



August 5, 2014

Richard Buxman  
State's Attorney Office  
550 W. Main St  
Tavares, FL 32778

RE: Lake County Case 2013-CF-187  
Location of Interest: 10700 US 441 Leesburg, FL  
Time Period of Interest: October 2 – 4, 2012  
Time of Incident: October 3, 2014 at approximately 1:00 AM EDT  
Time of Forensic Analysis: October 3, 2014 at approximately 10:00 PM EDT

To Whom It May Concern:

Included with this letter you will find information you requested from our office concerning weather observations for the area of Leesburg, Florida. Hourly observations provided were taken from the Automated Surface Observing System (ASOS) station located at the Leesburg Regional Airport, which is approximately 2 miles from the location of interest. Data provided for this report are for the date of October 2 – 4, 2012, though the focus of this report will be on October 3<sup>rd</sup>. Also attached is a list of conversions and meteorological identifiers that will help you decipher the information. A map of the area, courtesy of Google Maps, has also been included. Note the locations of the stations and area of interest, marked by either yellow pushpins or other identifiers.

The ASOS system serves as the nation's primary surface weather observing network and is designed to support weather forecast activities and aviation operations and, at the same time, support the needs of the meteorological, hydrological, and climatological research communities. ASOS detects significant changes, disseminating hourly and special observations. These observations are on archive and were provided by the National Climate Data Center (NCDC).

Select observations from Leesburg Regional Airport are summarized below for hours prior to the time period of interest, listed as 1:00am EDT. A complete listing of the observations taken from the airport can be found attached with this report. These observations listed below highlight the required automated reports from the airport (reported on 53<sup>rd</sup> minute of every hour):

Date	Time	Visibility	Temp	Dew Point	Relative Humidity	Wind	Wind Gust	Pressure	Present Weather	Report Type
02	1853	3 miles	78°F	76°F	94%	SSE 10 mph	--	29.89"	Heavy Rain with Mist/Fog	Auto
02	1953	7 miles	75°F	73°F	94%	SE 9 mph	--	29.92"	Rain	Auto



Date	Time	Visibility	Temp	Dew Point	Relative Humidity	Wind	Wind Gust	Pressure	Present Weather	Report Type
02	2053	6 miles	74°F	72°F	94%	SE 9 mph	--	29.95"	Light Rain with Mist/Fog	Auto
02	2153	10 miles	75°F	73°F	94%	SSE 10 mph	--	29.97"	None	Auto
02	2253	10 miles	75°F	72°F	90%	S 7 mph	--	29.96"	None	Auto
02	2353	10 miles	74°F	72°F	94%	SW 7 mph	--	29.96"	None	Auto

Hourly observations from the Leesburg Regional Airport prior to the time of interest, between 6:53pm and 8:53pm, indicate that showers impacted the area, producing heavy rain and reduced visibility. Below are the observations around the listed time of interest:

Date	Time	Visibility	Temp	Dew Point	Relative Humidity	Wind	Wind Gust	Pressure	Present Weather	Report Type
03	0053	10 miles	75°F	73°F	94%	S 5 mph	--	29.96"	None	Auto
03	0153	10 miles	75°F	74°F	97%	SSW 3 mph	--	29.96"	None	Auto
03	0253	10 miles	75°F	73°F	94%	S 6 mph	--	29.97"	None	Auto

The observations from the Leesburg Regional Airport show that there was no rain reported at the station during the hours of 9:53pm on the 2<sup>nd</sup> and 2:53am on the 3<sup>rd</sup>. After the listed time of incident, there were multiple periods of rainfall reported at the Leesburg Regional Airport up until the time that a unit for crime scene analysis arrived at the location of interest, listed as 10:00pm on the 3<sup>rd</sup>. Below are the observations in which rainfall was reported:

Date	Time	Visibility	Temp	Dew Point	Relative Humidity	Wind	Wind Gust	Pressure	Present Weather	Report Type
03	0353	10 miles	75°F	73°F	94%	S 9 mph	--	29.98"	Light Rain	Auto
03	0436	10 miles	75°F	73°F	94%	S 10 mph	--	29.99"	Light Rain	Special
03	0453	10 miles	75°F	73°F	94%	S 8 mph	--	29.99"	Light Rain	Auto
03	1022	10 miles	79°F	75°F	88%	SSW 5 mph	--	30.06"	Light Rain	Special
03	1106	1.75 miles	79°F	75°F	88%	SW 9 mph	--	30.06"	Rain, Mist and Fog	Special
03	1126	2.50 miles	77°F	73°F	88%	SSW 7 mph	--	30.05"	Rain, Mist and Fog	Special
03	1134	9 miles	77°F	73°F	88%	SW 5 mph	--	30.05"	Light Rain	Special
03	1153	10 miles	78°F	74°F	88%	WSW 3 mph	--	30.05"	Light Rain	Special
03	1413	1.50 miles	81°F	77°F	88%	SSW 17 mph	26 mph	30.04"	Heavy Rain, with Mist/Fog	Special

