

ORIGINAL

040449 - E1



R. Wade Litchfield
Senior Attorney
Florida Authorized House Counsel
Florida Power & Light Company
700 Universe Boulevard
Juno Beach, FL 33408-0420
(561) 691-7135 (Facsimile)

Writer's Direct Dial:
(561) 691-7101

May 13, 2004

VIA HAND DELIVERY

Ms. Blanca S. Bayó, Director
Division of the Commission Clerk and
Administrative Services
Florida Public Service Commission
Betty Easley Conference Center
2540 Shumard Oak Boulevard, Room 110
Tallahassee, FL 32399-0850

RECEIVED FPSC
MAY 13 AM 11:36
COMMISSION
CLERK

Re: Request for Exclusion under Rule 25-6.0455(3)

Dear Ms. Bayó:

Enclosed for filing on behalf of Florida Power & Light Company (FPL) are an original and fifteen (15) copies of FPL's Request for Exclusion under Rule 25-6.0455(3) for April 13, 2004.

Please contact me should you or your Staff have any questions regarding this filing.

Sincerely,

R. Wade Litchfield

RWL:ec
Enclosures

RECEIVED & FILED
dh
FPSC-BUREAU OF RECORDS

DOCUMENT NUMBER-DATE

05553 MAY 13 03



ORIGINAL

FPL Request for Exclusion – April 13, 2004

Date: May 11, 2004

Subject:

FPL is requesting an exclusion under FAC Rule 25-6.0455(3) for April 13th, 2004. The exclusion is associated with outages resulting from a weather system known as a "Mesoscale Convective System".

Reason for Exclusion:

The outages associated with this incident were not within FPL's control and could not have been prevented with generally accepted industry practices. The impact of the outages associated with this event would have a material impact on the reliability indices contained in FPL's 2004 Annual Distribution Service Reliability Report, which is to be filed with this Commission in March 2005. (See Impact Section below.)

Summary of Event

According to the National Weather Service, on April 13, 2004, a weather system, known as a "Mesoscale Convective System" (MCS), occurred. A MCS is a large, self-sustaining weather system accompanied by extensive thunderstorms and lightning. As noted in the attached article from the National Weather Service, this system tends to occur in the Great Plains or Southern States. Additionally, this MCS was accompanied by unusual winds, with gusts up to 70 mph, which were not associated with the thunderstorms but were on the backside of the system. According to our in-house meteorologist, a MCS is rare for Florida and very difficult to predict. Past experience indicates that we could expect one MCS every 25 years.

Attached are weather reports detailing the event, as well as an article written by the National Weather Service Miami-South Florida office regarding the April 13th event. As seen in the radar images attached, the entire southern portion of FPL's service territory was affected.

Impact:

Below are statistics to help demonstrate the significance of this event:

	2003 Daily Average	8 Year April Daily Average	April 13, 2004
SAIDI	.20 minutes	.20 minutes	4.09 minutes
Customers Interrupted	15,534	12,454	114,935

Weather Reports





April 13, 2004 Peninsular Florida Severe Wind Event



National Weather Service, Weather Forecast Office, Miami, Florida

On Tuesday, April 13, 2004, a severe wind event swept across parts of peninsular Florida in the wake of a mesoscale convective system (MCS) of thunderstorms. This is unusual because the winds, which gusted at times to about 70 mph in the vicinity of Lake Okeechobee, were not associated with the thunderstorms themselves, but were on the back side of the system. In fact, little or no rain was falling when the wind event was occurring. This event is consistent with a phenomenon called a 'wake low' pressure system. Wake lows are sometimes associated with MCSs as a result of subsidence warming that is maximized on the back edge of the trailing stratiform precipitation area (Johnson and Hamilton, 1988). Another excellent reference on this subject is a recent paper by Gaffin (1999).

