



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

***Accident Investigation Report
HQ-2013-16***

***CSX Transportation (CSX)
Fonda, NY
June 27, 2013***

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.

TRAIN SUMMARY

1. Name of Railroad Operating Train #1 CSX Transportation	1a. Alphabetic Code CSX	1b. Railroad Accident/Incident No. 000117799
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GENERAL INFORMATION

1. Name of Railroad or Other Entity Responsible for Track Maintenance CSX Transportation		1a. Alphabetic Code CSX	1b. Railroad Accident/Incident No. 000117799	
2. U.S. DOT Grade Crossing Identification Number		3. Date of Accident/Incident 6/27/2013	4. Time of Accident/Incident 7:55 AM	
5. Type of Accident/Incident Side Collision				
6. Cars Carrying HAZMAT 6	7. HAZMAT Cars Damaged/Derailed 0	8. Cars Releasing HAZMAT 0	9. People Evacuated 0	10. Subdivision Mohawk
11. Nearest City/Town Fonda		12. Milepost (<i>to nearest tenth</i>) 189	13. State Abbr. NY	14. County MONTGOMERY
15. Temperature (F) 73 °F	16. Visibility Day	17. Weather Clear		18. Type of Track Main
19. Track Name/Number 1 Main		20. FRA Track Class Freight Trains-80, Passenger Trains-90		21. Annual Track Density (<i>gross tons in millions</i>) 89.7
				22. Time Table Direction East

OPERATING TRAIN #1

1. Type of Equipment Consist: Freight Train		2. Was Equipment Attended? Yes		3. Train Number/Symbol Q364-26							
4. Speed (recorded speed, if available) R - Recorded E - Estimated		Code R	5. Trailing Tons (gross excluding power units) 11207		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						
44 MPH					Code 0						
6. Type of Territory Signalization: <u>Signaled</u> Method of Operation/Authority for Movement: <u>Signal Indication</u> Supplemental/Adjunct Codes: <u>D, G, Q</u>											
7. Principal Car/Unit (1) First Involved (derailed, struck, etc.)		a. Initial and Number CSXT4759	b. Position in Train 1	c. Loaded (yes/no) no	8. If railroad employee(s) tested for drug/ alcohol use, enter the number that were positive in the appropriate box.						
(2) Causing (if mechanical, cause reported)		0	0		Alcohol 0						
					Drugs 0						
					9. Was this consist transporting passengers? No						
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		
		b. Manual	c. Remote	d. Manual	e. Remote		a. Freight	b. Pass.	c. Freight	d. Pass.	e. Caboose
(1) Total in Train		4	0	0	0	0	(1) Total in Equipment Consist 122	0	4	0	0
(2) Total Derailed		4	0	0	0	0	(2) Total Derailed 28	0	0	0	0
12. Equipment Damage This Consist 820710			13. Track, Signal, Way & Structure Damage 467000								
14. Primary Cause Code H221 - Automatic block or interlocking signal displaying a stop indication - failure to comply.*											
15. Contributing Cause Code H605 - Failure to comply with restricted speed in connection with the restrictive indication of 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		1		0		Hrs: 7 Mins: 25		Hrs: 7 Mins: 25	
Casualties to:		22. Railroad Employees		23. Train Passengers		24. Others		25. EOT Device?		26. Was EOT Device Properly Armed?	
Fatal		0		0		0		Yes		Yes	
Nonfatal		2		0		0		27. Caboose Occupied by Crew?		N/A	
28. Latitude 43.000000000				29. Longitude -74.000000000							

