

**APPENDICES**  
**(A-SERIES)**

**APPENDIX A**

**ANALYSIS OF 1997 EMPLOYEE FATALITIES**

Considering data such as railroad, craft, position, and activity, in addition to Possible Contributing Factors (PCF), defined as underlying or root causes or part of a chain of events leading up to the fatality.

REPORT	RAILROAD, LOCATION & REGION	MONTH, DATE & TIME	FOR FATALLY INJURED EMPLOYEE:  Age & Yrs of Service Last Training and Type Last Physical Last Drug Test	FOR ALL EMPLOYEES:  CRAFT POSITIONS ACTIVITY	PCF NO. 1	PCF NO. 2	PCF NO. 3	NOTE
FE-01-97	Soo Line Railroad (SOO)  Milwaukee, WI  Region 4	January  01/08/97  11:25 am, CST	<b>Gang A Assistant Foreman</b>  52 years old 32 years of service Last rules trng: 3/28/96 Last safety trng: 3/28/96 Last physical: 10/20/95	<b>Craft: MOW</b>  <b>Positions:</b>  <b>Gang A:</b> Foreman Asst. Foreman Laborer  <b>Gang B:</b> Foreman 3 Trackmen  <b>Activity:</b> Repair of track damaged by derailment	Vapors from an oxygen/acetylene gas tank set in an enclosed area were ignited by flying sparks from a rail saw. This caused an explosion within the compartment, resulting in debris striking the nearby employee.  The acetylene tank was turned off; however, the oxygen tank shut-off valve was a half-turn open. In addition, a 2-inch drain hole in the bottom of the gas compartment was not plugged up.  The spark from the saw could have caused the mixture of oxygen and acetylene vapors, exiting through the drain hole, to explode.	The Laborer asked the Foreman to check the valves. He should have checked them more closely, and the Laborer should have double-checked as well.	<b>Training Insufficient:</b>  Gas compartment lacked a poster on oxygen and acetylene safety.  OSHA cited non-compliance with 29 CFR Part 1910.252 (a) (2) (xiii) (C): The employer did not recognize its responsibility for the safe usage of cutting or welding equipment. Specifically, the employer did not assure that Supervisors and Railroad Crew employees were properly trained in the safe operation and/or usage of oxygen/acetylene equipment for cutting in areas where a potential source of ignition was present.	

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FE-02-97	Union Pacific Railroad (UP)  South Fontana, CA  Region 7	January  01/12/97  10:15 pm, PST	<b>Conductor:</b>  60 years old 35 years of service Last rules exam : 10/19/95 <b>Last physical : 09/05/78</b> Last drug test: 08/03/93	<b>Craft:</b> <b>Transportation</b>  <b>Positions:</b> Engineer Conductor Brakeman  <b>Activity:</b> Switching	The Engineer controlled the speed of the train by using the independent brake while making a shoving move. Slack occurred, causing the draw bars and couplers to change rapidly from buff to draft.  A violent, surging movement ensued, causing the Conductor to be jolted and lose his grip. He then fell in front of the lead car and was struck.	Appropriate safety precautions were not taken for a large number of cars. A consist of 50 loaded cars should have received air, especially with a person riding on the back of the car.	<b>Inexperience of Engineer and Brakeman:</b>  During his career, the Engineer had never switched while making a shoving movement.  The Brakeman had never worked on a shoving move with a large number of loaded cars.	

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FE-03-97	Norfolk Southern Railroad (NS)  Macon, GA  Region 3	January  01/19/97  6:40 am, EST	<b>Car Inspector:</b>  42 years old 16 years service Last rules trng: 01/18/97 Last safety trng: 01/18/97 <b>Last physical: 07/20/79</b>	<b>Craft: MOE</b>  <b>Positions:</b>  <b>Yard Staff:</b> Car Inspector Mechanical Department Supervisor Tower Yardmasters  <b>Train G-25:</b> Engineer Conductor  <b>Train M-98:</b> Engineer Conductor  <b>Train G-09:</b> Crew members not specified. They discovered the body.  <b>Activity:</b> Establishing Blue Flag protection and switching.	The Carman fouled track adjacent to two tracks involved in the assignment, and he was struck by moving equipment.	The Carman wore dark clothing and left his hand-held light in the truck.	Train M-98's Engineer neither sounded the bell nor illuminated the locomotive headlight as required by the railroad's Operating Rule No. 17.  He was a repeat offender, having been cited during a December 1996 safety audit for not having the locomotive headlight illuminated.	

