



2012 Air Quality Index Summary

New Jersey Department of Environmental Protection

WHAT IS THE AIR QUALITY INDEX (AQI)

The Air Quality Index (AQI) is a national air quality rating system based on the National Ambient Air Quality Standards (NAAQS). Generally, an index value of 100 is equal to the primary, or health based, NAAQS for each pollutant. This allows for a direct comparison of each of the pollutants used in the AQI (carbon monoxide, nitrogen dioxide, particulate matter, ozone, and sulfur dioxide). Concentrations of pollutants that are associated with unhealthy ratings have been dropping over the past few years. The Nitrogen Dioxide and Sulfur Dioxide NAAQS were revised in 2010 because the U.S. Environmental Protection Agency (EPA) had determined that the old standards were not sufficiently protective of public health. The ozone standard was most recently revised in 2008 and is currently under review.

The AQI rating for a reporting region is equal to the highest rating recorded for any pollutant within that region. In an effort to make the AQI easier to understand, a descriptive rating and a color code, based on the numerical rating are used (see Table 1). For more information on the AQI, visit EPA's web site at <http://www.airnow.gov>.

Every morning a forecast for the current and following day is prepared by NJDEP using the AQI format. The forecast is provided to EPA and is disseminated through the Enviroflash system to those who subscribe to receive air quality forecast and alert emails (<http://www.enviroflash.info>). Those who are not subscribed to Enviroflash can view the forecast and current air quality conditions at EPA's AirNow website or on NJDEP's air monitoring webpage.

For purposes of reporting the AQI, the state is divided into 9 regions (see Figure 1). Table 2 shows the monitoring sites and parameters used in each reporting region to calculate the AQI values.

Table 1
Air Quality Index

Numerical AQI Rating	Descriptive Rating	AQI Color Code
0-50	Good	Green
51-100	Moderate	Yellow
101-150	Unhealthy for Sensitive Groups	Orange
151-200	Unhealthy	Red
201-300	Very Unhealthy	Purple

