



***Federal Railroad Administration
Office of Railroad Safety
Accident and Analysis Branch***

***Accident Investigation Report
HQ-2017-1205***

***Metro North Commuter Railroad Company (MNCW)
Rye, NY
May 18, 2017***

Note that 49 U.S.C. §20903 provides that no part of an accident or incident report, including this one, made by the Secretary of Transportation/Federal Railroad Administration under 49 U.S.C. §20902 may be used in a civil action for damages resulting from a matter mentioned in the report.

SYNOPSIS

On May 18, 2017, at 4:54 p.m., EDT, westbound Metro-North Commuter Railroad Company (MNCW) commuter Train No. 1373, originating from Stamford, Connecticut, and destined for Grand Central Terminal in Manhattan, New York, derailed five passenger coaches when the Engineer failed to comply with a 10-mile-per-hour (mph) temporary speed restriction at milepost (MP) 24.55 on Main Track 3 in Rye, New York. The train was traveling at a recorded speed of 56 mph. Maximum authorized speed (MAS) was 60 mph. The temporary speed restriction from Catenary Pole 216 (MP 24.6) to 214 (MP 24.49) was in place because of sun-kinked rail reported by previous MNCW trains at MP 24.55. The train's speed caused five of twelve passenger cars in the consist to derail at MP 24.55. Train No. 1373 consisted of twelve electrically-powered, multiple-unit passenger cars that included a controlling cab car. Of the 185 passengers on the train, one reported minor injuries. Four crewmembers reported injuries. MNCW reported \$781,821 in damages to equipment and \$153,000 in damages to track, signal, and structures.

At the time of the accident, the wind was from the west at 12 mph, visibility was unrestricted at 10 miles along with partly cloudy skies, and the temperature was 95 °F.

Federal Railroad Administration (FRA) Post-Accident Forensic Toxicology Result Reports were negative for the two crewmembers tested. FRA fatigue information collected post-accident indicated fatigue was not a factor.

FRA concluded the probable cause of the accident was: Train order, track warrant, track bulletin, or timetable authority, failure to comply (H404).

A contributing cause was determined to be: Failure to comply with restricted speed or its equivalent not in connection with a block or interlocking signal (H607).

TRAIN SUMMARY

1. Name of Railroad Operating Train #1 Metro North Commuter Railroad Company	1a. Alphabetic Code MNCW	1b. Railroad Accident/Incident No. 2017051832
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GENERAL INFORMATION