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FE-03-97  CONT.					<p><b>PCF NO. 4</b></p> <p>Vision and hearing were impaired for Train M-98's Engineer and Carman.</p> <p>The pole-mounted light at the site was diminished to almost total darkness when the two locomotive consists passed the switch to Tracks 2 and 3 at the same time.</p> <p>The sound from the locomotives of Train G-25 in close proximity to the Carman may have masked the sound of the approaching locomotives of Train M-98.</p>	<p><b>PCF NO. 5</b></p> <p>The Yardmasters in the towers, who had regularly attempted to notify all affected parties of yard movements when possible, did not provide such a notification in this instance.</p>	<p><b>PCF NO. 6</b></p> <p>The Car Inspector's regular shift was 7 am - 3 pm. He reported for duty at 11 pm and worked the shift in overtime status. Fatigue may have decreased his alertness on the tracks.</p>	

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FE-03-97  CONT.					<p><b>PCF NO. 7</b></p> <p>Just prior to the incident, the Conductor of Train M-98 was controlling the northward movement of the locomotives from one of the locomotive cabs. His view of the track in the direction of movement was obstructed by the long hood end of the locomotive he was riding.</p>			

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FE-04-97	UP  Mason City, Iowa  Region 6	January  01/29/97  12:55 am, CST	<b>Conductor:</b>  48 years old 28 years of service Last rules trng: 03/08/96 Last safety trng: 01/24/96 <b>Last physical: 04/09/87</b>	<b>Craft:</b> <b>Transportation</b>  <b>Positions:</b> Conductor Engineer  <b>Activity:</b> Switching	The Conductor and Engineer failed to communicate properly, via company radio, directions regarding a backing movement. Per proper radio procedures, the person transmitting instructions should expect the recipient to repeat them. Failure to do so should indicate a potential problem. The Engineer did not wait for this confirmation.	The Conductor did not exercise vigilance while walking on the tracks.  His footprints on the track were facing in the opposite direction, which indicated that he did not stop or turn around to look toward the approaching locomotive.	Habitual use of ear plugs probably prevented the Conductor from hearing radio instructions.	
FE-04-97  CONT.					<b>PCF NO. 4</b>  The Engineer did not use proper warning devices to give a back-up signal.			

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FE-05-97	Consolidated Rail Corporation (CR)  Burns Harbor, IN  Region 4	February  02/02/97  9:55 pm, EST	<b>Yard Conductor:</b>  54 years old 27 years of service Last rules test: 01/29/96 Last safety trng: 01/29/96 Last physical: 01/31/92	<b>Craft:</b> <b>Transportation</b>  <b>Positions:</b>  <b>Train WDBH (Job 63):</b> Yard Conductor Yard Brakeman Locomotive Engineer  <b>Train WDBH (Job 61):</b> Conductor Brakeman Engineer  <b>Activity:</b> Switching  (Per report, all assigned to same train.)	The Yard Conductor, who was not vigilant while walking on tracks, was struck by freight cars during a shoving movement.	While shoving cars, the Engineer did not control train movement to permit stopping within one half the range of vision short of obstructions, per the railroad's operating rules.		

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FE-07-97	Burlington Northern Santa Fe Railroad Company (BNSF)  Beatrice, NE  Region 6	February  02/12/97  10:35 pm, CST	<p><b>Relief Conductor:</b> 56 years old 27 years of service Last rules trng.: 01/21-22/97 Last safety trng.: 01/21-22/97 Last physical: 02/25/94</p> <p><b>Student Brakeman:</b>  Injured with compound fractures in both legs.</p> <p><b>Crew Van Driver:</b>  Injured with cervical sprain.</p>	<p><b>Craft:</b> <b>Transportation</b></p> <p><b>Positions:</b></p> <p><b>Train 25645-12</b> Engineer Conductor Brakeman Student Brakeman</p> <p><b>Yard Staff:</b> Humpmaster Yardmaster</p> <p><b>Train 110:</b> Not specified (This train blocked and delayed the above train.)</p> <p><b>Train 25645-12</b> <b>Relief Crew:</b> Engineer Conductor Brakeman</p> <p><b>Crew Van Driver</b></p> <p><b>Driver of the pickup truck</b></p> <p><b>Activity:</b> Crew</p>	The Relief Conductor, standing to the rear of the Crew van during a Crew change, was struck by a pickup truck. The driver of the pickup truck was charged with driving under the influence of alcohol.	The back doors of the van were open, obscuring the van's flashing lights from the rear. Therefore, the Truck Driver may not have seen the van ahead of him.		