Figure 1
Air Quality Index Regions

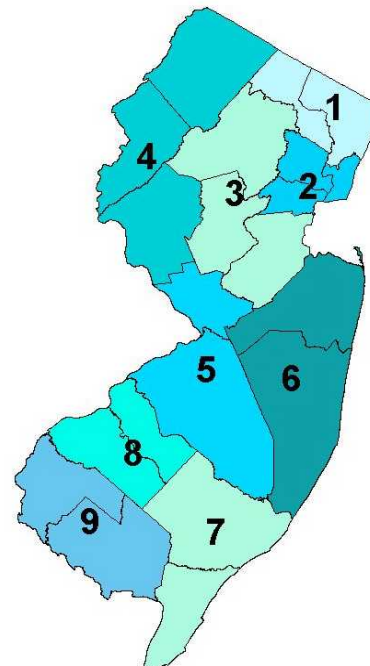


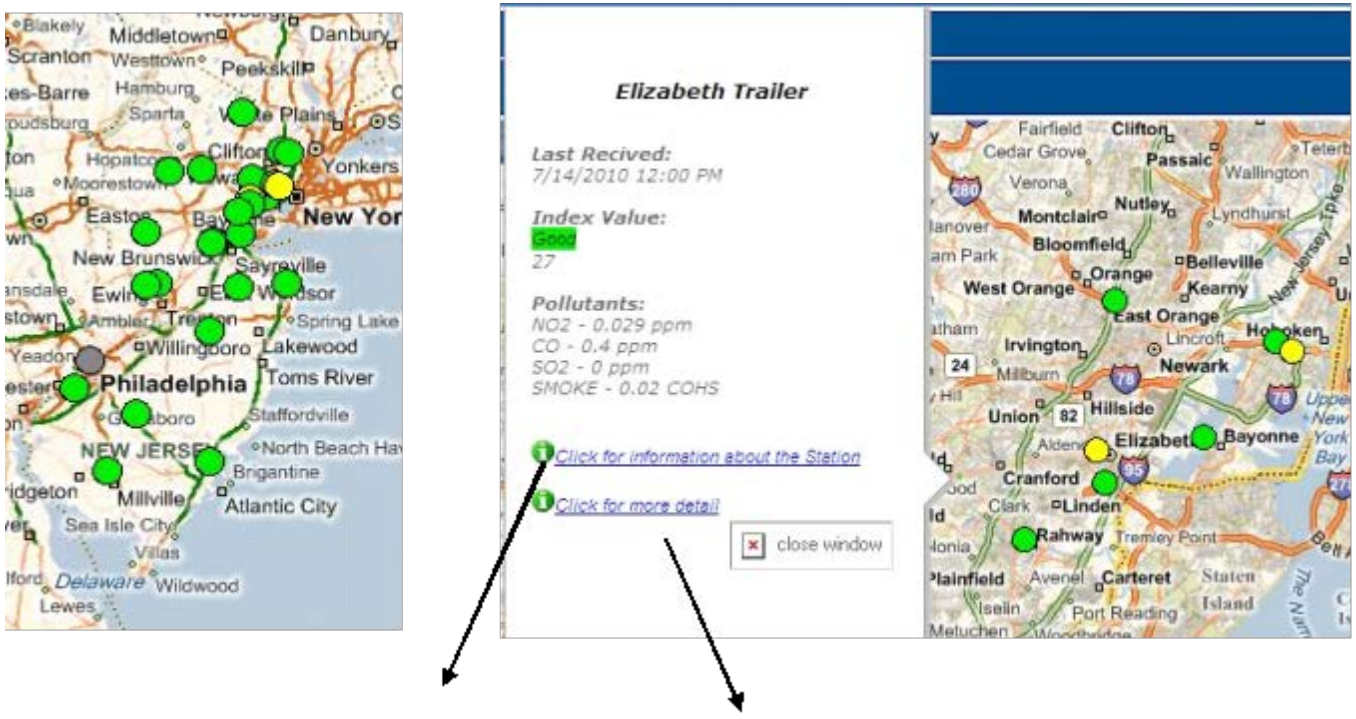
Table 2
Pollutants Monitored According to Air Quality Index Reporting Region – 2012

CO - Carbon Monoxide O₃ - Ozone
 SO₂ - Sulfur Dioxide NO₂ - Nitrogen Dioxide
 PM - Particulate Matter

Reporting Region	Monitoring Site	CO	SO ₂	PM	O ₃	NO ₂
1. Northern Metropolitan	Leonía	---	---	---	X	---
	Ramapo	---	---	---	X	---
2. Southern Metropolitan	Bayonne	---	X	---	X	X
	East Orange	X	---	---	---	X
	Elizabeth	X	X	X	---	---
	Elizabeth Lab	X	X	X	---	X
	Jersey City	X	X	X	---	---
	Jersey City Firehouse	---	---	X	---	---
	Newark Firehouse	X	X	X	X	X
	Rahway	---	---	X	---	---
3. Suburban	Chester	---	X	---	X	X
	New Brunswick	---	---	X	---	---
	Rutgers University	---	---	---	X	X
4. Northern Delaware Valley	Columbia WMA	---	X	X	X	X
	Flemington	---	---	X	X	---
5. Central Delaware Valley	Ewing	---	---	X	---	---
	Rider University	---	---	---	X	---
6. Northern Coastal	Colliers Mills	---	---	---	X	---
	Monmouth University	---	---	---	X	---
7. Southern Coastal	Brigantine	---	X	X	X	---
8. Southern Delaware Valley	Ancora State Hospital	---	---	---	X	---
	Camden Spruce St.	X	X	---	X	X
	Clarksboro	---	---	---	X	---
	South Camden	---	---	X	---	---
9. Delaware Bay	Millville	---	---	X	X	X


