

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division
Washington, D.C. 20594

September 3, 2019

Mobile Phone Records

Specialist's Factual Report
By Deven Chen

1. EVENT

Location: Alexandria, Virginia
Date: May 19, 2018
Vehicle: CSX Transportation Locomotive
NTSB Number: RRD18MR007

2. EVENT SUMMARY

On May 19, 2018, about 7:02 a.m. eastern daylight time, southbound CSX Transportation (CSX) freight train X41518 derailed near mile post (MP) 102.9 while traveling on main track one. The derailment occurred about 500 feet north of two CSX bridges that cross over Norfolk Southern Railway (NS) tracks. A CSX bridge on main track one was extensively damaged; a CSX bridge for main tracks two and three remained in service. Some of the derailed CSX freight cars fouled the NS tracks that were below the bridge. The train consisted of 3 locomotives and 167 mixed-freight cars (that is, 91 loaded cars and 76 empty cars). The train was 9,910 feet long with 14,394 trailing tons. None of the derailed cars were transporting hazardous material. Of the 31 derailed cars, 25 cars (in positions 42nd through the 66th) derailed at MP 102.9. An additional 6 cars (in positions 89th through 94th) derailed at MP 103.2. The train crew was uninjured. Damage is estimated to be between \$5 and \$7 million.

3. DETAILS OF DEVICE INVESTIGATION

The NTSB's Vehicle Recorder Division received mobile phone records associated with the following phone numbers:

User:	Conductor
Service Provider:	Verizon

User:	Engineer
Service Provider:	AT&T

The mobile phone records were obtained via subpoena issued by the NTSB Office of the General Counsel. At the direction of the NTSB Investigator-In-Charge (IIC), each set

of records was examined for indications of usage between 12:00 AM and 9:00 AM on May 19, 2018 eastern daylight time (EDT).

3.1. Mobile Phone Records Description

Mobile phone records are produced by a telecommunications service provider documenting the details of telephone calls, text messages, picture/video messages, data usage, and other transactions. The exact information provided varies depending on the provider.

3.2. Conductor Phone

3.2.1. Phone Call Activity

Table 1 summarizes the phone call activity during the pertinent time period. Time stamps are provided in eastern daylight time.

Table 1. Phone Call Activity

Date/Time	Duration (mm:ss)	Direction
5/19/18 8:28:08	3:59	Outgoing
5/19/18 8:33:06	4:26	Outgoing
5/19/18 8:37:46	0:47	Outgoing
5/19/18 8:43:04	3:23	Outgoing

3.2.2. Text and Picture/Video Message Activity

Table 2 summarizes text message activity during the pertinent time period. Time stamps are provided in eastern daylight time.

Table 3 summarizes picture/video message activity during the pertinent time period. Time stamps are provided in eastern daylight time.

Table 2. Text Message Activity

Message Sent	Message Delivered	Message Direction
5/19/2018 0:00:05	5/19/2018 0:00:07	Incoming
5/19/2018 0:00:17	5/19/2018 0:00:17	Outgoing
5/19/2018 0:00:23	5/19/2018 0:00:24	Outgoing
5/19/2018 0:00:25	5/19/2018 0:00:26	Incoming
5/19/2018 0:01:47	5/19/2018 0:01:48	Incoming
5/19/2018 0:02:12	5/19/2018 0:02:12	Outgoing
5/19/2018 0:02:24	5/19/2018 0:02:25	Incoming
5/19/2018 3:01:48	5/19/2018 3:01:49	Outgoing
5/19/2018 3:31:21	5/19/2018 3:31:21	Outgoing
5/19/2018 3:40:11	5/19/2018 3:40:11	Outgoing
5/19/2018 8:43:53	5/19/2018 8:43:54	Incoming
5/19/2018 8:56:01	5/19/2018 8:56:02	Incoming
5/19/2018 8:57:24	5/19/2018 8:57:25	Outgoing
5/19/2018 8:57:47	5/19/2018 8:57:48	Incoming
5/19/2018 8:59:44	5/19/2018 8:59:45	Incoming

