

National Transportation Safety Board

Office of Railroad, Pipeline and Hazardous Materials

Washington, DC 20594



RRD23FR015

OPERATIONS

Specialist's Factual Report

September 20, 2023

Table of Contents

A.	ACCIDENT.....	4
B.	OPERATIONS GROUP	4
C.	ACCIDENT SUMMARY.....	4
D.	DETAILS OF THE INVESTIGATION	5
1.0	BACKGROUND INFORMATION.	5
2.0	ACCIDENT EMPLOYEE REFERENCES.	5
3.0	EVENTS PRIOR TO THE ACCIDENT.	6
4.0	THE ACCIDENT.....	8
5.0	DESCRIPTION OF THE BERKSHIRE LINE.	9
6.0	ACCIDENT TIMELINE	9
7.0	EQUIPMENT INFORMATION.	10
8.0	RECORDED COMMUNICATIONS AND VIDEO.	10
8.1	Radio Recordings.....	10
9.0	CREW OPERATIONAL INFORMATION.	10
9.1	Middlesex crew training overview.	10
9.1.1	Middlesex Safety Orientation Program	10
9.1.2	Site specific orientation (Berkshire Line).....	11
9.1.3	Middlesex training - Competent person(s).	11
9.1.4	Middlesex OJT Training.....	12
9.1.5	Housatonic Railroad Company RWP Training.	12
9.2	Crew certification and training history.	13
9.3	Crew Hours of service (HOS) information.....	13
9.4	Crew previous work schedule.	13
9.5	FRA post-accident drug and alcohol testing.....	14
10.0	INTERVIEWS CONDUCTED ON-SCENE.....	14
11.0	INTERNAL OVERSIGHT.	15
11.1	Mass DOT	15
11.1.1	Massachusetts ownership of the Berkshire line.....	15
11.1.2	Massachusetts regulatory rail oversight.	16
11.1.3	Mass DOT - Berkshire line track improvement - phase III	16

11.2 Housatonic Railroad.	16
11.2.1 Housatonic Railroad operating rules.	16
11.2.2 HRRC Periodic Oversight program	17
11.2.3 HRRC operational testing records.....	17
11.2.4 HRRC operational testing records of accident employees.	17
11.3 Middlesex corporation.....	18
11.4 Middlesex Health and Safety Plan (HASP).	18
11.5 Middlesex internal oversight.....	19
11.5.1 "STOP" card program	19
11.5.2 Daily Huddle and Safety Planning	20
11.5.3 Middlesex Daily Huddle records.	21
11.5.4 Near Miss reporting.....	22
11.5.5 Site Inspection Reports	22
12.0 EXTERNAL OVERSIGHT.	23
12.2.1 Safety Advisory 2023-06; Roadway Maintenance Machines.....	24
12.3 Federal regulations relating to the accident	24
12.3.2 Part 217–Railroad operating rules.	25
12.3.3 Part 218- Railroad operating practices.	25
12.3.4 Part 243- Training, qualification, and oversight for safety-related railroad employees.	25
12.3.5 Part 271- Risk reduction program.	25
13.0 EMERGENCY RESPONSE.	26
13.1 Emergency response timeline.	26

1 **A. ACCIDENT**

2 NTSB Accident No: RRD23FR015
3 NTSB Keys number:
4 Accident Type: Contracted Roadway Worker Fatality
5 Location: Great Barrington, Massachusetts (Milepost (MP) 58.7 - Berkshire Line)
6 Date of accident: August 4, 2023
7 Time of accident: 10:05 a.m. EDT
8 Operating railroad: Housatonic Railroad Company (HRRC)
9 Contractor: Middlesex Corporation (Middlesex)
10 Train type/Designation: Tie Drilling Machine #MS097
11 Fatalities: 1
12 Injuries: 0

13 **B. OPERATIONS GROUP**

14
15 NTSB R. Skolnekovich
16 Rail Accident Investigator
17 Washington, DC
18
19 Federal Railroad Administration John Patane
20 Railroad Safety Inspector - Track
21 Yonkers, NY
22
23 Housatonic Railroad P.J. Bailly
24 Trainmaster
25 Canaan, CT
26
27 Middlesex Corporation Darren Hohn
28 HSE Operations Director
29 Littleton, MA
30

31 **C. ACCIDENT SUMMARY**

32 For a summary of this accident, refer to the Accident Summary report within
33 this docket.

1 **D. DETAILS OF THE INVESTIGATION**

2 **1.0 Background information.**

3 In 2015, the Massachusetts Department of Transportation (Mass DOT)
4 purchased the 36.6 miles long Berkshire Line from the Housatonic Railroad
5 Company (HRRC). Mass DOT acquired this line with the stated intent of restoring
6 future "regional passenger train service linking the Berkshire region of western
7 Massachusetts with the New York City metropolitan area and the Northeast
8 Corridor megalopolis"¹. Under this purchase agreement, Mass DOT gave HRRC an
9 exclusive freight railroad operating easement over the Berkshire line.

10
11 On April 7, 2022, Mass DOT issued a bid solicitation notice² for the installation of
12 approximately 8.4 track miles of 136RE continuous welded rail (CWR) on the
13 Berkshire line between MP 50 to MP 59. This contract also included track surfacing
14 and alignment work as well as maintenance work to be performed on four bridges
15 on the Berkshire line.

16
17 This proposal was known as the "Berkshire line track improvement - phase III"
18 and was awarded to Middlesex corporation, a heavy civil construction and paving
19 contractor.
20

21 **2.0 Accident employee references.**

22 For clarity within this factual report, the individuals directly involved in the
23 accident will be referred to as follows:

24
25 Employee 1 - The fatally injured Middlesex employee. This employee was the
26 lagger operator prior to the accident and was operating a gas-powered leaf
27 blower at the time of the accident.

28
29 Employee 2 - The Middlesex employee working on the ground with Employee 1
30 at the time of the accident. This employee was removing ballast from tie plate
31 holes with a screwdriver just prior to the accident.