Along with the forecast, cautionary statements are provided for days when the air quality is expected to reach the unhealthy for sensitive groups range and above. These air quality alerts are issued through Enviroflash emails, displayed on the AirNow and NJDEP air monitoring websites, and can also be viewed on the National Weather Service page for the Philadelphia/Mount Holly area (<http://www.erh.noaa.gov/er/phi/>). Maps, charts and photos of the air quality information and sites from which data is collected are available on the NJDEP air monitoring web site as shown in Figure 2 below:

Figure 2
Examples of NJDEP's Air Monitoring Website



Station Information

Elizabeth Trailer



Download API

Index Value : 27

Pollutants : NO2, CO, SO2, SMOKE, PM 2.5


Dominant Pollution : NO2

Monitor	Value
CO(ppm)	0.4
SMOKE(COHS)	0.02
SO2(ppm)	0.000
NO2(ppm)	0.029
NO(ppm)	0.017
PM2.5(ug/m3)	--
WSPD(mph)	2.6
WDIR(Deg)	67

Click a monitor name to display graph values


Real Time Condition: Elizabeth Trailer Last Received: 7/14/2010 12:00 PM Current Monitor: All Monitors

Wind Speed




2.6

Wind Direction



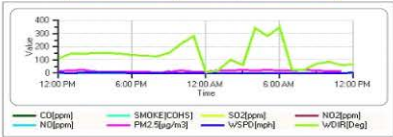
67

Index



27.0

Change Grid / Graph



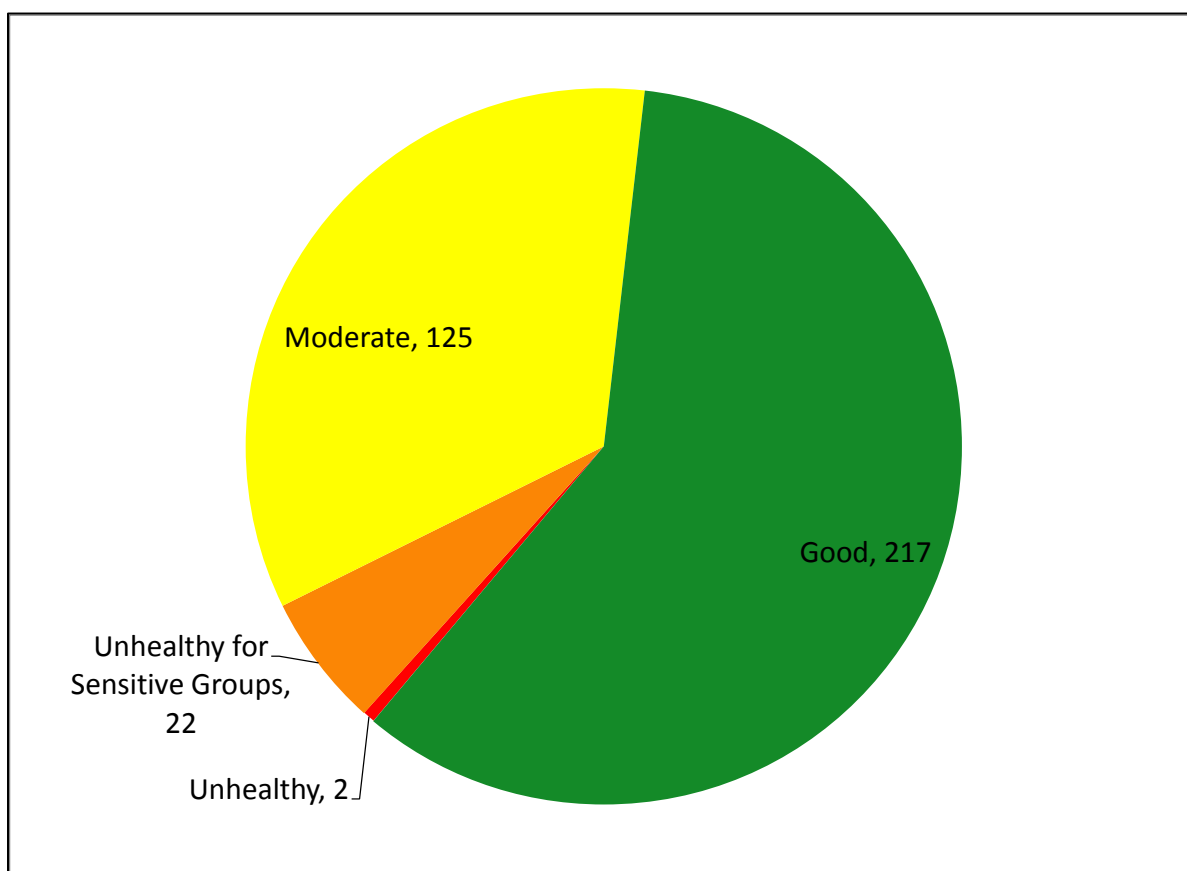
Click On Monitor In The Table To View it's Graph