Table.3 Picture/Video Message Activity

Submission Date/Time	Record Date/Time	Message Direction	Message Size (bytes)
5/19/2018 7:57:28	5/19/2018 7:57:29	Outgoing	556286
5/19/2018 7:58:47	5/19/2018 7:58:48	Outgoing	627017
5/19/2018 8:04:15	5/19/2018 8:04:15	Outgoing	619309
5/19/2018 8:36:41	5/19/2018 8:36:42	Outgoing	627017
5/19/2018 8:48:27	5/19/2018 8:48:28	Outgoing	627017

3.2.3. Data Usage

Tables 4-6 summarize the internet connection activity during the pertinent time period. Time stamps are provided in eastern daylight time. BDR 3G/4G and TDR2 IPv6 are internet protocols. However, it is not possible to distinguish between user-initiated data activity and automatic background data activity by the device's operating system or installed applications.

Table 4. BDR 3G Internet Activity

Start Date/Time	Stop Date/Time
5/19/2018 6:58:52	5/19/2018 7:24:54
5/19/2018 7:40:37	5/19/2018 8:10:50

Table 5. BDR 4G Internet Activity

Start Date/Time	Stop Date/Time
5/18/2018 17:01:00	5/19/2018 7:01:46
5/19/2018 4:43:08	5/19/2018 5:33:25
5/19/2018 4:43:14	5/19/2018 5:32:10
5/19/2018 4:46:36	5/19/2018 5:31:48
5/19/2018 4:59:50	5/19/2018 5:31:56
5/19/2018 5:01:24	5/19/2018 5:31:50
5/19/2018 5:01:26	5/19/2018 5:33:51
5/19/2018 5:27:42	5/19/2018 5:27:44
5/19/2018 5:34:26	5/19/2018 6:08:34
5/19/2018 5:34:48	5/19/2018 6:06:14
5/19/2018 5:34:50	5/19/2018 6:08:42
5/19/2018 5:34:53	5/19/2018 6:08:34
5/19/2018 6:27:44	5/19/2018 6:59:50
5/19/2018 6:27:47	5/19/2018 6:59:50
5/19/2018 6:27:51	5/19/2018 6:59:48
5/19/2018 6:27:56	5/19/2018 6:59:29
5/19/2018 6:28:06	5/19/2018 6:58:37
5/19/2018 6:28:13	5/19/2018 6:59:52
5/19/2018 7:02:53	5/19/2018 7:31:18
5/19/2018 7:31:28	5/19/2018 7:43:20
5/19/2018 7:43:50	5/19/2018 21:38:04

Table 6. TDR2 IPV6 Internet Activity

Start Date/Time	Stop Date/Time	MegaBytes Used
5/18/2018 19:00:45	5/19/2018 1:00:30	14.093
5/18/2018 19:00:58	5/19/2018 1:00:59	4.034
5/19/2018 1:00:30	5/19/2018 3:01:46	14.178
5/19/2018 1:00:59	5/19/2018 3:01:46	0.003
5/19/2018 1:27:41	5/19/2018 1:27:44	0.007
5/19/2018 3:01:47	5/19/2018 3:31:18	0.009
5/19/2018 3:02:52	5/19/2018 3:31:18	0.005
5/19/2018 3:31:18	5/19/2018 3:43:21	0.01
5/19/2018 3:31:19	5/19/2018 3:43:20	0.025
5/19/2018 3:43:21	5/19/2018 9:43:20	4.811
5/19/2018 3:43:24	5/19/2018 9:43:09	499.496
5/19/2018 8:57:26	5/19/2018 9:02:20	1.201

3.3. Engineer Phone

3.3.1 Phone Call Activity

Table 7 summarizes the phone call activity during the pertinent time period. Time stamps are provided in eastern daylight time.

