

**NOTE: TIMES, LOCATIONS & THE DATA HAVE BEEN CHANGED FOR THIS SAMPLE REPORT**

# **FORENSIC WEATHER CONSULTANTS, LLC**

---

Howard Altschule  
Forensic Meteorologist  
1971 Western Avenue, #200  
Albany, New York 12203  
(518) 862-1800 (Phone)  
**Www.WeatherConsultants.Com**

---

## **FORENSIC WEATHER INVESTIGATION OF THE WEATHER CONDITIONS AND VISIBILITY ON SEPTEMBER 13, 2010 IN THE VICINITY OF INTERSTATE 95 NORTH IN DAYTONA BEACH, FLORIDA**

October 19, 2012

**CASE NAME/FILE NUMBER:** "Plaintiff v. Defendant"  
**DATE AND TIME OF INCIDENT:** September 13, 2010 at 3:15 p.m. EST  
**PREPARED FOR:** Mr. John Legal, Esquire  
**COMPANY:** Law Firm, LLP

### **ASSIGNMENT:**

This case was assigned to me by Law Firm, LLP. I was asked to perform an in-depth weather analysis and forensic weather investigation in the vicinity of mile marker 129.4 on Interstate 95 Northbound in Daytona Beach, Florida in order to determine what the weather conditions were leading up to and including the time of this incident.

### **METHODOLOGY:**

Forensic Weather Consultants, LLC uses only the most trusted and reliable sources of weather information that can be certified by the federal government. In order to accurately determine the weather conditions that existed leading up to and including the time of the incident, a detailed search was performed to find the closest, official weather stations to the location of the incident. Using the computer program "Google Earth", weather station locations provided by the National Climatic Data Center were plotted and are indicated by a yellow pushpin. The location of the

incident was plotted by our office and is indicated by a red pushpin. This map will help give you an approximate location of the weather stations we used in this study and their proximity to the location of the incident. A copy of this “Google Earth” map is attached to the end of this report.

In order to perform my analysis of the weather conditions that existed, I obtained and reviewed official copies of the following weather records:

- Hourly surface weather observations / Quality Controlled Local Climatological Data from Daytona Beach Airport in Daytona Beach, Florida in September 2010
- Cooperative observer station reports from Beach, Florida; Palm Beach, Florida; and Daytona Beach, Florida in September 2010
- The publication “Local Climatological Data” for Palm Beach International Airport in Daytona Beach, Florida in September 2010
- Super-resolution Reflectivity Doppler Radar images from the Melbourne, Florida radar site zoomed in over the incident location
- One-Hour Precipitation Total Doppler Radar images from the Melbourne, Florida radar site zoomed in over the incident location
- Various National Weather Service (N.W.S.) statements, advisories, bulletins and reports issued by the Melbourne, Florida office.

The weather data and Climatological records used for this analysis are the official records that Meteorologists rely upon every day during the normal course of business and are either kept in our office or at the National Climatic Data Center. The findings in this report utilize the weather records that were available at the time of data retrieval for this case. Any additional weather records and data that become available at a later date may be incorporated into this report in the future.

Doppler Radar images and several other types of weather records were used in this study. Doppler radar images are useful for locating precipitation. As the radar unit sends a pulse of energy into the atmosphere and if any precipitation is intercepted by the energy, part of the energy is scattered back to the radar. These return signals, called “radar echoes”, are assembled to produce radar images. The location of the colored radar echoes indicates where precipitation is falling and the various colors indicate the intensity of the precipitation through the color code key on the right side of the radar image itself. Doppler radar images are received approximately every 6 minutes and can determine if precipitation was falling at the incident location and if so, when it started and stopped.

Storm Total Precipitation (S.T.P.) images are also received approximately every 6 minutes and give and estimate as to how much rain has accumulated with the storm. The S.T.P. images are especially useful in determining rainfall amounts where rain measurement equipment is not present.

It should be noted that the radar image date and time stamps that are given on the Doppler radar images are given in “GMT”, which is Greenwich Mean Time. In order to convert “GMT” to Eastern Daylight Time (EDT), a subtraction of 4 hours is necessary.

