OFFICE COPY

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

Railroad Employee Fatalities Investigated by the Federal Railroad Administration in 1981

Office of Safety

DOT/FRA/ORRS

INTRODUCTION

This report represents the Federal Railroad Administration's findings in the investigation of railroad employee fatalities during 1981. 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

CAUSE DIGEST

SUMMARY OF ACCIDENTS INVESTIGATED
INVOLVING ONE OR MORE FATALITIES

RAILROAD	ACCIDENTS
AMTRAK	1
ATSF	3
BN	11
BO	1
CGA	1
CNW	4
CO	3
CR	5
DRGW	2
ICG	1
MILW	3
MP	1
NOPBR	1
NW	5
OKKT	1
PBNE	2
PPU	1
SCL	1
SOO	1
SOU	2
SP	4
UP	1

TABLE OF CONTENTS

REPORT: 1

RAILROAD: Chicago and North Western Transportation Company

LOCATION: Ottawa, Minnesota

DATE: January 8, 1981

The Accident

A 41-year-old bridge and building carpenter was fatally injured on January 8, 1981, at about 9:45 a.m. near Ottawa, Minnesota. Employed by the Chicago and North Western Transportation Company, the carpenter had 4 months of service.

Background

The accident occurred at an 89-bent span, open-deck bridge located at Mile Post 69.94 on the St. James Subdivision of the Twin Cities Division. The employee was a member of a work crew engaged in replacing ties on the bridge.

Circumstances of the Accident

About 9:45 a.m. on the day of the accident, the employee was attempting to remove a spike from a bridge tie. The spike head broke off the shaft, causing the employee to lose his balance and fall from the bridge structure. He fell from the north side of the bridge between bents No. 33 and No. 34 -- a distance of approximately 26 feet.

The surface below was composed of mixed patches of open water, vegetation, and ice. The employee sustained head injuries when he hit the ice. Emergency medical personnel were promptly summoned, but the employee died before their arrival.

The county medical examiner determined that death was due to cranial fractures sustained as a result of impact with the ice.

Applicable Rules

GENERAL RULES

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

(Chicago and North Western Railway Company Rules of The Engineering Department)

Analysis

The claw bar used by the employee to remove the spikes was relatively new and free of defects. The spike was found imbedded in a solid knot that extended through the 8-inch depth of the wooden tie. There were no guard rails on the bridge, and no safety nets, belts, or other protective restraints were used by the employee.

Although there were no witnesses to the accident, a nearby employee heard a noise, turned toward the sound, and saw the carpenter fall off the bridge.

Cause

The accident was caused by the structural failure of the line spike, which caused the employee to lose his balance and fall to the iced surface.

REPORT: 2

RAILROAD: Chicago, Milwaukee, St. Paul and Pacific Railroad

LOCATION: Milwaukee, Wisconsin

DATE: January 21, 1981

The Accident

A 33-year-old electrician was fatally injured on January 21, 1981, at about 7:30 a.m. in the freight car shop in Milwaukee, Wisconsin. Employed by the Chicago, Milwaukee, St. Paul and Pacific Railroad, the electrician had 3 years of service.

Background

Three crane bays are located in building "CD 50." The overhead cranes operate on separate tracks, approximately 40 feet above floor level, and are separated by upright support beams. Each crane is approximately 65 feet in length and operates in a north and south direction. The cranes are numbered from the east as 1 and 2; the center crane bay as 3 and 4; and the west crane bay as 5, 6, and 7. The cranes are equipped with audible warning devices when in motion. The operating cabs are located beneath the movable crane beam and must be boarded from the overhead beam.

At 7 a.m., the electrician reported for duty in the freight car shop. After receiving proper safety equipment and a review of safety rules, he was instructed to work with an experienced crane operator until he was familiar with operating procedures in the shop. The crane operator was advised and aware of the instructions given to the electrician.

Records indicated that the employee last attended a safety meeting on December 11, 1980. On the day of the accident, he received safety instructions and the rule of the day from the foreman in charge.

Circumstances of the Accident

At about 7:20 a.m., the electrician was escorted by the shop foreman to the center crane bay boarding ladder and instructed to wait at the floor level until the crane was properly located and ready for boarding. The electrician was warned by the shop foreman that cranes on the west bay were operating on the adjacent track. After unloading material and slowly moving from the south, the crane operator of the center bay motioned the electrician to ascend the ladder to board the crane, as it would

be properly located by the time the electrician reached the boarding level. Shortly after the electrician ascended the ladder, the west bay crane came to an abrupt stop, causing its west end to turn sideways and break the wheel flanges. The wheel flanges dropped to the shop floor. The operator was unaware of the cause, but realized that the wheel flanges were broken and radioed the shop foreman to advise him of the crane's condition.

When the west bay crane came to an abrupt stop, the center bay crane was in the proper position for the electrician to board. The operator of the center bay crane looked on both sides of his crane to see if the electrician was on the ladder. When he did not see the electrician, he shouted to workmen on the shop floor. They stated that they saw no one on the ladder. The crane operator proceeded to reposition a car previously attended to. On his return to the boarding location, he noticed an object wedged between the upright support beam and the west bay crane. He immediately stopped, shouted to workmen on the shop floor, and radioed for assistance. At this time, other employees noticed blood on the shop floor at the base of the ladder and found the electrician wedged between the upright support beam and the west bay crane.

Applicable Rules

GENERAL RULES

A. Employees must not rely upon the carefulness of others, but must become familiar with the dangers surrounding their work and follow the safe method.

. . . . . .

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

41. Rules Governing Operation of Hoist, Crane or Derricks --

. . . . . .

(c) All persons must stand clear of swing path of crane or derrick cab and boom radius during operation.

(Chicago, Milwaukee, St. Paul and Pacific Railroad Company Safety Rules Governing Employees of the Car Department Locomotive Department and Material Division)

Analysis

A post-accident inspection of the equipment and the area involved disclosed no defective conditions that would have contributed to the accident.

There were no witnesses to the accident. The electrician was apparently facing north to ascend the boarding ladder and when he reached the proper level to board the center bay crane, he failed to observe the northbound movement of the west bay crane.

Cause

The accident was caused by the employee's failure to observe the location and movement of an adjacent overhead crane.

REPORT: 3

RAILROAD: Consolidated Rail Corporation

LOCATION: Youngstown, Ohio

DATE: January 20, 1981

The Accident

A 35-year-old messenger-janitor was fatally injured at 1:25 p.m. on January 20, 1981, in Youngstown, Ohio. Employed by the Consolidated Rail Corporation, the messenger-janitor had 15 years of service.

Background

The messenger-janitor reported for his regular assignment at 6 a.m. His assigned hours of duty were from 6 a.m. to 2 p.m.

Circumstances of the Accident

About 1 p.m., the messenger-janitor left Conrail property without authorization. He left the carrier's property in his personal automobile and entered the southbound lane of Ohio State Route 11, traveling northward. He exited from Route 11 onto Interstate 680. He was traveling eastward in the westbound lanes of I-680. His car collided head-on with a tow truck traveling west in the westbound lane of I-680. The employee was pronounced dead on arrival at Southside Hospital in Youngstown.

Applicable Rules

Not applicable.

Analysis

A blood test administered by the Ohio State Highway Patrol revealed the employee's blood alcohol level to be 0.339 percent. A blood alcohol content of 0.10 percent is considered as under the influence of alcohol.

Cause

The collision occurred when the employee operated a motor vehicle in an easterly direction in a westbound lane of I-680.

The employee died of crushing injuries to the chest as a result of the head-on motor vehicle collision.

REPORT: 4

RAILROAD: Union Pacific Railroad

LOCATION: Laramie, Wyoming

DATE: January 21, 1981

The Accident

A 62-year-old laborer was fatally injured on January 21, 1981, at about 10:17 a.m. at the rail welding plant in Laramie, Wyoming. Employed by the Union Pacific Railroad, the laborer had 11 years of service.

Background

The accident occurred on a portion of a rail welding plant where rail is sorted for welding. The employee was a member of a three-man crew assigned to the sorting operation.

Part of the rail welding plant consists of a storage area where rail is stacked for classification and processing. A rail crane is used to sort the rail. The boom is fitted with a line for rail tongs and a separate line for an electromagnet.

On the floor of the crane are four foot-operated braking controls. The magnet-line brake and the boom-line brake are located second and third from the left, respectively, with approximately 2 inches between them.

Welding plant employees are not required to have physical examinations. This employee was not required to be examined on carrier rules. The laborer last attended a safety meeting on January 19, 1981.

Circumstances of the Accident

Before the accident, the magnet line was locked in the raised position, and the rail tongs were lifting and turning a single rail, which was to be placed on an adjacent flat car.

The tongs had been lowered to the laborer, but he could not reach them. The laborer then said something to the crane operator which the crane operator did not understand. The crane operator apparently thought the laborer wanted the boom lowered,

so the tongs could move closer to him. When the boom was lowered, the magnet was released and fell on the laborer. The laborer sustained severe internal injuries and was pronounced dead at the scene of the accident.

Applicable Rules

. . . . . .

2013. Buckets and magnets must be removed from machines when it becomes necessary to handle heavy loads by means of chains or slings.

2014. The following whistle or horn and hand signals shall be used for operation of pile drivers and cranes: . . . .

2015. Standard pile driver and crane signals shown in Rule 2014 must be used when making lifts, handling loads or to direct other movements of the machine and operator will be governed by these signals.

. . . . . .

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

Analysis

A post-accident inspection of the crane and its equipment found no defects that could have contributed to the accident.

The crane operator stated that he thought he may have hit the magnet block brake when he used his right foot to operate the boom brake. This may have released the magnet from the full "down-lock" position and allowed it to fall from the top of the boom.

Since the accident, the carrier has enforced the rule requiring removal of the magnet from a crane before the tongs are used.

Cause

The accident was caused by the inadvertent release of the magnet. Failure to remove the magnet from the crane when it became necessary to use tongs, and failure to use approved hand signals to direct the crane operator were contributing factors.

REPORT: 5

RAILROAD: Norfolk and Western Railway Company

LOCATION: Blue Ridge, Virginia

DATE: January 27, 1981

The Accident

A 69-year-old welder helper was fatally injured on January 27, 1981, at about 2:05 p.m. near Blue Ridge, Virginia. Employed by the Norfolk and Western Railway Company, the welder helper had 25 years of service.

Background

The accident occurred 12 miles east of Roanoke, Virginia, on the eastward track of a double-track main line in the Blue Ridge District. From the point of the accident eastward, there is a section of track curving 1 degree 46 minutes to the right, a section with a 0-degree 36-minute curve to the right, a section with a 2-degree 36-minute curve to the right, and a section of track that is the eastend spiral to the tangent track.

Trains operate under a traffic control system directed by the train dispatcher in Crewe, Virginia. Both main line tracks are signaled for train movements in either direction. The northernmost track is designated as the westward track; the southern track is designated the eastward track.

The employee had below normal hearing, which was revealed in his last medical examination on January 4, 1980. Although no hearing aid was prescribed at that time, he was permitted to work until the end of 1980.

Circumstances of the Accident

At about 2 p.m., the welder and the welder helper were working in the vicinity of Mile Post N249.2, welding rail ends on the eastward track. During this process, the welder helper's primary duty was to assist the welder by watching for oncoming trains since the welder was wearing a protective mask. A westbound train approached on the westward track, and the welder and helper cleared both tracks for the approaching train. After the train had passed, the employees returned to their tasks. At about 2:05 p.m., the welder heard a train whistle sound for a distant

crossing. The welder told the helper that another train was coming and crossed over the adjacent track. The oncoming train was running west on the eastward track. The helper proceeded south, but stopped on the end of the cross ties on the south side of the eastward track.

The engineer of train No. 61 seated on the right-hand side of the locomotive cab was unable to see the track ahead because of the track curvature and the long end of the locomotive in the lead. The head brakeman of the train was seated on the left-hand side of the locomotive and could see the track ahead when the train came around the curve. As soon as the head brakeman saw the welder's truck parked alongside the track, he started to sound the locomotive's horn. Shortly thereafter, he made an emergency brake application when he saw the welder helper, and continued to sound the horn until the welder helper was struck by the locomotive. The welder helper was thrown clear of the eastward track about 40 feet from the point of impact.

Applicable Rules

1013. All employees must, as far as practicable, observe passing trains for their entire length for defects such as brakes sticking, hot box, broken or loose wheel, brake rigging down, load shifting, or other trouble.

When two or more employees are present, they should, when practicable, station themselves so that both sides of the train can be observed.

. . . . . .

1055. When there are two or more tracks, watchmen, track walkers and others should, when practicable, travel against the normal current of traffic, keeping a lookout in both directions, and must leave the tracks when a train, motor car, or other equipment is approaching or passing.

(Norfolk and Western Railway Company Safety Rules)

Analysis

The employees were working on the eastbound track and had to clear the tracks for an oncoming westbound train. Apparently, the welder helper thought that train No. 61 was following the train which passed less than 5 minutes earlier on the westbound track. He may have failed to hear the train until the last second. He did move from his work location over the outside rail, but stopped on the end of the cross ties and was struck by the locomotive.

The head brakeman's maximum sight distance rounding the curve to the point of the accident was 546 feet. The engineer stated that the locomotive's headlight was burning bright.

Cause

The accident was caused by the failure of the welder helper to clear the track in advance of an approaching train.

REPORT: 6

RAILROAD: Soo Line Railroad Company

LOCATION: Woodlawn, Wisconsin

DATE: February 2, 1981

The Accident

A 31-year-old rail-truck crane operator was fatally injured on February 2, 1981, at about 4:15 p.m. near Woodlawn, Wisconsin. Employed by the Soo Line Railroad Company, the operator had approximately 2 years of service.

Background

The accident site was on the main track of the Eastern Division at a rail-highway crossing, the Jungle Lake crossing.

The crane operator and an operator-helper began work with the rail-truck crane in Crandon, Wisconsin, at 7:30 a.m., on the day of the accident. They worked with other employees in removing and replacing defective rails of the track structure, with the flanged wheel assemblies in the on-track position.

The rail-truck crane unit consisted of a guided rail unit mounted on a conventional truck frame, operable on highway and track. The front and rear flanged wheels were separately controlled by levers that raised and lowered the guided rail units through use of hydraulic mechanical linkage.

The employee last passed an examination on the carrier's Maintenance-of-Way Operating Rules on August 21, 1980. He passed his last physical examination on May 16, 1980. He had attended a safety meeting on the day of the accident.

Circumstances of the Accident

At about 4 p.m., the rail-truck crane was moved to the rail-highway crossing. It was moved off the track to allow a freight train to pass. Movement of the hydraulic control lever failed to raise the rear flanged guide wheel unit. Several efforts to raise the guide wheel unit were unsuccessful.

A short time later, the crane operator positioned himself under the rear of the crane to find the cause of the malfunction. The operator instructed the helper to activate the control lever. The lever movement caused a slight movement of the flanged guide

wheel assembly, and the operator instructed the helper to stop the lever movement. When the helper released the lever, the guide wheel assembly rose. The operator was crushed between the rising assembly and the frame.

Emergency rescue units were summoned via the crane radio. Another crane in the vicinity elevated the rear of the first crane so medical attention could be provided to the operator. Rescue forces determined that the crane operator died from fatal cranial fractures.

Applicable Rules

898. When it is necessary to get under any part of the vehicle to make inspection or repairs, the following rules shall be observed:

(a) Employes shall not get under a vehicle to make inspection or repairs unless such vehicle is properly blocked against movement and the engine is stopped.

(b) Employes shall not get under a vehicle supported by a jack unless the vehicle is properly blocked and the engine is stopped.

(c) If blocks to prevent equipment from falling and pinning the employe to the ground are not available, keep body in the clear of that portion of the vehicle which may fall upon him.

(Soo Line Railroad Safety Rules and First Aid Instructions for the Maintenance of Way and Structures Signal and Communication Employes)

Analysis

A post-accident inspection of the guide rail unit disclosed that a fracture had occurred between the rear piston and clevis attachment. A test was made of the hydraulic system with the failed component in place. The test disclosed that activating the hydraulic system, causing 1/4-inch of piston travel, resulted in the rapid upward movement of the flanged wheel assembly into the frame because of the downward pressure of the crane's weight.

The failed component was sent to a testing laboratory for analysis. Because of modifications to the guide rail unit, carrier officials stated that it was not possible to develop conclusions regarding the laboratory analysis.

Although the crane was equipped with outrigger jacks on the rear corners, the jacks were not placed in a support position.

Cause

The accident was caused by the crane operator's failure to place the outrigger jacks in a support position before positioning himself under the vehicle.

The fracture on the guide rail unit was a contributing factor to the accident.

REPORT: 7

RAILROAD: Consolidated Rail Corporation

LOCATION: Chesterfield, Indiana

DATE: February 5, 1981

The Accident

A 37-year-old bridge and building welder was fatally injured on February 5, 1981, at about 11:05 a.m., in Chesterfield, Indiana. Employed by Consolidated Rail Corporation, the welder had 4 years of service.

Background

The accident occurred on the Southwest Division of Conrail on the Cleveland-to-Indianapolis main line. Two main tracks are operated in an east-west timetable direction. The southern track is designated track No. 1; the northern track is track No. 2. From the east, the tracks are tangent for approximately 2 miles with a 1-degree curve to the left for 1,630 feet. The accident occurred at the west end of the curve; the grade in the area is 0.32 percent, ascending to the west.

The welder entered service with the carrier as a carpenter and was promoted to the position of welder on May 16, 1979.

The employee last attended a maintenance-of-way annual safety meeting on March 26, 1980.

Circumstances of the Accident

On the morning of February 5, 1981, the crew foreman was instructed to take one employee to Chesterfield and saw the ends of long switch ties that were left in place as cross ties on track No. 2.

The two employees arrived at Chesterfield at approximately 11 a.m. The foreman instructed the welder to adjust and repair the gasoline chain saw while the foreman marked the ties for cutting. The foreman had marked eight or nine ties when he heard the chain saw start, and saw the welder cutting the first tie.

A westbound freight train was moving at about 45 mph on the westward main track as it approached the Chesterfield area. The fireman, the engineer, and the front brakeman were in the cab of the lead locomotive unit. The fireman, a qualified engineer, was at the controls. The locomotive's headlight was lighted.

The fireman sounded the locomotive's horn and bell for the rail-highway crossing east of the accident site. After passing the crossing, the fireman observed the two men near the rails of the westbound main track. He sounded the horn and bell, and made an emergency brake application.

At the same time, the welder's foreman looked to the east and saw the westbound train approaching. He shouted to the welder who was squatting with his back toward the approaching train. Realizing that the welder did not hear him or the approaching train, the foreman ran toward the welder and attempted to pull him away from the track. Just as the foreman reached the welder, the right front corner of the locomotive struck the welder in the back.

The welder became entangled with the chain saw and was thrown 70 feet northwest from the point of impact. He died from loss of blood and massive lacerations. The foreman suffered a bruised right arm.

Applicable Rules

3001. Immediate supervisor shall:

(a) Be responsible for safety instructions and safe performance of all the men under his jurisdiction . . . .

(b) Before starting work, instruct all employes under his jurisdiction as to unusual hazards.

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

3204. Foremen are responsible for a safe operation and must exercise every reasonable precaution to protect men in their charge . . . .

3205. Before permitting men to be on track, the foreman or man in charge will have an understanding with all the men as to where they will go when necessary to clear for trains.

(Conrail Safety Rules Maintenance of Way and Structures Employes)

Analysis

Arriving at Chesterfield, the foreman proceeded to mark the switch ties after instructing the welder to make repairs to the chain saw. Upon hearing the chain saw start and the welder begin to saw the first long tie, the foreman looked up and saw the westbound train approaching. After he called to the welder and realized the welder did not hear him or the approaching train, the foreman ran toward the welder in an attempt to pull him from the path of the train. He reached the welder about the time impact occurred. The noise of the chain saw apparently prevented the welder from hearing the approaching westbound train.

