NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

October 29, 2020

Specialist's Report

METEOROLOGY

RRD21LR002

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A. ACCIDENT

Location: North Canaan, Connecticut
Date: October 14, 2020
Time: 1445 eastern daylight time (1845 UTC)[1]
Event: Track employee struck by on track equipment

B. METEOROLOGIST

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Senior Meteorologist
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National Transportation Safety Board

C. DETAILS OF THE INVESTIGATION

The National Transportation Safety Board's meteorological specialist did not travel in support of this accident investigation and gathered all weather data remotely. Unless otherwise noted, all times are in eastern daylight time (EDT) for October 14, 2020 (based upon the 24-hour clock) and directions are referenced to true north. The accident site was located at about: 42.02563889° north latitude, 73.32797222° west longitude, at an elevation of about 675 feet.

This report provides information on the local weather conditions applicable to the accident location at the accident time.

D. WEATHER INFORMATION

1.0 Surface Observations

Meteorological reporting station F6198 (data courtesy of MesoWest[2]) was located about 0.5 statute miles west-northwest of the accident site at an elevation of about 675 feet. Type, calibration, maintenance, and siting standards of this instrumentation, as well as the overall quality of the data, are not known. Reporting of certain parameters[3] from F6198 (rounded to nearest whole numbers except for 24-hour liquid precipitation accumulation) during the times surrounding the accident time are presented here:

Time	Temp	D_Temp	RH	W_Mag	W_Dir	G_Mag	P_Acc
1413	69	47	46	2	117°	6	0.08
1423	69	47	46	2	234°	5	0.08
1433	69	48	48	2	131°	6	0.08

[1] UTC – abbreviation for Coordinated Universal Time
[2] https://mesowest.utah.edu
[3] Temp=temperature (°Fahrenheit[F]); D_Temp=dew point temperature (°F); RH=relative humidity (%); W_Mag=average wind magnitude (miles-per-hour[mph]); W_Dir=average wind direction (true); G_Mag=gust wind magnitude (mph); P_Acc=24-hour liquid precipitation accumulation (inches)

1443	69	48	47	2	094°	5	0.08
1453	69	47	46	2	292°	4	0.08
1503	69	47	45	4	338°	6	0.05

2.0 Weather Radar

A Level-II base reflectivity image from a WSR-88D[4] weather radar near Albany, New York (site KENX), is presented in figure 1. KENX was located approximately 54 statute miles northwest of the accident location at an elevation of about 1,935 feet. Assuming standard refraction and considering the 0.95° beam width[5] for the WSR-88D radar beam, the KENX 0.527 tilt would have "seen" altitudes above the accident location of between about 4,200 and 9,600 feet above msl.