2012 AQI SUMMARY

A summary of the AQI ratings for New Jersey in 2012 is presented in the pie chart in Figure 3 below. In 2012, there were 217 “Good” days, 125 were “Moderate”, 22 were rated “Unhealthy for Sensitive Groups”, 2 were considered “Unhealthy”, and zero were rated “Very Unhealthy”. This indicates that air quality in New Jersey is considered good or moderate most of the time, but that pollution is still bad enough to adversely affect some people on about one day in fifteen. This is a large improvement from last year when one in eight days was considered unhealthy for some part of the population and more consistent with the numbers seen in 2009, which was an unusually cool and wet summer accounting for much lower concentrations of pollutants. Table 3 lists the dates when the AQI reached the “Unhealthy for Sensitive Groups” threshold at any monitoring location and shows which pollutant(s) were in that range or higher. Figure 4 shows the AQI ratings for the year broken down by AQI region.

Not all regions have 365 valid days of reported air quality index values. Both the Northern Coastal and Northern Metropolitan regions only have about 280 reported AQI values because the ozone monitors in these regions operate seasonally from March to October. Super-storm Sandy and its storm surge which hit October 29th, 2012 disrupted data collection throughout the state network causing some sites to miss reporting for several days or weeks. The Bayonne and Millville sites were temporarily shut down to repair extensive damage from the storm. A new air monitoring station in the city of Camden (Camden Spruce Street) was established on April 18, 2012, therefore only about 250 days of reported AQI values are available for this site. Total days without AQI values are reported by region Figure 5.