CROSSING INFORMATION

Highway User Involved

Rail Equipment Involved

1. Type		5. Equipment	
2. Vehicle Speed (<i>est. mph at impact</i>)	3. Direction (<i>geographical</i>)		6. Position of Car Unit in Train
4. Position of Involved Highway User		7. Circumstance	
8a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? N/A		8b. Was there a hazardous materials release by N/A	
8c. State here the name and quantity of the hazardous material released, if any.			
9. Type of Crossing Warning 1. Gates 4. Wig wags 7. Crossbucks 10. Flagged by crew 2. Cantilever FLS 5. Hwy. traffic signals 8. Stop signs 11. Other (<i>spec. in narr.</i>) 3. Standard FLS 6. Audible 9. Watchman 12. None N/A		10. Signaled Crossing Warning	
12. Location of Warning N/A		14. Crossing Illuminated by Street Lights or Special Lights N/A	
13. Crossing Warning Interconnected with Highway Signals N/A		11. Roadway Conditions N/A	
15. Highway User's Age	16. Highway User's Gender	17. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train	18. Highway User
19. Driver Passed Standing Highway Vehicle		20. View of Track Obscured by (<i>primary obstruction</i>)	
Casualties to:	Killed	Injured	21. Driver was
23. Highway-Rail Crossing Users		22. Was Driver in the Vehicle?	
24. Highway Vehicle Property Damage (<i>est. dollar damage</i>)		25. Total Number of Vehicle Occupants (<i>including driver</i>)	
26. Locomotive Auxiliary Lights? N/A		27. Locomotive Auxiliary Lights Operational? N/A	
28. Locomotive Headlight Illuminated? N/A		29. Locomotive Audible Warning Sounded? N/A	

SYNOPSIS

On Thursday June 27, 2013, at 7:55 a.m. EDT, an eastbound CSX Transportation (CSX) freight train collided with a westbound CSX freight train within an interlocking near the town of Fonda, NY. The collision resulted in the derailment of 4 locomotives and 49 railcars. Some of the freight cars ended up on State Route 5 shutting down the road. Two of the crew members sustaining non life threatening injuries. The incident occurred on tangent track at mile post 189.0 (CP 188), on the Mohawk Subdivision, part of CSX's Albany Division. The method of operation is CTC (Centralized Traffic Control) with a maximum authorized speed of 75 mph for passenger equipment and 50 mph for freight trains. This subdivision is also utilized by Amtrak's Lake Shore Limited between Albany, NY and Chicago, IL.

Eastbound CSX train Q364-26, with lead locomotive CSX 4759, impacted the side of the 37th car (FWTX620043) of the westbound CSX train Q641-27. As a result of the collision, all four locomotives of the striking train derailed with three locomotives coming to rest and listing in heavy mud, in a drainage ditch adjacent to the right of way. The fourth locomotive remained upright and in line on the right of way. Additionally, 28 cars derailed behind the locomotives in a general pile up. The collision derailed 21 cars on the westbound CSX train Q641-27. No fire or release of hazardous material was reported from either train. There was diesel fuel spilled from an overflow vent pipe of one of the derailed locomotives. Emergency personnel were able to contain the spill to the standing water in the drainage ditch around the derailed equipment. Both crew members of striking train Q364-26 were transported to a local hospital where they were treated for minor injuries and released.

Equipment damage totaled \$1,939,203 with estimated damage to track and signal equipment damage approximately \$467,000.

At the time of the accident it was daylight, clear and 73° F.

The probable cause of the accident was failure of the crew of train Q364-26 to stop the train before passing the displayed stop signal on track No.1 at CP 188 resulting in the collision with Train Q641-27, which was traversing the cross over westbound from track No.1 to track No.2. Contributing factor to this accident was the crew failed to comply with restricted speed. Fatigue may have also been a contributing factor to this accident.

Both the engineer and conductor of striking train Q364-26 had fatigue model readings that indicate fatigue may have contributed to the accident. Both crew members denied being asleep approaching the accident area. The fatigue model indicates a possible degradation in alertness and reaction time for the conductor and engineer that may have contributed to the cause of the accident.

NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

Train CSX Q364-26 (Striking Train)

The crew of Q364-26 consisted of an engineer and conductor who reported for duty in Buffalo, NY at 12:30 a.m. on June 27, 2013. Prior to being called for this assignment, the engineer and conductor had received the required rest periods. The engineer had 19 hours of rest and the conductor had 81 hours off duty. This assignment was the first time the engineer and conductor had worked together. A job briefing was held and the crew discussed the track bulletins that were in effect for the trip. The crew was then transported by taxi west of Union Road where they held a job briefing with the outgoing crew and assumed control of train Q364-26. At approximately 1:45 a.m., they departed to the east towards Selkirk, NY. The train consisted of four CSXT locomotives (CSXT4759, CSXT7732, CSXT5394 and CSXT5418) with the lead locomotive CSXT4759, 122 loaded mixed freight cars and 4 empty cars. The total weight of the train was 11,207 tons, and had a total length of 7,352 feet. The trip was uneventful with very little discussion between the engineer and conductor and no further contact with the dispatcher after departure.