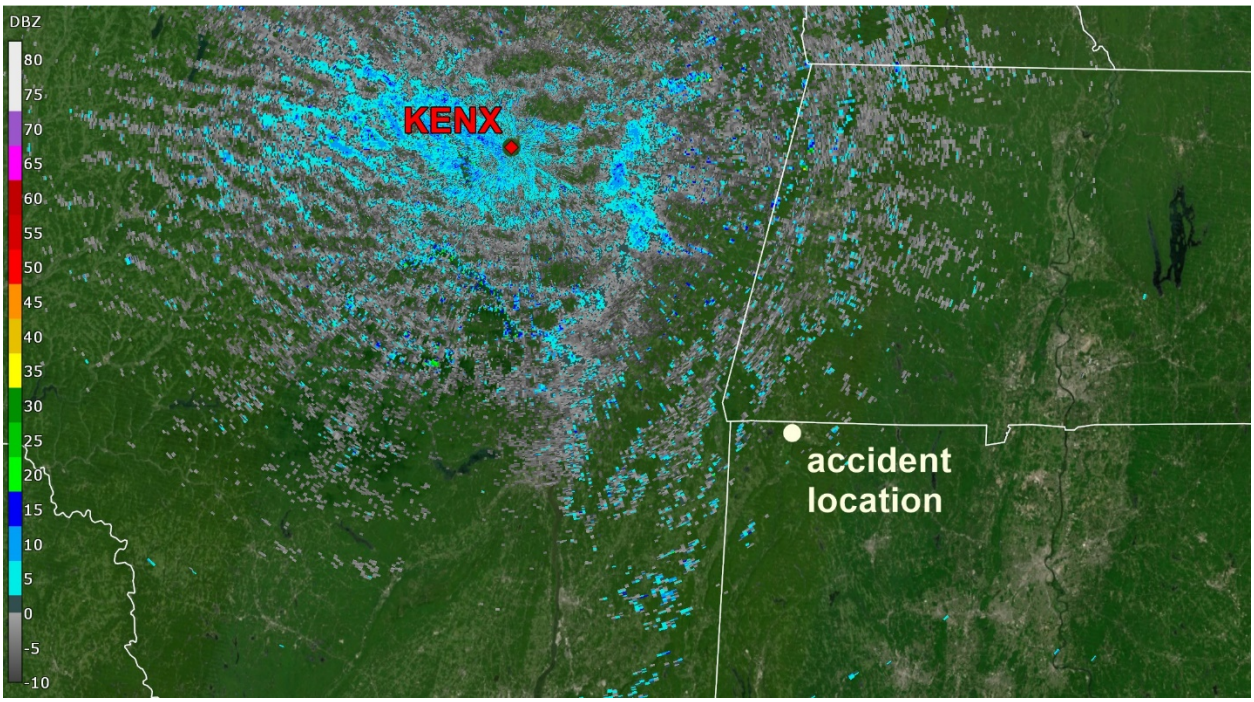

Figure 1 – KENX 0.527° Level-II base reflectivity product from a sweep initiated at 1444:27 EDT.

[4] Weather Surveillance Radar 88 Doppler (WSR-88D)

[5] Here we define the angular width of the radar beam as the region of transmitted energy that is bounded by one-half the maximum power. The maximum power lies along the beam centerline and decreases outward from the radar antenna.

3.0 Satellite Imagery

Geostationary Operational Environmental Satellite (GOES)-16 visible (0.64µm) data were obtained from an archive at the Space Science Engineering Center at the University of Wisconsin-Madison. An image from 1446 EDT is presented in figure 2. The GOES-16 visible imagery did not depict any cloud cover over the accident location.