Cause

The accident was caused by failure of the foreman to maintain an adequate safety lookout for approaching trains.

REPORT: 8

RAILROAD: Burlington Northern

LOCATION: St. Helens, Oregon

DATE: February 11, 1981

The Accident

A 52-year-old brakeman was fatally injured on February 11, 1981, at about 11:30 p.m. near St. Helens, Oregon. Employed by the Burlington Northern, the brakeman had 10 years of service.

Background

At St. Helens, a crew was to set out 11 cars and pick up other cars on two industry tracks north of the main track. The two industry tracks are designated as track No. 1 and track No. 2. There are no yard limits established in that area.

The employee was the head brakeman of a train crew consisting of a conductor, two brakemen, and an engineer. The crew reported for duty in Astoria, Oregon, at 6 p.m., after completing the required off-duty period. The crew worked its way to St. Helens, 69.6 miles east, performing switching operations at several locations en route.

For several years the employee had not worked in the St. Helens area regularly; although, he had worked in the area intermittently as an extra employee on temporary assignments.

The employee was last examined and passed a test on the Consolidated Code of Operating Rules on December 18, 1979. His last physical examination was administered on March 4, 1980.

Circumstances of the Accident

The head brakeman was standing on the engineer's side of the main track when the first 11 cars were separated from the train. After the cars were pulled over the track No. 2 switch, the head brakeman gave the engineer a lantern signal to stop the movement and stepped across the track to line the switch for the reverse movement. Instead of returning to the south side of the track, the head brakeman signalled to the rear brakeman, who was standing about 300 feet west of the remaining cars. The head brakeman proceeded to walk west, remaining on the north side of the track.

The rear brakeman hesitated after receiving the lantern signal to see if the employee was going to step across the track or remain on the north side. When it appeared that the head brakeman was going to remain on the north side, the rear brakeman instructed the engineer via radio to back up.

Moments later, the rear brakeman looked up and saw that the head brakeman was walking between the rails of track No. 2, and the approaching cars were quickly overtaking him from the rear. From about 200 feet away, the rear brakeman shouted a warning and gave a lantern signal for the head brakeman to get out from between the rails. The brakeman was struck from behind, knocked to the ground across the south rail, and run over.

The rear brakeman radioed the engineer to stop the movement. The engineer made an emergency brake application, and the movement stopped 74 feet beyond where the employee was struck. The employee was found under the first set of trucks of the second car. He sustained traumatic injuries and was pronounced dead at the scene.

Applicable Rules

66. Employees must not:

. . . . . .

b. Cross tracks immediately in front of moving equipment.

. . . . . .

e. Walk between the rails of any track.

(Burlington Northern Safety Rules)

GENERAL RULES

G. The use of alcoholic beverages, intoxicants, narcotics, marijauna or other controlled substances by employes subject to duty, or their possession or use while on duty or on Company property, is prohibited . . . .

M. . . . . .

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

TRAIN AND YARD SERVICE

802. Conductors and engineers must know that their subordinates are familiar with and perform their duties and comply with rules and special instructions . . . .

(The Consolidated Code of Operating Rules - Edition of 1980)

Analysis

The head brakeman crossed over the track to line the switch for a reverse movement. After lining the switch, he gave a lantern signal to the rear brakeman to back up. The rear brakeman instructed the engineer via radio to back up. After the reverse movement started, the rear brakeman noticed the front brakeman walking between the rails of track No. 2.

An autopsy report revealed the employee's blood alcohol level to be 0.08 percent. Oregon law presumes a person to be under the influence of alcohol if the alcohol level is 0.10 percent or higher. Using the standard dissipation rate, the medical examiner estimated that the employee's blood alcohol level was 0.16 to 0.19 percent when he reported for duty. This assumes that the employee consumed no alcohol during the 5 1/2-hour on-duty period.

Cause

The accident was caused by the employee's failure to move to a safe position during switching operations.

A contributing factor may have been the use of alcohol.

REPORT: 9

RAILROAD: Denver and Rio Grande Western Railroad Company

LOCATION: Hotchkiss, Colorado

DATE: February 19, 1981

The Accident

A 31-year-old track patrolman was fatally injured on February 19, 1981, at about 1 p.m. near Hotchkiss, Colorado. Employed by the Denver and Rio Grande Western Railroad Company, the employee had 4 years of service.

Background

The accident occurred in single-track territory over which train movements are governed by train orders and timetable special instructions.

The employee went on duty at Delta, Colorado at about 7:30 a.m. on the day of the accident. He patrolled the track eastward to Somerset, Colorado, using an MT-19 motor car.

Weekly safety meetings are conducted by the carrier. The last safety meeting attended by the track patrolman was held 6 days before the accident. He was last examined on the carrier's operating rules on February 11, 1981.

Circumstances of the Accident

The track patrolman was returning to Delta from Somerset. About 12:50 p.m., he passed a section crew at Mile Post 390.9. The section crew observed that the motor car was traveling considerably faster than the usual inspection speed, that the patrolman was leaning forward, and that he appeared to be unconscious. As the motor car passed the section crew, the patrolman's left leg slipped from the running board of the motor car and struck an angle bar. This knocked his boot off his foot. The section crew chased after the motor car in company vehicles. The motor car was found stopped near Mile Post 390. The patrolman had fallen from the car, his right foot caught under the seat.

The patrolman was pronounced dead at the accident site by the Delta County Coroner. Evidence revealed that his body had been dragged along the track for about 0.5 mile.

Applicable Rules

G. The use of narcotics, intoxicants or any beverage containing intoxicants by employes while on duty, when subject to or available for duty or having in possession while on duty, is prohibited.

(Denver and Rio Grande Safety Rules Operating Department)

Analysis

The statements of the witnesses indicated that the patrolman was unconscious when he fell from the motor car.

The autopsy report revealed the employee's blood alcohol level to be 0.336 percent. Colorado law considers a person to be under the influence of alcohol if the blood alcohol content is 0.10 percent or more.

Cause

The accident was caused by the patrolman's loss of consciousness, after which he fell from a moving motor car.

A contributing factor may have been the employee's use of alcohol.

REPORT: 10

RAILROAD: Consolidated Rail Corporation

LOCATION: Altoona, Pennsylvania

DATE: February 24, 1981

The Accident

A 54-year-old brakeman was fatally injured on February 24, 1981, at about 2:10 a.m. near Altoona, Pennsylvania. Employed by the Consolidated Rail Corporation, the brakeman had 29 years of service.

Background

The mountainous terrain between Gallitzin and Altoona, Pennsylvania, is a descending grade, consisting of curves of various degrees for a distance of 12 miles. At the accident site, the descending grade is 1.75 percent.

The brakeman was a member of a crew that consisted of a conductor, a front and a rear brakeman, a fireman, and an engineer. It went on duty at 6 p.m. at Conway, Pennsylvania, on PIBE-3, an eastbound freight train.

The brakeman was off duty for 23 hours and 20 minutes before reporting for duty. He had attended a book of rules class on August 26, 1980. He passed his last physical examination on October 7, 1975.

Circumstances of the Accident

At about 1 a.m., east of Mile Post 240, the train brakes went into emergency causing a separation between the 33rd and 34th head cars. The crew inspected the train and found a broken knuckle on the 34th car -- the east car of the rear portion of the separated train. The conductor and front brakeman told the engineer of their findings.

The conductor erroneously informed the engineer that the broken knuckle was in the west end of the separation. A knuckle was secured from the second unit, and the engineer pulled eastward so the conductor could load the replacement knuckle on the last car of the front portion of the train. The conductor used a portable radio during this movement. While moving west with the head portion of the train, the conductor lost radio communication with the engineer. The front portion of the train shoved against the rear portion.

The conductor examined his radio, found that it was malfunctioning because a fastening clip on the case had sprung open. The clip was secured, and radio communications were restored. By radio, the conductor instructed the engineer to pull east and stop approximately 50 feet from the west portion of the train. The conductor did not notify the engineer that crew members were between the cars replacing the knuckle.

The rear brakeman placed his hand lantern by his feet and was inserting the replacement knuckle in VTR 5344. The conductor was adjusting the uncoupling lever and holding his hand lantern to illuminate the work area. The head portion of the train moved west and pinned the rear brakeman between the cars. He was pronounced dead at the scene.

Applicable Rules

26a. Before fouling equipment:

. . . . . .

When emergency repair work is to be performed on, under, or between and engine or one or more cars coupled to an engine, and blue signals are not available, prior to fouling equipment, the engineer and other employees assigned to duty on the engine must be fully informed that employees will be fouling equipment. Such engines and cars must not be moved or coupled to until the same employee who requested protection reports to the engineer that all employees are clear of equipment. When the employee being protected is relieved from duty, that fact and the name of the relieving employee must be reported to the engineer.

(Consolidated Rail Corporation Rules of the Transportation Department)

1711. Before fouling, going between or under standing equipment for inspection, adjustment, repairs or any other purpose:

. . . . . .

(i) Know that the equipment will not move.

. . . . . .

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

Analysis

The conductor instructed the engineer by radio to move eastward. After separating the cars, the conductor did not inform the engineer that the crew needed protection from movement while the knuckle was being replaced on the car in the rear portion of the train.

The rear brakeman's hand lantern was at his feet while he was replacing the knuckle. The lantern was in the same position when the body was removed from its position between the cars. This indicated that the rear portion of the train did not move, but the head end was shoved west, pinning the brakeman between two cars.

Cause

The accident was caused by the unanticipated movement of the front part of the train.

Contributing factors were the failure of the employee to stand clear of unprotected equipment, and the failure of the conductor to notify the engineer that the brakeman was between the cars, working on equipment.

REPORT: 11

RAILROAD: Consolidated Rail Corporation

LOCATION: Bishop, Maryland

DATE: March 16, 1981

The Accident

A 47-year-old conductor was fatally injured on March 16, 1981, at about 7:50 p.m., in Bishop, Maryland. Employed by Consolidated Rail Corporation, the conductor had 14 years of service.

Background

The conductor was in charge of a freight train that consisted of one locomotive unit with the front end coupled to a caboose, and four freight cars. The engineer was seated at the controls on the east side of the locomotive, and the brakeman was seated on the west side in the locomotive cab. The conductor was in the caboose. Each trainman carried a portable radio.

The terrain at the accident site is level with a single main track, Snowhill Secondary Track, running north to south. The timetable speed limit is 10 mph.

To the west of the main track is Showell Milling, Inc. which has a spur track entering from the south end, extending 658 feet northward, parallel to the main track. At its north end, the spur track is elevated 4 feet above the main track level. Adjacent to the north end of the spur track is the south end of a dirt passenger platform, which is banked by 4-by-4 timbers and laid parallel to the west rail of the main track. The platform extends 200 feet to the north, ending just south of a rail-highway crossing at State Route 367.

The conductor was last examined on the carrier's operating rules on January 12, 1979. His last physical examination was held on September 13, 1978.

Circumstances of the Accident

The train was moving southward toward Bishop, Maryland, when the conductor radioed to the brakeman that cars were to be switched at Showell Milling. The train stopped on the main track next to the plant while the brakeman uncoupled the cars behind the caboose. The engineer and the brakeman made several switching

moves between the spur track and the main track. The brakeman was on the west side of the train and communicated with the engineer by radio. When the conductor did not rejoin the crew, the brakeman searched the plant office and the caboose. The brakeman found the conductor lying along the west side of the main track, 25 feet south of the north end of the spur track. The employee died of apparent head injuries.

Applicable Rules

1702. Get on or off moving equipment only when:

(a) Necessary for the proper performance of duty, and then only when the length of the train or draft, or the location makes it impracticable to stop the equipment.

(b) Not at high platform.

(c) The equipment is moving slower than a fast walking speed.

. . . . . .

1705. When riding on or getting on or off standing or moving equipment:

(a) Use rear step, away from main or live track if practicable and not in confined space.

(b) Look for, remove if practicable, and stay clear of any obstruction, opening or other such hazard.

(c) Carry only lantern or other authorized article. (When getting on or off equipment, lantern should rest on the back of the hand with bale on the palm between thumb and forefinger.)

(d) Face equipment and the direction it is moving. Keep body as close as possible to the equipment.

. . . . . .

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

Analysis

The conductor was carrying a portable radio with the shoulder strap worn diagonally across his body. He was on the caboose and was to dismount at Showell Milling. The radio with its shoulder strap broken was found near the body. It may have become caught on some part of the rolling equipment as the conductor tried to get off the train. Ground markings, about 40 feet north of the position where the body was found, indicate that the employee was dragged by the train.

A post-accident inspection of the caboose and freight cars showed no defects that would have contributed to the accident. An autopsy was not performed.

Cause

While attempting to get off of the caboose, the conductor's radio strap apparently was caught on moving equipment. He was dragged a distance of about 40 feet and sustained fatal head injuries.

REPORT: 12

RAILROAD: Southern Pacific Transportation Company

LOCATION: Calimus, Oregon

DATE: March 19, 1981

The Accident

A 56-year-old brakeman was fatally injured on March 19, 1981, at about 3:48 a.m., in Calimus, Oregon. Employed by the Southern Pacific Transportation Company, the brakeman had 28 years of service.

Background

At Calimus, there is a 7,161-foot siding that parallels the single main track to the north. The accident occurred on the main track at the west end of the Calimus siding Mile Post 465.125. Train movements in the area are governed by a traffic control system. The grade is 0.8 percent ascending westward; the track is tangent for approximately 1,500 feet west of the accident point.

The employee was a member of a train crew that consisted of a conductor, two brakemen, and an engineer. The crew had been on duty for about 7 hours after completing the required off-duty period.

The brakeman was last examined on the carrier's Rules and Regulations of the Transportation Department on August 17, 1978. His last physical examination was held on August 28, 1978.

Circumstances of the Accident

The employee was the front brakeman on freight train Extra 3622 West, operating between Eugene and Klamath Falls, Oregon. The train entered the siding at Calimus to meet train Extra 7031 East. The engineer notified the front brakeman of the eastbound train's arrival and the need for a "roll-by" inspection. After the train stopped, the engineer again notified the front brakeman about the eastbound train.

The front brakeman got off the locomotive, and stood between the locomotive and the main track. As the eastbound train came onto the tangent track, its headlight was dimmed and its white warning light was extinguished. The engineer saw that the train's oscillating red headlight was illuminated. This indicated that the train's brakes had been applied in emergency. The engineer saw the front brakeman cross the main track in the path of the oncoming train. The brakeman was struck by the locomotive.

After the eastbound train stopped, the engineer left the locomotive to look for the front brakeman. When he did not find the front brakeman, he returned to the engine and reported the incident to the dispatcher who requested an ambulance. The engineer continued his search for the front brakeman. The brakeman's body was found about 87 feet from the point of impact, and 18.5 feet south of the center line of the main track.

Applicable Rules

GENERAL RULES

G. The use of alcoholic beverages, intoxicants or narcotics by employes subject to duty, or their possession, use, or being under the influence thereof while on duty or on Company property, is prohibited.

. . . . . .

N. Employes must expect the movement of trains, engines or cars at any time, on any track, in either direction.

Employes must know that it is safe before fouling, walking between or crossing tracks by looking in both directions . . . .

(Southern Pacific Transportation Company Rules and Regulations of the Transportation Department)

Analysis

The brakeman crossed over the main track and moved into the path of an oncoming train. The brakeman apparently did not see the red headlight which indicated emergency braking.

An autopsy report showed that the brakeman's blood alcohol content was 0.38 percent. Oregon law considers a person to be under the influence of alcohol if the blood alcohol level is 0.10 percent or higher.

Other crew members stated that the employee showed no indication of being under the influence of alcohol when he reported for duty. They did not see him use alcohol while on duty.

Cause

The brakeman failed to watch for approaching trains.

The use of alcohol may have been a contributing factor.

REPORT: 13

RAILROAD: Burlington Northern

LOCATION: Spokane, Washington

DATE: March 17, 1981

The Incident

A 57-year-old yard brakeman died on March 17, 1981, at about 4 a.m., in Spokane, Washington. Employed by Burlington Northern, the brakeman had almost 21 years of service.

Circumstances of the Incident

At the time of the incident, the yard brakeman was on the steps of switch engine No. 488, which was moving at 5 mph. The brakeman lost consciousness and apparently fell from the engine's steps to the ground.

Applicable Rules

Not applicable.

Analysis

Witnesses to the incident stated that they did not see the brakeman fall from the engine steps, but saw the brakeman on the ground after he fell. He apparently died immediately, and was taken by ambulance to a local hospital where he was pronounced dead on arrival.

Cause

The brakeman's death was caused by a massive heart attack.

REPORT: 14

RAILROAD: Atchison, Topeka and Santa Fe Railway Company

LOCATION: Richmond, California

DATE: March 20, 1981

The Accident

A 30-year-old car inspector was fatally injured on March 20, 1981, at about 4:30 a.m., in Richmond, California. Employed by the Atchison, Topeka and Santa Fe Railway Company, the car inspector had 9 years of service.

Background

Richmond Yard has 30 tracks in the freight yard. Tracks No. 9 through No. 30 are connected at both ends, and other spur and auxiliary tracks are connected at the east end to a lead track. The west end of the tracks is connected to a lead that connects to a westward track that leads to a TOFC facility and then continues to a ferry landing. The tracks are generally level. The main track ends at the east end of the yard. The accident occurred on track No. 10.

The car inspector passed his last written rules examination on December 27, 1978, when he was promoted to car inspector. On March 12, 1981, he received verbal instructions on the Safety and General Rules from his supervisor. He passed his last physical examination on April 3, 1974.

Circumstances of the Accident

The car inspector was working as an extra carman with an assigned carman. A cut of cars was being inspected as it was pulled eastward through track No. 9. The two employees were standing opposite each other inspecting the cars. The car inspector was standing near track No. 10 and was struck by the cars being pushed onto the track. The carman found the car inspector about 200 feet west of the carmen's building. The car inspector had been severed above the waist and he died instantly.

Applicable Rules

38. Employes must expect the movement of trains, engines, cars or other equipment at any time, on any track, in either direction. Do not rely on others to give warning of moving equipment, except where designated lookouts are provided.

41. Employes must stand a safe distance from passing cars, engines, or trains, and be alert for falling or protruding objects. When there are two or more tracks, stay in clear of all tracks until trains have passed.

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

Analysis

The third and fourth wheels on the south side of the lead car that was being pushed onto track No. 10 showed evidence of having passed over the car inspector. The carman did not see the accident occur, and the exact circumstances of the accident could not be determined.

Cause

The employee failed to stand clear of rolling equipment.

REPORT: 15

RAILROAD: Central of Georgia Railroad Company

LOCATION: Dothan, Alabama

DATE: April 10, 1981

The Incident

A 60-year-old engineer was shot on April 10, 1981, in Dothan, Alabama. Employed by the Central of Georgia Railroad Company, the engineer had 24 years of service.

Background

The incident occurred on the Coastal Division of the Central of Georgia Railroad Company in a flat switching yard at Dothan, Alabama.

At 4:30 p.m., the engineer, conductor, and a switchman went on duty on Yard Switching Job No. 5025.

Circumstances of the Incident

Upon completion of several switching operations, the three locomotive units that had been used were coupled to 22 cars at the east end of the yard. The engineer began pushing the cars toward the yard office, which is located at the west end of the yard. The conductor and switchman were riding on the west car.

After moving about 10 car lengths, the consist's speed increased to about 30 mph. The conductor was unable to contact the engineer by radio and made an emergency air brake application. When the yard movement stopped, the conductor and the switchman went to the locomotive and found the engineer lying on the cab floor. The engineer had been shot.

Applicable Rules

Not applicable.

Analysis

There were no witnesses to the shooting.

