Federal Railroad Administration
Office of Railroad Safety
Accident and Analysis Branch

Accident Investigation Report
HQ-2017-1193

CSX Transportation (CSX)
Newburgh, NY
March 7, 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

Synopsis

On March 7, 2017, at 3:11 p.m., CSX Transportation (CSX) Freight Train Q40907, consisting of 77 mixed freight cars and 3 locomotives, was traveling southward on single main track in traffic control system territory and collided with a man lift at River Road in Newburgh, New York. The train derailed 3 locomotives and the 20 head cars at a highway-rail grade crossing off River Road (also known as "Shipyard Crossing"). The locomotives came to rest perpendicular to River Road, blocking the road. One locomotive's fuel tank was ripped open spilling 4,660 gallons of diesel fuel. Twenty cars derailed including 7 tank cars carrying hazardous material. There was no hazmat release. The accident occurred near Newburgh, at Milepost QR 55.90, on the River Line Subdivision.

The Operator exited the man lift before impact and was not injured. The man lift was destroyed in the collision. Equipment from the collision struck stationary maintenance-of-way (MOW) equipment located on an adjacent siding. The track crew was waiting to receive track authority at the time of the derailment. The tamper and a ballast regulator were also destroyed in the accident. Two MOW employees occupying that equipment received non-life-threatening injuries and were taken to a local hospital for treatment. The train crew was transported to a local hospital for treatment and later released.

Damages to Train Q40907 equipment was reported to be $525,861. Track, Signal, Way, and Structure damage was reported as $1,343,081. The damage to the standing tamper was reported as $850,000 and the damage to the standing ballast regulator was reported as $330,000. Total railroad damage for this accident was estimated at $3,048,942. The man lift was destroyed and the cost of replacement was estimated at $120,000.

At the time of the incident, the weather was overcast with a temperature of 52 °F with a slight breeze.

The probable cause of this accident was highway user misjudgment under normal weather and traffic conditions (M303).

U.S. Department of Transportation Federal Railroad Administration	**FRA FACTUAL RAILROAD ACCIDENT REPORT**	FRA File #HQ-2017-1193

TRAIN SUMMARY

1. Name of Railroad Operating Train #1	1a. Alphabetic Code	1b. Railroad Accident/Incident No.
CSX Transportation	CSX	000167261
2. Name of Railroad Operating Train #2	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
CSX Transportation	CSX	000167261`
3. Name of Railroad Operating Train #3	3a. Alphabetic Code	3b. Railroad Accident/Incident No.
CSX Transportation	CSX	000167261`

GENERAL INFORMATION

1. Name of Railroad or Other Entity Responsible for Track Maintenance	1a. Alphabetic Code	1b. Railroad Accident/Incident No.
CSX Transportation	CSX	000167261`
2. U.S. DOT Grade Crossing Identification Number	3. Date of Accident/Incident	4. Time of Accident/Incident
507133W	3/7/2017	3:11 PM

5. Type of Accident/Incident: Hwy-Rail Crossing

6. Cars Carrying HAZMAT	7. HAZMAT Cars Damaged/Derailed	8. Cars Releasing HAZMAT	9. People Evacuated	10. Subdivision
19	7	0	0	River

11. Nearest City/Town	12. Milepost *(to nearest tenth)*	13. State Abbr.	14. County
Newburgh	QR55.9	NY	ORANGE

15. Temperature (F)	16. Visibility	17. Weather	18. Type of Track
52 ˚F	Day	Cloudy	Main

19. Track Name/Number	20. FRA Track Class	21. Annual Track Density *(gross tons in millions)*	22. Time Table Direction
Single Main	Freight Trains-60, Passenger Trains-80	65	West

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FRA FACTUAL RAILROAD ACCIDENT REPORT

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OPERATING TRAIN #1

1. Type of Equipment Consist:	2. Was Equipment Attended?	3. Train Number/Symbol
Freight Train	Yes	Q40907

4. Speed (recorded speed, if available) R - Recorded E - Estimated	Code	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
31.0 MPH	R	6093		0