32
33 Employee 3 - The Middlesex employee riding on the driller with the Driller
34 Operator at the time of the accident.

² From the "Federal Register / Vol. 79, No. 211 / Friday, October 31, 2014" which can be found at the following link: <https://www.govinfo.gov/content/pkg/FR-2014-10-31/pdf/2014-25938.pdf>

1
2 Driller Operator - The operator of the drilling machine that struck Employee 1.

3
4 RWIC - The Housatonic Railroad employee acting as the roadway worker in
5 charge (RWIC) of on-track safety on the day of the accident. The RWIC is often
6 referred to as a EIC (Employee in Charge), flagger, or flagman.

7
8 Middlesex Superintendent - The Middlesex employee acting as the Middlesex
9 foremen's supervisor with the formal job title of Quality Control Manager
10 Superintendent is a distinct position from the quality control manager but on the
11 day of the accident, the roles were being performed by the same person.

12 **3.0 Events prior to the Accident.**

13 At 8:16 pm on August 3rd, 2023, a NORAC³ Form D⁴ number "H-17" was issued
14 to an HRRC project engineer. This form D contained a line 4 instruction placing the
15 tracks between milepost (MP) 50 and MP 59 on the Berkshire line out of service.

16
17 On August 4th, 2023, Housatonic and Middlesex employees assembled at
18 Lanes yard (Berkshire line MP 57.35) at 04:30 am to receive their initial job briefing.
19 This briefing was given by the HRRC roadway worker in charge (RWIC)⁵ and was
20 documented in the HRRC Job briefing documentation sheet submitted to
21 investigators. This sheet documented twenty-seven employees in attendance and
22 listed the work to be conducted that day as "track work". This sheet also contained a
23 handwritten entry stating that the Lanes switch was "unlocked".

24
25 During interviews, the RWIC stated that he conducted the HRRC job briefing
26 after Middlesex supervisors had determined that all Middlesex employees were
27 present. He summarized his briefing as track related, with instructions regarding track
28 limits, track safety and the bridge work they would be doing that day as the focus of
29 the brief.

30
31 After the RWIC completed his job briefing, the Middlesex site safety manager
32 began briefing the Middlesex employees⁶. This briefing was known as the "Daily
33 Huddle"⁷ by Middlesex employees. The daily huddle was described by the site safety

³ The Northeast Operating Rules Advisory Committee (NORAC) is a body of railroads that establish a set of operating rules for railroads in North America.

⁴ A Form D contains written authorization(s), restriction(s), or instruction(s), issued by the Dispatcher to specified individuals.

⁵ RWIC is the equivalent NORAC term of employee in charge (EIC). An RWIC or EIC is a qualified employee responsible for establishing protection for a roadway worker or roadway workgroup.

⁶ See site safety manager interview, page 25, lines 6-10

⁷ See Middlesex document "Request Nos. 11, 17 and 21 - Second Supplemental Response", section

1 manager as a briefing that is usually conducted by the foreman. He stated that this
2 briefing typically focused on the work tasks for the day as well as discussing any
3 hazards that may be associated with those tasks.
4

5 The HRRC project manager stated that on the day of the accident, that the site
6 safety manager began the daily huddle, which he said was focused primarily on
7 bridge safety and fall protection. He stated that the site safety manager also
8 discussed some Middlesex Job Hazard Analysis (JHA) procedures.
9

10 The Middlesex superintendent then completed the last portion of the daily huddle
11 briefing with the Middlesex employees with additional safety considerations for the
12 bridge work. At the end of this briefing, Middlesex employees were given their job
13 assignments by the quality control manager before conducting stretching exercises.
14

15 After the briefing was complete, the Middlesex employees separated into two
16 work groups⁸. The first workgroup contained approximately 12-15 Middlesex
17 employees for the bridgework that was to be conducted to the south of the yard. The
18 second workgroup was a smaller four-person workgroup that would be conducting
19 lagging and drilling work to the north of the yard⁹ with a track cart and two on-track
20 roadway maintenance machines (RMM)¹⁰.
21

22 Between 5:15 am and 5:20 am, the RWIC unlocked the Lanes switch to allow a
23 Middlesex workgroup to shift out their track equipment onto the mainline for travel to
24 a worksite south of the yard.
25

26 At approximately 7:30 am, the RWIC stated that a workgroup of Middlesex
27 employees had finished shifting their equipment out of Lanes yard and had
28 completed their movement onto the mainline. He stated that once the workgroup
29 began to proceed south, he left the yard in his vehicle and went to the "river bridge"
30 located between MP 51-52 to meet the workgroup.
31

32 At approximately 8:45 am, a second Middlesex workgroup, consisting of two
33 RMM's with a cart and four Middlesex employees operated the switch¹¹ at Lanes yard,
34 and then proceeded to occupy the Berkshire main line with the two RMM's.
35

36 The first RMM (RMM-1) was a logger machine and was operated by employee
37 1 with employee 2 seated as a passenger. The second RMM (RMM-2) was a drilling

4.4 Job safety briefings on page 13.

⁸ See Middlesex site safety manger interview, page 23 lines 13-15.

⁹ See Middlesex superintendent interview, page 9, lines 21-24.

¹⁰ On-track roadway maintenance machine (RMM) is described as a self-propelled, rail-mounted, non-highway, maintenance machine whose light weight is in excess of 7,500 pounds, and whose purpose is not for the inspection of railroad track.

¹¹ See Driller operator interview, page 32, lines 8-9 and employee 2 interview page 35 lines 18-20.

1 machine that was operated by the driller operator with employee 3 seated as a
2 passenger. A rail cart was coupled to RMM-2 and contained lag screws and other
3 work items that the workgroup intended to use at their worksite. After clearing the
4 switch at Lanes yard, this workgroup proceeded north on the Berkshire line until they
5 stopped in the vicinity of MP 58.7.