Strong wind gusts were observed in the Fort Myers area around 08Z (4 AM EDT) with a gust to 50 knots reported at Regional Southwest Airport (KRSW) at 0817Z (417 AM) and 43 knots at Page Field in Fort Myers at 0800Z (4 AM). The strong winds were on the back edge of the light rain shield, well behind the thunderstorms of the MCS as it was moving across South Florida. A wind gust to 41 knots was recorded at the Naples Regional Airport (KAPF) at 0841Z (441 AM EDT) coinciding with rapidly falling pressures. Strong wind gusts, some reaching as high as 70 mph across Lake Okeechobee, moved steadily from west to east across peninsular Florida, reaching the communities of South Bay, Belle Glade, and Pahokee around 1000-1100Z (6-7 AM EDT). Several trailers were severely damaged in South Bay, rendering them uninhabitable. In Belle Glade, a shop window was blown out.

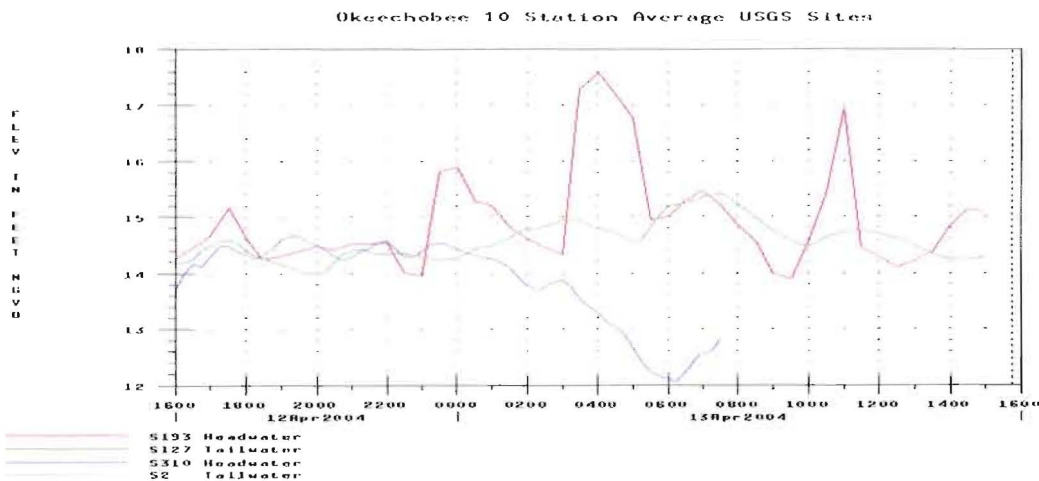


Fig. 1 - Lake Okeechobee elevation in feet NGVD (courtesy Susan Sylvester, U.S. Army Corps of Engineers, Jacksonville District)
The wind event caused the water level of Lake Okeechobee to slope steeply from south to north (Fig.1 courtesy U.S. Army Corps of Engineers, Jacksonville District) in a "bathtub" type sloshing effect. The strong south winds over 2-3



FPL Request for Exclusion – April 13, 2004

hours before dawn on Tuesday blew the water from the south end of the lake (S310 near Clewiston) toward the north end of the lake (S193 near Okeechobee). At maximum, the difference between the lake elevation at S310 near Clewiston (just over 12 feet msl) and S193 near Okeechobee (around 17.6 feet msl) was about 5.6 feet near 5 AM EDT. You can easily see the sloshing that occurred at S193 with five separate peaks around midnight, 4 AM, 7 AM, 11 AM, and 3 PM EDT.

What caused this wind event?

