

Air Monitoring Summary Tables

The tables below summarize monitoring data collected by EPA and KYDEP
All data were collected with a RAE Systems MultiRAE Pro handheld instrument



EMERGENCY RESPONSE TEAM

Project Name: CSX Livingston Derailment

From: 11/23/23 To: 11/24/23
3:48 AM 4:05 PM

SECTION 1 – STATIONS

StationID	Location	Latitude	Longitude	# of Measurements on:	
				11/23	11/24
STA01	Northern End of Upper Calloway Loop & 25	37.31774	-84.24779	12	7
STA02	Southern End of Upper Calloway Loop & 25	37.311	-84.246304	11	7
STA03	Sand Hill Road & 25	37.310641	-84.246321	8	0
STA04	John Deer Lane above Derailment Site	37.3103306	-84.2387579	3	1
STA05	Piney Ridge Road Rail Crossing	37.30803	-84.23183	9	7
STA06	Southern End of Lower Calloway Loop & 25	37.30795	-84.24152	11	5
STA07	Southend Loop & 25	37.305993	-84.237522	8	0
STA08	Livingston Pentecostal Church	37.302208	-84.22195	8	3
STA09	Ten Foot Hole Road & 25	37.30099	-84.23569	6	3
STA10	Piney Ridge Road at 490	37.29923	-84.213273	6	3
STA11	Livingston Fire & Rescue	37.297212	-84.214579	11	7
STA12	Ford Hollow Road & 25	37.29363	-84.221101	8	1
	Derailment Staging Site	37.314313	-84.241253	0	1
	End of Foxglove Hill Road	37.298918	-84.22675	0	1
	Int. of Ford Hollow Rd and Snowy Rd (west)	37.2884106	84.24	0	1
	Int. of Ford Hollow Rd and Snowy Rd (east)	37.2936149	84.22769	0	1
	Red Hill Road & Black Bear Lick Road	37.31495	-84.196789	0	1

SECTION 2 – MEASUREMENTS PER STATION

Northern End of Upper Calloway Loop & 25				
Date and Time	SO2 (ppm)	Exceeds Action Level? 0.02 ppm (AEGL-1 8hr)	H2S (ppm)	H2S Action Level 0.33 ppm (AEGL-1 8hr)
11/23 3:48 AM	1	Yes	0	No
11/23 4:19 AM	1.2	Yes	0	No
11/23 7:00 AM approx	0	No	0	No
11/23 9:00 AM approx	0	No	0	No
11/23 10:00 AM approx	0	No	0	No
11/23 11:30 AM approx	0	No	0	No
11/23 1:00 PM approx	0	No	0	No
11/23 2:30 PM approx	0	No	0	No
11/23 3:30 PM approx	0	No	0	No
11/23 6:30 PM approx	0	No	0	No
11/23 9:30 PM approx	0	No	0	No
11/23 11:30 PM approx	0	No	0	No
11/24 2:00 AM approx	0	No	0	No
11/24 4:30 AM approx	0	No	0	No
11/24 7:00 AM approx	0	No	0	No
11/24 9:00 AM approx	0	No	0	No
11/24 12:09 PM	0	No	0	No
11/24 1:56 PM	0	No	0	No
11/24 3:37 PM	0	No	0	No
Southern End of Upper Calloway Loop & 25				
11/23 3:52 AM	0.9	Yes	0	No
11/23 7:00 AM approx	0	No	0	No
11/23 9:00 AM approx	0	No	0	No
11/23 10:00 AM approx	0	No	0	No
11/23 11:30 AM approx	0	No	0	No
11/23 1:00 PM approx	0	No	0	No
11/23 2:30 PM approx	0	No	0	No
11/23 3:30 PM approx	0	No	0	No
11/23 6:30 PM approx	0	No	0	No
11/23 9:30 PM approx	0	No	0	No
11/23 11:30 PM approx	0	No	0	No
11/24 2:00 AM approx	0	No	0	No
11/24 4:30 AM approx	0	No	0	No
11/24 7:00 AM approx	0	No	0	No
11/24 9:00 AM approx	0	No	0	No
11/24 12:13 PM	0	No	0	No
11/24 1:58 PM	0	No	0	No
11/24 3:39 PM	0	No	0	No