6
7 The Middlesex employees that formed this second workgroup, stated to
8 investigators that on reaching their work location, employees 1 and 2 began
9 spreading out lag screws and cleaning out the holes in the wooden ties. While they
10 performed this work, employee 3 and the driller operator began their work with the
11 drilling machine (RMM-2).

12
13 Shortly before 9:00 am, The drilling machine (RMM-2) developed mechanical
14 issues that prevented the crew from operating the drill. After contacting the
15 Middlesex mechanical employee at Lanes yard, employees 3 and the driller operator
16 uncoupled the rail cart and proceeded south back to Lanes yard in RMM-2 for repairs.
17 The driller operator stated that "the mechanic came out to the main line right near the
18 yard to perform the repairs on the RMM-2¹².

19
20 During this time, employee 2 stated that he and employee 1 continued to work on
21 the tracks between the RMM-1 lagger and the rail cart.

22 **4.0 The Accident**

23 At approximately 09:50 am, the mechanical employee had completed his work
24 on RMM-2, and employee 3 and the driller operator proceeded north on the
25 Berkshire line in RMM-2. The driller operator operated the RMM, while employee 3
26 sat in the right-side passenger seat. During interviews, employee 3 stated that
27 estimated that they were traveling at about 15 mph during the return trip back to the
28 worksite.

29
30 During this time, employees 1 and 2 had remained at the work site and were
31 continuing to prepare the work area for the drill machine when it returned. Employee
32 2 stated to investigators that they were using a screwdriver and gas-powered leaf
33 blower to clean out the holes in the railroad ties. Prior to RMM-2 reaching the
34 worksite, employee 2 stated to investigators that he and employee 1 observed the
35 lights of RMM-2 at the dirt road crossing approximately 2,785 feet to the south.
36 Employee 2 stated that they continued to work and that he did not observe RMM-2
37 again until it reached a bridge that he stated was about 20 feet away.

38
39 In his description of the event, employee 2 stated that the RMM-2 machine was
40 "traveling fast" and that he had to "jump out of the way". He stated that he observed

¹² See driller operator interview page 30, lines 5-6.

1 the driller operator “looking up” while facing in the opposite direction of travel as he
 2 operated RMM-2. He stated that he yelled out to employee 1, but that employee 1
 3 could not hear him over the noise of the leaf blower that he had been operating. He
 4 then stated that the RMM-2 continued without slowing down until it struck employee
 5 1 and hit the rail cart approximately 10 feet north of employee 1.

6 **5.0 Description of the Berkshire Line.**

7 The Berkshire Line is approximately 36.6 miles long and runs from Ashley Falls,
 8 MA north to Pittsfield, MA. It is currently operated at FRA 49 CFR Part 213 Class I (10
 9 mph freight) and Class II (25 mph freight) speeds.

10
 11 The Berkshire Line is designated as a single Main track with a timetable
 12 direction of North to South and extends from a timetable milepost of 0 to milepost
 13 89. This track is non-signaled DCS¹³ track with authority for movement controlled by
 14 the issuance of a NORAC Form D for authorized movement.

15 **6.0 Accident Timeline**

16 Based on information gained from crew interviews and security camera
 17 recordings, the Operations Group developed the following timeline of events
 18 preceding the accident.
 19

Time	Description
04:30 am	HRRC RWIC held a job briefing at the Middlesex yard near the Lanes switch at MP 57.3.
05:30 am	Approximate time RWIC unlocks the hand thrown switch at the siding at Lime Kiln Road.
07:30 am	RWIC departs Lanes yard and travels south to MP 51-52 in his vehicle.
08:45 am	Approximate time workgroup 2 occupies the main line and proceeds north from the siding at Lime Kiln Road.
09:00 am	Workgroup 2 arrives at MP 58.7
09:17 am	Employees 3 and the driller operator depart south to the siding at Lime Kiln Road in the drilling machine (RMM-2).
10:00 am	Employees 3 and the driller operator depart from the siding at Lime Kiln Road and proceed north to the accident site in RMM-2.
10:04 am	Security camera records movement of RMM-2 at 2,400 feet south of the accident location.
10:05 am	Accident occurs at milepost 58.7 on the Berkshire line.

20 Table 1.

¹³ Form D Control System (DCS): A block system, signaled or non-signaled, in which the movement of trains outside of yard limits is authorized by Form D.

1 **7.0 Equipment information.**

2 See the track working group factual report.

3 **8.0 Recorded communications and video.**

4 **8.1 Radio Recordings**

5 NTSB investigators requested all radio recordings associated with the roadway
6 worker crew during the day of the accident. Housatonic managers on scene stated
7 that the radio system they used provided only real time audio and that the system did
8 not have the ability to provide any post-accident recordings for review.

9 **9.0 Crew operational information.**

10 **9.1 Middlesex crew training overview.**

11 Middlesex’s training program as outlined in documents submitted to
12 investigators consisted of a combination of training methods described as both
13 online and on the job training. Additional instructions are given to employees for
14 more specialized work or specific site requirements.

15 **9.1.1 Middlesex Safety Orientation Program**

16 The Middlesex Safety Orientation course discussed the following topics:

- 17
- 18 – Health and safety plan (HASP) Review and Requirements.
 - 19 – Middlesex Corporation Safety Policies.
 - 20 – Substance Abuse / Prevention / Testing Program.
 - 21 – Present the hazards in their work assignment and in the job site.
 - 22 – Right of Way (ROW) safety, regulations, and awareness (On-track Safety).
 - 23 – Incident Reporting and Record Keeping Policies.
 - 24 – Safety Metrics.
 - 25 – Safety Inspections and Audits.

26 Prior to starting any work, Middlesex required all employees new to the
27 project, including new hires and transfers, subcontractors, to have completed
28 the following training prior to arriving on the project site:

- 29
- 30 – Attend the Middlesex (Site) Specific Safety Orientation
 - 31 – Complete the Housatonic Railroad Company RWP Training
 - 32 – Complete Housatonic Railroad Company CWR Training

1 In documents submitted to investigators, Middlesex Corporation stated
2 that it has specific health and safety training requirements, guides, and policies
3 to ensure employees are given the most effective training for any task required
4 on the job. Additional training beyond the basic training would be performed
5 as required throughout the project.