6. Type of Territory

Signalization:
Signaled

Method of Operation/Authority for Movement:
Signal Indication

Supplemental/Adjunct Codes:
Q

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 *(derailed, struck, etc.)*	CSXT5281	1	yes			
(2) Causing *(if mechanical, cause reported)*				9. Was this consist transporting passengers?		No

10. Locomotive Units (Exclude EMU, DMU, and Cab Car Locomotives.)	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End e. Remote	11. Cars (Include EMU, DMU, and Cab Car Locomotives.)	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	3	0	0	0	0	(1) Total in Equipment Consist	38	0	39	0	0
(2) Total Derailed	3	0	0	0	0	(2) Total Derailed	19	0	1	0	0

12. Equipment Damage This Consist	13. Track, Signal, Way & Structure Damage
525861	1343081

14. Primary Cause Code
M303 - Highway user misjudgment under normal weather and traffic conditions

15. Contributing Cause Code

Number of Crew Members

16. Engineers/Operators	17. Firemen	18. Conductors	19. Brakemen
1	0	1	0

Length of Time on Duty

20. Engineer/Operator	21. Conductor
Hrs: 5 Mins: 41	Hrs: 5 Mins: 41

Casualties to:	22. Railroad Employees	23. Train Passengers	24. Others
Fatal	0	0	0
Nonfatal	2	0	0

25. EOT Device?	26. Was EOT Device Properly Armed?
Yes	Yes

27. Caboose Occupied by Crew? N/A

28. Latitude	29. Longitude
41.489401000	-74.009238000

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FRA FACTUAL RAILROAD ACCIDENT REPORT

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OPERATING TRAIN #2

1. Type of Equipment Consist:	2. Was Equipment Attended?	3. Train Number/Symbol
Spec. MoW Equip.	Yes	MT5410

4. Speed (recorded speed, if available) R - Recorded E - Estimated	Code	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
0.0 MPH	E			0

6. Type of Territory

Signalization: Not Signaled

Method of Operation/Authority for Movement:

Supplemental/Adjunct Codes:

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 *(derailed, struck, etc.)*	MT5410	1	yes			
(2) Causing *(if mechanical, cause reported)*				9. Was this consist transporting passengers?		No

10. Locomotive Units (Exclude EMU, DMU, and Cab Car Locomotives.)	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End e. Remote	11. Cars (Include EMU, DMU, and Cab Car Locomotives.)	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train						(1) Total in Equipment Consist	1				
(2) Total Derailed						(2) Total Derailed	1				

12. Equipment Damage This Consist	13. Track, Signal, Way & Structure Damage
850000	

14. Primary Cause Code

M303 - Highway user misjudgment under normal weather and traffic conditions

15. Contributing Cause Code

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	0	0	Hrs: 0 Mins: 0	Hrs: Mins:

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	
Nonfatal	1	0	0	27. Caboose Occupied by Crew?	

28. Latitude	29. Longitude
41.489401000	-74.009238000

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FRA FACTUAL RAILROAD ACCIDENT REPORT

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OPERATING TRAIN #3

1. Type of Equipment Consist:	2. Was Equipment Attended?	3. Train Number/Symbol
Spec. MoW Equip.	Yes	BR201318

4. Speed (recorded speed, if available) R - Recorded E - Estimated	Code	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
0.0 MPH	E			0

6. Type of Territory

Signalization: Not Signaled

Method of Operation/Authority for Movement:

Supplemental/Adjunct Codes:

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 *(derailed, struck, etc.)*	BR201318	1	yes			
(2) Causing *(if mechanical, cause reported)*				9. Was this consist transporting passengers?		N/A

10. Locomotive Units (Exclude EMU, DMU, and Cab Car Locomotives.)	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End e. Remote	11. Cars (Include EMU, DMU, and Cab Car Locomotives.)	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train						(1) Total in Equipment Consist	1				
(2) Total Derailed						(2) Total Derailed	1				

12. Equipment Damage This Consist	13. Track, Signal, Way & Structure Damage
330000	

14. Primary Cause Code

M303 - Highway user misjudgment under normal weather and traffic conditions

15. Contributing Cause Code

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	0	0	Hrs: 0 Mins: 0	Hrs: Mins:

Casualties to:	22. Railroad Employees	23. Train Passengers	24. Others
Fatal	0	0	0
Nonfatal	1	0	0

25. EOT Device?	26. Was EOT Device Properly Armed?	
N/A		N/A

27. Caboose Occupied by Crew?

28. Latitude	29. Longitude
41.489401000	-74.009238000

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CROSSING INFORMATION

Highway User Involved		Rail Equipment Involved
1. Type: Other (Spec. In Narrative)		5. Equipment: Train (Units Pulling)
2. Vehicle Speed *(est. mph at impact)*: 0	3. Direction *(geographical)*: West	6. Position of Car Unit in Train
4. Position of Involved Highway User: Stalled or Stuck on Crossing		7. Circumstance: Rail Equipment Struck Highway User
8a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials?: Neither		8b. Was there a hazardous materials release by: Neither

8c. State here the name and quantity of the hazardous material released, if any.
N/A

9. Type of Crossing	10. Signaled Crossing Warning	11. Roadway Conditions
1. Gates 4. Wig wags 7. Crossbucks 10. Flagged by crew 2. Cantilever FLS 5. Hwy. traffic signals 8. Stop signs 11. Other *(spec. in narr.)* 3. Standard FLS 6. Audible 9. Watchman 12. None 1, 7, 6	1	Dry

12. Location of Warning	13. Crossing Warning Interconnected with Highway Signals	14. Crossing Illuminated by Street Lights or Special Lights
Both Sides	No	No

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
45	Male	No	Other (specify in narrative)

19. Driver Passed Standing Highway Vehicle	20. View of Track Obscured by *(primary obstruction)*
No	Not Obstructed

Casualties to:	Killed	Injured	21. Driver was	22. Was Driver in the Vehicle?
			Uninjured	No
23. Highway-Rail Crossing Users	0	0	24. Highway Vehicle Property Damage *(est. dollar damage)*: 120000	25. Total Number of Vehicle Occupants *(including driver)*: 1

26. Locomotive Auxiliary Lights?	27. Locomotive Auxiliary Lights Operational?
Yes	Yes
28. Locomotive Headlight Illuminated?	29. Locomotive Audible Warning Sounded?
Yes	Yes

10. Signaled Crossing Warning

1 - Provided minimum 20-second warning
2 - Alleged warning time greater than 60 seconds
3 - Alleged warning time less than 20 seconds
4 - Alleged no warning
5 - Confirmed warning time greater than 60 seconds
6 - Confirmed warning time less than 20 seconds
7 - Confirmed no warning
N/A - N/A