The Dothan City Police investigated the incident and conducted a neighborhood survey. Two residents identified a suspect seen in the area. The suspect was apprehended and later admitted shooting the engineer.

Cause

The engineer was shot in the back at close range by a trespasser on railroad property.

REPORT: 16

RAILROAD: Norfolk and Western Railway Company

LOCATION: Singer, Virginia

DATE: April 14, 1981

The Accident

A 53-year-old assistant carpenter foreman was fatally injured on April 14, 1981, at about 3:08 p.m. near Singer, Virginia. Employed by the Norfolk and Western Railway Company (NW), the foreman had 32 years of service.

Background

The accident occurred on the westward track, 16 miles west of Roanoke, on a tangent section. From the point of the accident eastward, there is a section of tangent track 24 feet long that leads to a 5-degree 36-minute curve to the right that extends 2,945 feet. This is followed by a 511-foot section of tangent track and a 1,606-foot section of track with a 1-degree 58-minute curve to the left. The terrain is mountainous, and the maximum train speed is 40 mph.

The foreman had held various positions in the NW's maintenance-of-way department during his 32 years of employment.

Circumstances of the Accident

At about 3 p.m., a mechanized rail-laying crew was laying continuous welded rail on the eastward track near Mile Post N 273.1.

The carpenter crew was working at a rail-highway crossing to assist in the replacement of road-crossing timbers.

The track supervisor and assistant carpenter foreman were standing on the crossing between the two main-line tracks, watching new spikes being installed. As a westbound freight train approached the crossing, the assistant carpenter foreman turned and stepped onto the track in front of the train.

The engineer of train No. 3RB43 was seated on the right-hand side of the locomotive cab and could not see the employee because of the track curvature. Also, the long end of the locomotive was in the lead. The fireman was seated on the left-hand side of the locomotive and sounded the locomotive's horn well in advance of the crossing. He continued to sound a series of short blasts to avoid the accident. The fireman made an emergency brake application at the time of impact.

The assistant carpenter foreman was struck and thrown about 80 feet west of the crossing between the main-line tracks.

Applicable Rules

1051. Employees on or about tracks must be alert, watchful and keep out of danger, exercising care to avoid injury to themselves and others . . . .

1052. Always look in both directions before stepping on or getting close to any track. When crossing tracks near standing equipment, always allow room to avoid injury in case of sudden movement. Crossing tracks immediately in front of moving trains, locomotives, cars, roadway equipment or motor cars is prohibited.

1053. Employees must not work or stand on a track while a train, locomotive or car is passing on an adjacent track which is 25 feet or less from the track where work is being performed. Where roadway machines are working, machines must stop work and employees clear the track . . . .

1054. Employees are prohibited from walking or standing between the rails of a track unless necessary in performance of their duties.

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

Analysis

The assistant carpenter foreman was aware of the hazards of performing inspection duties while standing between an occupied track and a high-speed, main-line track.

The eastward track was occupied by numerous pieces of track maintenance machinery with their engines running. The excessive noise may have prevented the employee from hearing the locomotive's horn.

The track machines were spread over several hundred feet around the curve, obstructing the employee's view around the curve.

Cause

The employee failed to watch for approaching trains and to move off the tracks to a safe position.

A contributing factor may have been the noise generated by the track maintenance machinery.

REPORT: 17

RAILROAD: Chicago and North Western Transportation Company

LOCATION: Melrose Park, Illinois

DATE: April 17, 1981

The Incident

A 57-year-old yardmaster and a 65-year-old yard clerk were shot on April 17, 1981, at about 1:55 p.m., in Melrose Park, Illinois. Employed by the Chicago and North Western Transportation Company, the yardmaster had 36 years of service, and the clerk had 44 years of service.

Background

Proviso Yard consists of five adjoining yards, four of which have tracks laid from east to west. The East 5 Yard office is located at the east end of Yard 5, and north of the lead tracks. A yardmaster, yard clerks, and other carrier employees work in the office to facilitate yard operations.

A yardmaster, a yard clerk, and a carman were on duty in the East 5 Yard office when the incident occurred.

Circumstances of the Incident

An off-duty railroad employee entered the yard office and began yelling at the yardmaster and the yard clerk. He drew a handgun and fired first at the yard clerk and then at the yardmaster. The carman fled the scene.

Shortly after the shooting, the off-duty employee was arrested by the Melrose Park Police Department and later charged with murder.

Applicable Rules

Not applicable.

Analysis

The investigation of the incident was conducted by the Melrose Park Police Department.

Cause

The yard staff members were shot by an off-duty railroad employee on railroad property.

REPORT: 18

RAILROAD: Atchison, Topeka and Santa Fe Railway Company

LOCATION: Lawrence, Kansas

DATE: April 29, 1981

The Accident

A 60-year-old conductor was fatally injured on April 29, 1981, at about 3:20 p.m., in Lawrence, Kansas. Employed by the Atchison, Topeka and Santa Fe Railway Company (ATSF), the conductor had 39 years of service.

Background

The Lawrence Yard extends east and west. The accident occurred on yard track No. 108 which is south of and adjacent to yard track No. 107. The tracks are about 1,700 feet long and are tangent 600 feet to the point of accident. The grade is 0.46 percent descending eastward. The distance between track centers at the point of the accident is 13 feet, 4 inches.

The conductor was a member of a road switching crew assigned at Lawrence. The crew consisted of the conductor, two brakemen, and an engineer. The crew had been on duty for 10 hours 20 minutes, after completing the required off-duty period.

The conductor was last examined on the ATSF's Operating and Safety Rules on November 21, 1980. He regularly attended safety meetings, the last being April 7, 1981. His last physical examination was held on April 6, 1981.

Circumstances of the Accident

The switching locomotive used by the crew consisted of two diesel electric units with the east unit headed east. The engineer was at the controls on the south side of the east unit. The conductor communicated with the engineer about switching moves by using a pack-set radio.

The locomotive and the 10 cars coupled to its east end were on the yard lead track, west of yard tracks No. 108 and No. 107. The two east cars were switched to track No. 108. The conductor lined the switch to track No. 107 and instructed the engineer to shove the remaining eight cars onto track No. 107. The conductor boarded the side ladder on the south side of one car, near the

car's east end. This car passed two free-rolling cars which had been previously switched to track No. 108. When the car was close to coupling with the cars standing on track No. 107, the conductor radioed this information to the engineer and got off the car.

The engineer saw the conductor step into the path of the two moving cars on track No. 108. He was struck by the east car. The two moving cars on track No. 108 continued eastward and coupled with the cars standing on that track. The engineer was the only witness to the accident.

The conductor was found lying on the cross ties on the north side of the north rail of track No. 108. He sustained a traumatic amputation of the right arm at the shoulder and a chest-crushing injury. He was pronounced dead at the accident scene.

Applicable Rules

K. Employes must not be careless of the safety of themselves and others. They must remain alert and attentive and plan their work to avoid injury.

. . . . . .

M. Employes must expect the movement of trains, engines or cars at any time, on any track, in either direction.

(The Atchison, Topeka and Santa Fe Railway Company Rules Operating Department)

Analysis

The conductor stepped into the path of moving equipment, was struck from the rear, and fell on the north rail of track No. 108. The wheels on the north side of the moving cars passed over his body. An autopsy report revealed nothing that could have been attributed to the accident.

Cause

The conductor failed to stand clear of moving equipment.

REPORT: 19

RAILROAD: Chicago and North Western Transportation Company

LOCATION: Niagara, Wisconsin

DATE: May 2, 1981

The Accident

A 59-year-old switchman was fatally injured on May 2, 1981, at about 11:55 a.m., in Niagara, Wisconsin. Employed by the Chicago and North Western Transportation Company, the switchman had 24 years of service.

Background

At Niagara, a spur track, adjacent to and south of the main track, extends 488 feet eastward from the main track switch and ends in an industry warehouse. The track is level for the last 138 feet inside the warehouse. At about 13 1/2 feet inside the warehouse, a concrete platform extends eastward on the south side of the spur track. The platform is about 43 inches above the top of the rail. Clearances between box car sides and the warehouse interior range from about 24 inches to 3 1/4 inches opposite a metal support stand.

The switchman had been regularly employed on Niagara switching assignments for 15 months before the accident.

The switchman was a member of a yard switching assignment crew that consisted of a switch foreman, two switchmen, an engineer, and a fireman. The crew had been on duty for 3 hours and 55 minutes at the time of the accident.

The employee last passed a test on the Consolidated Code of Operating Rules on June 5, 1980. His last physical examination was passed on August 29, 1978. His last record of attendance at safety meetings was in June 1980.

Circumstances of the Accident

Shortly before the accident, the switching crew was engaged in shoving four box cars that were to be placed on the warehouse spur track.

As they approached the accident site, the engineer and fireman were in the locomotive. The switch foreman was near the warehouse door, and a switchman was riding on the steps of the locomotive. The other switchman was riding on the side ladder of the lead car and directed the movement and coupling distances via radio to the engineer. At the time of the coupling, he radioed a stop signal. Immediately following this, the engine crew heard a groan or a shout from the radio. The sound was also heard by the switch foreman and a warehouse employee working on the warehouse platform.

The warehouse employee saw the switchman rise from the platform floor next to the concrete pillar, move from the pillar to a ladder, and ascend the ladder to the platform. Although the switchman repeatedly stated that he was not injured, the warehouse employee called an emergency rescue squad.

The switchman was taken by ambulance to a hospital where his primary injury was identified as a fractured pelvis. Four days after the accident, the switchman died from complications resulting from a fractured pelvis.

Applicable Rules

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

. . . . . .

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

(The Consolidated Code of Operating Rules)

Analysis

There were no witnesses to the employee's actions immediately before the coupling of the cars. The employee did not provide information concerning his actions. The switch foreman stated that he had asked the switchman what had happened, but the switchman did not know.

The switchman's shout was heard on the radio after his last transmission to stop the movement. This indicates that the injury must have occurred at the moment of coupling.

Switching requirements in the warehouse stipulate that cars must be spotted from a point on the warehouse platform because of the lack of clearance between the car sides and the platform.

The box car involved in the accident contained about 28 tons of paper rolls that were to be unloaded in the warehouse. After the accident, a roll weighing about 1,600 pounds was seen in a horizontal position and protruding slightly from the doorway on the platform-side of the car.

Cause

The accident was caused by the switchman's failure to place himself in a position of sufficient clearance between the side of the box car and the adjacent platform area.

A possible contributing factor was the shifted roll of paper which may have caused a decrease in the noted clearance.

REPORT: 20

RAILROAD: National Railroad Passenger Corporation

LOCATION: Baltimore, Maryland

DATE: May 8, 1981

The Accident

A 23-year-old maintenance-of-way crew watchman was fatally injured on May 8, 1981, at about 9:18 a.m., in the Johns Street tunnel in Baltimore, Maryland. Employed by National Railroad Passenger Corporation (Amtrak), the watchman had 4 years of service.

Background

The Johns Street tunnel is 0.25 mile south of the Baltimore passenger station. It consists of two main tracks, numbered 2 and 3 from the east; they are used for passenger and freight trains. The total length of the tunnel between portals is 1,162 feet. Facing north, the track is on a 1.34-percent descending grade, compounding in curvature from 5 degrees, 30 minutes to 8 degrees. On the west wall of the tunnel and adjacent to track No. 3, there are 16 manholes. The average distance between the manholes is 64 feet.

The watchman was a member of a maintenance-of-way crew assigned to work in the Johns Street tunnel. The employee was stationed south of the main crew to warn the main crew of approaching northbound trains or equipment movements.

The watchman passed the watchman's qualification test on August 22, 1980. His last physical examination was passed on March 27, 1981. His last hearing test was conducted on April 6, 1981.

Circumstances of the Accident

Train No. 180 consisted of one locomotive unit and five passenger cars. It left Washington, D.C., at 8:30 a.m. Since track No. 2 was out of service in the tunnel, the train was diverted to track No. 3 when it approached the Baltimore Station. This was the first train to use the tunnel after the maintenance crew began work.

The locomotive crew saw the crew watchman standing next to track No. 3 and the west wall when the locomotive entered the south portal of the Johns Street tunnel. After their field of vision was lost, they heard a noise that sounded as if they had hit something. The train stopped short of the north portal, and the engineer informed the maintenance-of-way crew of what had happened. Two crew foremen went to the rear of the train where they found the watchman. The employee's body had been severed.

Applicable Rules

4152. Employes working in tunnel in which there are manholes must occupy them on approach of a train, except when on bench wall when they must secure loose clothing, large or long coat, and, if possible, maintain handhold until train has passed.

(Amtrak Safety Rules and Instructions-Maintenance of Way Employes)

Analysis

The employee was aware of the oncoming train and alerted other crew members to its approach. He was familiar with working conditions in the tunnel and with the available safety manholes. Though crew members of the train saw the watchman before the accident occurred, there were no witnesses to the actual circumstances involved.

Cause

The employee failed to position himself in a safe location in the tunnel and was struck by the passenger train.

REPORT: 21

RAILROAD: Atchison, Topeka and Santa Fe Railway Company

LOCATION: Moline, Kansas

DATE: May 11, 1981

The Accident

A 29-year-old brakeman was fatally injured on May 11, 1981, at about 10:50 p.m., in Moline, Kansas. Employed by the Atchison, Topeka and Santa Fe Railway Company (ATSF), the brakeman had 7 years of service.

Background

The brakeman was a member of a road switching crew that consisted of two brakemen, a conductor, an engineer, and a fireman. After completing the required off-duty period, the crew went on duty in Chanute, Kansas, at 6 p.m. to operate train No. 1241, a local switcher, between Chanute and Winfield, Kansas. The train arrived at the "Moline Crusher" siding at approximately 10:05 p.m.

The yard of the Moline Rock Crusher Plant consists of six parallel tracks and a siding, laying east to west. Track No. 43, owned by the ATSF, is 1,192 feet long with an overhead rock-loading bin located 220 feet west of the east switch. The loading bin is supported by steel stanchions with a clearance of 7 feet, 8 1/2 inches from the center line of the track. The area is well lit by overhead lights.

A clearance sign is located approximately 700 feet east of the loading bin.

The brakeman was last examined on ATSF's Operating and Safety Rules on March 29, 1981. He regularly attended safety meetings; the last meeting was held on March 29, 1981. His last physical examination was passed in April 1980.

Circumstances of the Accident

After performing routine switching, the crew began shoving 32 gondola cars westward into track No. 43. The front brakeman was directing the movement via radio from the ladder on the southwest corner of the lead car ATSF 177582. As the cars were being shoved, the front brakeman communicated with the engineer

several times regarding the movement. The last message from the front brakeman to the engineer was that the cars were by the track scales, about 120 feet east of the track No. 43 switch. After shoving the cars an additional 300 feet at a speed of about 4 mph, the engineer felt something similar to a coupling and immediately stopped the movement. The engineer made several attempts to radio the front brakeman, but received no response. The flagman was standing on the south side of track No. 43, about 180 feet east of the loading bin, and saw the two lead cars derail to the south. The flagman saw the front brakeman reach for his radio either to communicate with the crew or to get off the car. The front brakeman was crushed between the derailed car and the stanchion. The flagman was the only witness to the accident. The conductor, the fireman, and the engineer were in the locomotive's operating compartment.

The front brakeman was found on the ground near the loading bin. He sustained a fractured neck and crushing chest injuries. He was pronounced dead at the accident scene.

Applicable Rules

759. There are overhead and side obstructions, also high voltage wires on or near the right of way which may be dangerous.

Employes must inform themselves as to location of such obstructions and wires, and use due care to avoid injury therefrom.

. . . . . .

(The Atchison, Topeka and Santa Fe Railway Company - Rules Operating Department)

Analysis

A post-accident examination revealed that heavy highway equipment crosses the track immediately east of the loading bin. This caused limestone dust to become packed on top of the rail. The lead truck of the lead car derailed to the south about 1 foot and then continued parallel to the track structure. The corner of the derailed car struck the loading bin's stanchions crushing the front brakeman between the southwest corner of the car and the stanchions.

The front brakeman had regularly performed switching duties at the Moline Rock Crusher Plant and was aware of the restricted clearances and the track conditions. It could not be determined why the front brakeman decided to ride the lead corner of the gondola in a restricted clearance area.

Cause

The accident was caused by the employee's failure to comply with a warning that the structure on the track would not clear if a person were on the side of a car.

A contributing factor was the accumulation of limestone dust on top of the rail which caused the car to derail.

REPORT: 22

RAILROAD: Philadelphia, Bethlehem and New England Railroad

LOCATION: Bethlehem, Pennsylvania

DATE: May 25, 1981

The Accident

A 27-year-old brakeman was fatally injured on May 25, 1981, at about 7:30 p.m., in Bethlehem, Pennsylvania. Employed by the Philadelphia, Bethlehem and New England Railroad, the brakeman had 7 years of service.

Background

The Bethlehem Steel Company's "Beam Yard" consists of eight parallel loading tracks on which various types of railroad cars are loaded using overhead cranes. Track No. 508 is used as the running track when movements are made through the beam yard.

The brakeman received his last instructions on safety rules on May 21, 1981. He passed his last physical examination on May 10, 1978.

Circumstances of the Accident

The switching assignment in the beam yard consisted of placing cars for loading on tracks No. 450 and No. 454 and placing cars for unloading on track No. 474.

Before the accident, the yard movement proceeded west on track No. 508, shoving five cars for loading and pulling eight cars for unloading. The conductor and one brakeman were riding the lead west car. The engineer and the second brakeman were in the locomotive cab.

As the yard movement approached the beam yard, it passed under crane "runs" 25 to 20. During the slow speed approach, the brakeman on the lead car activated the red strobe safety lights over track No. 508. This signalled the crane operators to stop working because a train movement was about to occur. The brakeman boarded the lead west car, and the movement slowly continued west through the crane runs. When the locomotive came to the end of crane run No. 20, the brakeman in the locomotive cab told the engineer to keep the consist moving. The brakeman got off, shut off the safety lights, and waited for the front end of the locomotive to reach him. At that time, the engineer looked

westward to see the shoving movement. When he looked back, he saw the brakeman fall between the locomotive and the cars. The engineer immediately stopped the movement and sounded the whistle for the forward crew members. The brakeman was found lying about 100 feet from crane run No. 20 across the south rail. He was pronounced dead at the accident site.

Applicable Rules

17.4 When getting on a moving locomotive make sure that you have a firm grip on the hand grabs and that the foot nearest the approaching locomotive is firmly placed in the corner of the step as you swing your body in toward the locomotive.

(Philadelphia, Bethlehem and New England Railroad Company Safety Rules)

Analysis

The beam yard is paved with blacktop so motor vehicles of all types can operate in the area. The brakeman was seen getting off the locomotive and waiting for the front of the locomotive to pass. The brakeman apparently failed to have a secure handhold, or lost his balance or footing, when he attempted to board the moving locomotive.

Cause

The accident was caused by the brakeman's apparent loss of balance, footing, or handhold while attempting to board a moving locomotive.

REPORT: 23

RAILROAD: Burlington Northern

LOCATION: Parkwater, Washington

DATE: May 28, 1981

The Accident

A 58-year-old car repairman was fatally injured on May 28, 1981, at about 9:30 a.m., in Parkwater, Washington. Employed by Burlington Northern, the repairman had 30 years of service.

Background

A double-door box car (BN 31546) arrived at the Parkwater freight car repair facility with one of the plug-type doors detached. The door was inside the car.

The freight car repairman was one of two carmen assigned to make repairs. Both were experienced in freight car repairs and were aware of the hazards involved in working on car doors weighing over 1,000 pounds.

The employee was issued a copy of the carrier's Safety Rule Book. As a member of the mechanical department, the employee was not required to pass examinations on safety or other carrier rules. He last attended a safety meeting on May 27, 1981.