6 **9.1.2 Site specific orientation (Berkshire Line).**

7 The Middlesex site specific orientation for the Berkshire line required each
8 employee to be familiar with the policies and procedures included in the Site-Specific
9 Safety Plan. The training Middlesex provided for this orientation directed any
10 questions regarding safety to the project management team or a Site Safety
11 Manager.

12
13 This orientation also included the following listed hazards in the Berkshire line
14 site specific orientation:

- 15
- 16 – Contaminated Soils
- 17 – Cut-off Saws
- 18 – Flying debris
- 19 – Fall protection
- 20 – Heavy equipment
- 21 – Backing vehicles & equipment
- 22 – Water ways
- 23 – Dust Control
- 24 – Rodent/Pest Control
- 25 – Noise Control
- 26 – Trucks & Traffic
- 27 – Work Hours/Overexertion

28 The Berkshire line site specific orientation instructed employees that they were
29 required to have a "competent person" that had the "knowledge and authority" to
30 coordinate their activities and that this person was designated as the contact person
31 on-site for the project.

32 **9.1.3 Middlesex training - Competent person(s).**

33 Middlesex defines a "competent person" as an OSHA regulated person to
34 perform work requiring high level skill and expertise. The determination of a
35 competent person is made by the superintendent or the safety supervisor.

36
37 Additional or separate training for specific work may need to be completed by
38 competent person(s) If the Project Safety Committee determines the need. The

1 competent persons will be logged and maintained through the life of the
2 construction phase of the project.

3 **9.1.4 Middlesex OJT Training.**

4 Middlesex's on the job training (OJT) program for RMM machines and Hi-rail
5 vehicles is conducted by Middlesex qualified operators. In the company's description
6 of operator selection and training, Middlesex stated that for selection, the company
7 would make a determination of a "candidates" ability to maintain their own safety and
8 the safety of others while conducting a multitude of tasks and that they were capable
9 of learning the equipment controls, inspections habits and safety measures. This
10 selection would start with an off-track tutorial to determine if the candidate could
11 become a competent operator.

12
13 For the Berkshire project, Middlesex conducted this off-track tutorial at the at
14 the rail siding located at 49 Lime Kiln Road, in Sheffield, Massachusetts. The off-track
15 tutorial included basic RMM training such as starting the machine, traveling forwards
16 and backwards, braking, and the use of specific tools/mechanisms on that machine.

17
18 The qualified operator evaluates the candidate during the off-track tutorial and
19 determines if the candidate will proceed in the on-the-job training program. If
20 selected, the candidate will perform the remaining OJT under the supervision and
21 guidance of the qualified operator.

22
23 Once an acceptable level of proficiency is achieved in the opinion of the
24 qualified operator, the candidate is deemed a competent operator.

25
26 A newly competent operator is monitored and observed by the foreman or
27 superintendent to ensure they are maintaining the proper practices on the
28 equipment. As the competent operator progresses, they are given more
29 responsibility and tasks, including operating away from but under the direct order of
30 the foreman or superintendent in separate work groups.

31 **9.1.5 Housatonic Railroad Company RWP Training.**

32 On November 7, 2014, the FRA published a final rule regarding the training,
33 qualifications, and oversight of Safety-Related Railroad Employees. This rule requires
34 each railroad or contractor that employs one or more safety-related railroad
35 employees to develop and submit a training program to FRA for approval and to
36 designate the minimum training qualifications for each occupational category of
37 employee.

38
39 In response to this rule, The American Short Line and Regional Railroad
40 Association (ASLRRA) developed an online training program to assist participating

1 short line railroads and railroad contractors in meeting the compliance requirements
 2 set forth by Part 243.

3
 4 HRRC utilizes the ASLRRRA Part 243 model training program to meet the
 5 requirements of 49 CFR 243.
 6

7 **9.2 Crew certification and training history.**

NAME	HIRE DATE	CRAFT	OSHA 10	HRRC RWP TRAINING	RMM Certification
Employee 1	6/5/2023	Laborer		6/5/2023	6/5/2023
Employee 2	6/5/2023	Laborer	5/29/2023	6/5/2023	6/5/2023
The driller operator	3/6/2023	Laborer	3/6/2023	3/7/2023	3/7/2023
Employee 3	6/5/2023	Laborer	6/1/2023	6/5/2023	6/6/2023

8 Table 2.

9 **9.3 Crew Hours of service (HOS) information.**

Name	DATE	On duty	Accident time	Total hours on duty	Prior off duty time	Total off duty time
Employee 1	8/4/2023	4:30 AM	10:05 AM	5 hrs. 35 min	3:00 PM	13 hrs. 30 min
Employee 2	8/4/2023	4:30 AM	10:05 AM	5 hrs. 35 min	3:00 PM	13 hrs. 30 min
The driller operator	8/4/2023	4:30 AM	10:05 AM	5 hrs. 35 min	3:00 PM	13 hrs. 30 min
Employee 3	8/4/2023	4:30 AM	10:05 AM	5 hrs. 35 min	3:00 PM	13 hrs. 30 min

10 Table 3-Crew Hours of service (HOS) information

11 **9.4 Crew previous work schedule.**

NAME	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	22-Jul	WEEK SUM	COMBINED
	Sun	Mon	Tue	Wed	Thu	Fri	Sat		
Employee 1		8/2	12	12.5	8/3	9.5/2		58/10	68
Employee 2		8/2	12	12.5	8/3	9.5/2		58/10	68
The driller operator		8/2	12	12.5	11	8/3	9.5/2	61/7	68
Employee 3		V8	V8	V8	V8	V8		V40	40

12 Table 4-Crew previous work schedule

13
 14

1 9.4 Crew previous work schedule (continued).