Sand Hill Road & 25				
Date and Time	SO2 (ppm)	Exceeds Action Level? 0.02 ppm (AEGL-1 8hr)	H2S (ppm)	H2S Action Level 0.33 ppm (AEGL-1 8hr)
11/23 4:16 AM	0.5	Yes	0	No
11/23 7:00 AM approx	0	No	0	No
11/23 9:00 AM approx	0	No	0	No
11/23 10:00 AM approx	0	No	0	No
11/23 11:30 AM approx	0	No	0	No
11/23 1:00 PM approx	0	No	0	No
11/23 2:30 PM approx	0	No	0	No
11/23 3:30 PM approx	0	No	0	No
John Deer Lane above Derailment Site				
11/23 11:30 AM approx	0	No	0	No
11/23 2:30 PM approx	0	No	0	No
11/23 3:30 PM approx	0	No	0	No
11/24 10:00 AM approx	0	No	0	No
Piney Ridge Road Rail Crossing				
11/23 9:00 AM approx	0	No	0	No
11/23 10:00 AM approx	0	No	0	No
11/23 11:30 AM approx	0	No	0	No
11/23 1:00 PM approx	0	No	0	No
11/23 2:30 PM approx	0	No	0	No
11/23 3:30 PM approx	0	No	0	No
11/23 6:30 PM approx	0	No	0	No
11/23 9:30 PM approx	0	No	0	No
11/23 11:30 PM approx	0	No	0	No
11/24 2:00 AM approx	0	No	0	No
11/24 4:30 AM approx	0	No	0	No
11/24 7:00 AM approx	0	No	0	No
11/24 9:00 AM approx	0	No	0	No
11/24 12:29 PM	0	No	0	No
11/24 2:24 PM	0	No	0	No
11/24 4:03 PM	0	No	0	No

Southern End of Lower Calloway Loop & 25				
Date and Time	SO2 (ppm)	Exceeds Action Level? 0.02 ppm (AEGL-1 8hr)	H2S (ppm)	H2S Action Level 0.33 ppm (AEGL-1 8hr)
11/23 3:55 AM	0.5	Yes	0	No
11/23 7:00 AM approx	0	No	0	No
11/23 9:00 AM approx	0	No	0	No
11/23 10:00 AM approx	0	No	0	No
11/23 11:30 AM approx	0	No	0	No
11/23 1:00 PM approx	0	No	0	No
11/23 2:30 PM approx	0	No	0	No
11/23 3:30 PM approx	0	No	0	No
11/23 6:30 PM approx	0	No	0	No
11/23 9:30 PM approx	0	No	0	No
11/23 11:30 PM approx	0	No	0	No
11/24 2:00 AM approx	0	No	0	No
11/24 4:30 AM approx	0	No	0	No
11/24 7:00 AM approx	0	No	0	No
11/24 9:00 AM approx	0	No	0	No
11/24 12:14 PM	0	No	0	No
Southend Loop & 25				
11/23 3:56 AM	0.7	Yes	0	No
11/23 7:00 AM approx	0	No	0	No
11/23 9:00 AM approx	0	No	0	No
11/23 10:00 AM approx	0	No	0	No
11/23 11:30 AM approx	0	No	0	No
11/23 1:00 PM approx	0	No	0	No
11/23 2:30 PM approx	0	No	0	No
11/23 3:30 PM approx	0	No	0	No
Livingston Pentecostal Church				
11/23 4:00 AM	0	No	0	No
11/23 7:00 AM approx	0	No	0	No
11/23 9:00 AM approx	0	No	0	No
11/23 10:00 AM approx	0	No	0	No
11/23 11:30 AM approx	0	No	0	No
11/23 1:00 PM approx	0	No	0	No
11/23 2:30 PM approx	0	No	0	No
11/23 3:30 PM approx	0	No	0	No
11/24 12:16 PM	0	No	0	No
11/24 2:07 PM	0	No	0	No
11/24 3:46 PM	0	No	0	No