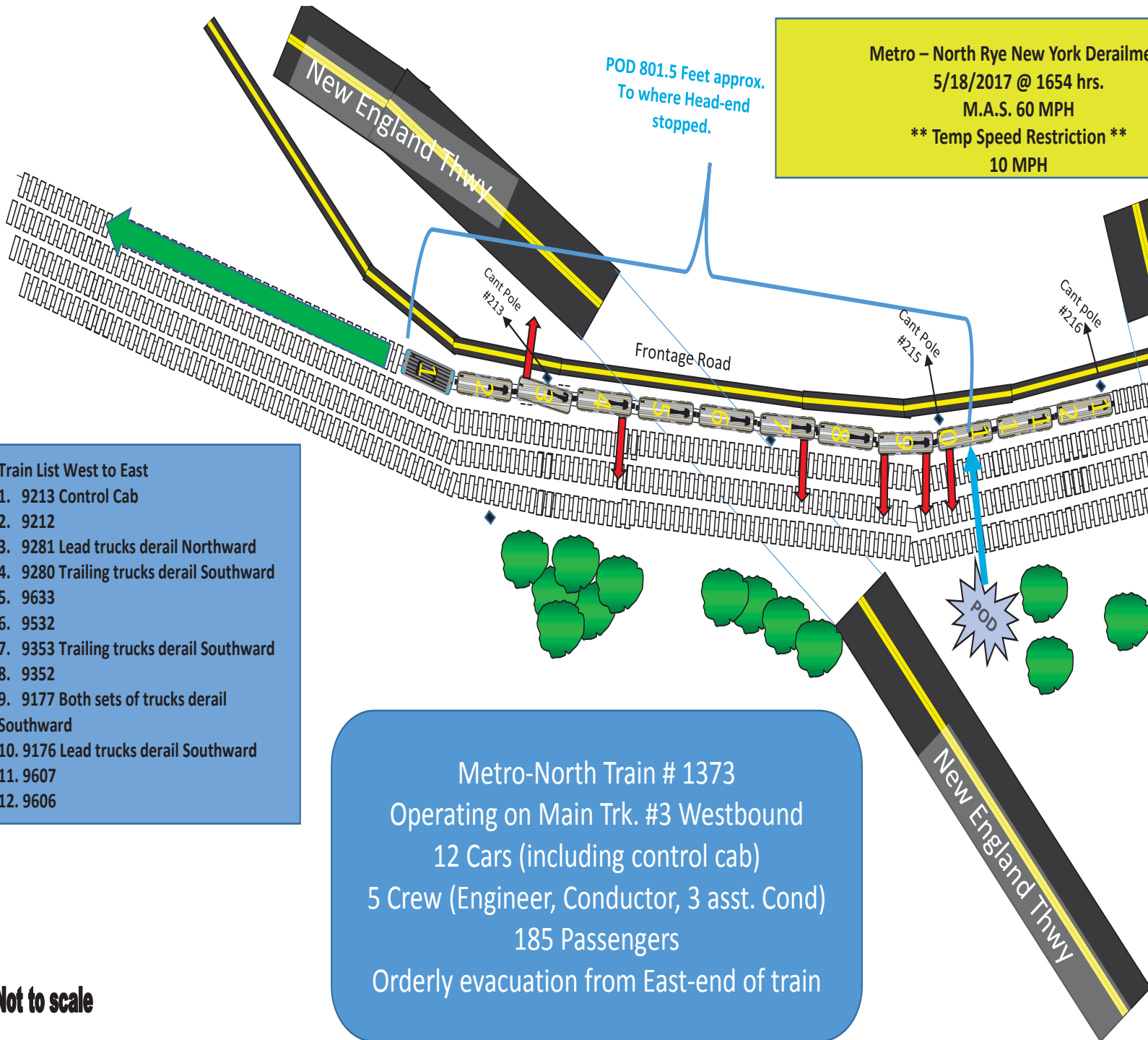
1. Name of Railroad or Other Entity Responsible for Track Maintenance Metro North Commuter Railroad Company	1a. Alphabetic Code MNCW	1b. Railroad Accident/Incident No. 2017051832
2. U.S. DOT Grade Crossing Identification Number	3. Date of Accident/Incident 5/18/2017	4. Time of Accident/Incident 4:54 PM
5. Type of Accident/Incident Derailment		
6. Cars Carrying HAZMAT 0	7. HAZMAT Cars Damaged/Derailed 0	8. Cars Releasing HAZMAT 0
	9. People Evacuated 0	10. Subdivision New Haven Line
11. Nearest City/Town Rye	12. Milepost (to nearest tenth) 24.5	13. State Abbr. NY
		14. County WESTCHESTER
15. Temperature (F) 95 °F	16. Visibility Day	17. Weather Clear
		18. Type of Track Main
19. Track Name/Number Track 3	20. FRA Track Class Freight Trains-40, Passenger Trains-60	21. Annual Track Density (gross tons in millions) 15.15
		22. Time Table Direction West