2

NAME	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul	WEEK SUM	COMBINED
	Sun	Mon	Tue	Wed	Thu	Fri	Sat		
Employee 1		8/2	8	8	8	8/6	10	50/8	58
Employee 2		8/2	8	8	8	8/6	10	50/8	58
The driller operator		8/2	8	0E8	8	14		38E8/2	48
Employee 3		V8	V8	V8	E8	8/6		8E8V24/6	46

NAME	30-Jul	31-Jul	1-Aug	2-Aug	3-Aug	4-Aug	WEEK SUM	COMBINED
	Sun	Mon	Tue	Wed	Thu	Fri		
Employee 1		8	8	11/2	10.5	5.5	43	45
Employee 2		8	8	11/2	10.5	5.5	43	45
The driller operator		8	8/1.5	13	10.5	5.5	45	46.5
Employee 3		8	8	11/2	10.5	5.5	43	45

3 Table 4-Crew previous work schedule

4 **9.5 FRA post-accident drug and alcohol testing.**

5 FRA post-accident drug and alcohol tests were administered to the driller
 6 operator, and to employees 1 and 3. The results of these tests were negative for all
 7 employees tested. No other employees were tested.

8

9 **10.0 Interviews conducted on-scene.**

10 The investigative team conducted twelve interviews¹⁴ relating to this accident.
 11 The first nine interviews were held between August 5th, and August 7th, 2023. These
 12 interviews were held at the Holiday Inn conference room in Great Barrington,
 13 Massachusetts and were conducted on the following dates:

14

15

08/05/2023

16

– Employee 2

17

– The driller operator

18

– Employee 3

¹⁴ The complete interview transcripts can be found in the docket at the following web address:
<https://data.nts.gov/Docket/?NTSBNumber=RRD23FR015>

- 1
2 08/06/2023
3 – HRRC RWIC
4 – Middlesex Quality Control Manager
5 – Middlesex Foreman

- 6
7 08/07/2023
8 – HRRC Project Engineer
9 – Middlesex on site safety manager.

10 Investigators conducted four interviews via Teams on the following dates:

- 11
12 09/06/2023
13 – Mass DOT Project Manager

- 14
15 09/07/2023
16 – HRRC Trainmaster
17 – HRRC Superintendent of Operations
18 – Middlesex Operations Director

19 **11.0 Internal oversight.**

20 **11.1 Mass DOT**

21 **11.1.1 Massachusetts ownership of the Berkshire line.**

22 Mass DOT owns approximately 285 miles of active railroad lines within the
23 Commonwealth, including approximately 132 miles of railroad right-of-way located in
24 southeastern Massachusetts.

25
26 In 2014, Mass DOT submitted a request for exemption as a rail carrier. In its
27 2014 submission to the Surface Transportation board (STB), Mass DOT stated that the
28 acquisition of the Berkshire line would be multi-step process leading to the
29 establishment of a new railroad passenger service route in the Northeast.

30
31 This submission also stated that HRRC would retain an exclusive freight
32 railroad operating easement and that this agreement precluded Mass DOT from
33 interfering materially with the provision of railroad common carrier service over the
34 Line.

1 **11.1.2 Massachusetts regulatory rail oversight.**

2 In accordance with 49 U.S. Code § 20106, Federal law expressly preempts state
3 laws "related to railroad safety" to ensure uniform regulation of railroad operations.

4 In this regard, Mass DOT relies on both the FRA and the host operating railroad
5 to provide the regulatory compliance and safety monitoring requirements of the
6 various freight railroads that operate within the state.

7 **11.1.3 Mass DOT - Berkshire line track improvement - phase III**

8 On June 8, 2022, Mass DOT awarded the Berkshire line track improvement -
9 phase III contract¹⁵ to Middlesex corporation.

10
11 Under provisions of this contract, Mass DOT stated that contractors would be
12 "provided Railroad Support Services by Housatonic Railroad (HRRC) personnel"¹⁶ and
13 that the Middlesex corporation would "be responsible for scheduling and
14 coordinating their work with HRRC and retain the flagger service from HRRC"¹⁷.

15
16 In addition, this contract also stipulated that Middlesex must operate and
17 perform all activities "in strict accordance with Housatonic Railroad On-Track Safety
18 Manual and applicable Provisions of 49 CFR Part 214 Railroad Workplace Safety"¹⁸.

19 **11.2 Housatonic Railroad.**

20 The HRCC is a privately held, Class III railroad with operations in
21 Massachusetts, Connecticut, and New York. The operating headquarters of HRCC is
22 in Canaan, Connecticut.

23 **11.2.1 Housatonic Railroad operating rules.**

24 Housatonic operating Rules that were in effect at the time of the accident and
25 include the following:

- 26
27 - NORAC Operating rules, 11th edition, effective February 1, 2018.
28 - Housatonic Railroad Timetable number 4, effective May 1, 2022
29 - Housatonic Railroad on track safety manual, effective July 1, 2014.
30 - Housatonic Railroad Bulletin Order 4-10 effective August 10, 2023
31

¹⁵ Mass DOT documents relevant to this investigation can be found in the docket at the following web address: <https://data.nts.gov/Docket/?NTSBNumber=RRD23FR015>

¹⁶ MassDOT Berkshire Line Track Improvement Phase III, page A00801 - 21.

¹⁷ MassDOT Berkshire Line Track Improvement Phase III, page A00801 - 144.

¹⁸ MassDOT Berkshire Line Track Improvement Phase III, A00801 - 20

1 **11.2.2 HRRC Periodic Oversight program**

2 As required by federal regulation 49 CFR part 217, HRRC conducts operational
3 testing to evaluate compliance with current HRRC Operating rules, related timetables,
4 special Instructions, and federal regulations. HRRC utilizes an oversight program that
5 was developed and provided by the American Short Line and Regional Railroad
6 Association (ASLRRA).
7

8 The purpose of this program is to ensure that periodic tests and inspections
9 are conducted and to determine compliance with HRRC’s operating rules and
10 practices. HRRC utilizes this program to meet the requirements of periodic oversight
11 as required in § 243.205.
12

13 In this program, HRRC identifies four implementation officers that are qualified
14 to administer operational tests on four separate crafts. These crafts are listed as train
15 and engine service, dispatchers, mechanical, and maintenance of way employees.
16 The frequency and types of testing conducted by HRRC testing officers are
17 determined by the type of testing category and the total amount of applicable
18 employees annually.