Circumstances of the Accident

After repairs were made, the employees attempted to close the door and make final adjustments. The defective top-roller assemblies and operating cranks became disengaged from the top retainer. The door fell outward on the employee who was directly in its path.

The repairman was taken to a hospital where he died a few hours after the accident.

Applicable Rules

47. Know that roller-type doors and side doors on cars are properly tracked before operating them and, if not properly tracked, take necessary action to safeguard their use.

(Burlington Northern Safety Rules)

Analysis

The carmen replaced the right side of the connecting pipe, roller assemblies, and operating cranks on the door. The top-roller assembly and the operating crank were not properly secured because they were not welded to the connecting pipe. The left side of the top-roller assembly and operating crank were neither replaced nor repaired, although they were worn. The missing top-safety crank was not replaced. The door was rehung using an off-track crane, and the door stops were installed. The crane was then disconnected from the door.

It could not be determined why the two repairmen failed to make proper repairs to the door before attempting to replace it on the car nor could it be explained why they disconnected the crane before the door was properly secured.

Cause

The accident was caused by the employees' attempt to replace a defective freight car door without first making proper repairs to the door.

REPORT: 24

RAILROAD: Seaboard Coast Line Railroad

LOCATION: Vienna, Georgia

DATE: May 28, 1981

The Accident

A 27-year-old undercutter machine operator was fatally injured on May 28, 1981, at about 12:25 p.m. near Vienna, Georgia. Employed by the Seaboard Coast Line Railroad, the operator had 8 years of service.

Background

The accident occurred at Mile Post ANB-703.2 near Vienna, close to a No. 10 turnout switch extending from the main track to a siding. The main track, 73 feet west and parallel to State Highway 90, has rock ballast and is tangent and level.

An assistant foreman and six extra trackmen were working with a diesel-powered ballast undercutting machine. Two components of the machine were involved in the accident: a 9-foot trenching wheel that picks up the loosened ballast, and an undercutting bar that swings under the ties and moves the ballast to the outside.

Every work day, safety meetings were held by the foreman for the extra gang, but the machine operator did not attend. The assistant to the Division Engineer, however, talked to the operator about safety each morning.

Circumstances of the Accident

The undercutting machine cut the turnout side of the switch, was backed out onto the main track, and moved 115 feet north of the switch. At that location, the machine was turned around on its pedestal. The operator lowered the trenching wheel into a trench adjacent to the tie ends and started the wheel. The undercutting bar was parallel to the track, about 2 feet above the ends of the ties on the east side. The bar protruded along the main portion of the machine, about 83 inches beyond the trenching wheel.

The operator got off the machine, which was left running, and stepped into the side trench to repair the undercutter bar. As he worked, he moved backwards toward the revolving trenching wheel. When he got close to the trenching wheel, he became caught on the wheel and was pulled to the ground. He was lodged between the wheel and the ground, causing the machine to stall.

Several employees witnessed the accident. The machine operator was pronounced dead on arrival at a local hospital.

Applicable Rules

12. Employees must be alert for unsafe conditions and practices, and must correct them or report them to the proper authority.

. . . . . .

439. Before attempting to adjust, repair, clean or oil hydraulic, air, electric or other mechanical tool or machine, it must be shut down or source of power disconnected, bled off if necessary, and machine allowed to stop.

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

Analysis

Post-accident interviews with the witnesses revealed that on previous occasions they had seen the operator make repairs on the undercutter blade with the digging wheel turning.

The machine is equipped with a safety device that will lock the digging wheel in neutral; it was not used at the time of the accident. Four employees failed to take exception to this unsafe practice before the accident. This rule violation indicates that the employees at the accident scene were not familiar with the carrier's safety rules.

Cause

The operator stepped or slipped into the trenching wheel and sustained crushing injuries. He failed to shut down the machine before making repairs, as required by safety rules.

REPORT: 25

RAILROAD: Oklahoma, Kansas and Texas Railroad Company

LOCATION: Chickasha, Oklahoma

DATE: June 1, 1981

The Accident

A 32-year-old signal supervisor was killed on June 1, 1981, at about 5 p.m. near Chickasha, Oklahoma. Employed by the Oklahoma, Kansas and Texas Railroad Company (OKKT), the signal supervisor had 1 year of service.

Background

Prior to his employment with the OKKT the employee had 8 years of service with the Chicago, Rock Island and Pacific Railroad Company (RI) in the Signal Department.

A 1976 Chevrolet Suburban Custom Deluxe vehicle equipped with Fairmont hi-rail equipment was assigned to the employee in August 1980. The hi-rail guide wheels were adjusted for weight distribution in August 1980. New tires and guide wheels were installed on the vehicle in 1980. The right rear tire was replaced March 4, 1981, and the right front tire was replaced on May 29, 1981. Adjustments and tests of guide wheels for weight load or gauge were not made. Fairmont service instructions require 53 7/16 to 53 1/2 inches between guide wheels, measured from the back of the wheel flanges. The instructions also require each guide wheel weight to be set between 350 and 400 pounds. The employee did not have a Fairmont Service Manual or a pressure gauge jack to adjust weight distribution on the guide wheels.

The employee departed Fort Worth, Texas, on the morning of the accident and arrived at Duncan, Oklahoma, at about 2:45 p.m. Before his arrival at Duncan, the vehicle had struck a rock at a rail-highway crossing, tearing a 2-inch hole in the hard rubber tread of the vehicle's left-front hi-rail guide wheel. The employee left Duncan at 3 p.m. and arrived at Chickasha between 4:45 and 5 p.m.

The employee attended a division safety meeting on October 28, 1980. He received a copy of the Rules for Maintenance of Way and Structures on January 29, 1981. There was no record of the employee having been examined on the "Uniform Code of Operating Rules." His last physical examination was administered prior to his employment with the RI in December 1971.

Circumstances of the Accident

The employee left the Chickasha Depot traveling northward in the hi-rail vehicle between 4:45 and 5 p.m. About 1.9 miles north of the depot, the vehicle derailed and turned over once.

Evidence of a brake application was found about 50 feet beyond the point of derailment. The left wheels of the vehicle derailed between the rails and the right wheels were on the cross ties on the outside of the east rail. The left front wheel crossed the east rail about 81 feet from the point of derailment. The left rear wheel crossed the east rail about 108 feet from the point of derailment, and the front guide wheel assembly plowed into the dirt. This caused the rear of the vehicle to skid. When the rear guide wheel assembly plowed into the dirt, the momentum caused the vehicle to turn over and stop upright facing southeast. The cross ties, ballast, locked steering wheel and guide wheels prevented effective braking or steering of the vehicle after the derailment.

The weight of the vehicle and cargo was not properly distributed on the guide wheels. The right-front guide wheel was adjusted for 200 pounds and the left front for 212 pounds. The right rear was adjusted for 325 pounds and the left rear for 260 pounds. The manufacturer's recommended adjustment of the guide wheel weight is 350 to 400 pounds.

The gauge between the front guide wheels was 53 13/16 inches. The stud bolt adjustment lock nut for the right-front guide wheel was loose, and fresh threads on the bolt indicated that it had turned about 2 1/2 threads which would increase the weight load on the guide wheel. The vehicle's tires were not centered on the rail. A groove in the right-front tire indicated that 3 inches of tire tread was running on the field side of the rail, placing the weight of the vehicle on the inside portion of the right tires.

The employee was found hanging from the driver's window. His left foot was caught under the steering wheel. He was not wearing a seat belt.

Local police were called at about 6:30 p.m., and the coroner pronounced the employee dead at the accident site. The employee died from massive chest injuries.

Applicable Rules

52. When vehicles are equipped with safety belts, they must be used when vehicle is in motion.

53. The motor vehicle operator is responsible for knowing that the vehicle is in safe operating condition.

(Uniform Code of Safety Rules - Automotive Equipment)

. . . . . .

48. Who is authorized to operate Track Cars - only an employee who has been examined and instructed on the Rules of Maintenance of Way and Structures; has completed written examination Form 443; has been given physical examination for sight and hearing . . . will be permitted to operate track cars.

. . . . . .

50. Responsibility - Employees will be held responsible for the operation, care and maintenance of all track cars assigned to them. Report must be made to their superior officer when cars are in need of repair, or when in the opinion of the employee it is unsafe to operate. When car is considered unsafe, it must not be used.

51. Inspection and Maintenance --

. . . . . .

(2) When car is in need of repairs and the necessary repairs cannot be made by the employee responsible, a report will be made to the proper officer for authority to have repaired and unsafe conditions corrected.

. . . . . .

(Missouri-Kansas-Texas Railroad Company Rules for the Maintenance of Way and Structures)

Analysis

Post-accident investigation revealed several factors that contributed to the derailment. The weight on the guide wheels was below the manufacturer's standards. The gauge of the front guide wheels was in excess of the manufacturer's standards. The alignment of the guide wheels and vehicle tires on the right side of the vehicle was offset causing eccentric loading and wear on the tires.

The hole in the left front guide wheel tread combined with the unbalanced vertical forces on each guide wheel and the tight gauge on the front guide wheels probably caused vehicle instability when it reached a critical speed. There was no evidence to indicate that excessive speed or an object on the track could have caused the accident.

The investigation also disclosed that the stud bolt adjustment lock nut for the right-front guide wheel was loose. Fresh threads on the bolt indicated that it had turned 2 1/2 threads, which would increase the weight load on the guide wheel.

Alterations and repairs had been made on the hi-rail vehicle by the carrier, even though FRA personnel were assured that such action would not be initiated until an FRA specialist was advised and present. It could not be determined if the vehicle rolled over the employee's body or if he was struck in the chest by some object. There were no witnesses to the accident.

Cause

Failure to perform maintenance procedures on the hi-rail equipment caused the accident.

The hole in the left-front guide wheel tread which created excessive vertical and lateral forces and failure of the employee to use the seat belt were contributing factors.

REPORT: 26

RAILROAD: Chesapeake and Ohio Railway Company

LOCATION: Barboursville, West Virginia

DATE: June 2, 1981

The Accident

A 33-year-old laborer was seriously injured on May 28, 1981, at about 2 p.m., in Barboursville, West Virginia; he died on June 2, 1981. Employed by the Chesapeake and Ohio Railway Company (CO), the laborer had 4 years of service.

Background

The reclamation yard in Barboursville has a ladder track which extends through the yard and various tangent tracks which are dead-end tracks. The accident occurred on the ladder track while a locomotive crane, equipped with an electro-magnet, was unloading scrap track material from a gondola car.

The crane crew consisted of a crane foreman, a crane operator, and a laborer.

The laborer received his last safety rules instructions on May 26, 1981.

Circumstances of the Accident

At 1:40 p.m., the laborer informed the foreman that he had broken the side shield on his safety glasses and was going to the office to get a new pair. The foreman told him to go ahead and they would continue to unload the scrap material. At about 1:55 p.m., the foreman and the crane operator left the crane unattended when they went to a nearby yard office to get a drink of water and use the restroom. The crane operator left the magnet suspended inside the car. As they returned, they saw a hard hat being thrown from the car. Then they saw a glove being thrown out and heard someone call for help. The crane operator climbed to the crane deck, looked in the car, and saw the laborer lying on his right side with the magnet on top of him. The crane operator immediately went to the controls and lifted the magnet. The Barboursville rescue squad was called and the laborer was taken by ambulance to the Huntington, West Virginia, hospital where he died 4 days later.

Applicable Rules

24. Standing near cables, ropes, or chains that are under tension, or when heavy pull is being made; or standing in the path of or under load, bucket, or magnet of hoisting equipment is prohibited.

. . . . . .

392. Employees must place themselves in a position so they cannot be caught between an obstruction and the load being handled or the load-handling equipment. Be alert for unexpected swing or shifting of loads.

393. Do not leave hoisting equipment unattended with load, bucket, magnet, or other heavy attachments suspended.

(Chessie System Safety Rules)

Analysis

There were no witnesses to the accident. When he was hospitalized, the laborer told his brother, a CO signalman who arrived shortly after the accident occurred, that he was in the car throwing out scrap materials when the magnet moved sideways to the right, knocked him down, and then dropped on him.

The hoisting brake and the traversing mechanism brake must have released, if the employee was struck and knocked down before the magnet fell on him.

The laborer also told his brother that the magnet had dropped on previous occasions without the brake being released.

The carrier's post-accident inspection of the crane showed that the magnet would drop 6 to 8 inches if there were no operator at the controls.

Cause

The accident was caused by the inadvertant movement of the magnet. The employee's failure to stand clear of the suspended, unattended crane magnet and the failure of the crane operator to properly secure the magnet prior to leaving the crane unattended were contributing factors.

REPORT: 27

RAILROAD: Philadelphia, Bethlehem and New England Railroad

LOCATION: Bethlehem, Pennsylvania

DATE: July 13, 1981

The Accident

A 57-year-old conductor was fatally injured on July 13, 1981, at about 7:45 p.m., in Bethlehem, Pennsylvania. Employed by the Philadelphia, Bethlehem and New England Railroad, the conductor had 33 years of service.

Background

The accident occurred on track No. 1178, 102 feet west of its east switch, in the east yard of the Bethlehem Steel Company's coke plant yard. That yard consists of eight parallel tracks numbered, from north to south, 1169, 1168, 1167, 1166, 1176, 1177, 1178 and 1179. There is a middle ladder track from No. 1169 that runs southeast to No. 1178. A loading facility for the coke plant is located about 2,000 feet west of the accident site.

The conductor was in charge of switching crew No. 230. The two brakemen of the crew went on duty at 2:45 p.m., and the conductor and the engineer went on duty at 3:00 p.m. All the crew members had completed the required off-duty period.

The conductor last attended a safety rules meeting on July 6, 1981. He passed his last physical examination on August 16, 1971.

Circumstances of the Accident

The crew's assignment was to switch 33 cars in Shimersville yard and deliver the empty hopper cars to the coke plant's east yard. During the movement to the coke plant, the front brakeman was riding on the front of the locomotive. The rear brakeman and conductor were in the operating cab with the engineer.

The conductor contacted the coke plant's personnel for authorization to proceed. After obtaining permission, they proceeded east on track No. 1167 until they reached the middle ladder switches for the east yard. Since all the yard tracks were clear, the movement crossed over and continued east on track No. 1176. As the locomotive passed the middle switch, the rear brakeman got off the train to signal the engineer when the cars

were in the clear. The conductor and the front brakeman rode the locomotive to the east end. The conductor told the brakeman that he would get off at the clearance point and uncouple the cars after the movement stopped, and then cross the tracks to cut the locomotive off after the excess cars were set out. The brakeman was to get off the train at the east-end switch.

After the movement stopped, the conductor uncoupled the cars and signalled the engineer to pull eastward with five cars still coupled. When the movement cleared the switch, the front brakeman signalled the engineer to stop. The front brakeman relined the switch and noticed that it was lined for track No. 1178. As he gave a backup signal to the engineer, he saw that the conductor had walked from the clearance point of track No. 1176 and was standing on the roadway area.

After starting the backup movement, the brakeman walked toward the switch for track No. 1166. The engineer backed the movement to the clearance point for track No. 1178 and stopped. He waited for the conductor to uncouple the cars. When he did not see the conductor, he blew the whistle to signal the front brakeman to come to the engine. The two men walked along the engineer's side. At the rear of the cars they crossed the track and walked on the fireman's side. They noticed part of an arm sticking out from the west truck of the third car. They continued walking and found the conductor lying on his back inside the rail between the first car and locomotive.

Applicable Rules

4.2 In yard areas, employees must expect switching movements, at any time, on any track, in either direction. Always be on the alert for moving engines or cars, and keep a sharp lookout in both directions. Do not look backwards while walking; stop first and then turn around.

. . . . . .

4.5 STOP, LOOK, LISTEN and THINK before crossing tracks. Look in both directions and walk straight across. Always step over rails - never on the rail head.

4.6 Crossing closely in front of moving locomotives or cars is prohibited. When crossing tracks around the end of standing cars, allow at least 10 feet from the end of the car. If the car should move, you will have time to get off the track. Be on the lookout for engines or cars approaching on adjacent tracks.

. . . . . .

4.12 Keep a safe distance from passing cars to avoid injury from falling objects or projections.

. . . . . .

6.5 Crews must take proper precautions to protect leading end of movements.

(Philadelphia, Bethlehem, and New England Railroad Company Safety Rules)

Analysis

The conductor was last seen by the front brakeman standing clear of the yard tracks. While the backup movement was being made, the brakeman walked east to the next switch and did not continue to observe the conductor.

In the accident area the yard is flat and has a good walking surface of crushed stone.

The post-accident inspections revealed that a small piece of clothing was found on the east truck of the second car. No mechanical defects were found. The carrier's safety rules do not require a movement to be stopped when the engineer loses sight of a brakeman or conductor.

Cause

The accident was caused by the conductor's failure to stay clear of the approaching movement.

REPORT: 28

RAILROAD: Norfolk and Western Railway Company

LOCATION: Petersburg, Virginia

DATE: July 20, 1981

The Accident

A 31-year-old painter was fatally injured on July 20, 1981, at 3:40 p.m., in Petersburg, Virginia. Employed by the Norfolk and Western Railway Company (NW), the employee had 15 months of service.

Background

In the accident area, there is a 90-foot high structural steel light tower. The tower has four main structural upright angles, braced with smaller latticed structural steel angles and crossbars. A steel-structured ladder extends from the base to the top of the tower, where four floodlights provide lighting for the east end of the yard. A transformer is attached to the west side of the tower approximately 45 feet from the base. The primary electrical line which feeds into the transformer is 4,800 volts, reduced to 220 volts for the light system. The 4,800-volt circuit ends at the transformer. The source to disconnect the 4,800-volt supply line is located near a wooden pole 0.8 mile west of the light tower.

The accident occurred on a floodlight tower at the east end of Broadway Yard in Petersburg. On the day of the accident, the paint gang consisted of three painters and a foreman. They were painting the light tower. One painter was working from a pneumatically operated metal platform scaffold next to the south side of the tower; another painter was on the north side. The foreman and another painter were on the ground about 100 feet from the tower when the accident occurred.

The painter was issued a copy of the carrier's safety rules on May 13, 1980. The safety rule of the day was read to the paint gang before they began work.

Circumstances of the Accident

The painter on the north side of the tower, smelled something burning, looked up, and saw the employee slouched over a wood cross-arm next to the transformer. His left arm and upper torso were lying across the cross-arm and insulators. The foreman heard something fall, looked up, and also saw the painter slouched over the cross-arm and smoke coming from his body. The electric current was cut off by Virginia Electric Power Company employees who were nearby. The painter was lowered to the ground and was pronounced dead at the scene of the accident.

Applicable Rules

1249. Before beginning work on high voltage lines or equipment when decision has been made to deenergize them, employees should positively know that the current source has been disconnected. The deenergized lines or equipment shall then be grounded on both sides of the employees who will perform the work.

. . . . . .

1259. All wires and circuits are to be considered energized at all times unless employee has positive knowledge to the contrary. The insulation on tools or wires must not be relied upon for protection.

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

Analysis

On July 10, 1981, an NW bridge and building supervisor contacted the assistant master mechanic and requested that the power be cut off on the light tower at the east and west ends of Broadway Yard, beginning on July 13. The request was acknowledged, and the supervisor was assured that the power would be cut off. The assistant master mechanic instructed an assistant gang foreman to cut the power off on the morning of July 13. The assistant gang foreman, however, forgot to cut the power off. The paint gang sand blasted the light tower on July 15 and 16. On Friday, July 17, the bridge and building supervisor again contacted the assistant master mechanic and requested that the power remain off until further notice. The assistant master mechanic instructed the terminal maintenance foreman to leave the power off. The foreman informed the assistant master mechanic that he had no knowledge of the power having been cut off since he had been on vacation.

