SUMMARY FOR FE-06-02
SELECTED AND POSSIBLE CONTRIBUTING FACTORS

SELECTED FACTORS

Railroad: Metro-North Commuter Railroad Company
Location: New Haven, Connecticut
Region: 1

Month: March
Date: March 5, 2002
Time: 6:30 p.m., EST

Data for Fatally Injured Employee(s)

Machinist
36 years old
10 months of service
Last safety training: May 9, 2001
Last physical: April 16, 2001

Data for All Employees (Craft, Position, Activity)

Craft: Maintenance of Equipment

Positions:

Fatally injured Machinist
Co-worker Machinist
Shop Foreman

Activity: Repositioning locomotives on the wheel true machine

EVENT

The Machinist was seriously injured when he was pinned between the wheel true machine's axle centers and the locomotive's third rail shoe while positioning the No. 3 wheels of a locomotive on the machine; he died an hour later at the hospital from his injuries.

SUMMARY FOR FE-06-02 CONTINUED

POSSIBLE CONTRIBUTING FACTORS

PCF No. 1

The fatally injured Machinist only had five months experience in the wheel true shop and had not been paired with his co-worker often enough to create familiarity with one another's work habits.

PCF No. 2

The railroad had not made available to employees standard written procedures regarding repositioning equipment in the building. In addition, the fatally injured employee did not receive formal training.

PCF No. 3

Investigators found that the plywood windscreens on the ends of the pit area prohibited employees from observing each other during the moves, inconsistent with railroad operating rules.

PCF No. 4

The location of the idler roller control valve required employees to foul equipment to operate the valve. Investigators believed that the fatally injured employee activated the valve while the equipment still was rolling and just prior to being pinned.

PCF No. 5

The fatally injured Machinist's co-worker was in overtime status when the job had begun; he therefore could have been too fatigued to alertly watch out for the Machinist's safety.

REPORT: **FE-06-2002**

RAILROAD: Metro-North Commuter Railroad Company (MNCW)

LOCATION: New Haven, Connecticut

DATE & TIME: March 5, 2002; 6:30 p.m., EST

EVENT[1]: A Machinist was seriously injured when he was pinned between the wheel true machine's axle centers and the locomotive's third rail shoe while positioning the No. 3 wheels of a locomotive on the machine; he died an hour later at the hospital from his injuries.

EMPLOYEE:

Craft:	Maintenance of Equipment (MOE)
Activity:	Repositioning Locomotives on Wheel True Machine
Occupation:	Machinist
Age:	36 Years
Length of Service:	10 months
Last Safety Training:	May 9, 2001
Last Physical:	April 16, 2001

CIRCUMSTANCES PRIOR TO THE ACCIDENT

On March 5, 2002, at 3:55 p.m., the MNCR Machinist reported for his regularly assigned shift (4 p.m. to midnight) at the railroad's equipment maintenance facility in New Haven, Connecticut. His assignment was to work with a co-worker (another Machinist) on the wheel true machine housed in Building No. 2 (a.k.a. "wheel mill"). The co-worker was working overtime after having completed his regular 8 a.m. to 4 p.m. shift. The two Machinists were assigned to re-profile (a.k.a. "true") the No. 1 wheels on MU Locomotive No. 8820 and the No. 2 and No. 3 wheels of MU Locomotive No. 8821. Building No. 2, located west of the railroad's main maintenance shop, was a permanent metal building with a single track running east/west through it. The wheel true machine was housed in a concrete pit area located in the center of the building. The pit had plywood windscreens at the east and west ends and translucent lexan windscreens on the north and south sides.

---

[1] "Event" is defined as "occurrence that immediately precedes and directly results in the fatality." Possible contributing factors are identified in the following report and attached summary.

The routine procedure for Machinists assigned to the wheel true machine was to reposition locomotives onto, and off of, the wheel true machine as needed. The workers used two devices to reposition the equipment on the wheel true machine: 1) a capstan and rope, and 2) a winch and cable. The capstan was a rotating cylindrical device which was operated electrically and moved by connecting a rope with a hook attached to one end of the equipment and wrapping the rope around the rotating capstan, thereby moving the equipment into proper position on the wheel true machine. The electrically operated winch could be utilized similarly. When either device was used, visual and audible warning devices were activated to warn workers of the movement. These warning devices were located both inside and outside of the building.

