

December 3, 2014

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RE: Case No. 186682218; BMT Matter No.: 001.001007
Location of Interest: 1101 Victoria Street, Brandon, Florida
Time Period of Interest: September 20, 2013; 12:00 PM – 6:00 PM LDT
Listed Time of Incident: September 20, 2013 at 3:30 PM

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 Brandon, Florida. Hourly observations provided were taken from the Automated Surface Observing System (ASOS) stations located at the Plant City Municipal Airport, Peter O'Knight Airport, Mac Dill Air Force Base and the Tampa International Airport, which are approximately 5, 6, 14 and 15 miles from the location of interest, respectively. Data provided for this report are from September 20, 2013. 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 push-pins 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).

Observations from Plant City Municipal Airport during the time period of interest are summarized below:

Date	Time	Visibility	Temp	Dew Point	Relative Humidity	Wind	Wind Gust	Pressure	Present Weather	Report Type
20	1215	10 miles	88°F	61°F	40%	Calm	--	29.86"	None	Auto
20	1235	10 miles	88°F	61°F	40%	E 8 mph	--	29.85"	None	Auto
20	1255	10 miles	88°F	59°F	38%	ENE 8 mph	--	29.84"	None	Auto
20	1315	10 miles	88°F	59°F	38%	E 7 mph	--	29.84"	None	Auto
20	1335	10 miles	90°F	59°F	35%	E 3 mph	--	29.82"	None	Auto
20	1355	10 miles	88°F	59°F	38%	NE 7 mph	--	29.82"	None	Auto



Date	Time	Visibility	Temp	Dew Point	Relative Humidity	Wind	Wind Gust	Pressure	Present Weather	Report Type
20	1415	10 miles	88°F	59°F	38%	E 7 mph	--	29.81"	None	Auto
20	1435	10 miles	90°F	59°F	35%	E 6 mph	--	29.80"	None	Auto
20	1455	10 miles	90°F	59°F	35%	E 6 mph	--	29.79"	None	Auto
20	1515	10 miles	88°F	59°F	38%	E 7 mph	--	29.79"	None	Auto
20	1535	10 miles	90°F	57°F	33%	E 7 mph	--	29.78"	None	Auto
20	1555	10 miles	90°F	57°F	33%	E 8 mph	--	29.77"	None	Auto
20	1615	10 miles	90°F	57°F	33%	E 10 mph	--	29.77"	None	Auto
20	1635	10 miles	90°F	57°F	33%	ENE 7 mph	--	29.77"	None	Auto
20	1655	10 miles	88°F	59°F	38%	E 9 mph	--	29.77"	None	Auto
20	1715	10 miles	86°F	61°F	43%	E 6 mph	--	29.77"	None	Auto
20	1735	10 miles	84°F	63°F	49%	ESE 3 mph	--	29.77"	None	Auto
20	1755	10 miles	84°F	63°F	49%	ESE 3 mph	--	29.76"	None	Auto

Observations from Fort Lauderdale Executive Airport during the time period of interest, in which either gusty winds or rain/thunderstorms were present, are summarized for the three dates of interest. These observations are listed below:

Date	Time	Visibility	Temp	Dew Point	Relative Humidity	Wind	Wind Gust	Pressure	Present Weather	Report Type
20	1215	10 miles	86°F	68°F	55%	ESE 6 mph	--	30.00"	None	Auto
20	1235	10 miles	86°F	66°F	51%	E 5 mph	--	29.99"	None	Auto
20	1255	10 miles	88°F	66°F	48%	ESE 5 mph	--	29.98"	None	Auto
20	1315	10 miles	86°F	68°F	55%	ENE 3 mph	--	29.97"	None	Auto
20	1335	10 miles	88°F	66°F	48%	E 7 mph	--	29.96"	None	Auto
20	1355	10 miles	88°F	64°F	45%	E 8 mph	--	29.95"	None	Auto
20	1415	10 miles	90°F	64°F	42%	E 7 mph	--	29.94"	None	Auto
20	1435	10 miles	90°F	64°F	42%	ENE 6 mph	--	29.93"	None	Auto

Date	Time	Visibility	Temp	Dew Point	Relative Humidity	Wind	Wind Gust	Pressure	Present Weather	Report Type
20	1455	10 miles	88°F	64°F	45%	ENE 10 mph	--	29.93"	None	Auto
20	1515	10 miles	90°F	64°F	42%	E 5 mph	--	29.92"	None	Auto
20	1535	10 miles	88°F	63°F	43%	ENE 8 mph	--	29.91"	None	Auto
20	1555	10 miles	88°F	63°F	43%	E 9 mph	--	29.91"	None	Auto
20	1615	10 miles	88°F	64°F	45%	E 7 mph	--	29.91"	None	Auto
20	1635	10 miles	88°F	63°F	43%	E 7 mph	--	29.91"	None	Auto
20	1655	10 miles	88°F	63°F	43%	ENE 5 mph	--	29.90"	None	Auto
20	1715	10 miles	88°F	63°F	43%	E 7 mph	--	29.90"	None	Auto
20	1735	10 miles	86°F	63°F	46%	E 5 mph	--	29.90"	None	Auto
20	1755	10 miles	86°F	64°F	48%	ESE 5 mph		29.90"	None	Auto