It should be noted that Eastern Daylight Time (EDT) was in effect on September 13, 2010.

### **ANALYSIS FOR SEPTEMBER 13, 2010 (DAY OF THE INCIDENT)**

On September 13, 2010, a very moist and humid air mass was in place across the incident area as a disturbance in the atmosphere drifted across the region. This disturbance caused numerous showers and thunderstorms to develop and move over the incident location.

On September 13, 2010 (day of the incident), Doppler radar images that were zoomed in over the incident location and nearby surface observations indicated that light rain or drizzle fell from approximately 12:16 p.m. through 1:23 p.m. More light rain or drizzle fell from 1:36 p.m. through 2:47 a.m. The precipitation ended for the rest of the morning and early afternoon hours before additional showers and thunderstorms developed.

Doppler radar images indicated that nearly continuous light, moderate and/or heavy rain fell from approximately 5:48 p.m. through 11:32 p.m. Embedded thunderstorms with gusty winds and torrential downpours occurred at times as well. Very heavy rain and torrential downpours fell from 7:34-7:52 p.m.

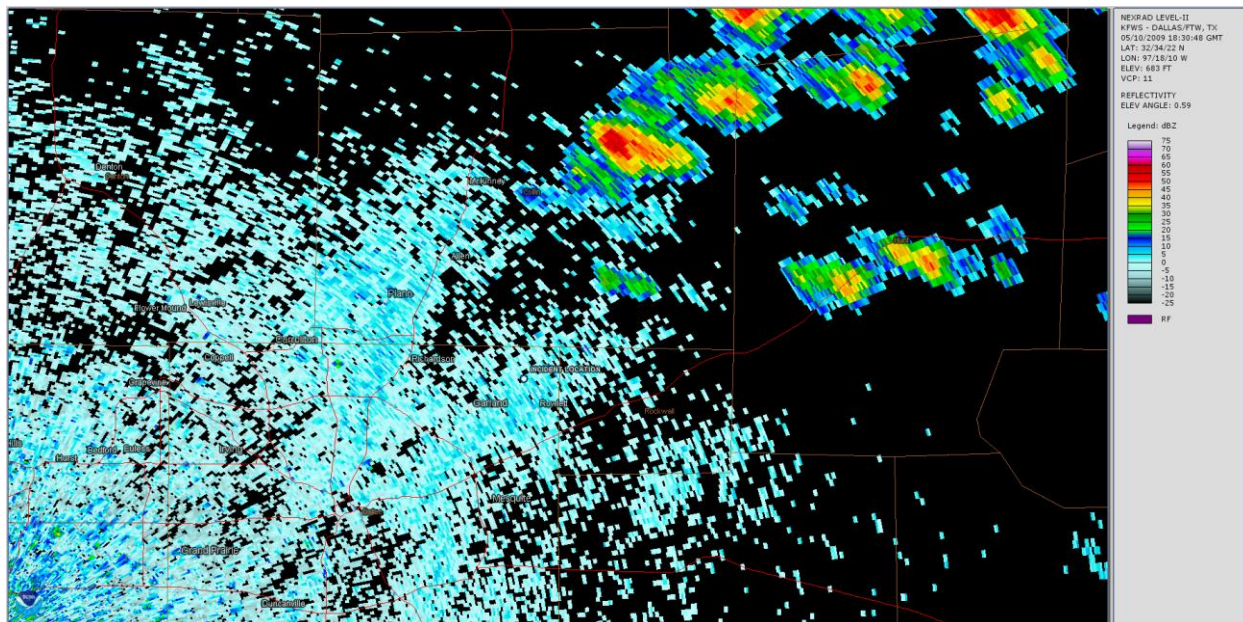
The surface observations from the area indicated that areas of dense fog formed as a result of the moist and humid air mass as the rain fell. With humidity levels between 95-100% and dense fog reported at the Daytona Beach, Florida airport when the incident occurred, it is highly likely that areas of dense fog were present at the incident location. As a result of the dense fog, the National Weather Service in Jacksonville, Florida issued a "Dense Fog Advisory" for the incident location and surrounding areas that was in effect from 3:00 p.m. through Midnight (including the time of the incident).