OPERATING TRAIN #1

1. Type of Equipment Consist: EMU					2. Was Equipment Attended? Yes		3. Train Number/Symbol 1373				
4. Speed (recorded speed, if available) R - Recorded 56.0 MPH E - Estimated		Code R	5. Trailing Tons (gross excluding power units)		6a. Remotely Controlled Locomotive? 0 = Not a remotely controlled operation 1 = Remote control portable transmitter 2 = Remote control tower operation 3 = Remote control portable transmitter - more than one remote control transmitter					Code 0	
6. Type of Territory Signalization: <u>Signaled</u> Method of Operation/Authority for Movement: <u>Direct Train Control</u> Supplemental/Adjunct Codes: <u>A, B, Q</u>											
7. Principal Car/Unit		a. Initial and Number	b. Position in Train	c. Loaded (yes/no)	8. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box			Alcohol	Drugs		
(1) First Involved <i>(derailed, struck, etc.)</i>		9281	3	yes				0	0		
(2) Causing <i>(if mechanical, cause reported)</i>					9. Was this consist transporting passengers?			Yes			
10. Locomotive Units (Exclude EMU, DMU, and Cab Car Locomotives.)	a. Head End	Mid Train		Rear End		11. Cars (Include EMU, DMU, and Cab Car Locomotives.)	Loaded		Empty		e. Caboose
		b. Manual	c. Remote	d. Manual	e. Remote		a. Freight	b. Pass.	c. Freight	d. Pass.	
(1) Total in Train	0	0	0	0	0	(1) Total in Equipment Consist	0	7	0	5	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	0	3	0	2	0
12. Equipment Damage This Consist 781821			13. Track, Signal, Way & Structure Damage 153000								
14. Primary Cause Code H404 - Train order, track warrant, track bulletin, or timetable authority, failure to comply											
15. Contributing Cause Code H607 - Failure to comply with restricted speed or its equivalent not in connection with a block or interlocking signal.											
Number of Crew Members						Length of Time on Duty					
16. Engineers/Operators		17. Firemen		18. Conductors		19. Brakemen		20. Engineer/Operator		21. Conductor	
1		0		4		0		Hrs: 9 Mins: 5		Hrs: 7 Mins: 51	
Casualties to:		22. Railroad Employees		23. Train Passengers		24. Others		25. EOT Device?		26. Was EOT Device Properly Armed?	
Fatal		0		0		0		N/A		N/A	
Nonfatal		4		1		0		27. Caboose Occupied by Crew?		N/A	
28. Latitude 40.989117000				29. Longitude -73.674438000							

SKETCHES

Accident Site Sketch



* Not to scale

NARRATIVE

Circumstances Prior to the Accident

The Metro-North Commuter Railroad Company (MNCW) crew of westbound Train No. 1373 included a locomotive engineer, a conductor, and three assistant conductors. They first went on-duty at 6:18 a.m., EDT, on May 18, 2017, at Stamford Yard in Stamford, Connecticut. This was the home-terminal for this crew. This was the regular assignment for the Engineer and all Assistant Conductors. The Conductor was called off the spare conductor's board to cover for the regularly-assigned Conductor who was off that day. All crew members had the required amount of rest prior to reporting for duty.

The crew held a job briefing and then boarded their equipment in the Stamford Yard. Train No. 1373 consisted of 12 electrically-powered, multiple-unit passenger cars that included a controlling cab car. The crew released the hand brakes, pulled the train up to the Stamford Station platform, and loaded passengers until their scheduled departure. At 6:53 a.m., Train No. 1373 departed Stamford Station westbound for Grand Central Terminal in Manhattan, New York. Train No. 1373 then departed Grand Central eastbound for Stamford Station at 9:37 a.m. After a 4-hour and 48-minute interim release, the crew was back on-duty at 4:05 p.m. for another round trip between Stamford and Grand Central Terminal. At 4:31 p.m., Train No. 1373 departed Stamford Station westbound for Grand Central Terminal. At 1:20 p.m., the Engineer of MNCW Train No. 1359 reported a possible track condition on Main Track 3 between Catenary Bridges 213 (MP 24.44) and 214 (MP 24.49). Two MNCW track inspectors were in their hi-rail vehicle near the area conducting track inspections for potential heat-related track problems. They proceeded to the location and found the track was misaligned. The track crew made repairs at 2:02 p.m. and gave the track back to the Rail Traffic Controller for normal operating speed.

At 2:54 p.m., the Engineer of MNCW Train No. 1365 reported a kink in the rail on Main Track 3 between Catenary Poles 214 (MP 24.49) and 215 (MP 24.55). MNCW's Rail Traffic Controller, in coordination with the Chief Dispatcher, placed a 30-mile-per-hour (mph) temporary speed restriction on the track at that location until the track could be inspected.