Ten Foot Hole Road & 25				
Date and Time	SO2 (ppm)	Exceeds Action Level? 0.02 ppm (AEGL-1 8hr)	H2S (ppm)	H2S Action Level 0.33 ppm (AEGL-1 8hr)
11/23 9:00 AM approx	0	No	0	No
11/23 10:00 AM approx	0	No	0	No
11/23 11:30 AM approx	0	No	0	No
11/23 1:00 PM approx	0	No	0	No
11/23 2:30 PM approx	0	No	0	No
11/23 3:30 PM approx	0	No	0	No
11/24 12:32 PM	0	No	0	No
11/24 2:35 PM	0	No	0	No
11/24 4:05 PM	0	No	0	No
Piney Ridge Road at 490				
11/23 9:00 AM approx	0	No	0	No
11/23 10:00 AM approx	0	No	0	No
11/23 11:30 AM approx	0	No	0	No
11/23 1:00 PM approx	0	No	0	No
11/23 2:30 PM approx	0	No	0	No
11/23 3:30 PM approx	0	No	0	No
11/24 12:23 PM	0	No	0	No
11/24 2:20 PM	0	No	0	No
11/24 3:59 PM	0	No	0	No
Livingston Fire & Rescue				
11/23 4:04 AM	0	No	0	No
11/23 7:00 AM approx	0	No	0	No
11/23 9:00 AM approx	0	No	0	No
11/23 10:00 AM approx	0	No	0	No
11/23 11:30 AM approx	0	No	0	No
11/23 1:00 PM approx	0	No	0	No
11/23 2:30 PM approx	0	No	0	No
11/23 3:30 PM approx	0	No	0	No
11/23 6:30 PM approx	0	No	0	No
11/23 9:30 PM approx	0	No	0	No
11/23 11:30 PM approx	0	No	0	No
11/24 2:00 AM approx	0	No	0	No
11/24 4:30 AM approx	0	No	0	No
11/24 7:00 AM approx	0	No	0	No
11/24 9:00 AM approx	0	No	0	No
11/24 12:18 PM	0	No	0	No
11/24 2:09 PM	0	No	0	No
11/24 3:48 PM	0	No	0	No

Ford Hollow Road & 25				
Date and Time	SO2 (ppm)	Exceeds Action Level? 0.02 ppm (AEGL-1 8hr)	H2S (ppm)	H2S Action Level 0.33 ppm (AEGL-1 8hr)
11/23 4:07 AM	0	No	0	No
11/23 7:00 AM approx	0	No	0	No
11/23 9:00 AM approx	0	No	0	No
11/23 10:00 AM approx	0	No	0	No
11/23 11:30 AM approx	0	No	0	No
11/23 1:00 PM approx	0	No	0	No
11/23 2:30 PM approx	0	No	0	No
11/23 3:30 PM approx	0	No	0	No
11/24 12:19 PM	0	No	0	No