Date	Time	Visibility	Temp	Dew Point	Relative Humidity	Wind	Wind Gust	Pressure	Present Weather	Report Type
03	1453	10 miles	78°F	71°F	79%	W 11 mph	24 mph	30.05"	Light Rain	Auto
03	1653	10 miles	76°F	73°F	90%	WSW 8 mph	--	30.03"	Light Rain	Auto
03	1953	10 miles	75°F	73°F	94%	Calm	--	30.08"	Light Rain	Auto

A breakdown of the total precipitation (given in inches) for October 2<sup>nd</sup> – 4<sup>th</sup> is shown below:

Time/Date	10/2/12	10/3/12	10/4/12
12:00 - 1:00 AM			
1:00 - 2:00 AM			
2:00 - 3:00 AM			
3:00 - 4:00 AM		0.01	
4:00 - 5:00 AM		Trace	
5:00 - 6:00 AM		Trace	
6:00 - 7:00 AM			
7:00 - 8:00 AM			
8:00 - 9:00 AM			
9:00 - 10:00 AM			
10:00 - 11:00 AM	Trace	Trace	
11:00 AM - 12:00 PM	0.01	0.15	
12:00 - 1:00 PM	Trace	Trace	
1:00 - 2:00 PM		0.01	
2:00 - 3:00 PM	Trace	0.13	
3:00 - 4:00 PM	0.01	0.04	
4:00 - 5:00 PM		0.03	
5:00 - 6:00 PM			0.42
6:00 - 7:00 PM	0.08	Trace	0.20
7:00 - 8:00 PM	0.06	0.02	0.13
8:00 - 9:00 PM	0.08	Trace	0.12
9:00 - 10:00 PM	0.06		0.03
10:00 - 11:00 PM			0.01
11:00 PM - 12:00 AM			

\*Trace = 0.001"

Also included with this letter are official paper copies of requested radar images, provided by NCDC, for certain times during the event. The images provided are known as Radar Reflectivity Images, which display echo intensity measured in dBZ (decibels of Z, where Z represents the energy reflected back to the radar). The scale of dBZ values is also related to the intensity of rainfall. Typically, light rain is occurring when the dBZ value reaches 20 and values of 45-50 dBZ usually indicate moderate to heavy rainfall. Depending on the type of weather occurring and the area of the U.S., forecasters use a set of rain-rates, which correspond to the dBZ values.

Dates and times are located on the right hand side of each image (year/month/date and time given in GMT). The first image provided has a date and time stamp of 10/02/2012 20:00 GMT, which corresponds with 10/02/2012 at 4:00 PM EDT (the offset from GMT to EDT during Daylight Saving Time is 4 hours). The approximate location of interest is noted on each image by a white dot and label.

A review of the hourly observations and radar data indicate that an area of rain and thunderstorms to the east of the location of interest moved to the northeast and passed nearby between 20:20 GMT – 20:45 GMT on the 2<sup>nd</sup>. Light rain moved into the area of interest from 21:48 GMT until 22:26 GMT. An hour later, light rain with some embedded thunderstorms to the south-southwest of the location moves north and light to moderate rainfall impacts the area between 00:09 GMT on the 3<sup>rd</sup> (8:00 PM EDT 10/02/2012)

through 03:27 GMT (11:27 PM EDT 10/02/2012). The radar shows no indication of rain after 03:27 GMT until a light shower passes over the location from 06:06 GMT to 06:19 GMT, and then the radar is clear again until 08:15 GMT. At 08:15 GMT, an area of light rain approaches the area of interest from the southwest and impacts the location until 10:08 GMT. At 12:48 GMT, another small area of showers move through the location of interest until 13:01 GMT, at which point the radar images show no rain or shower activity until light to moderate rain approaches the location at 15:18 GMT and moves over the area at 16:17 GMT. Light rain continues to fall intermittently over the area from 16:17 GMT until 19:04 GMT, when a line of heavy rain and potentially thunderstorms moves into the area, which tapers off into light rain until about 21:50 GMT. More light rain moves over the location from 23:44 GMT until 00:55 GMT on the 4<sup>th</sup> (8:55 EDT 10/03/2012).

From 1:05 GMT on the 4<sup>th</sup> until 10:00 GMT, there is an abundance of DBZ values between 5 and 15 dBZs, due to ground clutter and backscatter from clouds, smoke, fog, and temperature inversions; even buildings and antenna towers can reflect small amounts of radar energy during a radar sweep. Typically, light rain is occurring when the dBZ value reaches 20. Depending on the type of weather occurring and the area of the U.S., forecasters use a set of rain-rates, which correspond to the dBZ values.

Based on the data provided to us, stations surrounding the area of interest reported rainfall and radar images indicate that moderate to heavy rain fell over the location of interest, both prior to the listed time of incident and after the time of incident.

I hereby certify that the data provided are true copies of the specified records and/or publications for the times and places indicated thereon on file at the National Climatic Data Center in Asheville, NC, and the Southeast Regional Climate Center in Chapel Hill, NC.

Sincerely,

David F. Zierden  
Florida Climate Center  
The Florida State University  
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