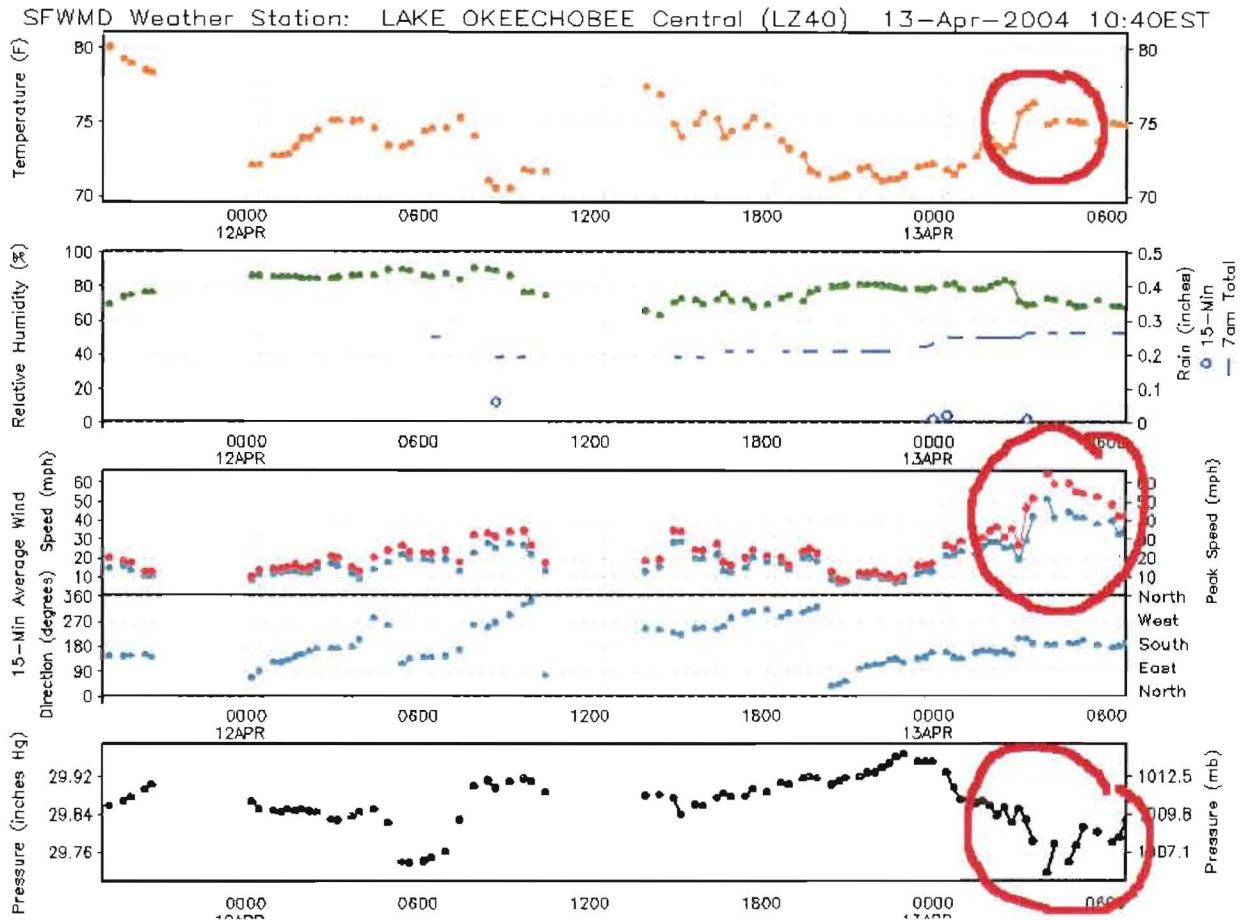


Fig. 2 - Combined meteorological parameter trace at SFWMD data platform LZ40 on Lake Okeechobee for April 12-13, 2004. (Courtesy SFWMD Meteorologist Eric Swartz) (times are EST, add 1 hour for EDT)

This 'wake low' wind event is more typical of mesoscale convective systems (MCS) that occur across the Great Plains or the Southern states. Conservation of mass requires that where air goes up, someplace it must come down. Thunderstorms always mean air moving upwards, sometimes at great speeds and with turbulent results. On the back side of a line of thunderstorms, air is moving downward, usually much more slowly than the rising air in the thunderstorms. Sometimes, and probably in this case, downward moving air is accelerated by evaporative cooling of rainfall. Another characteristic of downward moving air is adiabatic warming, which can be seen in the temperature trace from South Florida Water Management District (SFWMD) data collection platform LZ40 on Lake Okeechobee just as the strong winds were beginning before 6 AM EDT (Fig. 2). All of this dynamic movement of air creates a mesoscale low pressure system called a 'wake low' and often results in very strong winds.