At 3:15 p.m. on September 13, 2010 (time and date of the accident), Doppler radar images that were zoomed in over the incident area indicated that steady light rain was falling, approximately 0.35" of rain accumulated through the time of the accident, dense fog was present, the horizontal surface visibility was near zero and a "Dense Fog Advisory" was in effect.

### **DOPPLER RADAR ANALYSIS**

The following image is a Base Reflectivity Doppler radar image that was taken at 23:22:31 GMT (7:22 p.m. EDT) on September 13, 2010. The incident location is indicated by a white pushpin on the base map. The color code on the right hand side shows the intensity of the precipitation at the time of the radar sweep. Cyan and light blue colors on the bottom of the scale denote light precipitation or drizzle and the red, orange, purple and white colors typically indicate very heavy precipitation.

According to this Doppler radar image, and the other images contained on the enclosed DVD, heavy rain that was over the area 7 minutes before the accident had moved east but steady light rain was still in progress at the time of the accident itself.



## NATIONAL WEATHER SERVICE BULLETINS, WARNINGS AND ADVISORIES

At 3:15 p.m. EDT on September 13, 2010, the National Weather Service in Jacksonville, Florida issued the following “Short Term Forecast” for Duval County, Florida:

```

"SHORT TERM FORECAST
NATIONAL WEATHER SERVICE JACKSONVILLE FL
315 PM EDT SAT SEP 13 2010
DUVAL COUNTY
315 PM EDT SAT SEP 13 2010
.NOW...
THROUGH 6 PM...SCATTERED SHOWERS AND A FEW STORMS WILL
MOVE EAST ACROSS DUVAL COUNTY. ELSEWHERE SCATTERED SHOWERS AND LIGHTNING STORMS WERE
MOVING EAST TOWARD THE REGION.
$$"
  