Train CSX Q641-27 (Struck Train)

The crew of CSX Q641-27 consisted of an engineer and conductor who reported for duty in Selkirk, NY at 11:30 p.m. on June 26, 2013. Prior to being called for this assignment, the engineer and conductor had received the required rest period. The engineer had 49 hours rest and the conductor 16 hours rest. Departure of their train was delayed due to a power failure at Selkirk Yard, Selkirk, NY which resulted in multiple job briefings occurring between the two crew members while they awaited permission to depart. The train consisted of two CSXT locomotives (CSXT7792 and CSXT7553) with the lead unit CSXT7792, 65 loaded mixed freight cars and 18 empty cars. The train weighed 9,359 tons, and had a total length of 5,660 feet. The train departed Selkirk, NY at 5:00 a.m. The crew reported that there was fog present at the time of their departure but conditions improved as the trip progressed and was clear at the time of the accident.

Eastbound Train CSX Q364-26

In this area of the railroad there are, in succession, a 0 degree 59 minute curve to the right of about 2,787 feet, followed by a tangent of about 1,000 feet to the point of the accident, and more than 5,000 feet beyond. There is a 0.07 to 0.05 ascending grade. In this area New York State Route 5 runs parallel to the railroad. Train Q364-26 was traveling east from QC189 to CP188.

The railroad timetable direction of the train was east. The geographic direction is east. Timetable directions are used throughout this report.

Westbound Train CSX Q641-27

In this area of the railroad there is tangent track for over 5,000 feet to the point of the accident. There is 0.00 grade. Train Q641-27 was traveling west on track number one from QC187 to CP188 then was crossing over from track No. 1 to track No. 2 at CP188.

The railroad timetable direction of the train was west. The geographic direction is west. Timetable directions are used throughout this report.

THE ACCIDENT

Q641-27 was operating westbound on track No.1 when they passed QC 186 displaying an "Approach" indication. The crew called the signal in the cab and the conductor updated his signal log. The engineer approached CP 188 at a reduced speed (approximately 10 mph). The signal indication displayed at CP 188 was a "Limited Clear", indicating that the consist was going to cross over from track No. 1 to track No. 2 and continue westbound. The engineer began to throttle up to 20 mph, the maximum allowable speed through the cross over. The engineer reported that the head end of his train cleared the west end of CP 188 and the track ahead was clear.

Striking train Q364-26 operating eastbound on track No. 1, passed an "Approach" signal displayed at QC 190.7. As Q364-26 approached CP 188, they passed the head end of Q641-27 westbound on track No.2. The engineer of Q641-27 stated that he was about 20 car lengths past the west end of CP 188 when the eastbound train came into view. Before the engineer of Q641-27 could react, train Q364-26 had passed the home signal displaying a stop signal at CP 188 on track No. 1 and collided with the 37th car of train Q641-27. Q364-26 was traveling at a recorded speed of 44 mph at the time of impact. Q641-27 was traveling at a recorded speed of 20 mph.

The collision caused three of the striking train's locomotives to derail inside a drainage ditch adjacent to the right of way and bury the nose of the lead locomotive up to the windshield in mud. The fourth locomotive derailed in line of road. The impact caused 49 cars in both trains to derail and pile up in a "zigzag" pattern, blocking both main tracks. Approximately 1,800 feet of track was destroyed and significant damage to the signal system.

The accident was reported via emergency broadcast to the CSX, NC dispatcher by the engineer of Q641-27. CSX officials immediately notified the emergency authorities at the Montgomery County Sheriff's Office.

ANALYSIS AND CONCLUSIONS

ANALYSIS - TOXICOLOGICAL TESTING: The accident met the criteria for 49 CFR Part 219 Subpart C Post Accident Toxicological testing. The four employees were tested under FRA authority. The results were negative for all crew members tested.

CONCLUSION: Drugs or alcohol was not a factor in the collision.