FPL Request for Exclusion – April 13, 2004

[KAMX Miami WSR-88D Radar Reflectivity Image as strong winds occurred at Naples \(0843Z or 443 AM EDT\)](#)

[KAMX Miami WSR-88D Radar Reflectivity Image as strong winds occurred at Lake Okeechobee \(1015Z or 615 AM EDT\)](#)

The event is not associated with the thunderstorms themselves, so therefore it cannot be called a derecho, even though it meets some of the criteria for duration and geographic extent. Wake lows have resulted in heat bursts in some cases in the midwestern states due to the adiabatic warming. In some cases, wake lows combined with strong inversions (temperatures rising with height) have resulted in gravity waves that have caused complicated severe wind events.

Some good papers on this subject include (visit the web site of the [American Meteorological Society](#) for online access):

Gaffin, D. M., 1999: Wake Low Severe Wind Events in the Mississippi River Valley: A Case Study of Two Contrasting Events. *Wea. Fcstg.*, 14, 581-603.

Johnson, R. H., and P. J. Hamilton, 1988: The relationship of surface pressure features to the precipitation and airflow structure of an intense midlatitude squall line. *Mon. Wea. Rev.*, 116, 1444–1472.

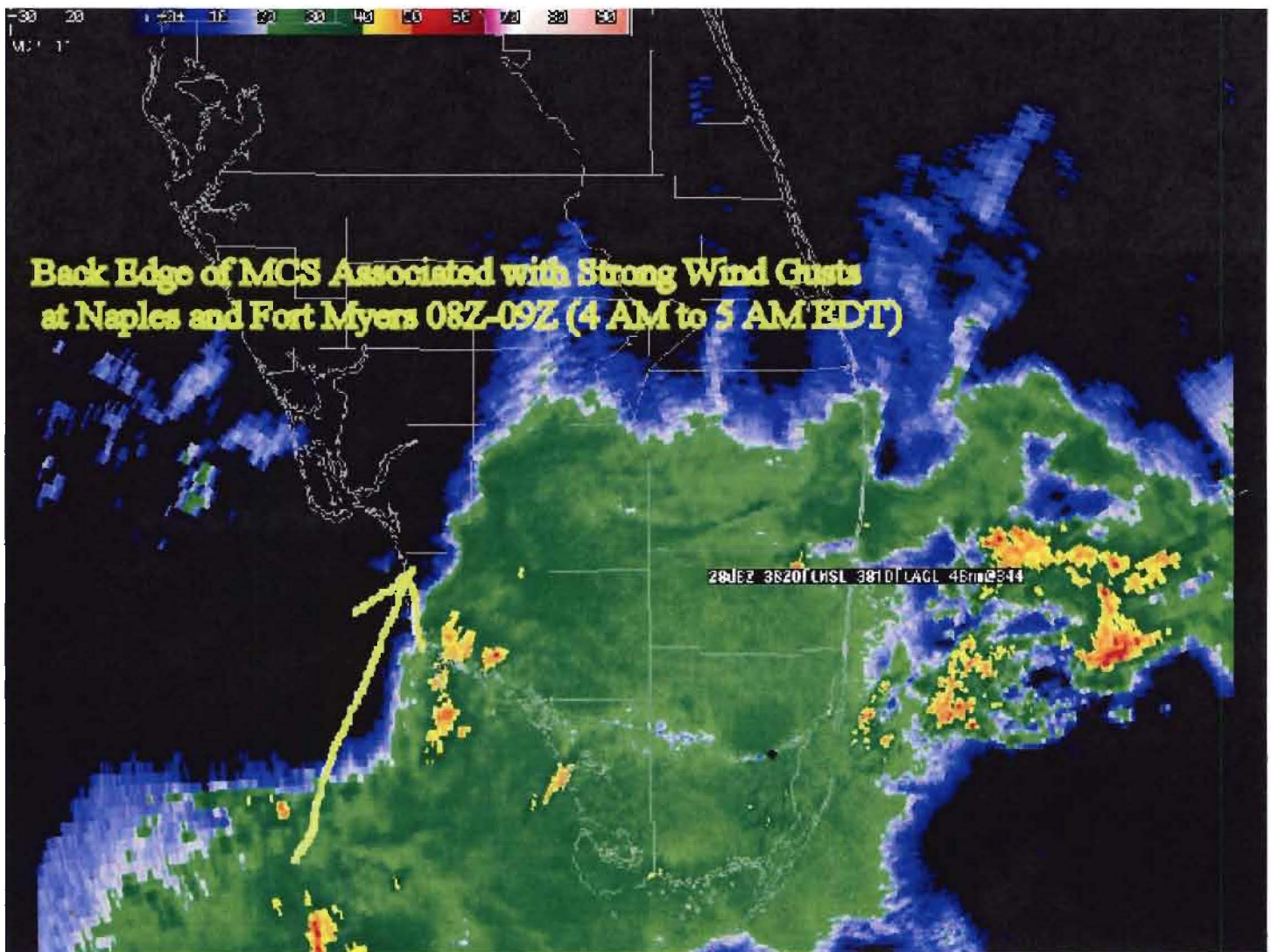
Stumpf, G. J., R. H. Johnson, and B. F. Smull, 1991: The wake low in a midlatitude mesoscale convective system having complex convective organization. *Mon. Wea. Rev.*, 119, 134–158.