At 3:23 p.m., the Engineer of MNCW Train No. 1367 reported that "the kink is pretty bad," and when his train went over it doing 15 mph he could "still feel it pretty significantly." MNCW's Rail Traffic Controller lowered the temporary speed restriction to 15 mph, and the temporary speed restriction limits were changed between Catenary Poles 214 (MP 24.49) and 216 (MP 24.6).

At 3:51 p.m., a Track Supervisor arrived at the Catenary Pole 215 (MP 24.55) location and lowered the temporary speed restriction to 10 mph, due to the track misalignment caused by the heat.

The Accident

At 4:31 p.m., westbound Train No. 1373 departed Stamford Station for Grand Central Terminal. At 4:36 p.m., upon departing Stamford Station, MNCW's Rail Traffic Controller called Train No. 1373 and explained to the Engineer that he wanted to issue Train No. 1373 a line "C" speed restriction. The Engineer asked if he could copy the restriction upon arrival at Old Greenwich Station and the Rail Traffic Controller agreed. At 4:40 p.m., the following line "C" 10-mph speed restriction was issued, copied and, "OK'd" by MNCW's Rail Traffic Controller to MNCW's No. 1373 Engineer at Old Greenwich Station. The Conductor of Train No. 1373 did not hear the speed restriction being issued on his portable radio as

he was collecting tickets. He was not told about the restriction by the Engineer.

At 4:54 p.m., Train No. 1373's Engineer failed to comply with a 10-mph temporary speed restriction between Catenary Pole 216 (MP 24.6) and 214 (MP 24.49) on MNCW Main Track 3 in Rye, New York.

The train was traveling at a recorded speed of 56 mph at the point of derailment (MP 24.55). The excessive speed caused five of the twelve passenger cars to derail. Of the 185 passengers on the train, one reported minor injuries. Four crewmembers reported injuries.

MNCW's police department along with the Port Chester and Rye Fire Department conducted an orderly evacuation of all 185 passengers from the east-end of the train. The injured passenger was treated for minor injuries at a local hospital.

Analysis and Conclusions

Analysis – Toxicological Testing: This accident met the criteria for Title 49 Code of Federal Regulations Part 219, Subpart C, Post Accident Toxicological Testing. Drug and alcohol testing was performed on the Engineer and Conductor of MNCW No. 1373. The results of these tests were negative for drugs and alcohol.

Conclusion: Drugs or alcohol use was not a factor in this accident.

Analysis - Fatigue Study: Both the Engineer and Conductor willingly took part in a fatigue analysis. A 10-day work history was analyzed by the FAST system. The Engineer had a sleep effectiveness rating of 94.25 (excellent). The Conductor had a sleep effectiveness of 96.29 (excellent).

Conclusion: The crew members were well-rested and fatigue of the crew was not an issue.

Analysis - Equipment Defects: The derailed cars were inspected by the Federal Railroad Administration (FRA) after the accident. FRA requested the blue cards (FRA Form 6180.49A) and the calendar day inspections from controlling Cab Car 9213 and 9606. No defects were detected on the rail cars other than derailment damage. All MNCW inspections on the cab cars had been performed in a timely manner and none were overdue. Equipment downloads were provided to FRA by MNCW's Transportation Management and explained to FRA's Investigation team. All reporting sensors vital to the information on the download were working properly and reading accurately.

Conclusion: The equipment was in compliance with Federal and railroad rules and did not contribute to the derailment.

Analysis – Track: Track at the location of the derailment had been tested by the DOTX 216 Geometry Car on November 15, 2016 (Run ID 2016111503) and found no defects at the derailment site. MNCW's track department inspection reports of the New Haven line including the site of the derailment indicated no defects were found at MP 24.55 prior to May 18, 2017. On the day of May 18, 2017, reports of heat kinking on Main Track 3 at MP 24.55 were reported to the track department and repairs were made. A temporary speed restriction of 10 mph was put in place to protect train movements over the repaired heat-kink area.