The terminal maintenance foreman contacted the assistant gang foreman and was informed that he did not cut the power off on July 10. The terminal maintenance foreman assumed responsibility for having the power cut off before the next working day.

Cause

The employee failed to make sure that the current source was disconnected. The carrier did not provide the gang with a safe working environment since the paint foreman and the bridge and building supervisor failed to assure that the power was cut off.

REPORT: 29

RAILROAD: Burlington Northern

LOCATION: Gillette, Wyoming

DATE: July 20, 1981

The Accident

A 31-year-old brakeman was fatally injured on July 20, 1981, at about 11:30 p.m., in Gillette, Wyoming. Employed by the Burlington Northern, the brakeman had 8 years of service.

Background

The accident occurred on track No. 3 of the classification yard. The yard consists of six parallel tracks extending east and west, the grade descends slightly eastward, and yard limits are established.

The brakeman was a member of a train crew that included an engineer, a conductor, and two brakemen. The crew had been on duty for 3 hours after completing the required off-duty period. Its assignment was to switch and re-block two local freight trains, and consolidate them into one train. The switching locomotive contained three diesel-electric units operating in multiple unit control.

Switching operations were performed at the east end of the yard. Movements were controlled by hand signals, using standard electric lanterns. There was no supplemental illumination for the yard.

The brakeman was last examined and passed the Consolidated Code of Operating Rules test on May 21, 1980. His last physical examination was passed on November 15, 1978. The carrier conducts frequent, informal safety meetings.

Circumstances of the Accident

Shortly before the accident, the conductor and front brakeman moved the seven east cars from track No. 3 to an adjacent track, leaving nine cars standing near the east end of track No. 3. While the rest of the crew members were engaged in other duties, the brakeman was acting as rear brakeman of the crew and proceeded

westward, coupling air hoses between the cars remaining on track No. 3. The conductor instructed the front brakeman to return to track No. 3 on the locomotive.

When the locomotive returned to track No. 3, the rear headlight was not illuminated. The front brakeman did not control the movement from the lead end of the locomotive consist, but boarded the control unit and had a brief conversation with the engineer. As the engineer backed the locomotive into the track, he was unable to see the cars remaining on that track. Observing the rear brakeman's lantern in the distance, he assumed the brakeman was standing at the east end of the cars and would use the lantern to direct the locomotive to a coupling.

The locomotive struck the east end of the standing cars at a speed of 5 to 7 mph. The engineer immediately made a full application of the independent air brake.

A carrier official in the area heard a noise that sounded like an over-speed coupling. He investigated and saw the rear brakeman's lantern lying on the ground. He found the brakeman lying face down on the south side of the south rail with his right arm and leg over the rail, crushed by the freight car wheels. The brakeman was pronounced dead at the scene of the accident.

Applicable Rules

18. Yard engines must display the headlight to the front and rear by night and at anytime the view is obscured by storm or fog. The headlight on the end that is coupled to cars may be dimmed or extinguished while so coupled.

    At night, if headlight fails, a white light must be used in its place.

. . . . . .

808(A). Before coupling to or moving cars or engines it must be known that they are properly secured and can be coupled to and moved with safety.

. . . . . .

M. . . . . .

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

. . . . . .

(The Consolidated Code of Operating Rules)

Analysis

A post-accident investigation disclosed that there were no unusual track, ballast, or ground conditions in the accident area. No mechanical defects were found that could have contributed to the accident.

The rear brakeman was coupling air hoses on the cars in track No. 3. After the over-speed coupling, the brakeman was run over by the wheels of the seventh car, and his body was dragged about 42 feet. The air hoses between the seventh and eighth rear cars were found partially coupled following the accident, but not in a locked position.

Although there were no witnesses to the injury, the physical evidence indicates that the rear brakeman was caught between the seventh and eighth cars and was coupling the air hoses when the impact occurred.

Cause

The accident was caused by the over-speed impact of the cars, when the brakeman was caught between the car ends coupling the air hoses.

A contributing factor may have been failure of the engineer to display a headlight to the front and rear of the consist.

REPORT: 30

RAILROAD: Missouri Pacific Railroad Company

LOCATION: North Little Rock, Arkansas

DATE: August 5, 1981

The Accident

A 47-year-old trackman was fatally injured on August 5, 1981, at about 11:40 a.m., in North Little Rock, Arkansas. Employed by the Missouri Pacific Railroad Company (MP), the trackman had 3 years of service.

Background

On the day of the accident, a maintenance gang, consisting of a track foreman and four trackmen, was repairing track at the east end of the yard on track No. 205.

At about 11:15 a.m., a flat tire was being repaired on the left-outside-rear wheel of a dump truck that was owned by a construction contractor and used on contract maintenance for the railroad. The repair was performed on MP property by a serviceman from a local truck-tire service company. After the tire was remounted, the truck was driven about 500 yards and positioned for loading near the east end of track No. 205 in the North Little Rock Terminal yard.

Circumstances of the Accident

Before the accident a contractor employee was operating a front-end truck loader, placing crushed rock and dirt into the dump truck. When the truck was loaded, a railroad trackman started to drive it away from the work area. After the truck had moved about 15 feet, the side ring separated from the left-rear-outside wheel. The ring was blown through the air about 25 feet and struck one trackman on his right arm, causing minor injuries. About 3 feet away, the rim struck another trackman in the face.

The trackman who was struck in the face was pronounced dead at the accident scene.

Applicable Rules

Not applicable.

Analysis

The serviceman who repaired the tire saw no unusual condition in the wheel parts. A post-accident investigation revealed no unusual condition of the wheel rim that might have caused the separation. The inner tube was split completely around the inside circumference. This could have caused or been the result of the explosion. No apparent reason could be found for the tube's failure.

The wheel remained intact during inflation and remounting, and was in service while the vehicle was driven and loaded. There was no reason to expect the subsequent separation. The employees who were struck by the ring had no reason to suspect that the truck wheel presented any threat to their safety. When the separation occurred, they were unable to protect themselves.

Cause

The accident was caused by an explosive separation of a tire rim from the truck wheel. The rim struck the trackman, inflicting fatal injuries.

REPORT: 31

RAILROAD: Chesapeake and Ohio Railway Company

LOCATION: Clifton Forge, Virginia

DATE: August 13, 1981

The Accident

A 55-year-old yard brakeman was fatally injured on August 13, 1981, at about 10:45 a.m., in Clifton Forge, Virginia. Employed by the Chesapeake and Ohio Railway Company (CO), the brakeman had 30 years of service.

Background

The Smith Creek Yard is composed of 11 yard tracks connected at both ends, and other auxiliary and spur tracks. The yard is north of main track No. 1. In the accident area, all tracks have a slightly descending grade from east to west. Yard limits are established.

The accident occurred on yard track No. 1. The brakeman was a member of a yard switching crew that consisted of a conductor, three brakemen, and an engineer. The crew had been on duty for about 3 hours and 40 minutes after completing the required off-duty period. The crew had been engaged in switching duties before the accident.

The employee was last examined and passed the Chesapeake and Ohio Railway Company's Book of Operating Rules June 6, 1980. His last physical examination was passed on August 7, 1981.

Circumstances of the Accident

Before the accident, Extra 8201 with 165 cars arrived from the east on main track No. 1 at 8:51 a.m. The yard conductor instructed the brakeman to uncouple 60 cars and line the switch from main track No. 1 to yard track No. 1. The engineer was to control the road locomotive units and shove the cars onto yard track No. 1. The brakeman was to ride the cut of 60 cars, apply the hand brake on the two east-end cars (BO 8084 and CO 81797), and bleed the air off the remaining cars after the cars stopped. The brakeman was last seen boarding the north side of the west end of freight car BO 8084.

After the cut of cars stopped, the locomotive units were uncoupled, and the other crew members performed switching duties in another location. When they returned, the yard brakeman had not returned.

The yard brakeman was found with his torso lying between the rails of yard track No. 1 and the other half of his body outside the south rail. Marks on the south rail and the ground indicated that the accident occurred 1,358 feet east of track No. 1's west switch. The brakeman was found 1,378 feet east of track No. 1's west switch.

Applicable Rules

87. Riding on cars, or steps and platforms of locomotives or cabooses without a secure hold is prohibited. Standing on top of any car near the end or sides, except when necessary while the car is undergoing repairs is prohibited.

88. Do not ride between cars, locomotives, or between locomotives and cars unless it is positively necessary in the performance of duty.

. . . . . .

(Chessie System Safety Rules)

Analysis

The first and second wheels of the east truck of the second car on the south rail showed evidence of having passed over the brakeman. There were no witnesses at the scene of the accident and the exact circumstances could not be determined.

Cause

The accident was caused by the employee's failure to exercise care and remain in a secure position on or around the freight cars during switching operations.

REPORT: 32

RAILROAD: Burlington Northern

LOCATION: Yuma, Colorado

DATE: August 15, 1981

The Accident

A 52-year-old division superintendent was fatally injured on August 15, 1981, at about 12:40 p.m. near Yuma, Colorado. Employed by the Burlington Northern, the superintendent had 28 years of service.

Background

The accident occurred at Mile Post 407.25, about 2 1/2 miles west of Yuma, Colorado. In the accident area, the track is tangent for several miles. Trains are operated on the single main track by signal indications of a traffic control system. The dispatcher authorizes the movement of on-track equipment between specific points and times by issuing a "CTC track-car" permit.

On the day of the accident, the division superintendent and the assistant superintendent were making an on-track inspection. They departed from Denver (Mile Post 541) in hi-rail vehicle No. 9594, equipped with hi-rail guide wheels for on-rail operation.

The superintendent was assigned to the Colorado Division on June 1, 1981. His last recorded attendance at a rules class was December 9, 1980. His last physical examination was October 16, 1980.

Circumstances of the Accident

The hi-rail vehicle was stopped by the superintendent to observe a track surface correction gang using on-track equipment. The hi-rail vehicle was then removed from the track at a road crossing and moved around the track gang on an adjacent public road to the next grade crossing near Mile Post 407.45. The hi-rail vehicle was then placed on the track at that ballast-filled grade crossing.

The superintendent remained in the vehicle while the assistant superintendent positioned the manually operated guide wheel assemblies. After traveling approximately 900 feet and accelerating to an estimated speed of 40 mph, the rear tires

derailed to the left and the front tires derailed to the right of the rails. After the derailment, the vehicle rolled over twice, coming to rest on its wheels. The superintendent sustained several fractures and internal injuries, and he died on August 18. The assistant superintendent was not injured.

Applicable Rules

92. When preparing a hi-rail vehicle for rail operation, the operator in charge must make a visual inspection of the guide wheel arrangement noting specifically, uneven or undue wear of guide wheel alignment, condition of safety pins and other wearing parts. After all four wheels are locked in the on-rail position, secure front wheels in the straight ahead position with the steering wheel lock located on steering column. To determine that guide wheel assembly and guide wheels are in proper alignment:

(1) Move vehicle with guide wheels locked in "down position" to a level or flat piece of track (not elevated or on curve).

(2) Observe that there is clearance between guide wheel flange and rail and that flanges do not ride or bind the rail. Track gauge should be checked to assure correctness.

. . . . . .

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

Analysis

A post-accident inspection of the vehicle revealed that all four guide wheels were in the highway travel position. The condition of the guide wheel assemblies indicated that they were not locked in the rail travel position at the time of the accident. In the derailment area, there were no guide wheel flange marks on the ties. The location of the derailment was determined by tire tracks on the ties and in the ballast.

Cause

The accident was caused by the failure to place the hi-rail vehicle's rail guide wheels in the rail travel position.

A contributing factor was the operator's failure to inspect the rail guide wheels for proper operating alignment.

REPORT: 33

RAILROAD: Burlington Northern

LOCATION: Chicago, Illinois

DATE: August 22, 1981

The Accident

A 57-year-old switchman was fatally injured on August 22, 1981, at about 3:20 p.m., in Chicago, Illinois. Employed by the Burlington Northern, the switchman had 15 years of service.

Background

Three main tracks run through the yard. Thirteen yard tracks are south of the main tracks, and five yard tracks are north of the main tracks. In the accident area, all tracks have a slightly ascending grade from east to west. The accident occurred on the upper north yard track.

The switchman was a member of a yard switching crew that consisted of a switch foreman, two switchmen, and an engineer. The crew had been on duty for 8 hours and 50 minutes after completing the required off-duty period.

The switchman was last examined and passed the Consolidated Code of Operating Rules test on November 17, 1976. His last physical examination was passed on December 20, 1978.

Circumstances of the Accident

The yard locomotive was coupled to a caboose and 50 empty TOFC cars. Twenty-five of the cars were to be placed on the upper north track, and the remaining cars were to be moved to an adjacent track.

When the cars started to move onto the upper north track, the switchman climbed on top of the first car. The upper north track has a capacity for 26 TOFC cars. The yardmaster counted the cars as they rolled into the track and when 25 cars were placed in the track, he stopped the movement, using radio communications. He then uncoupled the 25 cars from the remaining cut of cars. The switchman involved in the accident did not have a radio, and did not have any duties pertaining to the movement.

The yardmaster became aware of the accident when an employee of the TOFC facility informed him that the switchman had been run over near the west end of the track. A security guard in the area adjacent to the tracks saw the switchman standing on the car prior to the accident. Shortly thereafter, the guard heard a call for help and saw that the switchman had been run over by the cars. The guard immediately called for an ambulance.

The switchman sustained compound fractures of both legs, which were amputated after he was hospitalized. He died 2 days later.

Applicable Rules

GETTING ON AND OFF MOVING EQUIPMENT

73. Employees must:

. . . . . .

C. When getting off, the trailing foot (in the direction of movement) should strike the ground first, which will direct employee away from the car.

ON LOCOMOTIVES, CARS, TRAINS AND MOVING EQUIPMENT

82. Employees must not:

. . . . . .

C. Stand

. . . . . .

5. Within 10 feet of end of any moving flat car.

(Burlington Northern Safety Rules)

Analysis

The rear wheels of the first car and the front wheels of the second car showed evidence of passing over the switchman. There was no evidence that the lead truck of the first car passed over him. There were no witnesses to the accident, and the exact circumstances could not be determined. It was not known why the switchman rode the car into the track.

Cause

The accident was caused by the switchman's apparent failure to maintain a safe distance from moving equipment. He fell off the car, or was getting off and fell under the car.

REPORT: 34

RAILROAD: Norfolk and Western Railway Company

LOCATION: Wakefield, Virginia

DATE: August 25, 1981

The Accident

A 52-year-old conductor was fatally injured on August 25, 1981, at 2:15 p.m., in Wakefield, Virginia. Employed by the Norfolk and Western Railway Company, the conductor had 34 years of service.

Background

In the accident area, from south to north, the track layout consists of an east main, west main, and a passing siding known as "long siding." An industry spur, with a facing point switch for westward movement, emerges from the north side of "long siding." A hand-thrown facing point switch with a pipe-connected derail connects the east end of "long siding" to the west main. The derail is designed to protect against eastbound movements on "long siding." The grade in the accident area is almost level.

On the day of the accident, the crew of 3N70C, a local freight train, consisted of an engineer, a conductor, and two brakemen. It went on duty at 7:15 a.m. at Crewe, Virginia, after completing the required off-duty period.

The conductor and head brakeman had been issued a copy of the carrier's operating rules and last attended the carrier's rules class on March 18, 1981.

Circumstances of the Accident

The crew worked eastward to Suffolk, Virginia; at that point, the westward trip was started. The conductor had instructions to place an empty box car on the industry spur track at Wakefield.

The train stopped in Wakefield on the west main track, approximately 0.25 mile east of the east switch at "long siding." The rear brakeman made a cut behind the ninth car, NW 702323, and the conductor closed the angle cock on the west end of the car and bled the air brake system. The head brakeman walked westward to the east siding switch to be in position to handle the switch to drop the car into "long siding."

The conductor boarded the west end of the ninth car and signalled the engineer to proceed westward. The movement reached a speed of about 12 mph. The conductor cut the rear car off and signalled the engineer to increase the train speed. When the locomotive units and eight cars cleared the east siding switch, the head brakeman threw the switch, permitting the ninth car to enter "long siding." When the free-rolling car cleared the east siding switch, the head brakeman restored the switch to normal position. The operation of the switch restored the derail to the derailing position immediately in front of the free-rolling car.

The engineer saw the conductor grasping the brake ladder with one hand and applying the vertical gear-type hand brake with the other hand. When the lead wheel of the ninth car struck the blunt end of the derail, the front truck of the car derailed. The impact of the car striking the derail, or the impact from the derailment, caused the conductor to fall from the car. He was found pinned under the north side of the lead truck. He sustained massive injuries to the chest and abdomen, and died.

Applicable Rules

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

104(g). . . . . .

Employees in train, engine, and yard service must keep in mind the location of derails at all points.

(Norfolk and Western Railway Company Operating Rules)

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

. . . . . .

(b) See that no other employees are in a position to be injured.

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

Analysis

A post-accident investigation revealed that the head brakeman was employed by the carrier as a brakeman for 7 years and held the assignment of head brakeman for 2 months before the accident. He had worked at this location during the 2-month period and should have been familiar with the switch operation and the pipe-connected derail.

Cause

The accident was caused by the failure of the head brakeman to assure that the car cleared the derail before he returned the switch to normal position.

REPORT: 35

RAILROAD: Burlington Northern

LOCATION: Bellingham, Washington

DATE: September 3, 1981

The Incident

A 47-year-old track inspector died on September 3, 1981, at 4:30 p.m., in Bellingham, Washington. Employed by the Burlington Northern, the inspector had 13 years of service.

Background

Not applicable.

Circumstances of the Incident

The track inspector completed inspection of his section and met another inspector at about 2 p.m. At that time, the track inspector told the other inspector that he had chest pains and was nauseated. Both inspectors got on their rail motor cars and returned to Bellingham. Upon arrival at Bellingham, the track inspector collapsed and was taken to a local hospital, where he was pronounced dead.

Applicable Rules

Not applicable.

Analysis

Not applicable.

Cause

An autopsy revealed that the cause of death was cardiac arrhythmia due to acute and chronic coronary occlusion.

REPORT: 36

RAILROAD: Southern Pacific Transportation Company

LOCATION: Cottage Grove, Oregon

DATE: September 10, 1981

The Accident

A 55-year-old conductor was fatally injured on September 10, 1981, at about 4:45 p.m., in Cottage Grove, Oregon. Employed by the Southern Pacific Transportation Company, the conductor had 31 years of service.

Background

An industry track connects at its west end to a siding that parallels the main track. A fence is parallel and adjacent to the siding. There is a sliding-type gate which is normally open.

The employee was a member of a train crew that consisted of a conductor, two brakemen, an engineer, and a fireman. The crew reported at 8:35 a.m. after completing the required off-duty period.

The employee was last examined on the Southern Pacific's "Rules and Regulations of the Transportation Department" on March 30, 1981. He attended at least five safety classes during the 9-month period before the accident.

Circumstances of the Accident

The crew performed switching in and around the Cottage Grove area and arrived at the accident site about 4:30 p.m. During switching operations at this location, three cars were cut off in motion toward the industry track. The rear brakeman rode the lead car to control the speed of the movement with the hand brake. The front brakeman stayed with the locomotive and the remaining cars.

The conductor was standing near the junction of the industry track and the siding, on the opposite side of the track from where the engineer and brakemen were working. As the three cars passed at about 5 mph, the conductor mounted the rear ladder of the trailing car as it passed through the gate. The conductor's body hit the gate and he was knocked to the ground. He was taken to a local hospital. The conductor sustained massive head and internal injuries and died at 9:50 p.m.

Applicable Rules

GENERAL RULES

. . . . . .

P. . . . . .

There are numerous structures with impaired clearances and employes must be familiar with their location. Employes must not ride on side of cars while passing points where there are impaired clearances, equipment or material fouling track.