SECTION 3 – MEASUREMENTS IN SEQUENCE

Date and Time	Location	SO2 (ppm)	H2S (ppm)
11/23 3:48 AM	Northern End of Upper Calloway Loop & 25	1	0
11/23 3:52 AM	Southern End of Upper Calloway Loop & 25	0.9	0
11/23 3:55 AM	Southern End of Lower Calloway Loop & 25	0.5	0
11/23 3:56 AM	Southend Loop & 25	0.7	0
11/23 4:00 AM	Livingston Pentecostal Church	0	0
11/23 4:04 AM	Livingston Fire & Rescue	0	0
11/23 4:07 AM	Ford Hollow Road & 25	0	0
11/23 4:16 AM	Sand Hill Road & 25	0.5	0
11/23 4:19 AM	Northern End of Upper Calloway Loop & 25	1.2	0
11/23 7:00 AM approx	Northern End of Upper Calloway Loop & 25	0	0
11/23 7:00 AM approx	Southern End of Upper Calloway Loop & 25	0	0
11/23 7:00 AM approx	Southern End of Lower Calloway Loop & 25	0	0
11/23 7:00 AM approx	Southend Loop & 25	0	0
11/23 7:00 AM approx	Livingston Pentecostal Church	0	0
11/23 7:00 AM approx	Livingston Fire & Rescue	0	0
11/23 7:00 AM approx	Ford Hollow Road & 25	0	0
11/23 7:00 AM approx	Sand Hill Road & 25	0	0
11/23 9:00 AM approx	Northern End of Upper Calloway Loop & 25	0	0
11/23 9:00 AM approx	Southern End of Upper Calloway Loop & 25	0	0
11/23 9:00 AM approx	Southern End of Lower Calloway Loop & 25	0	0
11/23 9:00 AM approx	Southend Loop & 25	0	0
11/23 9:00 AM approx	Livingston Pentecostal Church	0	0
11/23 9:00 AM approx	Livingston Fire & Rescue	0	0
11/23 9:00 AM approx	Ford Hollow Road & 25	0	0
11/23 9:00 AM approx	Sand Hill Road & 25	0	0
11/23 9:00 AM approx	Piney Ridge Road at 490	0	0