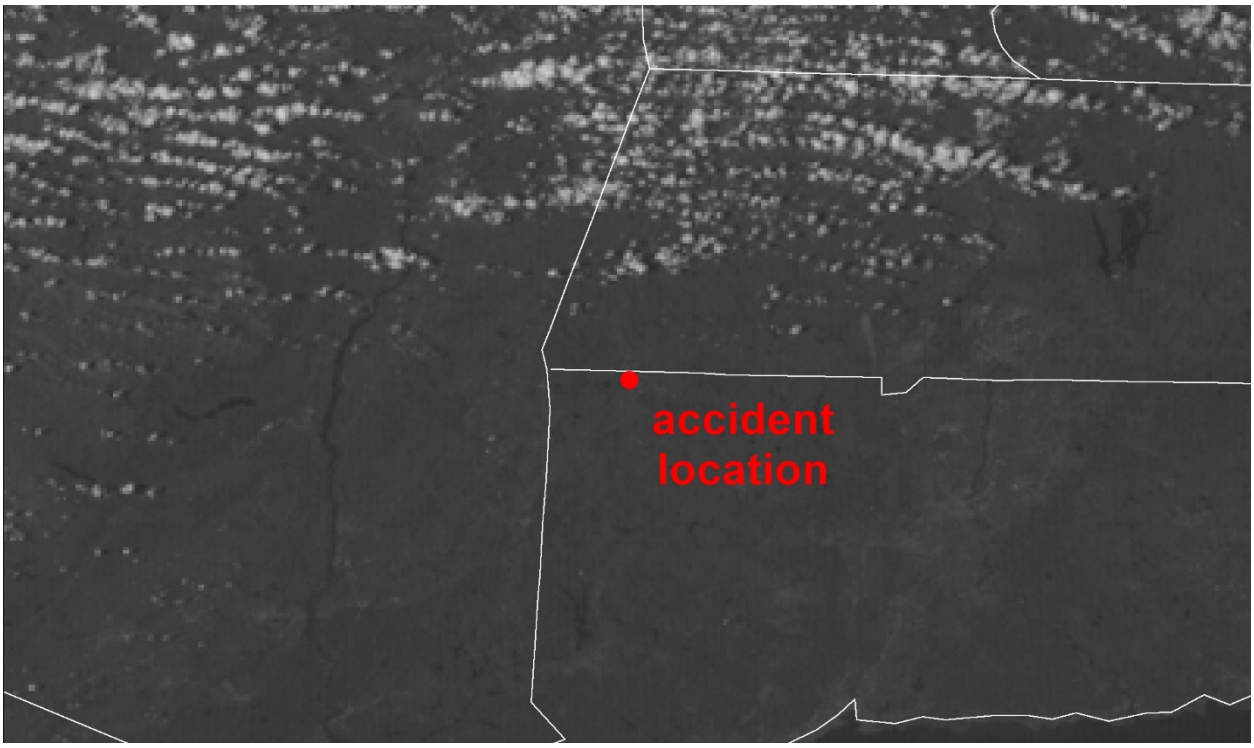

Figure 2 – GOES-16 visible image from 1446 EDT. This image has not been corrected for any parallax error.

4.0 Area Forecast Discussion

Presented here are the "Synopsis," "Near Term," "Aviation," "Fire Weather" and "Hydrology" sections of the Area Forecast Discussion issued by the National Weather Service Weather Forecast Office in Albany, New York, at 1559 EDT, applicable to a region that included the accident location. The most applicable information to the accident time has been highlighted in bold text.

FXUS61 KALY 141959
AFDALY
AREA FORECAST DISCUSSION
National Weather Service Albany NY
359 PM EDT Wed Oct 14 2020

.SYNOPSIS...

A small ridge of high pressure will build in today, resulting in drier and warmer conditions. *High pressure will move off the east coast tonight, with a warm front pushing northward across the region. A southerly flow developing in wake of the warm front passage will allow for temperatures to warm well above normal on Thursday. A cold front will move in late Thursday into Thursday night, bringing some showers. The front is expected to stall over New England on Friday, with low pressure developing along the front. This will result in widespread rainfall Friday into early Saturday.*

.NEAR TERM /UNTIL 6 PM THIS EVENING/...

The latest GOES-16 visible satellite loop as of 10:30 AM EDT shows cloud conditions improving over the forecast area. A weak frontal boundary to our west will continue to weaken/wash out as a 1020 mb high builds in from the south. Model soundings has us mixing up between 800mb-850mb this afternoon. This plus subsidence from the high will help to improve cloud coverage through this afternoon into becoming sunny to mostly sunny. Winds will be out of the west this afternoon at generally 5-10 kts with high temperatures climbing into the 60s across the river valleys (upper 50s higher elevations).

A warm front will lift north over our area tonight allowing for winds to shift out of the south. Clouds will be on the increase especially across the northern half of our cwa. Lows will drop into the 40s across the valleys (upper 30s higher elevations).

.FIRE WEATHER...

A small ridge of high pressure will build in today, resulting in drier and warmer conditions. *High pressure will move off the East Coast tonight, with a warm front pushing northward across the region. A southerly flow developing in wake of the warm front passage will allow for temperatures to warm well above normal on Thursday. A cold front will move over the area Thursday night, bringing some showers. The front is expected to stall over New England on Friday, with low pressure developing along the front. This will result in widespread rainfall Friday into early Saturday.*

RH values will increase to between 75 and 95 percent tonight*, decreasing to minimum values of 40 to 50 percent on Thursday.*

Winds tonight will become southerly at 10 mph or less. On Thursday, winds will be southerly around 10 to 20 mph, with gusts up to 30 mph.

.HYDROLOGY...

No widespread or significant hydro problems are expected through the next 7 days.

Drier weather will prevail tonight through much of Thursday, which will result in decreasing river flows. A cold front moving in Thursday night could bring some showers with light rainfall amounts.

The next chance of widespread rain looks to be Friday into early Saturday, as low pressure develops along a stalling cold front over New England. There's still some uncertainty with regards to exact rainfall amounts, but per latest observations, there's the potential for 0.5-2 inches of rain, with our eastern zones most favored for the

heaviest rainfall. At this time no flooding is anticipated as river levels/stream flows are below normal.

Dry conditions will then return Saturday afternoon through the rest of the weekend.

For details on specific area rivers and lakes, including observed and forecast river stages and lake elevations, please visit the Advanced Hydrologic Prediction Service /AHPS/ graphs on our website.

Submitted by:

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Mike Richards
Senior Meteorologist