When riding on side of car employes must look in the direction of movement for impaired clearances, equipment or material fouling track . . . .

(Southern Pacific Transportation Company Rules and Regulations of the Transportation Department)

Oregon State Administrative Rule for Standard Side Clearances (Chapter 860.44-105) requires a minimum 8 foot 6 inch clearance between the center line of track and a post, pipe, or similar obstruction.

(Oregon State Administrative Rule)

Analysis

The carrier's engineering department examined the accident site and found the clearance between the center line of track and the gate to be a maximum opening of 6 feet, 10 1/4 inches.

The gate is opened by plant personnel and usually remains open until the plant is closed for any reason. According to the front brakeman, the gate was not fully open at the time of the accident but was opened by an unknown person before other witnesses arrived.

A re-enactment of the accident was made using the same equipment. The distance between the freight car and the gate, when fully opened, was 21 1/2 inches.

Cause

The employee failed to observe the close clearance of gate and fell from the freight car on which he was riding.

Contributing to the accident was the fact that the clearance did not meet minimum Oregon State clearance standards.

REPORT: 37

RAILROAD: Illinois Central Gulf Railroad

LOCATION: Chicago, Illinois

DATE: September 14, 1981

The Incident

On September 14, 1981, a 35-year-old security guard was shot at the Illinois Central Gulf Railroad (ICG) commuter station in Chicago, Illinois. Employed by the Lloyd's Detective Agency, the guard had 3 years of service.

Background

The ICG hired the employee from the Lloyd's Detective Agency to guard maintenance-of-way and track equipment at the 59th Street commuter station. The security guard went on duty at about 6 p.m. He was wearing a uniform but was not armed. He was carrying an ICG radio for communications with ICG dispatchers.

Circumstances of the Incident

At 11 p.m., two dispatchers heard garbled words over the radio, but could not determine what was said. A short time later, the security guard was found under the station platform. He had been shot twice. He was taken to a local hospital. He died at about 6 a.m. on September 15, 1981.

Applicable Rules

Not applicable.

Analysis

The incident is under investigation by the Chicago Police Department.

Cause

The security guard was shot by an unknown assailant.

REPORT: 38

RAILROAD: Burlington Northern

LOCATION: Rochelle, Illinois

DATE: September 21, 1981

The Accident

A 54-year-old brakeman was fatally injured on September 21, 1981, at about 3:15 p.m., in Rochelle, Illinois. Employed by the Burlington Northern, the brakeman had 34 years of service.

Background

Two main tracks run through the Carnation Plant yard. Five yard tracks are south of the main tracks. In the accident area, all the tracks have a slightly descending grade from east to west. The accident occurred on the No. 2 yard track.

The brakeman was a member of a road switcher assignment crew that consisted of a conductor, two brakemen, a fireman, and an engineer. The crew had been on duty for 9 hours and 15 minutes after completing the required off-duty period.

The employee was last examined on the Consolidated Code of Operating Rules on December 10, 1979. His last physical examination was passed on September 9, 1980.

Circumstances of the Accident

A locomotive was coupled to a caboose and 17 freight cars. The cars were being switched from east to west. One car was cut off in motion and permitted to roll into track No. 2. The next car rolled into track No. 1. Another car rolled into track No. 2 and hit the first car which had not rolled clear of the lead track. The two cars did not couple.

The rear brakeman was just west of the track No. 2 switch. The front brakeman was just east of the track No. 1 switch. The front brakeman was relaying hand signals from the rear brakeman to the engineer. The rear brakeman walked west and gave a hand signal for the cut of cars to be moved westward, coupled to the two cars in track No. 2, and then shoved clear of the lead track. The rear brakeman gave a hand stop signal.

The cars being shoved coupled to the last car placed into track No. 2. The rear brakeman stepped between the two cars, and the slack ran out after the cars coupled to the last car on track No. 2. When the movement stopped, the front brakeman could not see the rear brakeman. He walked west and found the brakeman with both legs severed under the car.

The brakeman was taken to a local hospital where he died about 7 hours later.

Applicable Rules

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

(Burlington Northern Safety Rules)

Analysis

The first and second wheels on the south side of the second car switched into track No. 2 passed over the brakeman. He apparently stepped between the first and second cars to open a coupler knuckle on one of the cars.

Cause

The brakeman failed to stand clear of equipment being switched and was run over by a freight car.

REPORT: 39

RAILROAD: Denver and Rio Grande Western Railroad Company

LOCATION: Bond, Colorado

DATE: October 2, 1981

The Accident

A 25-year-old welder was fatally injured on October 2, 1981, at about 5:40 p.m., in Bond, Colorado. Employed by the Denver and Rio Grande Western Railroad Company, the welder had 6 years of service.

Background

The accident occurred at a work site in the train yard at Bond on the east side of the run-around track, near the south end of the yard. At the time of the accident, maintenance work was being performed on a front-end loader. The carrier's work equipment identification number of this machine is L13. The machine is commonly described as a rubber-wheeled, front-end loader. It is equipped with a hydraulically operated, four-yard-capacity, general purpose dirt bucket. The bucket weighs 3,000 pounds, measures 9 feet 4 inches wide, and has an average depth of 4 feet.

On the day of the accident, the employee went on duty at 7:30 a.m. His work assignment was to weld worn spots on the dirt bucket which attaches to the L13 front-end loader.

The employee was last examined on the carrier's safety rules on January 27, 1981. His last physical examination was June 10, 1975. Daily safety meetings are conducted by the carrier's work foreman at the beginning of each day's work or shift.

Circumstances of the Accident

With the aid of the machine operator, the welder disconnected the dirt bucket assembly from the loader's hydraulic arm units. The two employees then maneuvered the bucket into an upside-down position, with the bucket's teeth facing toward the machine and the back edge resting firmly on the ground. The welder also fastened a heavy-duty, 12-foot chain from the machine to the bucket assembly. The chain was used as a safety securement to prevent the unattached bucket from rolling backwards during the welding procedures. At about 10 a.m., another welder arrived at the work site to assist with the welding.

The two welders worked on the welding project until about 5 p.m., when the welder helper left. The remaining welder finished the welding work at about 5:30 p.m. He sent the machine operator to a nearby tool truck to get equipment to aid in removing the pin that secured the safety chain attached to the machine.

When the machine operator returned, he discovered that the bucket had rolled away from the machine. The welder was found lying on the ground in front of the bucket, with his back against the trucks of a nearby boxcar, about 18 feet from the work site. He sustained massive internal chest injuries when the unsecured bucket assembly rolled over and struck him. He was pronounced dead on arrival at the Vail Medical Center, at approximately 6:20 p.m.

Applicable Rules

GENERAL RULES

M. . . . . .

Every precaution must be taken to prevent injury to employees, and they are prohibited from doing any work in a manner that might jeopardize their safety.

. . . . . .

WORKING ON OR ABOUT MACHINERY

672. Secure material properly before performing machine work on it.

(Denver & Rio Grande Western Railroad Company
Safety Rules Operating Department)

Analysis

There were no eyewitnesses to the accident; however, the welder was last seen standing on the bucket preparing to unhook one end of the safety chain. The welder unhooked the safety chain from the machine and either walked to the edge of the bucket or jumped from the bucket to the ground. Apparently this motion caused the bucket to roll away from the machine. The bucket rolled about 9 feet. One end of the safety chain was found unhooked. The welder was struck on the left shoulder and chest area by the bucket as it rolled.

The machine operator did not see the accident from his position at the tool truck. The noise from the welding machine prevented him from hearing it. He was away from the accident site for a period of about 30 seconds.

It was reported that the welder had performed this kind of welding many times during his employment with the carrier.

Cause

The accident was caused by the failure of the welder to place himself in a safe position before unhooking the safety chain.

REPORT: 40

RAILROAD: Consolidated Rail Corporation

LOCATION: King of Prussia, Pennsylvania

DATE: October 10, 1981

The Accident

A 49-year-old yard conductor was fatally injured on October 10, 1981, at about 3:45 a.m., in King of Prussia, Pennsylvania. Employed by the Consolidated Rail Corporation (Conrail), the conductor had 28 years of service.

Background

The Abrams Consolidated Yard Terminal is a flat switching terminal running east and west, consisting of Abrams and Seaboard yards. In the accident area there are seven tracks, designated from the south as tracks Nos. 6 through 12, with a switching lead on each end. The heavy side yard is located on the south side of track No. 6, and the tracks are designated from the south as Nos. 1 through 5. Yard crews operate in this area under the direction of the Yardmaster at Abrams. There is a slight grade from west to east.

The employee was a member of a yard crew that consisted of an engineer, a fireman, a yard conductor, and two switchmen. It went on duty at 11:30 p.m. at Abrams Consolidated Yard Terminal on the day before the accident.

The conductor's last physical examination was held on May 14, 1980. He was last instructed on the carrier's book of rules on May 5, 1981. He became the regular conductor on the yard assignment on July 21, 1981, and attended a safety meeting on September 25, 1981.

Circumstances of the Accident

After the crew went on duty at Abrams yard, the conductor discussed the work with the yardmaster. The conductor received the track switch lists, and gave copies of the list to the switchmen as they discussed them. After leaving the yard office, the conductor and rear switchman had operating portable radios to communicate with each other. The locomotive was also equipped with an operating radio.

On the morning of the accident, the crew performed general switching duties in the Seaboard yard. Before the accident, the crew pulled a cut of cars west from the Seaboard yard through track No. 11 to the west end of Abrams west side light yard. The crew switched this cut of cars. The front switchman made the cuts, the rear switchman handled the switches, and the conductor did the field work which included coupling hoses, applying hand brakes, and insuring that the couplings were made. The switching operation involved dropping three single cars (GATX 96825, CR 146253, and PC 173125) to track No. 8, a clear track. After completion, the conductor told the engineer, via radio, to proceed to track No. 10 and couple onto the cars on that track.

The switchmen knew that they would pull the cars and the conductor would stop them and make the cut, just clear of track No. 12 behind the 11th car which would go to track No. 8. The conductor made the cut and rode the cars. The switchmen got off the locomotive at the switch for track No. 8. The rear switchman watched the cars as they passed, checking them against his switch list. He noticed that the conductor had made the cut behind the 10th car. He told the front switchman, who rode the cars up to track No. 4 switch. The rear brakeman called to the conductor that he did not have the car for track No. 8. The conductor looked at his switch list and commented ". . . you're right." He started walking east between tracks No. 8 and No. 9. The switchmen switched the 10 cars according to the switch lists.

After switching the first cut, the switchman coupled the remainder of the cars on track No. 10 and pulled them. The rear switchman noticed that the conductor was not in sight. The switchman switched a caboose to track No. 2 and since the rear switchman did not see the conductor, he rode a cut of cars onto track No. 6, a clear track. The next cut of cars was going to track No. 12. When the rear switchman still did not see the conductor, he called him on the portable radio but received no answer. He then contacted the engineer to see if his radio was functioning. The engineer stated that it was.

The switchman assumed that the conductor was on track No. 12 coupling hoses and rode the car to track No. 12. As the switchman was riding on the ladder, he noticed a light near track No. 8. He stopped the car on track No. 12. He found the severed body of the conductor under the fourth car. His lower torso was in the gauge of track No. 8, and the upper portion of the body was on the field side of the north rail.

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.

(b) Going between or around the end of equipment.

(c) Moving out from between or under equipment.

. . . . . .

1711. Before fouling, going between or under STANDING equipment for inspection, adjustment, repairs or any other purpose:

(a) Arrangements for protection must be originated and terminated only by the employee who fouls, goes between or under the equipment.

(b) Have a thorough understanding with other employees involved so that no signals to move will be given.

(c) Make sure that protection has been provided against any approaching equipment on the same track.

. . . . . .

(i) Know that the equipment will not move.

. . . . . .

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

Analysis

A post-accident inspection of the accident area and equipment disclosed no conditions or defects that could have attributed to the accident.

A hand brake had been applied on the east car (GATX 96825) on track No. 8, the air hoses were coupled between this car and car CR 146253; the air hoses were not coupled between CR 146253 and PC 173125 or between PC 173125 and CR 492424. Blood was found on the R1 and R2 wheels of car CR 492424. The conductor's portable radio was tested and found to be in working condition. A fresh hand print was found on the uncoupling lever of car

CR 492424. No other marks were noted. The uncoupling of cars was done by the switchman from the north side of the car. Freight cars were standing on tracks No. 7 and No. 9, causing close clearances and limited visibility.

There were no witnesses to the accident, and the exact circumstances of the accident could not be determined. Apparently the conductor was performing field work on track No. 8 and was in the gauge of track No. 8 at the time of the accident.

Cause

The conductor failed to take the necessary precautions and was working in a hazardous position during switching operations.

REPORT: 41

RAILROAD: Chesapeake and Ohio Railway Company

LOCATION: Detroit, Michigan

DATE: October 16, 1981

The Accident

A 58-year-old brakeman was fatally injured on October 16, 1981, at approximately 2:47 p.m., in Detroit, Michigan. Employed by the Chesapeake and Ohio Railway Company (CO), the brakeman had 30 years of service.

Background

The accident area is a switch yard between Southfield and Greenfield Roads. The track layout, from north to south, consists of North No. 1 Track, West Detroit Branch Main, South 1, South 2, and South 3. It is approximately 1 mile from the point of the accident to the Massey-Ferguson Plant.

The CO yard crew consisted of an engineer, two brakemen, and a conductor. The crew went on duty at 6:30 a.m. at the Union Belt Railway's Fullerton Yard. The Union Belt Railway is jointly owned and uses crews from each participating railroad. The crews operate under their own railroad's timetables and operating rules, as well as under the Union Belt Railway's special instructions.

The brakeman's last physical examination was held on January 2, 1975. He last attended an operating rules class on June 11, 1981. The CO holds regular rules and safety classes every 2 years. A rule-of-the-week is posted.

Circumstances of the Accident

After completing its normal switching duties during the day, the crew was informed that the Massey-Ferguson Plant would require a second switch late in the afternoon. The crew then placed cars on various tracks to expedite switching once the engine returned from the Massey-Ferguson Plant. The caboose remained with five cars on the West Detroit Branch Main, east of Greenfield Road.

The second switch was made at the Massey-Ferguson Plant at about 2 p.m. Coming out of the plant, the conductor positioned himself on the southeast deck of the lead car, UP 52060. The brakeman was on the northeast corner of the deck of the same car. The engineer proceeded to shove the cars through a crossover and onto track No. 1. The cars were shoved through the yard about 1 mile. The engineer reduced the throttle preparing to stop and couple onto a car. The consist was coasting at about 4 mph.

Anticipating a slow or stop signal, the engineer and front brakeman were watching the crew members positioned on either side of the train. Each saw a slow signal. The front brakeman turned to the engineer to tell him that he had a slow signal and noted that the engineer was already braking the engine. The engineer gradually set the independent brakes on the locomotive.

The front brakeman turned to watch for additional signals from the other brakeman and saw that the other brakeman was not positioned on the lead car. The conductor, who was on the other side of the car, could not see the other brakeman since a tractor obstructed his view. The conductor stated that he saw something flash by his eye, but could not be sure what it was. He gave a full stop signal, to prepare the coupling to another car. When the conductor descended from the car, he saw that the brakeman had fallen between the rails and was run over by the lead set of wheels of the car.

Applicable Rules

82. When on cabooses, cars, or locomotives, employees must exercise care to avoid injury from slack action or from sudden start to stop . . . .

87. Riding on cars, or steps and platforms of locomotives or cabooses without a secure hold is prohibited. Standing on top of any car near the end or sides, except when necessary while the car is undergoing repairs is prohibited.

(Chessie System Safety Rules)

Analysis

The front brakeman received a signal to slow the train from the other brakeman. He turned to relay this information verbally to the engineer. When he turned back to watch for further signals, the other brakeman was not in view. Since there were no witnesses to the accident, the actual circumstances could not be determined. The conductor stated that the slack run-out was minimal, and the movement of the tractors could not have been a factor.

Cause

The brakeman apparently attempted to step to the end of the flat car after signalling the movement to slow down, and he failed to maintain a firm handhold.

REPORT: 42

RAILROAD: Southern Pacific Transportation Company

LOCATION: Algoma, Oregon

DATE: October 16, 1981

The Accident

A 57-year-old track laborer was fatally injured on October 16, 1981, at 10:23 a.m., in Algoma, Oregon. Employed by the Southern Pacific Transportation Company, the laborer had 18 years of service.

Background

At Algoma, a siding parallels a single main track to the south. At the eastern approach to the accident area, there is a 30-minute curve extending 1,320 feet to the left, then tangent for 120 feet to the point of the accident and beyond. The grade is level. The accident occurred on the main track near the west end of Algoma siding.

The employee was a member of a track maintenance crew that consisted of a foreman and four laborers. The crew reported for duty at Chiloquin, Oregon, at 7 a.m. on the day of the accident and later travelled by highway vehicle to Algoma to install rail anchors on the siding track.

The employee passed a physical examination on July 3, 1963. The carrier does not require track laborers to be examined on either operating rules or safety rules.

Circumstances of the Accident

The foreman observed a lighted block signal at the west end of the siding, which indicated the approach of a train on the main track. He informed crew members of the approaching train and stated that each laborer acknowledged the warning. Shortly thereafter, the foreman saw the train at a distance of about 2,000 feet and called out a second warning. He stated that each crew member acknowledged the second warning and moved on either side of the main track to make a roll-by inspection.

The train, Extra UP 3292 West, was en route to Klamath Falls, Oregon, with 3 locomotive units and 78 cars. Shortly after departing Eugene, the air horn on the lead locomotive unit became stuck in the open position. The train proceeded about 17 miles to Dougren, with the air horn sounding continuously. At Dougren, the device was rendered inoperative. Between Dougren and Algoma, a distance of 171 miles, the train was operated using the locomotive bell -- the only warning device available to the engineer. It appears no attempt was made to transfer one of the two trailing units to the head end.

The foreman stated that after he warned the crew of the approaching train, he continued to mark the siding for the application of rail anchors. He looked up just as the employee, who was adjacent to and foul of the main track, was struck by the locomotive. The employee was bent over with his back to the approaching train, looking into a burlap sack lying on the ends of the ties. The foreman stated that he heard the train brakes being applied in emergency as the employee was struck. The only audible warning was the locomotive bell, which the foreman did not hear until the locomotive had passed him.

Applicable Rules

MM. Employes must exercise care to avoid injury to themselves or others . . . .

They must expect the movement of trains, engines or cars at any time, on any track, in either direction.

. . . . . .

M817. Employes must keep a sufficient distance from passing trains to avoid possibility of being struck . . . . They must not depend upon others to notify them of approaching trains, engines or cars.

(Southern Pacific Transportation Company Rules and Regulations for the Maintenance of Way and Structures)

14. ENGINE WHISTLE SIGNALS

. . . . . .

In case of whistle failure, speed of train must be reduced to not exceeding 20 MPH and bell rung continuously when approaching and passing through stations, yard limits, over crossings, and on curves. Repairs must either be made or a unit with operative whistle must be added at first available point.

(Southern Pacific Transportation Company Rules and Regulations of the Transportation Department)

Analysis

According to the engineer, the train was moving on a curve, reducing its speed for a 30-mph slow order area west of Algoma, when the track crew was seen. The men appeared to be taking positions on both sides of the main track. When the train was about 300 feet from the track maintenance crew, the engineer saw that one man was not clear of the main track. The train's brakes were applied in emergency, but the man was struck by the locomotive before its speed could be materially reduced.

Track crew members stated that the employee had been warned and was aware of the approaching train.

Cause

The accident was caused by the employee's failure to remain clear of the approaching train. Contributing factors were an inoperative locomotive air horn and failure to operate the train at a speed not to exceed 20 mph.