19 **11.2.3 HRRC operational testing records.**

20 NTSB Investigators requested HRRC operational testing records for the
21 calendar year. The cumulative result of this testing is summarized in the following
22 table:
23

DATE	Time from	Time to	Employees observed	Amount of test types	Compliance total	Non-compliance total
8/2/2023	9:00 am	9:30 am	6	10	19	0
7/29/2023	4:00 am	4:30 am	23	4	63	0
5/25/2023	2:15 pm	2:15 pm	4	2	0	16
1/16/2023	10:00 am	10:30 am	1	8	8	0

24 Table 5- HRRC operational Testing records.
25

26 **11.2.4 HRRC operational testing records of accident employees.**

27 Operational compliance testing conducted by HRRC specific to the four
28 accident employees are summarized in table 6.
29
30
31

NAME	FROM DATE	END DATE	TOTAL TESTS	Compliant	Non-Compliant
Employee 1	1/9/2023	8/4/2023	0	0	0
Employee 2	1/9/2023	8/4/2023	0	0	0
The driller operator	1/9/2023	8/4/2023	2	0	2
Employee 3	1/9/2023	8/4/2023	0	0	0

1 Table 6 - HRRC operational testing data specific to the accident employees.
2

3 **11.3 Middlesex corporation.**

4 Middlesex corporation is a heavy civil construction and paving corporation
5 with a reported annual revenue of 500 million dollars per year and employs
6 approximately 800 employees. Middlesex is headquartered in Littleton,
7 Massachusetts with regional offices in West Haven, Connecticut and Orlando, Florida.

8 **11.4 Middlesex Health and Safety Plan (HASP).**

9 On October 5, 2022, Middlesex corporation submitted a Health and Safety
10 Plan (HASP) to Mass DOT as required by Berkshire Line Track Improvement - Phase III
11 contract provisions. In this submission, Middlesex identified the following
12 components under the heading of safety controls.

- 13 4.1 Site Risk Analysis
- 14 4.2 Hazardous Control Measures
- 15 4.3 Job Hazard Analysis (JHA)
- 16 4.4 Job Safety Briefings
- 17 4.5 ROW Job Briefing
- 18 4.6 Construction Site Inspections
- 19 4.7 Stop Card Program
- 20 4.8 Daily Site Walk
- 21 4.9 Safety and Health Enforcement
- 22 4.10 Notice of Violation of Safety and Health Regulations
- 23 4.11 Onsite First Aid
- 24 4.12 Good Faith Challenges and Resolution of Those Challenges

25
26
27
28
29
30

1 **11.5 Middlesex internal oversight.**

2 Middlesex corporation’s internal periodic oversight is documented within its four
3 observational programs. These programs consist of the following:

- 4
- 5 1. STOP Cards.
 - 6 2. Daily Huddles.
 - 7 3. Near Miss reports.
 - 8 4. Site Inspection Reports.

9 **11.5.1 “STOP” card program**

10 The “STOP” card program¹⁹ as defined by Middlesex corporation is a
11 documented tool to help reduce or prevent accidents and injuries by improving
12 safety awareness and observations of working conditions. The word “STOP” is used as
13 an acronym for “Stop, Think, Observe, Plan” (STOP).

14

15 The stated purpose of this program is to allow Middlesex corporation and its
16 employees a means to more readily identify and proactively mitigate observed
17 hazards, conditions, and behaviors.

18

19 The Stop Card Program delegates safety inspections to both management and
20 employees as a method to perform safety audits within their own working limits of a
21 job.

22 STOP cards are required to be performed by Middlesex superintendents,
23 project managers, engineers, foreman, and all employees at a minimum of once per
24 week. Once completed, Stop Cards are submitted to the safety supervisor for
25 assessment.

26

27 The STOP Card records Middlesex Corporation submitted to investigators
28 were defined into twenty specific categories. These records indicated the date and
29 time of the evaluations as well as the name of the employee submitting the report.

30

31 Evaluations of a particular group were defined as “Satisfactory” or
32 “Unsatisfactory” with some groups listed as “N/A” or were left blank. Investigators
33 reviewed these records and developed the following table to capture the type and
34 frequency of internal testing for the period submitted (Table 7).

35

36

37

38

¹⁹ Middlesex STOP card documents can be found in the docket at the following web address:
<https://data.ntsb.gov/Docket/?NTSBNumber=RRD23FR015>

Item	Description	Satisfactory	Unsatisfactory	N/A	Blank
1	Safety Perception	134	0	0	0
10	Tools	121	3	8	2
11	Maintenance of Traffic (MOT)	97	1	34	2
12	12 Equipment/ Vehicles	122	5	6	1
13	13 Rigging	107	5	20	2
14	Cranes	23	0	108	3
15	Fall Protection	75	0	57	2
16	Excavation	72	0	61	1
17	Ladders & Stairs	66	2	64	2
18	Confined Space Entry	18	0	114	2
19	Fire Prevention /Hot Work	116	1	14	3
2	Site Safety Professionals	123	6	1	4
20	Respiratory Protection	41	0	91	2
21	Scaffolding	21	0	111	2
21	Electrical	102	0	29	3
21	Hazard Communication	119	3	10	2
21	Site Security	124	0	8	2
2	Housekeeping	118	9	6	1
3	Daily Huddle	128	1	5	0
4	Pre-Task Planning	126	0	6	2
5	Emergency Equipment	128	0	4	2
6	Working Conditions /Environmental Controls	123	6	4	1
7	Team Member Safety	126	2	5	1
8	Subcontractor Safety	55	3	74	2
9	Personal Protective Equipment (PPE)	127	2	4	1
TOTALS		2412	49	844	45

1
2 Table 7. Middlesex Stop card records totals for the period of 1/1/2023 to 8/3/2023.