[Pfost, WFO Miami, FL](#)



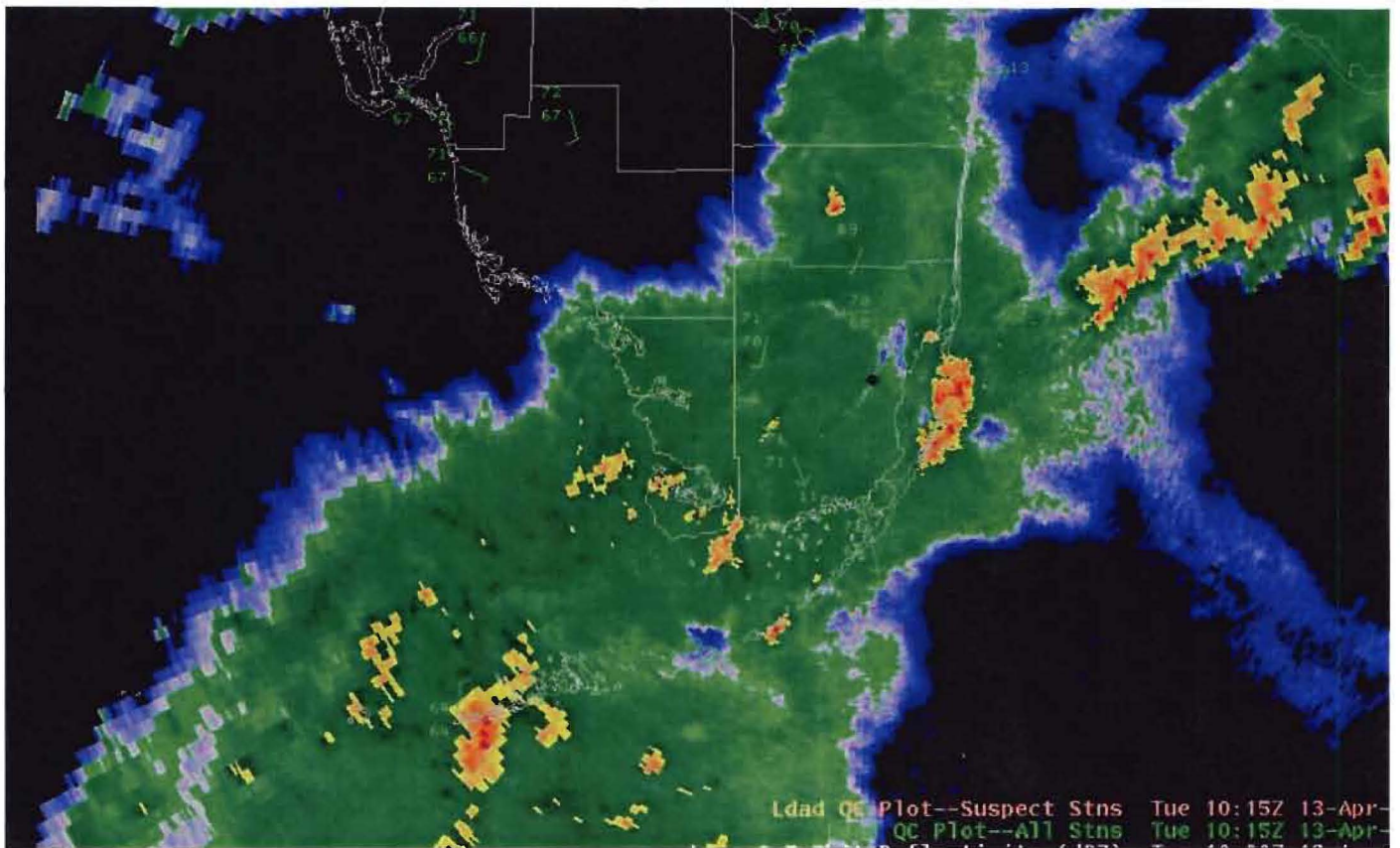
April 13th radar – NWS

KAMX Miami WSR-88D Radar Reflectivity Image as strong winds occurred at Naples
(0843Z or 443 AM EDT)





KAMX Miami WSR-88D Radar Reflectivity Image as strong winds occurred at Lake Okeechobee (1015Z or 615 AM EDT)



Source: http://www.srh.noaa.gov/mfl/newpage/April_13_2004.html



000
NWUS52 KMFL 131539
LSRMIA

PRELIMINARY LOCAL STORM REPORT
NATIONAL WEATHER SERVICE **MIAMI FL**
1139 AM EDT TUE APR 13 2004

..TIME... ..EVENT... ..CITY LOCATION... ..LAT.LON...
..DATE... ..MAG.... ..COUNTY LOCATION...ST.. ..SOURCE....
..REMARKS..

0300 AM NON-TSTM WND DMG PAHOKEE 26.82N 80.66W
04/13/2004 PALM BEACH FL EMERGENCY MNGR

STRONG WINDS PRODUCED MINOR DAMAGE TO AWNINGS AND
CARPORTS...BRANCHES OF TREES.

0300 AM NON-TSTM WND DMG BELLE GLADE 26.69N 80.67W
04/13/2004 PALM BEACH FL LAW ENFORCEMENT

TREES AND LIMBS DOWN...AWNINGS AND TRAILER SKIRTS RIPPED
OFF...ONE TRAILER LOST A ROOF...STORE FRONT WINDOW
BROKEN...MINOR DAMAGE IN CITY OF BELLE GLADE.

0230 AM NON-TSTM WND DMG SOUTH BAY 26.66N 80.72W