Figure 3
2012 Air Quality Summary by Days



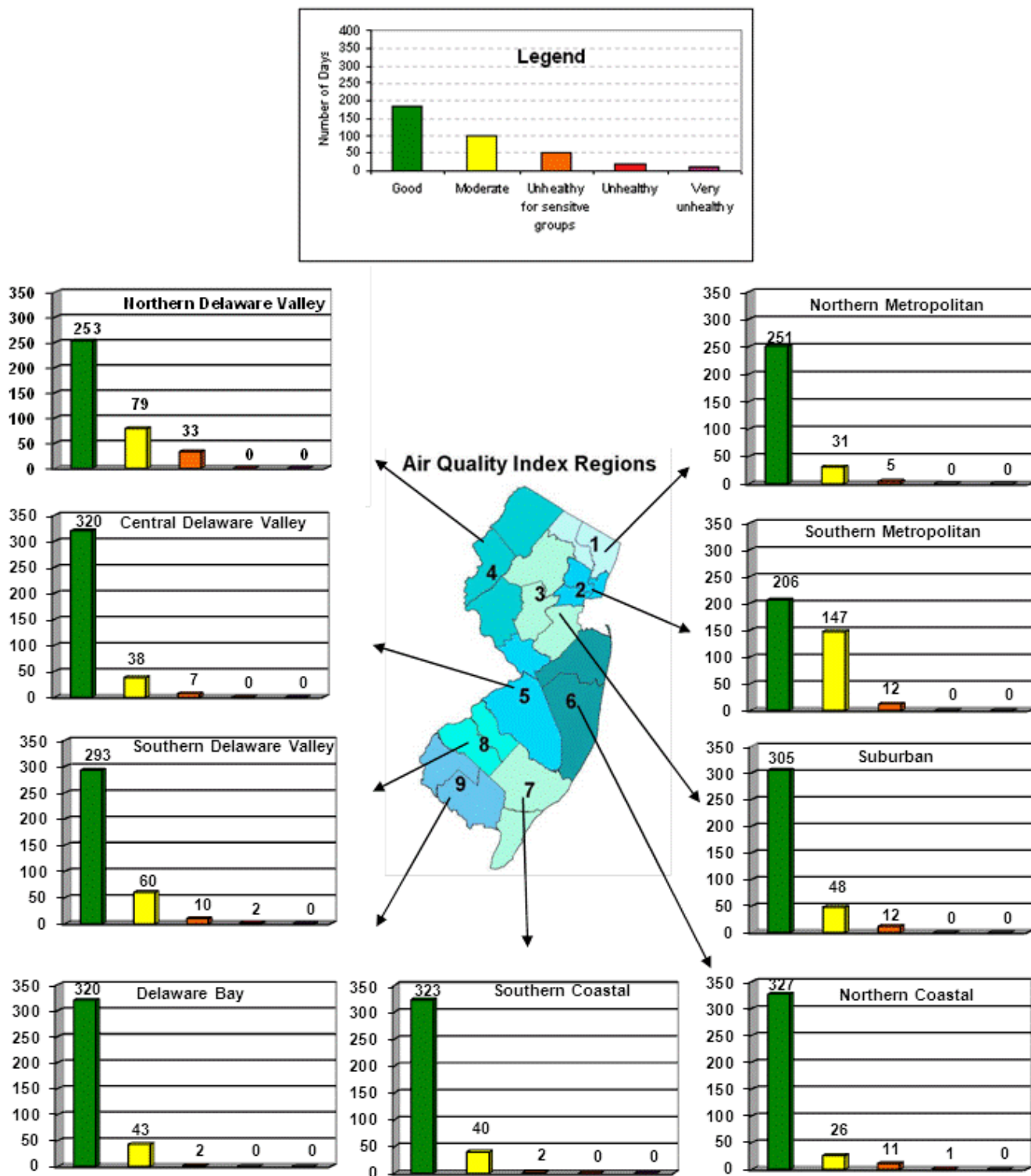
**Table 3
Air Quality Index (AQI) Exceedances of 100 During 2012**

	<u>Ratings</u>		<u>Pollutants</u>
USG	- Unhealthy for Sensitive Groups	PM	- Fine Particle Matter (11 Sites)
UH	- Unhealthy	O ₃	- Ozone (16 Sites)
VUH	- Very Unhealthy	SO ₂	- Sulfur Dioxide (9 Sites)

* Number in parentheses () indicates the total number of sites exceeding 100 by pollutant on the given day