Observations from Mac Dill Air Force Base during the time period of interest are listed below:

Date	Time	Visibility	Temp	Dew Point	Relative Humidity	Wind	Wind Gust	Pressure	Present Weather	Report Type
20	1158	10 miles	86°F	74°F	68	SE 7 mph	--	30.00"	None	Auto
20	1258	10 miles	87°F	73°F	63	SE 7 mph	--	29.98"	None	Auto
20	1358	10 miles	89°F	72°F	57	E 7 mph	--	29.95"	None	Auto
20	1458	10 miles	89°F	71°F	55	SE 9 mph	--	29.92"	None	Auto
20	1558	10 miles	89°F	69°F	52	ESE 8 mph	--	29.91"	None	Auto
20	1658	10 miles	86°F	69°F	57	SE 6 mph	--	29.90"	None	Auto
20	1758	10 miles	87°F	70°F	57	E 10 mph	--	29.90"	None	Auto

Observations from Tampa International Airport during the time period of interest are summarized below:

Date	Time	Visibility	Temp	Dew Point	Relative Humidity	Wind	Wind Gust	Pressure	Present Weather	Report Type
20	1153	10 miles	86°F	68°F	55%	Var 3 mph	--	30.01"	None	Auto
20	1253	10 miles	88°F	67°F	50%	Var 6 mph	--	29.98"	None	Auto
20	1353	10 miles	88°F	66°F	48%	Calm	--	29.95"	None	Auto
20	1453	10 miles	90°F	65°F	44%	Var 5 mph	--	29.93"	None	Auto
20	1553	10 miles	89°F	64°F	44%	Var 6 mph	--	29.91"	None	Auto
20	1653	10 miles	88°F	64°F	45%	ENE 5 mph	--	29.91"	None	Auto
20	1753	10 miles	87°F	63°F	45%	Var 3 mph	--	29.90"	None	Auto

*Var = Variable

Hourly observations from all airports indicate that no rain fell in the area, during the time prior to the time of incident, on the 20th.

In addition to the data from the airports, observations of daily precipitation totals were taken from COOP stations surrounding the area of interest (previously mentioned above). These COOP stations are sites where observations are taken or other services rendered by volunteers or contractors. Observers record temperature and precipitation daily and send those reports monthly to NCDC and a NWS office. The COOP stations vary in the times that they report the weather information they've collected, so these totals are for the 24-hour period, usually beginning/ending between 7:00AM and 9:00 AM, though some stations report outside of that time window. For example, daily data are collected by the COOP station and reported from 4pm to 4pm, which means rain that fell on a particular day (example: 09/19/13) could be reported the following day (example: 09/20/13). Daily values of temperatures and precipitation from each station are included with this report. Any variable listed as -999 represents a missing value for the day.

Station	NWS COOP ID	Time of Observation	Rainfall Total 09/19/2013	Rainfall Total 09/20/2013	Rainfall Total 09/21/2013
Plant City	087205	1600	0.05"	0.07"	0.00"
Tampa	088788	2400	0.44"	0.00"	0.00"

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 Base 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. Dates and times are located on the right hand side of each image (year/month/date/time are given in GMT). Since time is given in GMT, the date on the first image reflects being taken at 00:01 GMT on the 20th, which corresponds to 8:01 PM EDT on the 20th.

The provided images were taken from the radar site located in Hillsborough County, located near the Ruskin National Weather Service Office and the approximate location of interested is noted on each image. A line of thunderstorms moved from the northeast to the southwest, over the area of interest, from 00:01 GMT (8:01 PM EDT on the 19th) through 00:58 GMT (8:58 PM EDT on the 19th), followed by spotty shower activity until 03:10 GMT (11:10 PM EDT on the 19th). 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.

You will notice an abundance of DBZ values between 5 and 15 dBZs, especially between the hours of 03:10 GMT (11:10 PM EDT on the 19th) and 15:30 GMT (11:30 AM EDT) on the 20th, mainly 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. The images from 15:36 GMT through 23:56 GMT on September 20th were taken when the radar had been switched to 'clear-air' mode. Clear-air mode is often used when no significant precipitation echoes are on radar, or when light precipitation is on radar. The radar is more sensitive in this mode and can also give 'false' echoes that are created by dust, insects, birds and boundaries between two different air masses. A supplemental image for the time of incident was taken from the National Reflectivity and Mosaic Data portal provided by NCDC. This supplemental image shows no rainfall in the area of interest at the time of incident.

Based on the data provided to us, stations surrounding the area of interest reported rainfall and radar images indicate that light to moderate rain fell briefly over the location of interest on the evening of the 19th, but no rain was observed around 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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