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FE-09-97	SOO  St. Paul, MN  Region 4	February  02/03/97  11:25 am, CST	<b>Track Laborer:</b>  37 years old 6 years of service Last rules trng.: 6/14/94 Last safety trng.: 6/24/96 Last physical: 05/04/93	<b>Craft: MOW</b>  <b>Positions:</b>  <b>Track Gang:</b> Track Laborer Asst. Foreman Truck Driver (also Lookout) Trackman  <b>Switch Crew</b> <b>4705:</b> Engineer Conductor Brakeman  <b>Activity:</b> Cleaning and salting switches.	Track gang employees did not comply with the provisions of the carrier's on-track safety rules and procedures manual. <b>Without notifying the Lookout or other Trackmen,</b> the Track Laborer left switch 26 (where they all were) and walked between temporary yard office buildings to the 32 crossover turnout where he began setting the switch.			

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FE-10-97	CR  Newark, NJ  Region 1	March  03/21/97  7:15 pm, EST	<b>Car Inspector:</b>  55 years old 2 yrs. 9 mos. of service Last rules trng.: 3/20/97 Last safety trng: 3/21/97 Last physical exam: 3/11/97	<b>Craft: MOE</b>  <b>Positions:</b>  <b>Yard Crew:</b> 2 Car Inspectors Yardmaster Foreman  <b>Switch Crew for Job</b> <b>YPOI-31:</b> Engineer Conductor Brakeman  <b>Activities:</b> Inspection of 72 cars for outbound train and switching at the same time.	Carman failed to maintain proper vigilance for moving railroad equipment while fouling unprotected track.	<b>Little experience and rustiness with job:</b>  The fatally injured Car Inspector had <i>fewer than three years</i> service with this railroad, of which <i>one year eight months</i> was spent as <i>an extended absence to recover from a shoulder injury sustained on the job.</i> <b>He had returned to work the day before.</b>  The Car Inspector was previously employed as a <b>Brakeman</b> by the New Jersey Transit Rail Operations (passenger trains only) from 1/10/94 to 9/16/94.  Along with the other employees, he received a <i>routine</i> job briefing conducted by the Carman's Supervisor (Foreman).	Due to the right-hand curvature of Tracks Nos. 7 and 8, the Engineer for Job YPOI-31 could not see the end of the leading car from the locomotive cab. Four cars and the locomotive were en route to couple to a tank car when the Carman was struck.  In addition, it was dark in the area, with no artificial lighting available.	Post-accident interviews revealed that the Switch Crew members were unaware that their train had struck the Carman. He was found 45 minutes later, after the other Car Inspector, who had tried to reach the fatally injured Carman by radio, had initiated a search.

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FE-15-97	Long Island Railroad Co. (LIRR)  Nassau, New York  Region 1	June  06/05/97  10:40 am, EST	<b>High Tension Lineman- Apprentice:</b>  28 years old 2 years of service Last rules trng.: No Record Last safety trng: Daily Last physical exam: 7/25/96	<b>Craft: MOW</b>  <b>Positions:</b> Gang Foreman 2 Linemen Lineman- Apprentice  <b>Activity:</b> Removal and installation of line boots (electrical connections) and hose from LIRR signal lines.	Lineman-Apprentice lost contact with the tower while ascending, and fell to the ground. Reasons are unknown.	LIRR employees were not trained properly to safely utilize fall protection equipment (e.g. safety belt and harness, rope, and pulley). A variety of methods were used, some not as safe as others.	The tower had no climbing assists (steps or handholds), necessitating free climbing.	
FE-16-97	Central Michigan Railway Company (CMRC)  Bay City, Michigan  Region 4	June  06/06/97  9:35 pm, EST	<b>Conductor:</b>  50 years old 7 years of service Last rules trng: 12/18/96 Last safety trng: 12/18/96 Last physical exam: 10/05/93	<b>Craft: Transportation</b>  <b>Positions:</b> Conductor Engineer Dispatcher  <b>Activity:</b> Switching	The Engineer failed to stop movement of the train when communication was lost.	The Conductor's radio lacked sufficient voltage to operate in the transmit mode, but the receiving power was sufficient. He had failed to charge his battery prior to use, as was his daily responsibility.  Post-accident findings revealed no operational defects with the radio.		