ANALYSIS - LOCOMOTIVE ENGINEER PERFORMANCE- Striking train CSX Q364-26: The engineer of train Q364-26 was a certified locomotive engineer. He possessed a train service locomotive engineer certificate and was valid until December 31, 2014. He was employed as a locomotive engineer for the past 7 years. On January 28, 2013, he successfully completed a rules training class. FRA reviewed the engineer's operational testing records and took no exceptions to the records reviewed. The Q364-26 was not his regular assignment. The engineer was qualified on the physical characteristics of this territory, with 7 trips from Selkirk west from March 10, 2013 to the time of the accident. During an interview, the engineer stated that he was not sleeping at the time of the collision. He also stated that he felt he may have lost "situational awareness" while checking his bulletins. He was not able to recall the previous signal he operated past before the Stop Signal at CP 188. The engineer further stated that the signal at QC 190.7, could have possibly been a "Clear" signal indication. He did not recall calling out the signal.

Analysis of the event recorder data indicated that the engineer of train Q364-26 passed the "Approach" signal at QC190.7 at a speed of 45mph, in throttle position 8. The engineer began a full service reduction of the trains brakes as he passed the lead locomotive of Q641-27, approximately 989 feet prior to passing the Stop Signal being displayed at CP 188. The train's speed at that time was recorded at 48mph with the throttle position shown in idle. As the head end of the Q364-26 passed the stop signal at CP188, the engineer initiated an emergency application of the train's brakes. Approximately 275 feet past the stop signal, train Q364-26 collided with the 37th car of train Q641-27, which was committed to the cross over between track No.1 and track No.2. The recorded speed of train Q364-26 at the time of impact was 44mph.

CONCLUSION: The locomotive engineer of train Q364-26 failed to stop his train at the stop indication as required by CSX rule and Federal regulation. The engineer of train Q364-26 did not appear to acknowledge signals and failed to communicate clearly the indication displayed affecting their train as required by Communications of Signals rule 34-A1a. The engineer of train Q364-26 did not take proper action to comply with signals that governed the movement of the train. After passing an Approach signal indication, the engineer failed to reduce his train's speed to less than 30mph and prepare to stop at the next signal as required by CSX Signal Aspects and Indications rule 1285. The engineer failed to comply with the stop signal displayed at CP188 as required by Operating Rules & Signal Aspects and Indications rules 226 and 1292.

ANALYSIS - CONDUCTOR PERFORMANCE- Train CSX Q364-26: The conductor of train Q364-26 was a certified conductor. He possessed a valid conductor certificate that was valid until December 31, 2015. He worked as a conductor for the past 8 years. On January 24, 2013, he successfully completed rules training. FRA reviewed the conductor's operational testing records and took no exception to the records. He was qualified on the territory between Buffalo, NY and Selkirk, NY for 6 years and had operated over this route 3 to 4 times in the previous 60 days with the last run about 3 weeks previous. The conductor stated that he was not sleeping at the time of the accident. He also stated that he was somehow distracted and did not see the signal at QC 190-7. He stated that he asked the engineer what the signal was and that the engineer failed to respond. The conductor reported that he heard the westbound train call a "Limited Clear" over the radio, and realized that the westbound train was crossing over in front of

respond. The conductor reported that he heard the westbound train call a "Limited Clear" over the radio, and realized that the westbound train was crossing over in front of their train. At that time, he reported that they were about 80 car lengths from the home signal at CP188. At approximately 50 car lengths from the home signal, he stated that he asked the engineer, "are you going to be able to get this thing stopped?" He reported that the engineer did not immediately respond. At that point the conductor stated he began looking for the emergency brake handle, when he heard the engineer initiate an emergency brake application from the control stand.

CONCLUSION: The conductor of Q364-26 failed to ensure the train was operated in compliance with the specific CSX Operating Rules & Signal Aspects and Indications, control of train speed rule 50.1a and b. The conductor did not take proper action to comply with signals that governed the movement of the train. After passing the approach signal at QC 190.7, the conductor failed to ensure that his train's speed was reduced to less than 30mph and preparing to stop at the next signal as required by CSX Signal Compliance rule 1285. The conductor failed to ensure reduced speed so his train would comply with CSX Operating Rules & Signal Compliance rules 226 and 1292.

ANALYSIS - LOCOMOTIVE ENGINEER PERFORMANCE- CSX Q641-27: The engineer of train Q641-27 was a certified engineer. He possessed a locomotive engineer certificate that was valid until December 31, 2014. He has worked as an engineer for approximately 20 years. On March 11, 2013, he successfully completed rules training. FRA reviewed operational testing records and found no exceptions. The engineer of train Q641-27 stated that he was alert at the time of the accident.