Table 7. Phone Call Activity

Date/Time	Duration (mm:ss)	Direction
5/19/2018 7:42:31	0:12	Outgoing
5/19/2018 7:47:22	6:04	Incoming
5/19/2018 7:57:46	0:03	Incoming
5/19/2018 7:57:53	4:30	Outgoing
5/19/2018 8:39:55	0:05	Outgoing
5/19/2018 8:40:39	0:26	Outgoing
5/19/2018 8:41:27	9:21	Outgoing
5/19/2018 8:54:36	0:56	Outgoing
5/19/2018 8:57:09	0:54	Outgoing
5/19/2018 8:59:12	1:22	Incoming

3.3.2 Text and Picture/Video Message Activity

Table 8 summarizes the text message activity during the pertinent time period. Time stamps are provided in eastern daylight time. No picture/video message activity on the mobile phone records.

Table 8. Text Message Activity

Date/Time	Message Direction
5/19/2018 0:00:05	Outgoing
5/19/2018 0:00:18	Incoming
5/19/2018 0:00:24	Incoming
5/19/2018 0:00:25	Outgoing
5/19/2018 0:01:46	Outgoing
5/19/2018 0:02:14	Incoming
5/19/2018 0:02:24	Outgoing
5/19/2018 1:40:50	Outgoing
5/19/2018 1:43:21	Incoming
5/19/2018 1:51:40	Outgoing
5/19/2018 1:52:17	Outgoing
5/19/2018 1:53:43	Incoming
5/19/2018 1:54:09	Outgoing
5/19/2018 1:54:30	Outgoing
5/19/2018 1:54:55	Incoming
5/19/2018 1:54:57	Incoming
5/19/2018 1:55:25	Outgoing
5/19/2018 2:02:58	Incoming
5/19/2018 2:03:13	Outgoing
5/19/2018 2:07:16	Incoming
5/19/2018 2:07:52	Outgoing
5/19/2018 2:09:58	Incoming
5/19/2018 2:10:20	Outgoing
5/19/2018 2:16:57	Outgoing
5/19/2018 2:17:51	Incoming
5/19/2018 5:27:35	Incoming
5/19/2018 5:39:10	Outgoing
5/19/2018 7:44:59	Outgoing
5/19/2018 7:57:23	Outgoing
5/19/2018 8:10:06	Outgoing
5/19/2018 8:10:55	Outgoing
5/19/2018 8:13:49	Outgoing
5/19/2018 8:15:38	Outgoing
5/19/2018 8:15:57	Outgoing
5/19/2018 8:27:51	Outgoing
5/19/2018 8:44:40	Incoming
5/19/2018 8:51:31	Outgoing
5/19/2018 8:51:48	Incoming
5/19/2018 8:52:55	Incoming
5/19/2018 8:53:57	Outgoing

3.3.3 Data Usage

Table 9 summarizes the internet connection activity during the pertinent time period. Time stamps are provided in eastern daylight time. However, it is not possible to distinguish between user-initiated data activity and automatic background data activity by the device's operating system or installed applications.

Table 9. Internet Connection Activity

Date/Time	Duration (hh:mm:ss)
5/19/2018 0:23:34	0:28
5/19/2018 0:24:02	2:44
5/19/2018 0:26:46	0:20
5/19/2018 0:27:06	1:59
5/19/2018 0:29:05	0:21
5/19/2018 0:29:26	60:00:00
5/19/2018 1:29:26	47:43:00
5/19/2018 5:27:00	0:45
5/19/2018 5:38:23	26:15:00
5/19/2018 7:41:50	0:38
5/19/2018 7:42:28	0:16
5/19/2018 7:42:44	4:33
5/19/2018 7:47:17	6:11
5/19/2018 7:53:28	4:16
5/19/2018 7:57:44	4:40
5/19/2018 8:02:24	37:29:00
5/19/2018 8:39:53	0:08
5/19/2018 8:40:01	0:14
5/19/2018 8:40:15	0:51
5/19/2018 8:41:06	0:04
5/19/2018 8:41:10	0:06
5/19/2018 8:41:16	0:06
5/19/2018 8:41:22	9:27
5/19/2018 8:50:49	3:21
5/19/2018 8:54:10	1:23
5/19/2018 8:55:33	1:20
5/19/2018 8:56:53	1:11
5/19/2018 8:58:04	1:04
5/19/2018 8:59:08	1:27