04/13/2004 PALM BEACH FL LAW ENFORCEMENT

NUMEROUS TREES DOWN...FELL ON AND SEVERELY DAMAGED 4
TRAILERS IN SOUTH BAY. WINDOWS BROKEN AND CARPORTS
DAMAGED IN TOWN. POWER POLES ALSO DOWN IN TOWN.



000
NWUS52 KMFL 132342
LSRMIA

PRELIMINARY LOCAL STORM REPORT
NATIONAL WEATHER SERVICE **MIAMI FL**
741 PM EDT TUE APR 13 2004

..TIME... ..EVENT... ..CITY LOCATION... ..LAT.LON...
..DATE... ..MAG.... ..COUNTY LOCATION...ST.. ..SOURCE....
..REMARKS..

0300 PM TSTM WND DMG FORT LAUDERDALE 26.12N 80.15W
04/13/2004 BROWARD FL TRAINED SPOTTER

TREES AND POWERLINES DOWN AROUND SUNVIEW PARK AT 1500 SW
42ND AVENUE.



FPL Request for Exclusion – April 13, 2004

000
NWUS52 KTBW 131454
LSRTBW

PRELIMINARY LOCAL STORM REPORT
NATIONAL WEATHER SERVICE TAMPA BAY AREA - RUSKIN FL
1053 AM EDT TUE APR 13 2004

..TIME... ..EVENT... ..CITY LOCATION... ..LAT.LON...
..DATE... ..MAG.... ..COUNTY LOCATION...ST... ..SOURCE....
..REMARKS..

0230 AM NON-TSTM WND DMG CAPTIVA 26.52N 82.19W
04/13/2004 LEE FL EMERGENCY MNGR

TREES REPORTED DOWN. ONE POOL CAGE DAMAGED.