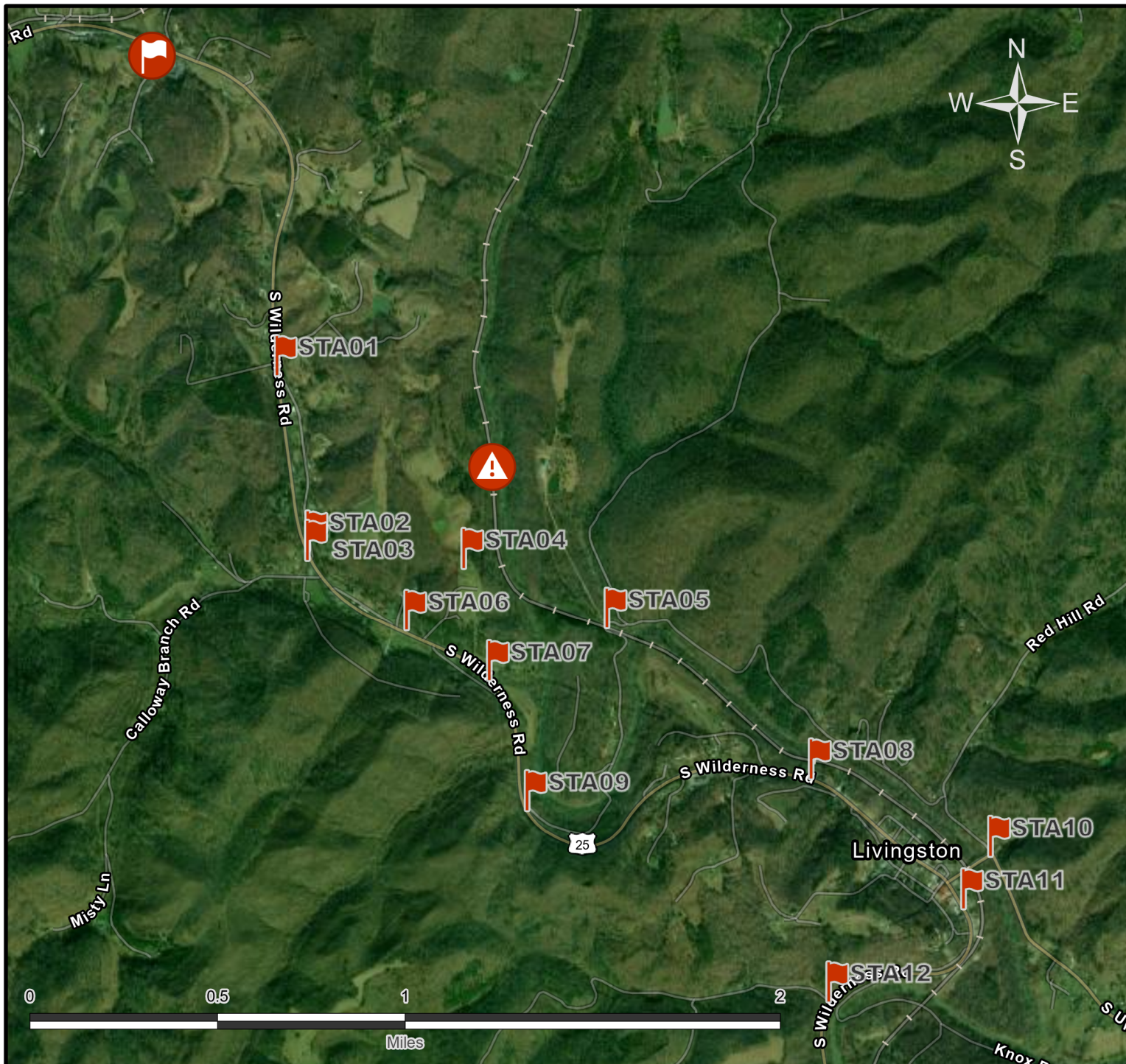
Date and Time	Location	SO2 (ppm)	H2S (ppm)
11/23 9:00 AM approx	Piney Ridge Road Rail Crossing	0	0
11/23 9:00 AM approx	Ten Foot Hole Road & 25	0	0
11/23 10:00 AM approx	Northern End of Upper Calloway Loop & 25	0	0
11/23 10:00 AM approx	Southern End of Upper Calloway Loop & 25	0	0
11/23 10:00 AM approx	Southern End of Lower Calloway Loop & 25	0	0
11/23 10:00 AM approx	Southend Loop & 25	0	0
11/23 10:00 AM approx	Livingston Pentecostal Church	0	0
11/23 10:00 AM approx	Livingston Fire & Rescue	0	0
11/23 10:00 AM approx	Ford Hollow Road & 25	0	0
11/23 10:00 AM approx	Sand Hill Road & 25	0	0
11/23 10:00 AM approx	Piney Ridge Road at 490	0	0
11/23 10:00 AM approx	Piney Ridge Road Rail Crossing	0	0
11/23 10:00 AM approx	Ten Foot Hole Road & 25	0	0
11/23 11:30 AM approx	Northern End of Upper Calloway Loop & 25	0	0
11/23 11:30 AM approx	Southern End of Upper Calloway Loop & 25	0	0
11/23 11:30 AM approx	Southern End of Lower Calloway Loop & 25	0	0
11/23 11:30 AM approx	Southend Loop & 25	0	0
11/23 11:30 AM approx	Livingston Pentecostal Church	0	0
11/23 11:30 AM approx	Livingston Fire & Rescue	0	0
11/23 11:30 AM approx	Ford Hollow Road & 25	0	0
11/23 11:30 AM approx	Sand Hill Road & 25	0	0
11/23 11:30 AM approx	Piney Ridge Road at 490	0	0
11/23 11:30 AM approx	Piney Ridge Road Rail Crossing	0	0
11/23 11:30 AM approx	Ten Foot Hole Road & 25	0	0
11/23 11:30 AM approx	John Deer Lane above Derailment Site	0	0
11/23 1:00 PM approx	Northern End of Upper Calloway Loop & 25	0	0
11/23 1:00 PM approx	Southern End of Upper Calloway Loop & 25	0	0
11/23 1:00 PM approx	Southern End of Lower Calloway Loop & 25	0	0
11/23 1:00 PM approx	Southend Loop & 25	0	0
11/23 1:00 PM approx	Livingston Pentecostal Church	0	0
11/23 1:00 PM approx	Livingston Fire & Rescue	0	0
11/23 1:00 PM approx	Ford Hollow Road & 25	0	0
11/23 1:00 PM approx	Sand Hill Road & 25	0	0
11/23 1:00 PM approx	Piney Ridge Road at 490	0	0
11/23 1:00 PM approx	Piney Ridge Road Rail Crossing	0	0
11/23 1:00 PM approx	Ten Foot Hole Road & 25	0	0
11/23 2:30 PM approx	Northern End of Upper Calloway Loop & 25	0	0
11/23 2:30 PM approx	Southern End of Upper Calloway Loop & 25	0	0
11/23 2:30 PM approx	Southern End of Lower Calloway Loop & 25	0	0
11/23 2:30 PM approx	Southend Loop & 25	0	0
11/23 2:30 PM approx	Livingston Pentecostal Church	0	0
11/23 2:30 PM approx	Livingston Fire & Rescue	0	0
11/23 2:30 PM approx	Ford Hollow Road & 25	0	0