```

At 3:25 p.m. EDT on September 13, 2010 (15 minutes after the accident occurred), the National Weather Service in Jacksonville, Florida issued the following “Special Weather Statement” for Duval County, Florida:

```

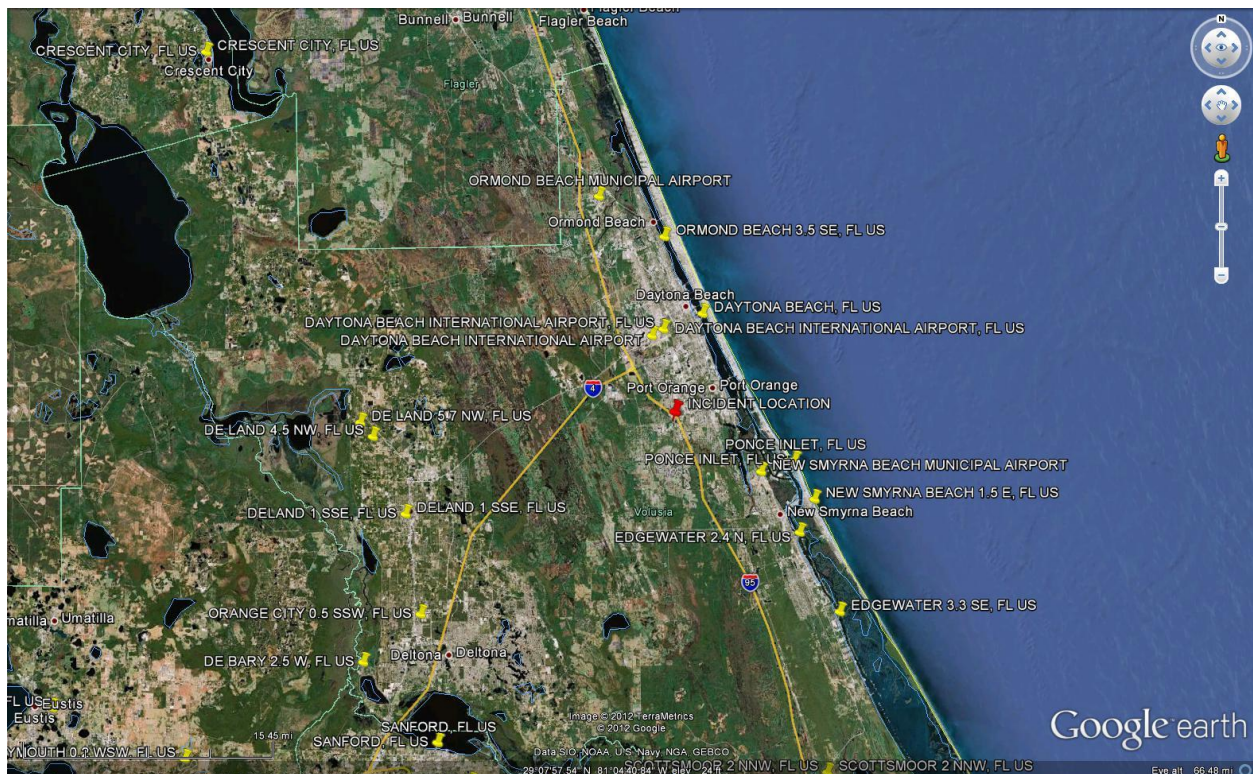
"SPECIAL WEATHER STATEMENT
NATIONAL WEATHER SERVICE JACKSONVILLE FL
325 PM EDT SAT SEP 13 2010
DUVAL COUNTY
325 PM EDT SAT SEP 13 2010
...A LINE OF THUNDERSTORMS AFFECTING DUVAL COUNTY...
AT 325 PM EDT...NATIONAL WEATHER SERVICE METEOROLOGISTS WERE
TRACKING A LINE OF STORMS FROM 14 MILES WEST OF xxxx.
THE PRIMARY THREAT WILL BE CLOUD TO GROUND LIGHTNING STRIKES AND
GUSTY WINDS OF 40 TO 45 MPH...WHICH MAY CAUSE UNSECURED OBJECTS TO
BLOW AROUND. HEAVY RAINFALL WILL TEMPORARILY REDUCE VISIBILITY. SEEK
SHELTER INDOORS UNTIL THE STORM PASSES.
RAINFALL MAY CAUSE TEMPORARY PONDING ON SOME ROADS AND MINOR
FLOODING OF POOR DRAINAGE AREAS. MOTORISTS SHOULD SLOW DOWN IN HEAVY
RAINFALL TO REDUCE THE RISK OF HYDROPLANING AND LEAVE SAFE DISTANCE
BETWEEN OTHER VEHICLES.
$$"
  
```



## CONCLUSIONS

In conclusion, it is my opinion that:

- Mostly continuous light, moderate and/or occasionally heavy rain fell from approximately 4:48 p.m. through 7:23 p.m. (for 3 hours prior to the accident).
- Doppler radar images indicated that heavy rain fell from approximately 3:15-3:25 p.m. (up until 19 minutes before the accident) and then the intensity slightly decreased to a light rain.
- At 3:15 p.m. on September 13, 2010 (time and date of the accident), Doppler radar images that were zoomed in over the incident area indicated that steady light rain was falling, approximately 0.35” of rain accumulated through the time of the accident, dense fog was present, the horizontal surface visibility was near zero and a “Dense Fog Advisory” was in effect. One-Hour Precipitation total Doppler radar images that were obtained indicated that approximately 0.05” of rain accumulated between 3:15-3:25 p.m.
- Special Weather Statements and Short Term Forecasts were issued for Duval County, Florida before and after the time of the accident due to the heavy rainfall that was occurring and for the dense fog that was present.
- Dense fog, surface visibility near zero and steady light rain were all occurring at the time of the incident.



After studying all of the available weather records and information listed above, I conclude that the findings, opinions and information given in this report are held and supported with a

reasonable degree of Meteorological certainty.

By: \_\_\_\_\_  
**Howard Altschule**  
**Forensic Meteorologist, President**  
**Forensic Weather Consultants, LLC**