3 **11.5.2 Daily Huddle and Safety Planning**

4
5 Pertinent safety observations are detailed and discussed at the Daily Huddles²⁰
6 and Weekly Project Meetings to “drive training, correction, and improvement”.

7
8 Middlesex foremen conduct daily safety huddles with their employees to
9 review the work to be performed that day and to identify hazards and to discuss safe
10 work procedures for the tasks to be accomplished. Daily huddles are performed at

²⁰ Middlesex daily huddle documents can be found in the docket at the following web address:
<https://data.nts.gov/Docket/?NTSBNumber=RRD23FR015>

1 the beginning of each shift and all employees are required to participate. The daily
 2 huddle and safety planning is conducted to enable foremen and employees to
 3 formally document participation, discuss the day's activities, identify risks, and discuss
 4 relevant control measures.

5 **11.5.3 Middlesex Daily Huddle records.**

6 Investigators reviewed the records that documented the details of the
 7 Middlesex daily huddle program²¹. These records detailed various topics of
 8 information in a table format and were divided into twenty-six separate column
 9 headings. The column heading titles are listed in table 8.
 10

Column	Description	Column	Description
1	Project	14	Production Goal #3
2	Operation	15	Material Delivery #1
3	Date Location of Work	16	Material Delivery #1 Time
4	Weather Conditions	17	Material Delivery #2
5	Submitter	18	Material Delivery #2 Time
6	Supervisor	19	Material Delivery Plan
7	Was a stretch & flex conducted?	20	Do your work activities include the following?
8	Was this Daily Huddle translated for non-English speakers?	21	Potential hazards
9	Work Activity #1	22	Information reviewed
10	Production Goal #1	23	Comments
11	Work Activity #2	24	Team members present
12	Production Goal #2	25	Created
13	Work Activity #3	26	Attachments

11 Table 8- Middlesex Daily Huddle records
 12

13 Records submitted to investigators by the Middlesex corporation, documented 72
 14 "daily huddles" conducted by Middlesex supervisors between March 27, 2023, and
 15 August 3, 2023. Table 9 details the total daily huddle attendances by date that the
 16 accident employees attended prior to the accident.
 17

Employee	Total	Documented employee attendance dates						
Employee 1	4	05/19/23	07/20/23	07/26/23	08/02/23			
Employee 2	2	07/22/23	08/03/23					
The driller operator	11	03/27/23	03/28/23	04/03/23	05/12/23	05/24/23		
		07/20/23	07/22/23	07/25/23	07/27/23	08/02/23	08/03/23	
Employee 3	7	06/06/23	06/07/23	06/08/23	06/15/23	06/16/23	06/20/23	08/02/23

18 Table 9- Middlesex Daily Huddle crew attendance records.

²¹ Middlesex "Daily huddle" documents can be found in the docket at the following web address:
<https://data.nts.gov/Docket/?NTSBNumber=RRD23FR015>

11.5.4 Near Miss reporting

Middlesex corporation requires that all accident, incidents, or near misses be reported within twenty-four hours. Middlesex defines a Near Miss as “incidents where, given a slight shift in time or distance, injury, ill-health, or damage easily could have occurred, but did not in that instance”.

Middlesex submitted its “near miss”²² records to investigators for the period of April 19, 2023, to July 20, 2023. These records detailed six events that Middlesex managers classified as near misses. This report contained three classifications of severity and were described as follows:

1. High (fatality, permanent disability, high dollar loss).
2. Medium (temporary disability, some dollar loss).
3. Low (minor injury).

Date	Classification	Severity	Contributing	Description summary
7/20/2023	Equipment/ Vehicles	HIGH	Equipment/ Tool Malfunction/ Failure	Drilling machine brake failure.
7/18/2023	Equipment/ Vehicles	LOW	Equipment/ Tool Malfunction/ Failure	Hi-rail vehicle derailment.
6/19/2023	Equipment/ Vehicles	MEDIUM	Improper Planning	Swivel dump retention pins locked.
6/1/2023	Behavioral Observations	HIGH	Carelessness/ Complacency	Speed swing crew fouled track without permission of EIC.
5/16/2023	Equipment/ Vehicles	MEDIUM	Insufficient Training	Speed swing Operator unfamiliar with braking methods.
4/19/2023	Equipment/ Vehicles	MEDIUM	Carelessness/ Complacency	Improper height of Hi-rail vehicle on track.

Table 10 - Middlesex Near Miss reporting.

11.5.5 Site Inspection Reports

Middlesex submitted Site safety inspection records for the period 1/10/2023 and 8/1/2023. These records contained 19 categories of observations and included columns headings for assessed safety conditions and corrective status. The following table provides the cumulative totals of the categories and conditions submitted in Middlesex’s site inspection report.

²² Middlesex “Near Miss” documents can be found in the docket at the following web address: <https://data.nts.gov/Docket/?NTSBNumber=RRD23FR015>

Category	Satisfactory	Unsatisfactory	CORRECTED		
			YES	NO	N/A
Behavioral Observations	12	3	5	0	10
Daily Huddle	20	6	2	3	21
Driver Safety	2	1	1	0	2
Electrical	0	3	3	0	0
Emergency Equipment/Planning	0	2	0	2	0
Equipment/Vehicles	26	5	4	1	26
Excavation	2	0	0	0	2
Fall Protection	6	1	2	0	5
Fire Protection/Hot Work	0	2	1	1	0
Housekeeping	1	2	2	0	1
Ladders & Stairs	1	1	2	0	0
Maintenance of Traffic (MOT)	1	0	0	0	2
Personal Protective Equipment (PPE)	7	7	10	2	4
Pre-Task Planning	6	0	0	0	6
Rigging	6	4	3	1	6
Stretch and Flex	17	2	1	0	18
Tools	5	2	4	0	3
Working Conditions/Environmental Controls	6	1	1	0	7
Total:	118	42	41	10	113

2 Table 11 - Middlesex site inspection totals by category.

3

4 **12.0 External oversight.**5 **12.1 The Federal Railroad Administration.**

6 The Federal Railroad Administration (FRA) is the primary agency for the
7 creation and enforcement of federal railroad safety regulations. The FRA exercises

1 these responsibilities for regulating railroad safety standards through the issuance,
2 implementation, and enforcement of safety regulations.