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FE-17-97	BNSF  San Bernardino, CA  Region 7	June  06/18/97  3:29 pm, PST	<b>Track Foreman:</b>  45 years old 20 years of service Last rules trng.: 5/26/96 Last safety trng.: 10/05/94 <b>Last physical: No record</b>	<b>Craft: MOW</b>  <b>Positions:</b> Track Foreman Truck Driver 3 Trackmen Welding Foreman & Driver, BNSF truck transporting crew members  <b>Activity:</b> Transport of MOW employees from the job site to the yard at the end of their shift.	The Driver of a 1-ton BNSF truck, transporting five MOW employees south on California Freeway 215, fell asleep at the wheel, causing the truck to overturn.  The Driver made a statement that he had started work at 6 am. He had gone to sleep at 9:30 pm the night before and had gotten up at 4:30 am. This information did not indicate fatigue as a result of hours between or during shifts.	The fatally injured Foreman had not been wearing a seatbelt at the time of the accident. A seatbelt may have prevented him from being partially ejected and crushed by the overturned truck.		

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FE-18-97	UP  Portland, OR  Region 8	June  06/24/97  4:30 am, PST	<b>Switch Foreman:</b>  53 years old 28 years of service Last rules exam: 6/12/95 Last safety trng.: 10/18/96 Last physical exam: 10/93	<b>Craft:</b> <b>Transportation</b>  <b>Positions:</b> Engineer Switch Foreman Helper Yardmaster  <b>Activity:</b> Switching	The Switch Foreman was struck by a moving car after placing himself between cars to release a hand brake.	A post-accident inspection of the next-to-last car of the cars being moved revealed that the hand brake had been applied.  Post-accident investigators concluded that the Foreman, while trying to release the hand brake from the preceding car, either fell from a position on the trailing end of the car or had placed himself between the cars and lost his footing. He then was struck by the following car.		

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FE-19-97	NS  Rowesville, SC  Region 3	June  06/24/97  8:58 pm, EST	<b>Conductor:</b>  21 years old 2 ½ years of service Last rules trng.: 2/03/97 Last safety trng.: 5/21/97 Last physical: 01/95	<b>Craft:</b> <b>Transportation</b>  <b>Positions:</b> Conductor Engineer Dispatchers Yardmaster  <b>Activity:</b> Switching	The Conductor did not insure the switch was in the proper position prior to authorizing the train to make a reverse movement.  The Conductor's failure to properly line the main track switch resulted in the cars re-entering the siding and striking him in the back.	The Conductor was not vigilant while walking on the track.	The Conductor was inexperienced and had established a pattern of careless behavior: He had only 2 ½ years service and had been suspended for 15 days for a run-thru switch in December.	The accident had occurred at 8:58 pm; however, the Orangeburg County Emergency Medical Service did not receive a call until 10:06 pm!  The delay resulted when the Train Dispatchers had difficulty identifying and notifying the appropriate emergency service provider for their jurisdiction. NS's own police department, which could have facilitated the process, received a delayed notification.

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FE-22-97	Metro North Commuter Railroad Company (MNCW)  Stamford, CT  Region 1	July  07/18/97  1:29 am, EST	<b>Conductor/Flagman:</b>  40 years old 7 years, 7 months service Last rules trng.: 3/11/97 Last safety trng.: 8/14/94 Last physical: 1/24/97	<b>Craft:</b> <b>Transportation</b>  <b>Positions:</b>  <b>Catenary Pole Work:</b> Conductor working as a Flagman for private contractor & Contractor Foreman Apprentice Groundman Groundman  <b>Train 543:</b> Engineer Conductor Asst. Conductor  <b>Train 1507:</b> Conductor who reported body 1 ½ hours after the Contractors had left the work site.  <b>Activity:</b> Installing catenary poles	Conductor/Flagman failed to remain clear of the main track.	The Catenary Pole Erection Work Procedures required foul time and flagging protection when fouling adjacent track or overhead utility lines. The Flagman was responsible for arranging this.  A review of the train sheets for the New Haven Line disclosed that <b>no foul time had been requested.</b>	The Engineer of Train 543 indicated that he had dimmed the train's headlights because he saw two track vehicles illuminating the work area.  It was estimated that the illumination of headlights on high beam would have added 10 seconds to the 26 seconds sight distance of the Flagman.	Although it probably did not contribute to the death of the Conductor/Flagman (who probably died instantly), the Contractors were negligent in leaving the work site without locating the missing Flagman. <b>The Conductor of Train 1507 reported discovering the body 1 ½ hours after the contractors had left the scene.</b>