CONCLUSION: The actions of the locomotive engineer of train Q641-27 played no role in the cause or severity of the collision.

ANALYSIS - CONDUCTOR PERFORMANCE- FREIGHT TRAIN CSX Q641-27: The conductor of train Q641-27 was a certified conductor. He possessed a valid conductor certification with an expiration date of December 31, 2015. He has worked as a conductor for 8 years. On January 14, 2013, he successfully completed rules training. FRA reviewed operational testing records and found no exceptions. The conductor of train Q641-27 stated that he was alert at the time of the accident.

CONCLUSION: The actions of the conductor of train Q641-27 played no role in the cause or severity of the collision.

ANALYSIS - MECHANICAL SAFETY DEVICES: No exceptions were noted to the equipment during the on-site mechanical inspection of the trains.

CONCLUSION: The mechanical conditions did not contribute to the cause or severity of the accident.

ANALYSIS - TRACK CONDITIONS: The FRA Track Inspector on scene examined CSX track and inspection records for the area where the accident occurred. No exceptions were noted in the records/track inspection.

CONCLUSION: Track conditions did not contribute to the cause or severity of the accident.

ANALYSIS - SIGNAL AND TRAIN CONTROL: The accident destroyed the track and corresponding signal circuitry for the interlocking signal system. However, signal information and download capability remained intact. CSX train dispatcher signal control and indication data logs were obtained. Downloads obtained by CSX signal system personnel were analyzed by the FRA Signal Inspector. No exceptions in the operation of the signal system.

The regular testing and inspections per Code of Federal Regulations 49 CFR 236, Rules, Standards, and Instructions Governing the Installation, Inspection, Maintenance, and Repair of Signal and Train Control Systems, Devices and Appliances for CP 188 were determined to be in compliance.

CONCLUSION: The Signal and Train Control System operated as designed and did not contribute to the cause or severity of the accident.

ANALYSIS - FATIGUE: FRA used a fatigue analysis software program to create an analysis model for each crew members overall effectiveness rate at the time of the accident. This model was produced through calculations made using the collected work/rest data from each of the crew members.

The FRA uses an overall effectiveness rate of 77.5 percent as the baseline for fatigue analysis, which is equivalent to a blood alcohol content (BAC) of 0.05. At or above this baseline, FRA does not consider fatigue as probable for any employee. Software sleep settings vary according to information obtained from each employee. If an employee does not provide sleep information, FRA uses the default software settings. The FRA obtained fatigue related information, including a 10-day work history, for four employees involved in this accident.

CONCLUSION: Upon analysis of that information FRA concluded that fatigue was probable for one or more of the employees, and the employee or employees may have been working at a diminished level of safety (effectiveness) due to mental and/or physical attributes associated with fatigue; which may have contributed to the cause of the accident/incident.

ANALYSIS: The weather at the time of the accident was daytime and clear. The crew of the struck train had no problems seeing the signal indications in the same area as striking train Q364-26.

CONCLUSION: The weather was not a factor in this accident.

OVERALL CONCLUSIONS:

The railroad was in full compliance with its own, and all applicable, Federal standards. The crew of train Q364-26 failed to stop at the stop indication at CP188 as required by railroad rules and Federal regulations and impacted CSX train Q641-27 resulting in injury to two employees and derailment of 4 locomotives and 49 freight cars as well as causing additional extensive monetary damage to the track and signal systems.

PROBABLE CAUSE AND CONTRIBUTING FACTORS:

The probable cause of the collision was failure of train Q364-26's crew to stop before passing the stop signal indication at CP188, located at Fonda, NY, Mohawk Subdivision, thereby colliding with train Q641-27 traversing the crossover from track No.1 to track No.2. Contributing factor to this accident was the crew failed to comply with restricted speed. Fatigue may have also been a contributing factor to this accident.

Both the engineer and conductor of striking train Q364-26 had fatigue model readings that indicate fatigue may have contributed to the accident. Both crew members denied being asleep approaching the accident area. The fatigue model indicates a possible degradation in alertness and reaction time for the conductor and engineer that may have contributed to the cause of the accident.