3
4 Rail safety regulations that govern FRA inspection and enforcement activities
5 are documented under Title 49, Subtitle B, Chapter II of the Code of Federal
6 Regulations (CFR)²³.

7 **12.2 FRA Safety alerts and bulletins.**

8 Safety Advisories are issued by FRA to provide guidance and clarification to
9 railroads concerning regulatory rail safety requirements and other important safety
10 issues.

11 **12.2.1 Safety Advisory 2023-06; Roadway Maintenance Machines**

12 On September 29, 2023, The FRA issued Safety Advisory 2023-06 to
13 emphasize the importance of rules and procedures regarding the safety of roadway
14 workers who operate or work near roadway maintenance machines (RMM).

15
16 This safety advisory recommends that railroads and contractors review and
17 update their rules regarding the safety of roadway workers who operate or work near
18 RMMs, communicate those changes to their employees, and monitor their employees
19 for compliance with existing rules and procedures and updated rules and
20 procedures, if implemented.

21
22 In addition, this safety advisory recommends that railroads and contractors
23 conduct additional safety briefings to raise workers' awareness of the hazards
24 associated with operating and working around RMMs.

26 **12.3 Federal regulations relating to the accident**

27 **12.3.1 Part 214 Railroad workplace safety.**

28 The purpose of this part is to prevent accidents and casualties to employees
29 involved in certain railroad inspection, maintenance, and construction activities.

30
31 This part prescribes minimum Federal safety standards for railroad workplace
32 safety and applies to railroads that operate rolling equipment on track that is part of
33 the general railroad system of transportation.

23 An electronic version of Title 49, Subtitle B, Chapter II of the CFR can be found at the following web
address: <https://www.ecfr.gov/current/title-49/subtitle-B/chapter-II>

1 This part does not restrict a railroad or railroad contractor from adopting and
2 enforcing additional or more stringent requirements not inconsistent with this part.
3 Each railroad may prescribe additional or more stringent requirements in its
4 operating rules, timetables, timetable special instructions, and other special
5 instructions.

6 **12.3.2 Part 217–Railroad operating rules.**

7 Through the requirements of this part, the Federal Railroad Administration
8 learns the condition of operating rules and practices with respect to trains and other
9 rolling equipment in the railroad industry, and each railroad is required to instruct
10 its employees in operating practices.

11 **12.3.3 Part 218- Railroad operating practices.**

12 This part prescribes minimum requirements for railroad operating rules and
13 practices. Each railroad may prescribe additional or more stringent requirements in
14 its operating rules, timetables, timetable special instructions, and other special
15 instructions.

16 **12.3.4 Part 243- Training, qualification, and oversight for safety-related** 17 **railroad employees.**

18 The purpose of this part is to ensure that any person employed by a railroad or
19 a contractor of a railroad as a safety-related railroad employee is trained and
20 qualified to comply with any relevant Federal railroad safety laws, regulations, and
21 orders, as well as any relevant railroad rules and procedures promulgated to
22 implement those Federal railroad safety laws, regulations, and orders.

23
24 This part contains the general minimum training and qualification
25 requirements for each category and subcategory of safety-related railroad
26 employee, regardless of whether the employee is employed by a railroad or a
27 contractor of a railroad. Contractors shall coordinate with railroads and comply with
28 the contents of this part, including those aspects of training that are specific to the
29 contracting railroad's rules and procedures.

30 **12.3.5 Part 271- Risk reduction program.**

31 The purpose of this part is to improve railroad safety through structured,
32 proactive processes and procedures developed and implemented by railroads.

33
34 Each railroad subject to this part must establish a Risk Reduction Program (RRP)
35 that systematically evaluates railroad safety hazards on its system and manages the
36 risks associated with those hazards to reduce the number and rates of railroad
37 accidents/incidents, injuries, and fatalities.

1 **13.0 Emergency response.**

2 **13.1 Emergency response timeline.**

3 The following emergency response timeline was provided by the Great
4 Barrington Fire department.
5

10:08 AM	Initial 911 call reporting a person injured by equipment at 49 Lime Kiln Road. Dispatch services transferred to Berkshire Police.
10:10 AM	Berkshire Police and fire dispatched to the area of Lime Kiln Road.
10:16 AM	Berkshire Police and fire units redirected to access road located at 952 Main Street, Swards Tire Shop.
10:24 AM	First police units reach accident site with injured employee.
10:25 AM	Police identify landing zone for Life Flight. The site is in an open field next to Fiddleheads Grill.
10:28 AM	Berkshire Police direct all units to area to locate accident site. Unit 654 with drone support dispatched.
10:36 AM	Fire Department engine and UTV arrive at access point.
10:37 AM	Police units at accident site report that the injured employee has suffered a head injury and is not entrapped by the equipment.
10:44 AM	EMS first responders begin CPR on employee.
10:56 AM	Employee transferred from to UTV for ground transport to Life Flight.
10:58 AM	Life Flight lands at landing zone established in field near Fiddleheads Grill.
11:15 AM	Life Flight is airborne with injured employee.
12:40 PM	Railroad reported notification of the accident to OSHA, FRA and NTSB.
2:49 PM	Baystate Medical Center notification that the injured employee has succumbed from his injuries.
4:21 PM	Police complete investigation and report clear of the scene.

6 Table 12. Emergency response timeline.
7
8

9 Submitted by:
10 Richard Skolnekovich
11 NTSB/ Operations group chair