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FE-22-97  CONT.					<p><b>PCF NO. 4</b></p> <p>The event recorder disclosed that the Engineer of Train 543 did not sound the horn.</p> <p>During a re-enactment, the Post-Accident Investigators found that the diesel generator on the Contractor's truck prevented them from hearing the train until it was 20-30 feet from the accident site. Therefore, sounding the horn could have helped alert the Flagman.</p>	<p><b>PCF NO. 5</b></p> <p>Operating with the long hood forward diminished the sight distance of the Train Crew, who apparently kept going, unaware that someone had been hit.</p>	<p><b>PCF NO. 6</b></p> <p>The Conductor/ Flagman's last safety training was in 1994. Only two of the Contractor's personnel had been trained in Roadway Worker Safety.</p>	
FE-22-97  CONT.					<p><b>PCF NO. 7</b></p> <p>The Conductor/ Flagman did not comply with MNCW's Operating Rule No. 35, which required that he have a flashlight or fusees with him.</p>			

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FE-23-97	St. Lawrence & Hudson Railway (subsidiary of the Canadian Pacific Railroad)  Binghamton, NY  Region 1	July  07/24/97  3:50 am, EST	<b>Carman:</b>  53 years old 29 yrs., 7 mos. of service Last rules trng.: 03/96 Last safety trng: 01/97 <b>No record of physical</b>	<b>Craft: MOE</b>  <b>Positions:</b>  <b>Carmen crew:</b> Carman Co-worker Yardmaster  <b>Yard Switcher Job YBHS-66:</b> Engineer Conductor Brakeman  <b>Train 268:</b> Crew members not identified. Their train received an air brake test before departure.  <b>Activity:</b> Inspecting cars; air brake tests; applying EOT device; and switching at the same time.	The fatally injured Carman did not provide blue signal protection while working on railroad equipment to protect himself from the unexpected switching movement to outbound Train 269, during Switching Job YBHS-66. He had flagged Track No. 5 for car inspections, but he displayed no blue signals at either end of the cars on the No. 1 runner, which would have alerted the Switching Crew of his intentions prior to applying the EOT device. The Switching Crew was unaware of the Carman's presence.	The fatally injured Carman had received training in the proper application of blue signal protection in March 95 and March 96; however, he had been disciplined in the past for not applying the blue flag rule.		

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FE-25-97	UP  Elko, Nevada  Region 7	August  08/15/97  3:30 am, PST	<b>Switchman:</b>  53 years old 28 years of service Last rules trng.: 09/03/96 Last safety trng.: 08/23/96 <b>Last physical: 08/90</b>	<b>Craft:</b> <b>Transportation</b>  <b>Positions:</b> Engineer Switch Foreman Switchman  <b>Activity:</b> Switching	When trying to adjust the coupler drawhead, the Switchman was pinned between the rest of his consist and the unexpectedly returning 3-car cut.  Last three cars of the consist had misaligned couplers. They rolled away while other cars in the consist were being coupled.  As the Switchman attempted to adjust the coupler on the fourth car from the rear of the consist, the 3-car cut rolled back toward him.	Two drawbars the Switchman handled needed oiling and were hard to move, causing the process to take longer than usual.		Post-accident toxicological test results for the deceased were negative, so this was not a PCF. However, FRA cited the carrier for violations re: (49 CFR Part 219, Subpart C). The proper form was not completed; samples were not collected promptly; and the carrier did not make the kit available immediately.

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FE-27-97	BNSF  Barstow, CA  Region 7	September  09/12/97  11:25 am, PST	<b>Lineman/Communica- tion Specialist:</b>  63 years old 20 yrs. 3 mos. of service Last rules trng: 05/26/96 Last safety trng: 05/08/97 <b>Last physical:</b> <b>Pre-employment</b>	<b>Craft: MOW</b>  <b>Positions:</b> Lineman/ Communication Specialist & Team of Trainmen who monitored speed of cars off hump & Humpmaster  <b>Activity:</b> Repair of head- end telemetry and EOT devices, and replacement of malfunctioning radio.	Failure of the motor vehicle operator (Lineman) to yield the right-of-way to a moving cut of freight cars descending the hump.	Lack of signage or other warning to motorists, instructing them to obtain authorization from the hump tower before using the private grade crossings which provided access to the bowl track area.		Blood specimens harvested from the deceased under FRA authority were mailed to lab personnel, who found the vials broken upon arrival; the testing was canceled. Fortunately, the San Bernardino County Coroner's Office conducted tests under its own authority and released the results which were negative.