Explanation Code

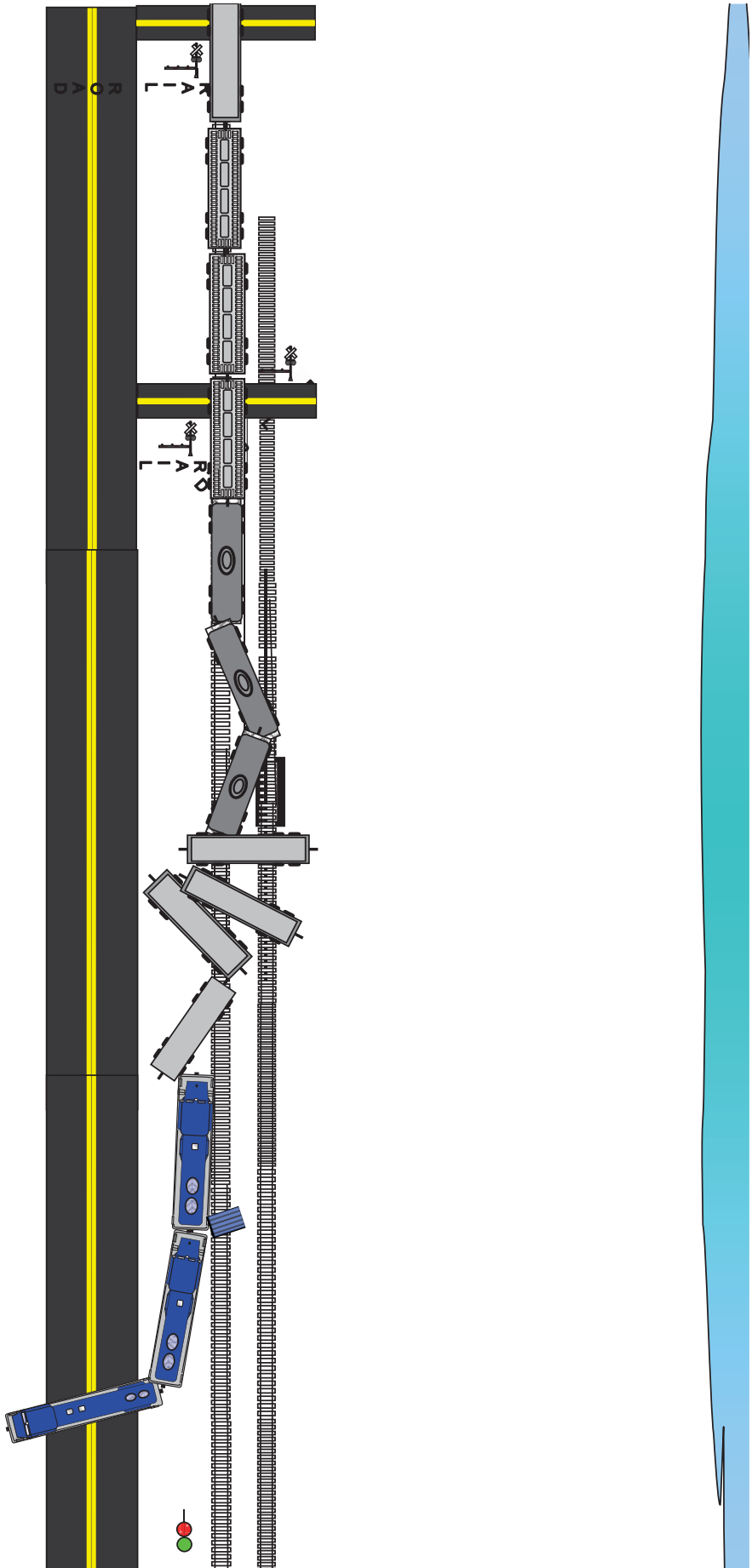
A - Insulated rail vehicle
B - Storm/lightning damage
C - Vandalism
D - No power/batteries dead
E - Devices down for repair
F - Devices out of service
G - Warning time greater than 60 seconds attributed to accident-involved train stopping short of the crossing, but within track circuit limits, while warning devices remain continuously active with no other in-motion train present
H - Warning time greater than 60 seconds attributed to track circuit failure (e.g., insulated rail joint or rail bonding failure, track or ballast fouled)
J - Warning time greater than 60 seconds attributed to other train/equipment within track circuit limits
K - Warning time less than 20 seconds attributed to signals timing out before train's arrival at the crossing/island circuit
L - Warning time less than 20 seconds attributed to train operating counter to track circuit design direction
M - Warning time less than 20 seconds attributed to train speed in excess of track circuit's design speed
N - Warning time less than 20 seconds attributed to signal system's failure to detect train approach
O - Warning time less than 20 seconds attributed to violation of special train operating instructions
P - No warning attributed to signal systems failure to detect the train
R - Other cause(s). Explain in Narrative Description

SKETCHES

Sketch

N
W E
S

*** Not to scale**



NARRATIVE

Circumstances Prior to the Accident

The crew of CSX Transportation (CSX) Train Q40907 (striking train) included a locomotive engineer and a conductor. Both went on duty at 9:30 a.m., EST, on March 7, 2017, at Selkirk Yard in Albany, New York. This was the home terminal for both the Conductor and the Engineer. Both crewmembers received more than the statutorily-required off-duty period prior to reporting for duty.