Date and Time	Location	SO2 (ppm)	H2S (ppm)
11/23 2:30 PM approx	Sand Hill Road & 25	0	0
11/23 2:30 PM approx	Piney Ridge Road at 490	0	0
11/23 2:30 PM approx	Piney Ridge Road Rail Crossing	0	0
11/23 2:30 PM approx	Ten Foot Hole Road & 25	0	0
11/23 2:30 PM approx	John Deer Lane above Derailment Site	0	0
11/23 3:30 PM approx	Northern End of Upper Calloway Loop & 25	0	0
11/23 3:30 PM approx	Southern End of Upper Calloway Loop & 25	0	0
11/23 3:30 PM approx	Southern End of Lower Calloway Loop & 25	0	0
11/23 3:30 PM approx	Southend Loop & 25	0	0
11/23 3:30 PM approx	Livingston Pentecostal Church	0	0
11/23 3:30 PM approx	Livingston Fire & Rescue	0	0
11/23 3:30 PM approx	Ford Hollow Road & 25	0	0
11/23 3:30 PM approx	Sand Hill Road & 25	0	0
11/23 3:30 PM approx	Piney Ridge Road at 490	0	0
11/23 3:30 PM approx	Piney Ridge Road Rail Crossing	0	0
11/23 3:30 PM approx	Ten Foot Hole Road & 25	0	0
11/23 3:30 PM approx	John Deer Lane above Derailment Site	0	0
11/23 6:30 PM approx	Northern End of Upper Calloway Loop & 25	0	0
11/23 6:30 PM approx	Southern End of Upper Calloway Loop & 25	0	0
11/23 6:30 PM approx	Southern End of Lower Calloway Loop & 25	0	0
11/23 6:30 PM approx	Livingston Fire & Rescue	0	0
11/23 6:30 PM approx	Piney Ridge Road Rail Crossing	0	0
11/23 9:30 PM approx	Northern End of Upper Calloway Loop & 25	0	0
11/23 9:30 PM approx	Southern End of Upper Calloway Loop & 25	0	0
11/23 9:30 PM approx	Southern End of Lower Calloway Loop & 25	0	0
11/23 9:30 PM approx	Livingston Fire & Rescue	0	0
11/23 9:30 PM approx	Piney Ridge Road Rail Crossing	0	0
11/23 11:30 PM approx	Northern End of Upper Calloway Loop & 25	0	0
11/23 11:30 PM approx	Southern End of Upper Calloway Loop & 25	0	0
11/23 11:30 PM approx	Southern End of Lower Calloway Loop & 25	0	0
11/23 11:30 PM approx	Livingston Fire & Rescue	0	0
11/23 11:30 PM approx	Piney Ridge Road Rail Crossing	0	0
11/24 2:00 AM approx	Northern End of Upper Calloway Loop & 25	0	0
11/24 2:00 AM approx	Southern End of Upper Calloway Loop & 25	0	0
11/24 2:00 AM approx	Southern End of Lower Calloway Loop & 25	0	0
11/24 2:00 AM approx	Livingston Fire & Rescue	0	0
11/24 2:00 AM approx	Piney Ridge Road Rail Crossing	0	0
11/24 4:30 AM approx	Northern End of Upper Calloway Loop & 25	0	0
11/24 4:30 AM approx	Southern End of Upper Calloway Loop & 25	0	0
11/24 4:30 AM approx	Southern End of Lower Calloway Loop & 25	0	0
11/24 4:30 AM approx	Livingston Fire & Rescue	0	0
11/24 4:30 AM approx	Piney Ridge Road Rail Crossing	0	0
11/24 7:00 AM approx	Northern End of Upper Calloway Loop & 25	0	0