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FE-30-97	NS  Chicago, IL  Region 4	October  10/07/97  2:13 pm, CST	<b>Railroad Special Agent:</b>  56 years old 24 years of service Last rules trng.: 8/06/97 Last safety trng: 8/06/97 Last physical: 1/15/97	<b>Craft: Other (Not Contractor)</b>  <b>Positions:</b>  NS Special Agent  <b>Metra Commuter Train 7:</b> Engineer Conductor Asst. Conductor  <b>Activity:</b> While patrolling and providing police protection for NS property, the Special Agent responded to a call regarding a trespasser suspected of attempting to board NS Freight Train 268, which was being assembled in Landers Yard.	The Railroad Special Agent, as the motor vehicle operator, did not yield the right-of-way to the oncoming Metra train at a private highway-rail grade crossing. If he had stopped at the STOP sign at the crossing, the motorist would have seen and heard the oncoming train in time.  The Engineer sounded the train horn 138 feet from the crossing, providing the motorist 11 seconds to respond. This was determined adequate.  In addition, the motorist should have seen the train beforehand since he was traveling a road parallel but in the opposite direction of the train. Also, it was mid-afternoon.			

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FE-31-97	National Passenger Rail Corporation (ATK)  Concord, MA  Region 1	October  10/10/97  12:01 pm, EST	<b>Swingmaster Operator:</b>  51 years old 27 years of service Last rules trng.: 5/20/97 Last safety trng.: 3/25/97 <b>Last physical: No Record</b>	<b>Craft: MOW</b>  <b>Positions:</b>  <b>MOW and Yard staff:</b> Swingmaster Operator Track Foreman Trackman Inspection & Repair Foreman Asst. I&R Foreman Roadmaster Concord Civil Engineer Tower Director Tower Trainee Dispatcher  <b>Passenger Train 421:</b> Engineer Conductor Asst. Conductor  <b>Activity:</b> Track maintenance: Adding rubber panels to the east edge of a highway-rail grade crossing.	The Track Crew used a procedure to foul the track which did not comply with the carrier's operating or safety rules.  The I&R Foreman and Tower Operator did not comply with ATK's operating rules of 3/8/90: "All information governing permission to use track (foul time, movement via signal indication within interlockings, and form "D" permits) will be issued on the road radio channel." A memo was posted at Waltham Tower.  The I&R Foreman and Tower Operator used the engineering channel for all communication, while the Track Foreman was listening to the road channel.	The configuration of the swingmaster's seat, with movable armrests installed, may have hindered the Operator from leaving the site. He was not wearing seatbelts, which would have caused an additional delay in this situation.	Miscommunication occurred between the Track Foreman and the Waltham Tower Operator who told the Foreman it was acceptable to work with the I&R Foreman at Sudbury Road under his authority. The Foreman thought this message implied that it was OK to foul the tracks, when that clearance had not yet been given. The Foreman therefore erroneously gave instructions to the Swingmaster Operator to proceed.	

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FE-32-97	Montana Rail Link (MRL)  Laurel, MT  Region 8	October  10/16/97  10:20 pm, MST	<b>Switchman:</b>  22 years old 10 mos. of service Last rules trng.: 4/15/97 Last safety trng.: 9/19/97 Last physical: 4/15/97	<b>Craft:</b> <b>Transportation</b>  <b>Positions:</b> Switchman Switch Foreman Locomotive Engineer  <b>Activity:</b> Switching	The Switchman unexpectedly fell from the end of the car onto the track structure while applying a hand brake during a shoving movement.	The surface area of the brake step was damaged, which decreased the area of footing:  FRA inspectors found the width of the brake step to be inadequate for safety. The width of the brake step had a graduating bend inward up to two inches in the area directly below the hand brake assembly. This graduated bend area extended for 30 inches.	The Switchman had limited experience.	