0245 AM NON-TSTM WND DMG 3 S CAPE CORAL 26.53N 81.99W
04/13/2004 LEE FL EMERGENCY MNGR

DAMAGE TO ROOF AND LANAI AREAS ESTIMATED AROUND 45,000
DOLLARS

0300 AM NON-TSTM WND DMG ALVA 26.72N 81.61W
04/13/2004 LEE FL EMERGENCY MNGR

COUNTY RD 78 BLOCKED BY DOWNED TREE

0300 AM NON-TSTM WND DMG 4 NNW FORT MYERS 26.69N 81.87W
04/13/2004 LEE FL EMERGENCY MNGR

POWER LINES ACROSS HENDERSON AND 4 WHEEL DR. ALSO
WELLBORN RD.

0300 AM NON-TSTM WND DMG LEHIGH ACRES 26.60N 81.63W
04/13/2004 LEE FL EMERGENCY MNGR

ONE HOUSE WITH ROOF DAMAGE. ALSO 5500 RESIDENTS WITHOUT
POWER IN LEHIGH ACRES, CAPE CORAL, AND PINE ISLAND.

&&

\$\$

RJS



FPL Request for Exclusion – April 13, 2004

000
NWUS52 KTBW 130941
LSRTBW

PRELIMINARY LOCAL STORM REPORT
NATIONAL WEATHER SERVICE TAMPA BAY AREA - RUSKIN FL
539 AM EDT TUE APR 13 2004

..TIME... ..EVENT... ..CITY LOCATION... ..LAT.LON...
..DATE... ..MAG.... ..COUNTY LOCATION...ST.. ..SOURCE...
..REMARKS..

0417 AM NON-TSTM WND GST SOUTHWEST INTERNATIONAL 26.54N 81.76W
04/13/2004 58 MPH LEE FL OFFICIAL NWS OBS

0450 AM NON-TSTM WND GST CAPE CORAL 26.58N 81.99W
04/13/2004 58 MPH LEE FL TRAINED SPOTTER

SEVERAL LARGE LIMBS DOWN AND SOME LANAI DAMAGE. ALSO
REPORTED SUSTAINED WINDS OF 30 TO 35 MPH.

0330 AM NON-TSTM WND GST CAPE CORAL 26.58N 81.99W
04/13/2004 52 MPH LEE FL COUNTY OFFICIAL

LANAI DAMAGE.

0518 AM MARINE TSTM WIND 7 ENE EGMONT KEY 27.63N 82.65W
04/13/2004 43 MPH HILLSBOROUGH FL UNKNOWN

&&

\$\$

JLC



FPL Request for Exclusion – April 13, 2004

Storm Data and Unusual Weather Phenomena

Location	Date	Time Local Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Injured	Property Damage	Crops	Character of Storm
----------	------	---------------------	---------------------	--------------------	--------------------------	---------	-----------------	-------	--------------------

April 2004

FLORIDA, West Central

FL706A

Leo

13	0137EST 0354EST	0	0	300K	High Wind (MG50)
----	--------------------	---	---	------	------------------

An eastward moving thunderstorm complex in the southeastern Gulf of Mexico collapsed as it moved north of the Florida Keys. The cold outflow left over from the storm created wind gusts of 40 to 50 knots along the coastal areas of southwest Florida.

Winds at the Fort Myers Southwest Florida Regional Airport were sustained from 30 to 36 knots with the peak gust of 50 knots occurring at 3:17 AM EST. A 737 plane was pushed into a jetway bridge and damaged both the wing and the bridge. Emergency Management said the winds mostly uprooted trees and downed power lines. Cape Coral city officials estimated \$63,450 in damage to roofs, garages, lanais, and other structures. The winds ripped the metal roof off an airplane hangar at the Pine Island Airport near Bokscilla. Utility officials said Tuesday's winds left about 27,000 Lee County residents without power. Minor beach erosion occurred at Fort Myers Beach, Lovers Key State Park, and Bonita Beach.

The gusty winds reached as far north as the Sunshine Skyway Bridge in the Tampa Bay area where where sustained winds of around 30 knots with gusts to 38 knots were reported between 3:52 AM EST to about 5:15 AM EST. No significant damage was reported north of Lee County.

Source: National Weather Service