At the time of the accident, the two Machinists had completed their work on Locomotive No. 8820, and were in the process of repositioning the No. 3 wheels of Locomotive No. 8821 onto the truing machine. The weather at the time of the accident was cold and clear. The outside temperature was 28° F.

THE ACCIDENT

Prior to the accident, the fatally injured Machinist was participating in the movement of the equipment, and as was the customary practice, was to place a wooden chock on the rail to stop the equipment when the No. 3 wheel was properly positioned on the machine. He was positioned on the north side of the equipment in the wheel true pit near the control panel. The other Machinist was positioned at the electrically driven capstan approximately 55 feet from the control panel area. From this position, he was unable to see the Machinist at the control panel due to the plywood wind screen.

As the equipment began to roll, the Machinist operating the capstan shouted “free roll” to warn the Machinist in the pit. He released the tension on the rope and dropped it. As the locomotive moved onto the machine’s idler rollers, the Machinist heard the idler rollers sliding into place as the equipment stopped moving. At this time, he heard moaning sounds from his co-worker in the pit. He looked between the side of the locomotive and plywood windscreen and observed the injured Machinist who was pinned between the wheel true machine’s axle centers and the locomotive’s third rail shoe. The Machinist immediately telephoned the Shop Foreman and told him to call “911." He then attempted to move the locomotives to free the pinned Machinist. When the equipment moved off the injured Machinist, he fell to the floor. He was alert and responsive, but complained of breathing difficulty.

The first person to arrive on the scene, an MNCW employee trained in emergency response, administered first aid. EMS personnel from American Medical Response and personnel from the New Haven Fire Department responded. The injured employee was transported by ambulance to Yale New Haven Hospital where he succumbed to his injuries at 7:25 p.m.

POST-ACCIDENT INVESTIGATION

FRA's investigation included the following: an inspection of the equipment and work area; interviews with co-workers and supervisors; and a review of employee qualifications, training, and method of operation. The track inside the wheel true building was inspected by FRA. The track met or exceeded the requirements of Federal Track Safety Standards for "Class 1" track, 49 CFR Subpart C, Track Geometry, Section 213.63. The north rail had a 1-inch profile (depression) about 19 feet west of the wheel milling machine, and a 1 3/4-inch profile (rise) in the north rail at the center of the wheel milling machine.

FRA investigators concluded that the movement had been conducted in compliance with Federal regulations concerning blue signal requirements (49 CFR, Part 218.29). They also concluded, however, that the fatally injured railroad employee had failed to remain clear of moving equipment and had placed himself in an unsafe position during the movement of equipment.

The fatally injured employee, who had just five months experience working in the wheel true shop, had received no formal training other than "on-the-job" training provided by co-workers. FRA found no written standard procedures available to employees regarding proper procedures to be followed in repositioning equipment in the building. The employee and his co-worker had not worked together often and were unfamiliar with one another's work habits.

Investigators found that the plywood windscreens on the ends of the pit area prohibited employees from observing each other during the moves, inconsistent with MNCW Safety Rule No. 9176. The location of the "idler roller control valve" required employees to foul equipment in order to operate the valve. Indications are that the fatally injured employee activated the valve while the equipment was still rolling and just prior to being pinned.

The railroad took the following remedial actions:

- Removal of the east and west end plywood windscreens;
- Removal of the capstan and winch from service;
- Placement in service of a shuttle wagon (remote control car mover);
- Implementation of a formal wheel true training program in May 2002;
- Development of a formal training program for movement of equipment; and
- Redesign (including relocation) of the wheel true's idler roller control valve, to allow employees to operate the wheel true without fouling the equipment.

Toxicology testing was conducted by the Chief Medical Examiner's office of the State of Connecticut. All test results were negative.

APPLICABLE RULES

49 CFR, Part 218, Subpart B §218.29

> §218.29(b)(4) If operated by an authorized employee under the direction of the person in charge of the workmen, a car mover may be used to reposition rolling equipment within this area after workers have been notified of the movement."

MNCW Safety Rule, No. 9176

> Before coupling or operating or moving locomotive, self propelled equipment, machinery, hoisting equipment, transfer table, turntable, vehicle, or other power-operated equipment, machinery, or tool, warn fellow employees and see that they are in safe position.

MNCW Safety Rule No. 9191

> Operate valve or make adjustment or repairs on the outside of equipment only when the equipment is stopped.