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FE-33-97	ATK  Darby, PA  Region 2	November  11/04/97  11:32 am, EST	<b>Carpenter, Structures (also Northernmost Watchman):</b>  45 years old 20 yrs. 10 mos. of service Last rules trng.: 8/16/96 Last safety trng.: 1/17/97 <b>Last physical: N/A</b>	<b>Craft: MOW</b>  <b>Positions:</b>  <b>Yard Staff:</b> 4 Watchmen for Gangs C312 and C102  2 Bridge & Bldg. (B&B) Foremen for Gangs C312 and C102  <b>Septa Train No. 4634 (Passenger Train):</b> Engineer Conductor  <b>Activity:</b> Installing and replacing inter- track fencing between two main tracks.	Northernmost Watchman failed to remain clear of the tracks.	The northernmost Watchman was under the influence of alcohol, per post- accident toxicological test results.	The Foremen did not comply with 49 CFR Part 214.315 (d), the Federal Roadway Worker Protection Standards, which requires that the same person who provides on-track protection brief the other employees.  The Foreman who was qualified on the characteristics of the area provided on-track protection but did not give the briefing. The Foreman-in-Charge did.  Consequently, employee interviews and job briefing document sheets revealed conflicting information re: train speeds, NORAC's Operating Rule 261 (i.e. Signal indication will be the authority for a train to operate in either direction on the same track.), and the possibility of 2-way traffic on each track.	

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FE-33-97  CONT.					<p><b>PCF NO. 4</b></p> <p>The Foremen repeatedly failed to notify the Watchmen of train movements: The first two times that foul time was obtained and released for Tracks Nos. 1 and 2, only one Watchman was notified. Foul time was obtained and released two more times, the last time a few minutes before the accident, without notifying Watchmen.</p>	<p><b>PCF NO. 5</b></p> <p>According to post-accident interviews, although gang members were aware they were in Rule 261 territory, they were still surprised to see Septa Train 4634 approaching northbound on Track No. 4. This further supports the need for better communication regarding train movements.</p>		

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FE-35-97	CSX, Transp., Inc. (CSX)  Fairmont, West VA  Region 2	August  08/17/97  8:59 pm, EST	<b>Brakeman:</b>  24 years old 1 yr. 7 mos. of service Last rules trng.: 1/10/97 Last safety trng.: No record Last physical: 2/13/96	<b>Craft:</b> <b>Transportation</b>  <b>Positions:</b> Brakeman & Tractor-Trailer Driver (not CSX employee)  <b>Activity:</b> The Brakeman was en route to training from his parents' home. He was driving his own vehicle.	A Tractor-Trailer Driver lost control of his truck, crossed the median, and struck the Brakeman's vehicle head-on, causing a 4-vehicle highway collision.	It was dark and raining heavily.	At 60 mph, the Tractor-Trailer Driver was exceeding a safe speed for poor weather conditions.	

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FE-36-97	BNSF  Emporia, KS  Region 6	December  12/02/97  7:45 pm, CST	<b>Conductor:</b>  50 years old 30 years of service Last rules trng.: 5/18/95 Last safety trng.: 5/18/95 Last physical: 7/21/92	<b>Craft:</b> <b>Transportation</b>  <b>Positions:</b>  <b>Train L-KAN-0031-02:</b> Engineer Conductor Brakeman  <b>Thru-Train Z-ALTWSP8-02:</b> Engineer Conductor  Yardmaster  <b>Activity:</b> Switching	The Conductor was standing foul of Track No. 2 and did not move in the clear when an on-coming train approached.	The entire Crew was in non-compliance with CSX's operating rules prohibiting the combination of radio and hand-signal communication, which can create confusion.		

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FE-40-97	CSX  Ashford, AL  Region 3	December  12/09/97  12:12 pm, CST	<b>Electrician:</b>  54 years old 27 years of service Last rules trng.: unknown Last safety trng.: unknown Last physical: unknown  (The last three items are not relevant to this type of accident. FRA depended on police reports, which would not include the above data.)	<b>Craft: MOE</b>  <b>Positions:</b> Electrician  Truck Driver (not CSX employee)  <b>Activity:</b> Traveling from job site, after completing electrical job, in a company vehicle.	A CSX Electrician was traveling from the job site in a company vehicle when another motorist of a pick-up truck went through a STOP sign and struck the CSX truck in the left rear, causing it to roll over.			

