance regulations dealing with the proper procedure for removal of bulkheads. On December 30, 1982, the carrier issued instructions that bulkheads may be dropped only when there is no one in the car and only when a crane is used to push the bulkheads off the carriage track.

Applicable Rules

HANDLING MATERIAL MANUALLY

. . . . . .

4227. When moving wheeled roller borne or manually handled material or objects:

(a) Keep it under complete control at all times with respect to speed and position.

(b) Keep it short of person or obstruction.

(Consolidated Rail Corporation Safety Rules)

Analysis

When the bulkhead dropped away from the carriage track, it toppled toward the center of the car in the direction of the car repairmen. As the repairmen were moving toward the opposite end of the car, one of the repairmen lost his footing and fell to the floor in the path of the falling bulkhead.

Cause

The accident was caused by the employee's failure to control the bulkhead and his position when the bulkhead fell. In addition, the carrier's failure to have standard maintenance regulations and procedures contributed to this accident.