REPORT: 43

RAILROAD: Peoria and Pekin Union Railway Company

LOCATION: Creve Coeur, Illinois

DATE: October 20, 1981

The Accident

A 31-year-old carman was fatally injured on October 20, 1981, at 10:30 a.m., in Creve Coeur, Illinois. Employed by the Peoria and Pekin Union Railway Company, the carman had 13 years of service.

Background

The truck trailer yard is part of the Peoria and Pekin Union Railway yard and consists of one track, "Long Track," which is 800 feet long. The track runs north and south. The track contained eight TTX cars with trailers to be unloaded. The unloading track and the storage area are level and covered with "slag" ballast. The accident occurred about 500 feet from the north end of the Long Track.

An off-track vehicle was being used. The vehicle is designed to load and unload trailers and containers from flat cars. The vehicle is operated by a hydraulic system and is mounted on four large wheels with rubber tires. Four arms straddle the container or trailer. Steel shoes, connected at the end of each arm, move inward and outward for loading or unloading. The operator's vision is restricted when loading or unloading trailers or containers. When the operator is in position, only the trailer or container side facing the operator can be seen.

The carman was assisting the crane operator by preparing the trailers and containers for loading and unloading.

The carman attended the carrier's Transportation and Safety Rules class on August 10, 1972.

Circumstances of the Accident

On the day of the accident, the carman reported for duty at 6:45 a.m. After unloading two trailers from the first TTX car on the south end of Long Track, the carman gave the operator a hand signal to move into position on the next TTX car. The operator moved the off-track vehicle into position on the east side of the next trailer, and lowered the lifting arms into place on the west side of the trailer. From this position, the operator could not see anyone on the west side of the trailer.

The operator prepared to lift the trailer off the TTX car, looked around for a hand signal from the carman, but could not see him. The operator climbed down from the off-track vehicle and tried to locate the carman. The operator found the carman pinned between one arm and steel shoe of the vehicle and the west side of the trailer. The operator immediately went back to the vehicle and released the holding pressure on the four arms allowing the carman to fall to the ground.

The carman was pronounced dead at the scene of the accident.

Applicable Rules

243. Employes assisting operator of locomotive crane must remain in full view of the operator at all times.

The rule delineated above covers all types of cranes.

(Peoria and Pekin Union Railway Company Safety Rules)

Analysis

A post-accident inspection of the equipment and the accident area disclosed no defective condition that could have contributed to the accident. There were no witnesses to the accident, and the exact circumstances could not be determined.

Cause

The accident was caused by the failure of the carman to position himself in the clear and by the failure of the off-track vehicle operator to see the position of the carman.

REPORT: 44

RAILROAD: Burlington Northern

LOCATION: Eola, Illinois

DATE: October 28, 1981

The Accident

A 37-year-old yard clerk was fatally injured on October 28, 1981, at about 11:30 p.m., in Eola, Illinois. Employed by the Burlington Northern, the yard clerk had 1 year of service.

Background

Three main tracks cross McClure Road at grade, and two auxiliary tracks lie to the north and south of the main tracks. In the accident area, the tracks are tangent running east to west and are practically level. Yard limits are established. The accident occurred on main track No. 2. The yard clerk went on duty at 3:59 p.m.

Circumstances of the Accident

The employee drove a company vehicle from the yard office to the McClure Road crossing to check freight car numbers of yard switching assignment No. 205. He left the vehicle on the south side of the crossing and walked onto the crossing to check the car numbers. The yard clerk was standing between the rails of main track No. 2, facing north.

The engineer of train No. 263 stated that as the train approached the crossing traveling at approximately 65 mph, the whistle was being sounded and the headlight was brightly lit. The locomotive was approximately 200 feet from the crossing when the engineer saw the yard clerk standing between the rails, and made an emergency application of the brakes. The train speed could not be materially reduced before the train struck the yard clerk.

The foreman of switching assignment No. 205 was standing on the rear platform of the caboose and saw the headlight of the approaching train, and saw the yard clerk standing between the rails about three to four freight car lengths away. The foreman called warnings to the clerk and gestured with his lantern, but was unable to alert the clerk to the approaching train.

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.

. . . . . .

GENERAL RULES

565. The use of alcoholic beverages, intoxicants, narcotics, marijuana or other controlled substances by employees subject to duty, or their possession or use while on duty or on Company property, is prohibited.

(Burlington Northern Railroad Safety Rules and General Rules)

Analysis

The yard clerk was standing between the rails of main track No. 2 looking north and checking freight car numbers of a yard switching assignment which was moving from west to east on an adjacent track. He was struck by a suburban passenger train moving from east to west on main track No. 2 and pronounced dead at the accident scene.

A post-mortem examination of the deceased revealed a blood alcohol content of 0.104 percent. The Illinois Motor Vehicle Code 11.501.1(7) provides that a reading of 0.10 percent or more by weight of alcohol in the blood establishes a presumption of being under the influence of alcohol.

Cause

The employee failed to stand clear of a passenger train moving westward on main track No. 2. The employee's use of alcohol is considered a contributing factor.

REPORT: 45

RAILROAD: Chicago, Milwaukee, St. Paul and Pacific Railroad

LOCATION: Ives, North Dakota

DATE: October 31, 1981

The Incident

A 49-year-old brakeman died on October 31, 1981, at approximately 3 p.m., in Ives, North Dakota. Employed by the Chicago, Milwaukee, St. Paul and Pacific Railroad, the employee had 33 years of service.

Background

On the day of the accident the crew consisted of an engineer, a conductor, and two brakemen. It went on duty at 12:01 a.m. to operate a loaded unit coal train, Extra BN 7502 East, from Marmath, North Dakota, to Mobridge, South Dakota.

On May 28, 1981, the brakeman had an annual physical examination by an authorized carrier physician, as required by the carrier, and was approved for duty without any restrictions noted on the report. The brakeman had no previous history of heart disease.

Circumstances of the Incident

The train left Marmath, North Dakota, and moved approximately 8 miles when it went into emergency. The train crew determined that the train separated because of a pulled drawbar on the 13th car.

The engineer, conductor, and head brakeman proceeded to set out the 12 head cars in the stub-track siding at Ives, North Dakota. After the cars were set out, the locomotive consist was returned to the train, and the "bad-order" car was chained to the rear locomotive unit by the conductor and the front brakeman. The car was taken to Rhame, North Dakota, and set out on the siding. The rear brakeman did not assist the other crew members with the bad-order car.

The locomotive consist returned to Ives to pick up the 12 cars that were previously set out. The rear brakeman was assigned to line the switch for the siding. After waiting about 5 minutes, the front brakeman did not receive a signal for movement from the rear brakeman. Upon investigation, the front brakeman found the rear brakeman lying on the ground near the switch stand on the north side of the track.

Applicable Rules

Not applicable.

Analysis

Not applicable.

Cause

The employee's death was caused by a heart attack.

REPORT: 46

RAILROAD: Chicago, Milwaukee, St. Paul and Pacific Railroad

LOCATION: Milwaukee, Wisconsin

DATE: November 17, 1981

The Accident

A 39-year-old extra gang laborer was fatally injured on November 17, 1981, at about 5:15 p.m., in Milwaukee, Wisconsin. Employed by the Chicago, Milwaukee, St. Paul and Pacific Railroad (MILW), the laborer had 1 year of service. A maintenance-of-way general foreman and a signal maintainer were injured.

Background

Near the accident site, there are six tracks that run from north to south; they are tangent and practically level. There are four main tracks and two yard tracks. The tracks east to west are designated as No. 1 main, No. 2 main, No. 3 freight main, and No. 4 freight main. These tracks are owned by MILW. The two yard tracks are owned by the Chicago and North Western Transportation Company (CNW) and are designated as the "Runaround track" and the "Industry track." Yard limits are established on the CNW tracks.

The employee was issued a safety rule book in 1981 but was not required to take an examination on the safety rules. The carrier requires general foremen to instruct and supervise employees on applicable safety rules. The employee attended the carrier's safety rules meetings for maintenance-of-way employees on September 1 and October 26, 1981. No other training was recorded.

A CNW yard crew consisting of a switch foreman, a switchman, and an engineer went on duty at Mitchell Yard in Milwaukee at 3:59 p.m. on the day of the accident. The crew left Mitchell Yard at about 4:33 p.m. with locomotive unit CNW 4302, 24 cars, and a caboose. They stopped their train about 1/2-mile south of the accident site to clear the south end of the Runaround track and the Industry track.

Circumstances of the Accident

The accident occurred between freight main No. 4 and the Runaround track at Mile Post 83.95. At about 4 p.m. on the day of the accident, a signal maintainer was informed by a train dispatcher that a track circuit was out of order on No. 4 freight main. The signal maintainer drove a signal department truck (No. 877) between the Runaround track and No. 4 freight main, backing up northward. Around 4:20 p.m., he parked the truck between the tracks, about 150 feet south of an open rail joint on the west rail of No. 4 freight main. The track was taken out of service, the roadmaster was notified, and a general foreman and two extra gang laborers were sent to make necessary repairs.

The general foreman drove a maintenance-of-way truck (No. 674), with the front end headed north, between the Runaround track and No. 4 freight main, and parked the truck about 6 feet from the signal department truck. The signal maintainer and the foreman turned off all the lights on the trucks. The foreman was unaware that the rear end of truck No. 674 was fouling the . . . Runaround track.

The general foreman and the two laborers were using a rail puller and expander to pull the rail together. When this did not occur, the foreman instructed the laborers to place a piece of rail in the gap and join the rails. The laborers began removing the rail puller from the rail. The foreman and the signal maintainer were standing in the bed of truck No. 674. The signal maintainer was working on a malfunctioning acetylene torch, and the foreman was holding a flashlight.

As one laborer was walking back to the truck, he saw a locomotive on CNW track moving slowly toward their position with its headlight lit. He was on the east side of the truck and jumped out of the way. A few seconds later, the locomotive struck truck No. 674. After the collision, this laborer saw the other laborer lying under the front part of the truck, on the driver's side next to No. 3 freight main.

The long hood of CNW's locomotive 432 was facing north and the short hood (operating end) was facing south. The engineer was seated in the engineer's seat at the operating controls of the locomotive (southwest side). The switchman was standing on the front steps of the locomotive's southwest side. The switch foreman was in the caboose. The locomotive was moving northward at a speed of about 5 mph on the Runaround track, with the locomotive's headlight brightly lit, its strobe light lit, and its bell ringing. The switchman felt a vibration on the locomotive and stepped off the locomotive's steps. He gave the engineer a hand sign to stop and radioed a stop order. The movement was stopped within 100 to 120 feet, using the locomotive's independent brake valve.

The switchman walked northward and realized that the locomotive had struck two trucks. He observed a man walking around the scene of the accident and saw that he was injured. The switchman told the engineer to call for help. The laborer was found under the front portion of truck No. 674, approximately 50 feet north of the collision. He was lying next to the west rail of No. 3 freight main. The employee died at the accident scene from massive head injuries. The body was taken to a local hospital by Fire Department ambulance personnel.

The injured employees were taken to a local hospital by private ambulance.

Applicable Rules

GENERAL RULES

8. Employes must inform themselves as to the location of structures or obstructions where clearances are close.

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

. . . . . .

AUTOMOTIVE EQUIPMENT

Note: The following rules will apply to automobiles, trucks and other motor vehicles when used in company service.

604. Employes involved in the operation of this type of equipment are prohibited from:

. . . . . .

(j) Parking closer than 8 feet from nearest rail of any track.

(The Milwaukee Road, Safety Rules, Maintenance of Way and Structures and Signal and Communications Departments)

804. . . . . .

There must be no failure to keep a careful lookout ahead, especially while passing through cities, towns and yards.

(The Consolidated Code of Operating Rules)

VEHICLES FOULING TRACKS --

Every precaution must be taken to eliminate striking vehicles parked on or near tracks where switching is being performed. Crews are expected to recognize close clearances caused by automobiles or trucks parked too close and to stop, make inspection, and be governed by their findings.

(Chicago and North Western Transportation Company, Wisconsin Division, General Order No. 1 and Special Order No. 1)

Analysis

The general foreman and signal maintainer stated that when the locomotive struck the maintenance-of-way truck (No. 674), they were thrown from the bed of the truck and landed on the ground.

A post-accident inspection revealed that the left-rear corner of the locomotive struck the left-rear corner of truck No. 674, which, in turn, apparently struck the laborer and pinned him under the truck, and then struck truck No. 877 shoving it 35 feet to the north. Truck 674 was shoved 25 feet north of the point of impact. Truck 877 ran over the switch stand on Runaround track. Both trucks were blocking freight main tracks No. 3 and No. 4 after the collision. The locomotive stopped approximately 116 feet north of the point of the collision.

The CNW railroad was not notified that MILW trucks were parked between Runaround track and MILW freight track No. 4, while repair work was being performed.

Cause

The maintenance-of-way truck was parked too close to the Runaround track to allow proper clearance, and both trucks had their lights off.

A contributing factor was the failure of a train crew member to recognize the close clearance caused by the parked trucks.

REPORT: 47

RAILROAD: Chicago and North Western Transportation Company

LOCATION: Medary, Wisconsin

DATE: November 23, 1981

The Accident

A 50-year-old conductor was fatally injured on November 23, 1981, at about 1:15 p.m., in Medary, Wisconsin. Employed by the Chicago and North Western Transportation Company (CNW), the employee had 27 years of service.

It was snowing at the time of the accident; a sleet storm had preceded the snow fall. Underfoot conditions were described as extremely hazardous.

Background

The accident occurred on the La Crosse Spur Track of the carrier's Sparta Subdivision of the Twin Cities Division. The La Crosse Spur Track extends 3.4 miles eastward from La Crosse to Onalaska, Wisconsin, with Medary located 1.2 miles east of La Crosse. Operations on this trackage are conducted under the yard limit rule. At Medary, a former main track is used as a switching lead track; and an industrial spur track and a wye track extend northward from the lead track. A road crossing 23 feet wide intersects the lead track at grade between the switches to the industrial spur and wye tracks.

The conductor was a member of a local freight train crew consisting of a conductor, two brakemen, and an engineer. The crew went on duty at Adams, Wisconsin, at 7:30 a.m. It had been on duty for 5 hours and 45 minutes at the time of the accident.

The conductor was last examined on the Consolidated Code of Operating Rules on May 20, 1981. His last physical examination was administered on May 15, 1981.

He had not worked on the La Crosse assignment for over 2 years.

Circumstances of the Accident

The crew left Adams at 8:05 a.m. and arrived at La Crosse at 12:38 p.m. At La Crosse, the train consisted of a locomotive unit, seven freight cars, and a caboose. The short hood of the locomotive unit was facing eastward. The train was operated from the Milwaukee Road main track to the CNW La Crosse Spur track, then shoved eastward to Medary to arrange the cars for industrial placement. The two brakemen were equipped with portable radios, and a conventional locomotive radio was used by the engineer. The crew arrived in Medary at about 1 p.m.

The crew shoved two cars to the wye track and shoved four cars back to the lead track. The men were preparing to enter the wye track again with the head car and the locomotive. One of the brakemen had uncoupled the head car from the train and instructed the engineer to back the movement westward, planning to stop the movement after the head car had passed the wye track switch. As the reverse movement began, the brakeman was on the north side of the lead track, the second brakeman was engaged in coupling air brake hoses, the engineer was at the controls on the south side of the locomotive, and the conductor was standing on the north side of the road crossing. As the locomotive and car moved westward over the crossing, the speed was estimated to be about 5 mph.

The brakeman who was directing the movement saw the conductor slip while trying to board either the left-front step of the locomotive or the side ladder of the box car. The conductor's lower right leg became lodged in the leading truck-side frame of the car. After seeing the conductor fall, the brakeman radioed the engineer to stop the movement. However, before the consist could stop, the conductor was dragged about 42 feet.

The conductor sustained a severed right thigh and, severe chest injuries. The engineer contacted the La Crosse interlocking operator via radio to summon emergency rescue forces. The conductor was pronounced dead at the accident scene.

Applicable Rules

GENERAL RULES

. . . . . .

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

. . . . . .

(The Consolidated Code of Operating Rules)

Analysis

A post-accident inspection of the locomotive unit and the box car disclosed no defects. Immediately after the accident, however, it was noted that the ladder rungs and sill step of the box car were sheathed with ice. Inspection of the accident area disclosed blood on both sides of the north rail at the crossing, indicating that the initial injury occurred at that point. Markings in the snow offered evidence that the conductor was able to maintain a grip on either the side ladder or sill step of the box car for a distance of about 15 feet, then lost his handhold and was dragged about 42 feet. Strands of the employee's trousers were found attached to the brake shoe assembly of the lead wheel of the box car, indicating the possibility that his right leg was entrapped when the fabric became caught on the brake shoe head or the retaining key.

Cause

The accident was caused by the conductor's failure to safely board moving equipment while hazardous underfoot conditions existed.

REPORT: 48

RAILROAD: Baltimore and Ohio Railroad Company

LOCATION: Warren, Ohio

DATE: November 24, 1981

The Accident

A 46-year-old brakeman was fatally injured on November 24, 1981, at approximately 4:20 a.m., in Warren, Ohio. Employed by the Baltimore and Ohio Railroad Company, the brakeman had 16 years of service.

Background

The accident occurred on an industrial track, the "coke storage track," of the Republic Steel Corporation. The track is stub ended and runs from north to south. In the accident area, the walkway was covered with about 6 inches of coke.

The brakeman was a member of a road switching assignment that consisted of a conductor, two brakemen, and an engineer. The crew had been on duty for 10 hours and 20 minutes after completing the required off-duty period.

The employee last attended a rules class on the Book of Operating Rules and Safety Rules on February 27, 1980. His last physical examination was administered on May 23, 1980.

Circumstances of the Accident

At the time of the accident, the crew was waiting for the operator of a Republic Steel Corporation radio-controlled locomotive to place 13 cars onto the new coke storage track which already contained 15 cars. The Republic Steel yardmaster had informed the conductor of the switching assignment that after the 28 cars were assembled on the new coke storage track, the cars were to be hauled to DeForest Junction, about 5 miles away. The conductor instructed the brakeman to couple the air hoses to prepare for testing the train's air brakes, after the 28 cars were assembled. The engineer last saw the brakeman walking in the direction of the new coke storage track. Shortly after the brakeman was last seen, crew members heard moans and groans on their radio; the last thing they heard was, "Oh my God."

The crew members tried to communicate with the brakeman but were not successful. They immediately searched for the brakeman and found him face down at the 15th south car, about 2 feet from the east rail of new coke track. Emergency medical personnel were called, and the brakeman was pronounced dead at the accident scene.

Applicable Rules

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

. . . . . .

M-3. Employees must expect movement of trains, engines or cars at any time, on any track, in either direction.

(Chessie System Operating Rules)

Analysis

The carrier's post-accident inspection of the 28 cars revealed that the air hoses were not coupled. The angle cock, however, was closed on the southernmost car. It was not determined if the brakeman lost his footing and fell between the cars, or was between the cars when additional cars were switched onto the track by Republic Steel's locomotive operator. There were no witnesses to the accident, and the actual circumstances of the accident could not be determined.

Cause

The employee failed to stand clear of moving equipment during switching operations.

REPORT: 49

RAILROAD: Southern Railway Company

LOCATION: Toccoa, Georgia

DATE: November 27, 1981

The Accident

A 52-year-old baggagemaster was fatally injured about 9:50 p.m. on November 27, 1981, near Toccoa, Georgia. Employed by the Southern Railway Company, the baggagemaster had 31 years of service.

Background

In the accident area, there is a double track line over which trains operate in either direction by signal indications via a traffic control system. The tracks are numbered from east to west, designated as main track No. 1 and main track No. 2. "Wells Viaduct," an open-deck girder bridge 1,350 feet long, is located 2.5 miles south of Toccoa, Georgia. There are no walkways or safety railings on either side of the viaduct. The distance from the center of main track No. 2 to the west edge of the viaduct is 6 feet. The maximum distance from the top of the rail to the ground is 210 feet.