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FE-41-97	NS  Ridgeway, SC  Region 3	December  12/09/97  2:20 pm, EST	<b>Trackman:</b>  39 years old 13 years of service No other data  (FRA received information from a police report; therefore, data on training, etc. was not available and did not apply to this case.)	<b>Craft: MOW</b>  <b>Positions:</b> Trackman  Truck Driver (not NS employee)  <b>Activity:</b> En route from safety meeting to job site in his personal vehicle.	A Trackman, traveling southbound in his personal vehicle, crossed into the path of a southbound pick-up truck and was struck while attempting a left turn.  The Driver of the pickup truck attempted to pass the Trackman's vehicle in a designated passing zone. When the Trackman attempted to make a left turn onto a private road, he impeded the path of the pickup truck.			

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FE-42-97	Grand Trunk Western Railway Company  Lake Orion, MI  Region 4	December  12/10/97  11:45 am, EST	<b>Crane Operator:</b>  47 years old 27 years of service Last rules trng.: 02/97 Last safety trng.: 02/97 Last crane operating trng.: 11/95 Last physical: 06/97	<b>Craft: MOW</b>  <b>Positions:</b> Track Foreman Crane Operator 3 Trackmen  <b>Activity:</b> Aligning new track with crane.	The Crane Operator did not utilize the crane's outriggers (stabilizers) while attempting to lift and swing excessive weight.	Stabilizers should always be used; however, the condition of the track necessitated their use more than usual:  The crosslevel of the rails measured a 2 1/2-inch deviation from 0, while the void under the ties was 4 3/4 inches. The track lacked ballast. It was essentially just rails and ties. The Foreman indicated he had discussed this with the Crane Operator who said "skeletonized track should move fairly easily." This may have been the case with stabilizers, which were not used.	The ground, which was soft and muddy because of new track construction, contributed to the incident.	

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FE-43-97	UP  Topeka, KS  Region 6	December  12/11/97  5:05 am, CST	<p><b>Locomotive Engineer:</b></p> <p>46 years old 23 years of service Last rules trng.: 5/31/96 Last physical: 5/13/97 Last efficiency test: 12/05/97 Last Engineer re- certification: 7/10/95</p> <p>(According to Federal regulations, Locomotive Engineers need to be certified every three years. This Engineer was in compliance.)</p>	<p><b>Craft:</b> <b>Transportation</b></p> <p><b>Positions:</b></p> <p><u>Train</u> <u>MSIKCX-10</u> Locomotive Engineer Conductor</p> <p><u>Train</u> <u>CBTAC-09</u> Locomotive Engineer Conductor Manager of Train Operations</p> <p><b>Activity:</b> Switching</p>	The Locomotive Engineer of Train MSIKCX-10 failed to observe an oncoming train on the adjacent track and was struck by Train CBTAC-09 after dismounting his locomotive.	Interviews with the Crew of Train CBTAC-09 confirmed that the locomotive auxiliary (ditch) lights were not on. The Engineer stated that he dimmed the headlight to avoid blinding the crew on the adjacent track.	The Engineer did not sound the train horn as he approached the east end of Train MSIKCX-10. <i>A train horn could have helped since the fatally injured Engineer's back was toward the oncoming train.</i>	

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FE-43-97  CONT.					<p><b>PCF. NO. 4</b></p> <p>The Conductor of Train MSIKCX-10 only saw the ongoing train 25 feet away or 5 seconds from the point of impact, according to the interview. He attempted to warn the Locomotive Engineer by yelling out the door of the lead locomotive's cab.</p>	<p><b>PCF. NO. 5</b></p> <p>The fatally injured Engineer was referred to as a "big man," at 5 feet 9 inches and 375 pounds. His size may have placed him too close to the adjacent track, and slowed down his reaction time when the train approached. The area between adjacent tracks would have been narrow, especially when exiting a locomotive.</p>		

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FE-45-97	UP  Boise, ID  Region 8	December  12/26/97  5:45 pm, MST	<b>Conductor:</b>  55 years old 32 years of service Last rules exam: 5/02/97 Last safety trng.: 5/02/97 <b>Last physical: 2/22/91</b>	<b>Craft:</b> <b>Transportation</b>  <b>Positions:</b> Engineer Conductor Brakeman  <b>Activity:</b> Switching	Post-accident evidence indicated that the Conductor was between a tank car and box car, and in the process of uncoupling the two cars, when he was struck.	Crew Members did not clearly convey their intentions during radio transmissions for the movement of the train.  <b>UP's radio procedures were not followed. Three errors were committed:</b>  1) The Brakeman did not give a specific distance for a pushing move.  2) The Engineer executed the move without receiving a specific distance.  3) Neither contacted the Conductor prior to the shoving move.		