Their assigned freight train consisted of three locomotives, 38 loaded cars, and 39 empty mixed-freight cars. The train was 4,604 feet long, and weighed 6,093 tons. The train was scheduled to travel from Selkirk, New York, to North Bergen, New Jersey, where another crew would have taken the train to its destination of Savannah, Georgia. The train received a Class 1 train air brake test and departed Selkirk Yard at approximately 11:47 a.m.

The striking train followed a track geometry car south after departing Selkirk and met northbound traffic at Alsen. The Train Dispatcher routed the track geometry car into the siding at Milton and the striking train ran ahead of the track geometry car for the remainder of the trip south.

As the striking train approached the accident area, the Locomotive Engineer was seated at the controls on the west side of the leading locomotive and the Conductor was seated on the east side.

In the area of the accident, beginning at milepost (MP) QR 56.1, the track begins a 1-degree right-hand curve that is approximately 500 feet in length, where the track passes between two abutments for an overhead railroad bridge. The track next enters a 1-degree left-hand curve that is approximately 500 feet in length ending at MP QR 55.8. In the second curve, at MP QR 55.9, there is an at-grade crossing named “Shipyard Xing,” which was the site of this accident. Continuing south from the involved crossing, the track becomes tangent track and enters Control Point (CP) 55 at MP QR 55.7, which is a north-end interlocking for a controlled siding track that continues parallel to the main to CP 53. The track grade is a descending 0.62 percent between MP QR 57 and MP QR 56, where the track essentially levels off south of MP QR 56 at .02 percent ascending grade. The final resting point of the lead engine of the striking train was on a parallel road roughly perpendicular to the track at approximately MP QR 55.7. The annual million gross tons (MGT) through the area is listed as 65 MGT.

CSX’s Albany Division Timetable No. 1 lists the maximum authorized speed (MAS) through this track segment as 45 miles per hour (mph), which requires CSX to maintain the track structure in this area to Federal Railroad Administration (FRA) Class 4 track safety standards (as a minimum). There were no temporary speed restrictions in effect at the time. Cardinal direction for this subdivision is south, timetable direstion is west. Cardinal direction is used throughout this report.

Two Maintenance of Way (MOW) machines were located on an adjacent siding just south of Shipyard Xing. Two track crew members were waiting to receive track authority at the time of the derailment. CSX tamper MT5410 and CSX ballast regulator BR201318 were waiting for the train to pass so they could begin work nearby. A third employee, a MOW Foreman, was in his vehicle next to the MOW equipment in the siding.

The Accident

Train Q40907

The striking train was being operated at a recorded speed of 31 mph approaching the accident area. The train crew's view is narrowed by embankments on the east and west side of the track leading up to the crossing. The Engineer stated that after passing south of Washington and Renwick Streets, his Conductor exclaimed there is an obstruction on the track. The Engineer then said he saw something on the track and placed the train in dynamic braking and blew the horn continuously.

Man Lift/Machine: The man lift was operating from west to east on Shipyard Xing. According to the train crew's interviews, the Man Lift Operator was attempting to move the man lift off the crossing. A report obtained by FRA from the New York State Police described the Man Lift Operator as moving the equipment from a parking lot across River Road towards the Hudson River trying to negotiate Shipyard Xing in the process. There was a traffic controller assisting with the man lift movement. The Man Lift Operator told police that he was moving in "turtle" mode at approximately 5 mph. As he began to cross the tracks, he said that the man lift seemed to slow and stall. At this same time, the Man Lift Operator saw the train approaching and the traffic controller yelled to the Operator to leave the machine. The Man Lift Operator jumped off the lift and ran across River Road.

Neither the Man Lift Operator or the Traffic Controller were injured.

The train struck the midpoint of the man lift just to the right of the front wheel. The man lift was carried south along the track for about 1,050 feet before bursting into flames from the propane tank strike by the lead locomotive. The man lift came to rest on the west side of the track. The train came to a stop about 200 feet southwest of this point. The man lift was a total loss and damage is estimated at approximately $120,000.

As a result, the 20 head cars in the train derailed, 7 of which were placarded hazardous material. The seven hazardous material placarded cars remained upright and no release of hazardous materials occurred.