Date and Time	Location	SO2 (ppm)	H2S (ppm)
11/24 7:00 AM approx	Southern End of Upper Calloway Loop & 25	0	0
11/24 7:00 AM approx	Southern End of Lower Calloway Loop & 25	0	0
11/24 7:00 AM approx	Livingston Fire & Rescue	0	0
11/24 7:00 AM approx	Piney Ridge Road Rail Crossing	0	0
11/24 9:00 AM approx	Northern End of Upper Calloway Loop & 25	0	0
11/24 9:00 AM approx	Southern End of Upper Calloway Loop & 25	0	0
11/24 9:00 AM approx	Southern End of Lower Calloway Loop & 25	0	0
11/24 9:00 AM approx	Livingston Fire & Rescue	0	0
11/24 9:00 AM approx	Piney Ridge Road Rail Crossing	0	0
11/24 10:00 AM approx	John Deer Lane above Derailment Site	0	0
11/24 12:00 PM	Derailment Staging Site	0	0
11/24 12:09 PM	Northern End of Upper Calloway Loop & 25	0	0
11/24 12:13 PM	Southern End of Upper Calloway Loop & 25	0	0
11/24 12:14 PM	Southern End of Lower Calloway Loop & 25	0	0
11/24 12:16 PM	Livingston Pentecostal Church	0	0
11/24 12:18 PM	Livingston Fire & Rescue	0	0
11/24 12:19 PM	Ford Hollow Road & 25	0	0
11/24 12:23 PM	Piney Ridge Road at 490	0	0
11/24 12:29 PM	Piney Ridge Road Rail Crossing	0	0
11/24 12:32 PM	Ten Foot Hole Road & 25	0	0
11/24 1:56 PM	Northern End of Upper Calloway Loop & 25	0	0
11/24 1:58 PM	Southern End of Upper Calloway Loop & 25	0	0
11/24 2:03 PM	End of Foxglove Hill Road	0	0
11/24 2:07 PM	Livingston Pentecostal Church	0	0
11/24 2:09 PM	Livingston Fire & Rescue	0	0
11/24 2:14 PM	Int. of Ford Hollow Rd and Snowy Rd (west)	0	0
11/24 2:20 PM	Piney Ridge Road at 490	0	0
11/24 2:24 PM	Piney Ridge Road Rail Crossing	0	0
11/24 2:35 PM	Ten Foot Hole Road & 25	0	0
11/24 3:37 PM	Northern End of Upper Calloway Loop & 25	0	0
11/24 3:39 PM	Southern End of Upper Calloway Loop & 25	0	0
11/24 3:46 PM	Livingston Pentecostal Church	0	0
11/24 3:48 PM	Livingston Fire & Rescue	0	0
11/24 3:49 PM	Int. of Ford Hollow Rd and Snowy Rd (east)	0	0
11/24 3:56 PM	Red Hill Road & Black Bear Lick Road	0	0
11/24 3:59 PM	Piney Ridge Road at 490	0	0
11/24 4:03 PM	Piney Ridge Road Rail Crossing	0	0
11/24 4:05 PM	Ten Foot Hole Road & 25	0	0

DEFINITIONS

AEGL	Acute Exposure Guideline Levels (see https://www.epa.gov/aegl for more information)
EPA	U.S. Environmental Protection Agency
H ₂ S	Hydrogen Sulfide (see https://www.atsdr.cdc.gov/toxfaqs/tfacts114.pdf for more information)
KYDEP	Kentucky Department of Environmental Protection
ppm	Parts per million
SO ₂	Sulfur Dioxide (see https://www.atsdr.cdc.gov/toxfaqs/tfacts116.pdf for more information)



-  Monitoring Locations
-  Derailment
-  ICP



EMERGENCY RESPONSE TEAM



United States
Environmental Protection Agency
Region 4

CSX Livingston EPA and KYDEP Air Monitoring Locations

City: Livingston County: Rockcastle State: Kentucky