The baggagemaster was last examined and passed the carrier's operating rules test on March 26, 1980. The employee last attended a safety meeting on July 6, 1981. His last physical examination was passed on September 30, 1976.

Circumstances of the Accident

Amtrak passenger train No. 820 was operating northbound on main track No. 2, south of Toccoa, when an emergency application of the train's brakes occurred. The first locomotive stopped about four car lengths south of the north end of Wells Viaduct. The engineer informed the crew via radio that the train was stopped on a viaduct and reminded them to be careful.

The conductor contacted the dispatcher in Greenville, South Carolina, and informed him of the situation and location. He also asked the dispatcher to block train movements on main track No. 1, in the vicinity, by coding the nearest control signals for stop indications.

Before inspecting the train, the conductor again reminded the crew via radio that the train was stopped on a viaduct. The baggagemaster radioed the conductor to ask what he said. The conductor repeated the radio message that the train was stopped on the viaduct; he did not receive a response from the baggagemaster.

The conductor and flagman inspected the train to determine the cause of the emergency brake application and found that the air hoses between the third and fourth cars had uncoupled. The air hoses were coupled, and the crew prepared to depart.

The conductor radioed the baggagemaster to ask him if he was ready to go, but did not receive a response. The conductor and flagman then searched the train to locate the baggagemaster. When the conductor arrived at the baggage car, he found the west door of the baggage car open, but the baggagemaster could not be found. The conductor and flagman then descended to the ground below the viaduct and found the baggagemaster lying face down in a clearing about 185 feet below the tracks. The employee died of multiple fractures of the chest.

Applicable Rules

Getting On or Off Standing Equipment

Be alert at all times.

. . . . . .

When getting off standing car, be sure your feet are firmly on the ground before releasing your grip on the grab irons . . . .

(Southern Railway, Safe Work Practices for Railroad Employees)

Analysis

The last contact with the baggagemaster was the radio communication the conductor made to remind the crew that the train was stopped on a viaduct, and the baggagemaster had called back for verification of the radioed message. There were no witnesses to the accident, and the exact circumstances cannot be determined.

Cause

The baggagemaster fell from train No. 820, which was stopped on a viaduct, to the ground below. The cause of the fall could not be determined.

REPORT: 50

RAILROAD: Southern Railway Company

LOCATION: Union, South Carolina

DATE: December 1, 1981

The Incident

A 51-year-old telephone maintainer died on December 1, 1981, at about 12:20 p.m., in Union, South Carolina. Employed by the Southern Railway Company, the employee had 20 years of service.

Background

The maintainer reported for duty in Spartanburg, South Carolina, at 7:30 a.m. on the day of the accident. At that time, he met with his supervisor to discuss the duties he was to perform that day. The supervisor noted nothing unusual in the maintainer's condition or conduct. At about 10:45 a.m., the maintainer left Spartanburg alone in a carrier-owned pickup truck to go to Santuc, South Carolina, to inspect communications equipment installed at a hot-box detector site.

Circumstances of the Incident

Approximately 29 miles southeast of Spartanburg, the pickup truck was traveling southward on Thompson Boulevard in Union, South Carolina. The truck veered to the right and came to rest against a utility pole on the shoulder of the road. City police responded to the accident and found the maintainer unconscious in the cab of the vehicle. Their efforts to revive the maintainer were unsuccessful. Emergency medical service personnel arrived at the scene soon after the police. Their attempts to revive the maintainer were similarly unsuccessful. The employee was pronounced dead at the scene of the accident. The victim's body was subsequently transported by ambulance to a local hospital, where an autopsy was performed.

Applicable Rules

Not applicable.

Analysis

The autopsy report cited that death probably occurred before the vehicle collided with the utility pole. There is no evidence that the deceased employee had a history of heart problems.

Cause

The employee died of a heart attack.

REPORT: 51

RAILROAD: Norfolk and Western Railway Company

LOCATION: Norfolk, Virginia

DATE: December 3, 1981

The Accident

A 54-year-old laborer was fatally injured at about 7:30 a.m., on December 3, 1981, in Norfolk, Virginia. Employed by the Norfolk and Western Railway Company, the laborer had 28 1/2 years of service.

Background

On the day of the accident, the laborer went on duty at 7 a.m. and assumed his normal duties as a fork lift operator at the 38th Street Shop of the Lamberts Point Yard in Norfolk. He had been employed by the "Stores" Department for 14 years. On the day of the accident, he conversed with his supervisor when he reported for duty, but safety rules were not discussed.

The employee had received a copy of the Norfolk and Western Railway's safety rules. Safety meetings are held each day at the car shop, but attendance is not mandatory, and no attendance record is maintained. It is not known when the laborer last attended a safety meeting.

Circumstances of the Accident

The fork lift operator and another laborer were engaged in moving reclaimed freight car couplers from a storage area to a program repair line in a car shop building, a distance of about 1,200 feet. The method for moving couplers is to use a fork lift tractor and a sling chain assembly.

The chain assembly is a quadruple sling chain, attached to an oblong master link at one end and a sling hook at each free end. The assembly is placed over the forks with the master link positioned between the two forks. Each of the four sling chains is looped once around the nearest fork.

On the day of the accident, the laborer attached a sling hook to each of four couplers. Each coupler weighed about 320 pounds. The fork lift's capacity is 5,000 pounds. The fork lift operator raised the load and backed out of the storage area,

a distance of about 30 feet, onto a gravel hard-top driveway. At that point, the movement was reversed, and the fork lift moved forward with the four couplers suspended on the forks.

According to an eyewitness, one of the couplers was dragging; the witness observed what appeared to be an attempt by the fork lift operator to raise the forks. The witness saw the left rear coupler fall off the chain hook. The left front wheel of the fork lift climbed up on the coupler shank, and caused it to tilt and overturn to the right.

The fork lift operator was thrown from the fork lift onto the ground by the overturning motion and the fork lift's roll bar crushed his skull. Death was instantaneous.

Applicable Rules

1193. Operators of fork lift trucks must:

. . . . . .

(b) Insert the forks under the load fully so that the load is in contact with the back rest or the vertical part of the forks, and so that the weight of the load is centered over the forks.

. . . . . .

(d) Move, either loaded or empty, with the forks as low as possible.

. . . . . .

(f) Secure loose material or bulky items to prevent shifting or toppling while in motion.

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

Analysis

Post-accident tests of the fork lift revealed no defects; the master link, chains, and hooks were in good condition. The roadway in the accident area is hard-top asphalt covered with gravel and loose dirt. There were several pot holes in the driveway immediately in front of the point where the coupler and the chain hook had disengaged.

The carrier's safety rules require that the forks be inserted under the load and in contact with the backrest of the forks, so that the weight of the load is centered over the forks. The safety rules also require that loose or bulky material be secured to prevent shifting or toppling while in motion and that movement be made with the forks in as low a position as possible. However, at this location, the procedures for transporting loose material by fork lifts do not provide for the proper securement of the material.

Cause

The accident was caused by the unsecured coupler falling off the chain hook and caused the fork lift to overturn.

A contributing factor was the improper procedures at this location for transporting loose material on fork lifts.

REPORT: 52

RAILROAD: New Orleans Public Belt Railroad

LOCATION: Bridge City, Louisiana

DATE: December 3, 1981

The Accident

A 41-year-old bridgeman and a 30-year-old helper were fatally injured on December 3, 1981, at 11:20 a.m., in Bridge City, Louisiana. Employed by the New Orleans Public Belt Railroad, the bridgeman had 10 years of service, and the helper had 6 years of service.

Background

The Mississippi River railroad bridge is approximately 5 miles long. Over the accident area on the river's west bank, the bottoms of the four longitudinal steel plate girders are 112 feet above the ground. Between the two center girders, a steel rod parallels the south, or downstream, girder. This steel rod, called an inspection rod, is used as a handhold and a convenient, safe place to attach a safety belt lifeline. The steel inspection rod was being replaced with 5/8-inch wire rope. An aluminum scaffold, measuring 2 feet wide and 24 feet long, was being used. The scaffold was supported by three wooden timbers, each measuring 4 inches wide, 4 inches thick, and 61 inches long. Each end of the three timbers was supported by the bottom flanges of the center girders. The bottom flanges of the two girders protrude 7 inches from the web.

On November 12, 1980, the bridgeman signed a receipt for a new safety belt harness. The receipt acknowledged that he had been instructed in its use and knew that he must wear the harness while on duty.

The bridgeman helper signed for a new safety belt harness on November 10, 1980.

Circumstances of the Accident

The bridgeman and his helper were under the bridge deck, working from the scaffold, between the two center girders. Another helper was on the deck of the bridge above the bridgeman and his helper. His only view of the work being performed below the deck, was between the cross ties. A painter was working on a downstream girder from a scaffold, but he could not see the inspection rod gang.

As each old inspection rod was removed and a new wire rope installed, the bridgeman and his helper advanced the scaffold and the three timbers. The other helper on the deck moved the acetylene cutting torch and other tools. The bridgeman and his helper wore safety belt harnesses, but the lifelines on the safety belt harnesses were not attached to anything. The bridgeman and his helper had been on duty for 3 hours and 20 minutes, when one of the 4-by-4's used to support the scaffold broke in half. The scaffold, the bridgeman, and the helper fell a distance of 112 feet to the ground below.

Applicable Rules

> 1. Employees will exercise care to avoid injury to themselves or others. Compliance with the rules is expected and required. Carelessness or indifference in the performance of duties will not be condoned. Employees who are careless of the safety of themselves or others, . . . will not be retained in the service.
>
> (Public Belt Railroad Commission, City of New Orleans, General Order No. 220)

Analysis

The broken 4-by-4 was cut from soft wood and was decayed. The other 4-by-4's were cut from hard wood. The broken 4-by-4 showed no signs of abuse.

If new wire rope had been installed in the existing holes of the adjacent girder before the old inspection rod was removed, there would have been a place to attach a safety belt harness lifeline.

The carrier does not require the inspection of materials and tools used in bridge maintenance.

Public Law 91-596 (December 29, 1970) exempts city and state operations from the Occupational Safety and Health Administration rules and regulations; therefore, a safety net was not required.

Cause

The bridgeman and the helper failed to attach their safety belt harness lifelines to the bridge and fell when a wooden timber used to support one end of the scaffolding failed.

REPORT: 53

RAILROAD: Southern Pacific Transportation Company

LOCATION: Bakersfield, California

DATE: December 10, 1981

The Accident

A 47-year-old laborer was fatally injured on December 10, 1981, at about 6:55 p.m., in Bakersfield Yard in Bakersfield, California. Employed by the Southern Pacific Transportation Company (SP), the laborer had 29 years of service.

Background

The Bakersfield Yard has five tracks connected at both ends. The westward and eastward main tracks are on the south side of the yard and are designated as tracks No. 1 and No. 2, respectively. From the point of the accident, the main tracks are tangent in both directions. The distance between tracks No. 1 and No. 2 measured from the center is 13 feet 5/8 inches. The Atchison, Topeka and Santa Fe Railway (ATSF) has operating rights on the SP main tracks.

The laborer was a member of the enginehouse work crew, dispatched to the east end of the yard to change the locomotive consist on a departing SP train on track No. 2.

After completing his work, the laborer returned to the repair truck parked on the south side of the main tracks.

The laborer regularly attended the weekly safety meetings.

Circumstances of the Accident

About 6:55 p.m., a machinist standing on the south walkway of the lead locomotive unit requested a flashlight. The laborer carried the flashlight, crossed the main tracks, and while passing it up to the machinist, was struck on the head and body by the right front steps and handrail of the locomotive on a westbound ATSF freight train traveling at approximately 40 mph. The impact pushed him under the right rear steps of the SP's lead locomotive unit.

He was taken to a local hospital and died 37 hours later from severe head injuries. SP employees said the ATSF locomotive headlight was dim and that they heard no sound from the approaching train. ATSF employees stated that the horn had been sounded for a road crossing, 1/4 mile from the accident area.

Applicable Rules

4031: Employes must look in both directions before crossing or fouling any track or roadway, and be alert for movement of cars, trains, engines, fork lifts, cranes and other mobile equipment.

(Southern Pacific Transportation Company Safety Rules Governing Mechanical Department Employes)

BELL AND WHISTLE SIGNALS

19. . . . . .

Where in these rules the term whistle is used, it includes either horn or whistle. The whistle signals . . . are illustrated by "o" for short sounds, and "____" for longer sounds:

SOUND	INDICATION
. . . . .	
(L) ___ ___ o ____	. . . This signal must also be sounded . . . approaching a train standing on an adjacent track . . . .

(The Atchison, Topeka and Santa Fe Railway Company Rules Operating Department)

Analysis

The carrier safety rules require employees to watch for trains in each direction before crossing tracks. The laborer apparently failed to look for approaching trains, or he miscalculated the distance between him and moving equipment on the adjacent track.

The ATSF locomotive horn had been sounded for a road crossing, 1/4 mile from the accident site; however, it is apparent that this did not serve to warn the SP employees.

Cause

The laborer failed to stand clear of the approaching train, and was struck by the ATSF locomotive.

A contributing factor was the failure to sound the horn of the ATSF locomotive when approaching a train standing on an adjacent track.

REPORT: 54

RAILROAD: Burlington Northern

LOCATION: Alliance, Nebraska

DATE: December 19, 1981

The Accident

A 23-year-old fork lift operator was fatally injured at approximately 2 p.m. on December 19, 1981, in Alliance, Nebraska. Employed by the Burlington Northern, the employee had 1 year and 8 months of combined service as a clerk and a fork lift operator. There was a light covering of snow on the ground.

Background

The work area is a combination car-and-locomotive shop, with a storehouse located between the shops. Fork lifts are used to move materials in the storehouse and between the shops. A dock, measuring 5 feet 4 inches high, 250 feet long, and 20 feet wide, is located outside the building, with an asphalt driveway to the north and two parallel tracks to the south. A large trash bin was set on the north side and near the west end of the dock to empty trash from the shops.

The fork lift involved was a riding model with a rated load capacity of 5,000 pounds, an internal combustion engine, pneumatic tires, and a service weight of 9,262 pounds.

The operator had 3 months' experience operating fork lifts. He passed a test for fork lift operators in September 1981. Safety meetings are conducted monthly for each shift, and the operator attended safety meetings on September 11 and October 2, 1981. The operator's last physical and visual examination was held on May 20, 1980.

Circumstances of the Accident

On the day of the accident, the operator reported for work at 7:30 a.m. At approximately 1:55 p.m., he was instructed to pick up a metal trash hopper in the car shop and empty it into the trash bin at the dock. The operator drove the fork lift on the dock and unloaded the hopper.

At this time, the operator was told, via the public address system, to pick up two wheels at the wheel yard, approximately 100 feet from the trash bin, and deliver them to the car shop.

When the operator did not arrive at the car shop by 2:40 p.m., the car foreman and a carmen went to the dock and found the fork lift overturned between the tracks. The operator was lying near the rear wheels of the machine and between the rails of the track next to the dock. The operator was taken to a local hospital and was pronounced dead. Death was attributed to massive injuries to the right lung, ribs, and right arm.

Applicable Rules

275. Load on fork lift truck must not be lifted while traveling. Extreme care must be taken when working fork lift on elevated dock or runway.

(Burlington Northern Railroad Safety Rules and General Rules)

Analysis

There were no witnesses to the accident. The empty trash hopper was found next to the trash bin. It was determined that the machine made a reverse movement from the trash bin over the side of the loading dock.

The machine's tire tracks in the snow were at right angles to the trash bin at the south edge of the dock, with no apparent skid or slip marks in the snow. Post-accident tests of the fork lift revealed that the hydraulic and brake systems were in good working condition. Vehicle reports by previous operators did not indicate any serious operating defects.

Cause

The operator failed to exercise care while operating the fork lift and drove over the side of the dock.

REPORT: 55

RAILROAD: Burlington Northern

LOCATION: Minneapolis, Minnesota

DATE: December 22, 1981

The Accident

A 62-year-old maintenance-of-way foreman was fatally injured at about 11:35 a.m. on December 22, 1981, in Minneapolis, Minnesota. Employed by the Burlington Northern, the foreman had 40 years of service. There was a heavy accumulation of snow in the accident area.

Background

The accident occurred in Union Yard on the 5th Subdivision of the carrier's Minnesota Division. Tower track No. 2 had been retired from use and was being removed.

The foreman was a member of maintenance-of-way crew consisting of the foreman, two laborers, and a machine operator. The crew went on duty at 8 a.m. on December 22, 1981, and had been on duty about 3 hours and 35 minutes at the time of the accident.

The employee was last examined on the rules of the Maintenance-of-Way Department on March 12, 1981. He last attended a safety meeting on December 12, 1981. His last physical examination was administered on October 19, 1979. He was promoted to the position of maintenance-of-way foreman on August 18, 1966.

Circumstances of the Accident

The crew was using a front-end loader machine to separate the rail from the ties. At the accident site, the rail was 30 feet long and weighed 72 1/2 pounds per yard.

The foreman ordered the front-end loader to be positioned immediately south of and at a right angle to the south rail. At this location, a rail clamp was applied to the rail about 20 feet from the west joint bar. The snow was so deep that ties and spikes were concealed from view, and only the tops of the joint bars were visible. One of the laborers began to remove the joint bar bolts, but he was ordered to stop by the foreman. When the rail-lifting process began, the joint bars at both ends of the rail were in place, and no effort was made to loosen or remove

the track spikes. On the foreman's signal, the machine operator positioned the machine's bucket to elevate the rail high enough to insert a ripper sled. At that time, the foreman was standing near the north rail to the east of the front-end loader, while the two laborers were near the north rail, west of the machine.

The machine operator estimated that the initial lifting efforts resulted in a one-half-inch vertical movement of the rail. The foreman moved from his position to a point between the rails to close to the west joint bar, then crouched over the south rail, to determine why the elevation had not occurred. The machine operator continued his duties, unaware of the foreman's change in position. An abrupt separation occurred at the west joint bars, and the west end of the rail rose rapidly, striking the foreman and throwing him to the ground.

Emergency medical forces were immediately summoned, and the foreman was hospitalized. The rail and ground impacts had caused multiple traumatic injuries, and the foreman died about 3 hours after the accident.

Applicable Rules

GENERAL RULES

. . . . . .

H. Employees must:

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

Take time to work safely.

Exercise care to prevent injury to themselves and others.

(Burlington Northern Safety Rules)

Analysis

A post-accident inspection of the front-end loader and the rail clamp disclosed no defects. An inspection of the joint bars at the point of separation disclosed old breaks in over 50 percent of both bars. Before the attempt to elevate the south rail, the rail holding spikes were not removed and no inspection was made of the joint bars; the joint bar bolts were not removed. The

initial lifting effort failed to elevate the rail, but the application of the lifting force apparently caused a fracture of the joint bars and loosened the spikes, resulting in the rapid upward movement of the rail. The proximity of the foreman to the west joint bars resulted in his being struck by the rail.

Cause

The accident was caused by the foreman's failure to remain in a position of safety.

A contributing factor was the foreman's failure to remove the joint bars and the rail holding spikes before attempting to elevate the rail.

*U.S. GOVERNMENT PRINTING OFFICE : 1982 0-361-428/2157

U.S. Department
of Transportation

**Federal Railroad
Administration**

400 Seventh St., S.W.
Washington, D.C. 20590

Official Business
Penalty for Private Use $300

Postage and Fees Paid
Federal Railroad
Administration
DOT 516

FRA-3C
W B HONNAKER
10180 FREDERICK RD
VANDALIA OH 45377

RRS-25

HON*01 R11725N1 08/17/82
RETURN TO SENDER
NOT DELIVERABLE AS ADDRESSED
UNABLE TO FORWARD