MOW Equipment: Equipment from the derailed CSX train struck stationary MOW equipment located on an adjacent siding. The track crew was waiting to receive track authority at the time of the derailment. CSX tamper MT5410 and CSX ballast regulator BR201318 were totally destroyed as a result of the train derailment. Two of the three MOW employees, one occupying the tamper and one occupying the ballast regulator, received non-life-threatening injuries and were taken to a local hospital for treatment. The third track employee was a Forman sitting in a truck beside the track equipment.

After the train stopped, the Conductor and Locomotive Engineer exited the locomotive and awaited the arrival of emergency response personnel. The Engineer stated that local police arrived within minutes, and that, shortly after, he was asked to shut down the locomotives by emergency responders.

Approximately 1 hour after the accident, a CSX Trainmaster arrived and took the crew to the hospital for evaluation. The train crew was treated and later released from the hospital and driven by the Trainmaster back to Selkirk, their home terminal.

The two injured MOW employees were taken by ambulance to St. Luke's Hospital in Newburgh, New York.

Damages to the striking train was reported to be $525,861. The damage to the tamper was reported as $850,000 and the damage to the ballast regulator was reported as $330,000. Rail equipment damage total was $1,705,861. Track, Signal, Way, and Structure Damage was reported as $1,343,081. Total railroad damage for this accident was estimated at $3,048,942. The man lift was destroyed and the cost

of replacement was estimated at $120,000.

Analysis and Conclusions

Analysis – Toxicological Testing: The Man Lift Operator was a 45-year-old male. He was given a sobriety test on-scene by local police. Those results were negative.

There were no toxicological tests performed on the train crew. FRA does not require such testing for this type of accident.

Conclusion: Toxicology did not contribute to the cause or severity of this accident.

Analysis – Man Lift Equipment: The man lift equipment was inspected 5 days prior (March 2, 2017) to the incident and no exceptions were documented on the inspection record. The State Police interview with the Lift Operator did not uncover any mechanical failure. The Operator says he was operating the lift in “turtle” mode, which was very slow.

Conclusion: The mechanical condition of the man lift equipment did not contribute to the cause or severity of this accident.

Analysis – Highway-Rail Grade Crossing (Active Warning Devices): The highway-rail crossing at grade is equipped with warning lights, bells, gates, and is equipped with a GCP 3000 crossing predictor.

It is unknown if this crossing had whistle posts located in advance of the crossing. Both train crewmembers stated the locomotive horn was sounded in advance of the crossing and was continuously sounded until the equipment came to rest. This was validated by event recorder data supplied by CSX.

The active warning devices at this crossing were inspected and a review of the digital video recorder (DVR) footage from the locomotive was performed by an FRA Signal and Train Control Inspector on the day of the accident. The video shows the southwest crossing gate down on the equipment and the flashers operating before the man lift was struck. A 29-second warning time was given for the train involved in the collision.

Conclusion: The active warning devices did not contribute to the cause or severity of this accident.

Analysis – Locomotive Safety Devices: An FRA Motive Power and Equipment Inspector was not present at the scene of the accident, however, the event recorder revealed all monitored safety devices of the locomotive were operational at the time of the accident.

Conclusion: The operation of the locomotive safety devices did not contribute to the cause or severity of this accident.

Analysis – Locomotive Engineer Operating Performance: The locomotive was equipped with a speed indicator and an event recorder, as required by Federal regulation. Both were operating as intended.

The relevant event recorder data was supplied to FRA by CSX and no exceptions were taken to the Engineer’s performance.

Conclusion: The Locomotive Engineer’s operating performance did not contribute to the cause or severity of this accident.

Overall Conclusions

The railroad was in full compliance with its own standards and applicable Federal standards. The train crew operated the train in compliance with Federal and CSX company rules and regulations.

From records review and a State Police interview, it was concluded that the man lift was likely in good working order and the Operator abandoned the lift at the crossing.

Probable Cause and Contributing Factors

The probable cause of this accident was highway user misjudgment under normal weather and traffic conditions (M303).