Conclusion: While there was a known track issue at MP 24.55, MNCW's track department took all the necessary steps to inspect and repair the track. Transportation reacted by imposing a speed restriction in the affected area.

Analysis – Locomotive Engineer Operating Performance: At 4:40 p.m., the Locomotive Engineer of Train

No. 1373 received a 10-mph speed restriction from the Rail Traffic Controller with limits of Catenary Poles 216 (MP 24.6) to 214 (MP 24.49) and failed to inform the rest of the crew of the restriction. Both operating cab cars were equipped with a speed indicator and event recorders as required. The recorder data was downloaded and analyzed by MNCW and FRA. Both agreed the information on the recorder was accurate.

The event recorder download indicated the Locomotive Engineer of Train No. 1373 failed to comply with the speed restriction given by the Rail Traffic Controller and entered the 10-mph speed restriction at 56 mph, derailing five cars of Train No. 1373.

Conclusion: FRA determined the Engineer's failure to comply with the speed restriction, operating the derailing train at 56 mph in a 10-mph speed restriction, was the probable cause of the derailment.

Analysis – Conductor of MNCW Train No. 1373: The Conductor of Train No. 1373 was being used to cover the vacancy of the regular assigned conductor. According to his statement, the regular pre-trip job briefing with the Locomotive Engineer was very casual and lacked substance. The Conductor was in the body of the train at the time the Locomotive Engineer received the speed restriction from the Rail Traffic Controller and did not hear the transmission on his portable radio nor did the Locomotive Engineer inform the Conductor of the speed restriction.

During the investigation and throughout the interview process, it was noted that essential and fundamental communication between the crew members in the form of a proper job briefing was lacking. Additionally, updated information was not conveyed to other members of the crew. The kind of casual behavior caused the normal "checks and balances" accountability of the crew to break down leaving the Locomotive Engineer solely responsible for the operational compliance and safety of MNCW Train No.1373.

Conclusion: The Conductor's performance did not contribute to the cause or severity of this accident.

Analysis – MNCW Rough Track Reporting: During FRA's investigation of the events leading up to the derailment of MNCW Train No.1373, FRA discovered that under the current policy of reporting of rough track, MNCW was using revenue passenger trains to determine the severity of the track condition. It was up to MNCW's Chief Rail Traffic Controller to then decide whether to implement an initial speed restriction of 30 mph once a track condition had been reported. The next step in the process was to send another revenue train over the track condition at the 30-mph speed restriction and then determine if there was a need to further reduce the speed per MNCW policy. The policy further allowed a third revenue train to pass over the track condition before ultimately reducing the speed to a final 10 mph.

After a review of MNCW's policy for reporting rough track and the MNCW Rail Traffic Controller log and audio recordings leading up to the derailment of MNCW Train No.1373, FRA's investigation team agreed that the use of revenue passenger trains to diagnose track condition severity and determine the appropriate speed restriction poses a significant risk.

Conclusion: FRA conveyed its observations to MNCW. The railroad took this under advisement and ultimately changed their policy regarding how they determine track conditions and speed restrictions pertaining to heat kinks. Track department personnel now make that determination exclusively. This did not contribute to the derailment.

Overall Conclusion

The Locomotive Engineer and Conductor were not fatigued and tested negative for drugs and

alcohol. Had the crew started off the trip with a proper job briefing and updated job briefings as the situation and conditions changed, more members of Train No. 1373 crew would have been aware of the 10-mph speed restriction. After copying the speed restriction, the Locomotive Engineer should have shared the information with the Conductor.

The Engineer's failure to comply with the speed restriction was the probable cause of the derailment.

Probable Cause and Contributing Factors

FRA's investigation concluded the probable cause of the derailment was: Train orders, track warrants, track bulletins, or timetable authority, failure to comply. (H404)

A contributing cause was determined to be: Failure to comply with restricted speed or its equivalent not in connection with a block or interlocking signal. (H607)