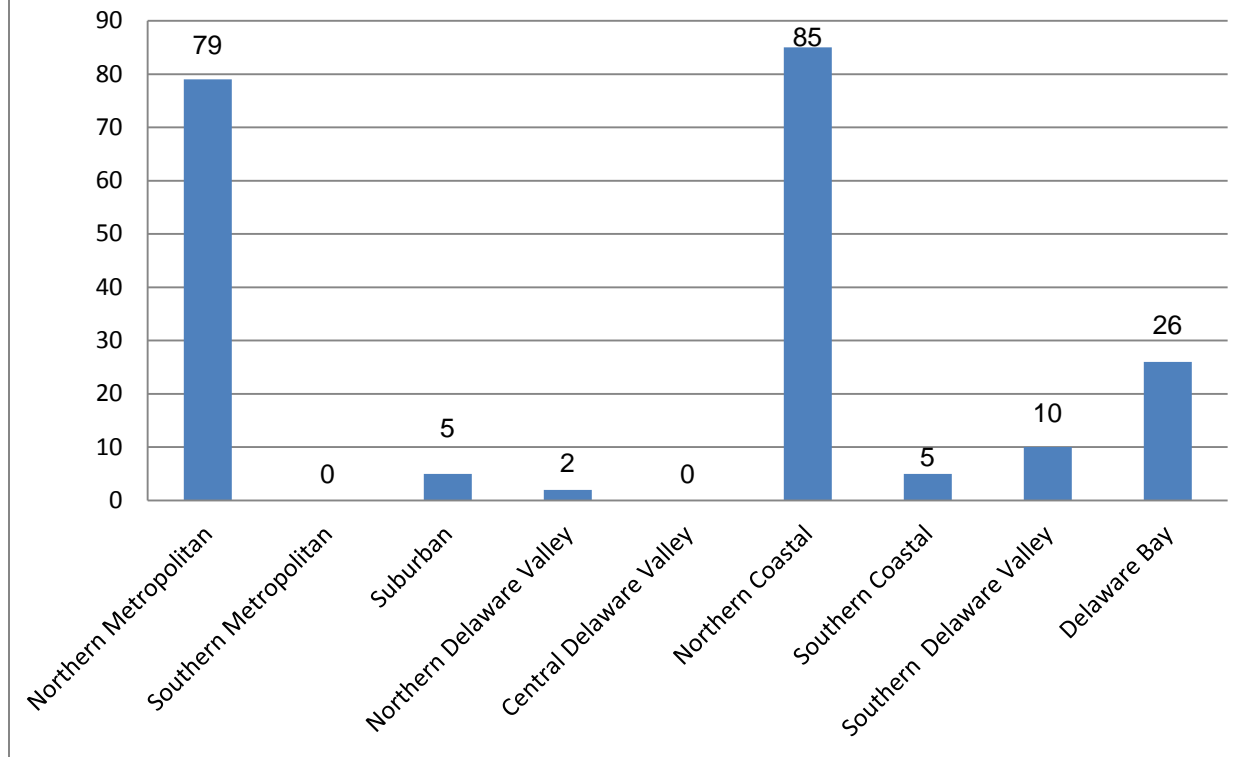
Date	Highest Location	Highest AQI Value	Highest Pollutant	Highest Rating	Pollutant(s) with AQI above 100 *
6/10/2012	Camden Spruce St	134	O ₃	USG	O ₃ (5)
6/20/2012	Ancora State Hospital	138	O ₃	USG	O ₃ (11)
6/21/2012	Ancora State Hospital	153	O ₃	UH	O ₃ (11)
6/22/2012	Camden Spruce St	122	O ₃	USG	O ₃ (3)
6/28/2012	Millville, Colliers Mills, Clarksboro	120	O ₃	USG	O ₃ (9)
6/29/2012	Ancora State Hospital	153	O ₃	UH	O ₃ (14)
6/30/2012	Camden Spruce St, Millville	106	O ₃	USG	O ₃ (4)
7/1/2012	Monmouth University	117	O ₃	USG	O ₃ (8)
7/4/2012	Ancora State Hospital	110	O ₃	USG	O ₃ (4)
7/5/2012	Millville	106	O ₃	USG	O ₃ (2)
7/6/2012	Ancora State Hospital	141	O ₃	USG	O ₃ (3)
7/7/2012	Millville	136	O ₃	USG	O ₃ (4)
7/13/2012	Camden Spruce St	124	O ₃	USG	O ₃ (7)
7/17/2012	Monmouth University	134	O ₃	USG	O ₃ (12)
7/18/2012	Colliers Mills	134	O ₃	USG	O ₃ (5)
7/23/2012	Columbia WMA	110	SO ₂	USG	SO ₂ (1)
7/26/2012	Camden Spruce St	117	O ₃	USG	O ₃ (4)
8/3/2012	Rider	101	O ₃	USG	O ₃ (1)
8/8/2012	Camden Spruce St	117	O ₃	USG	O ₃ (1)
8/22/2012	Camden Spruce St	120	O ₃	USG	O ₃ (2)
8/23/2012	Camden Spruce St	120	O ₃	USG	O ₃ (2)
8/24/2012	Chester	122	O ₃	USG	O ₃ (4)
8/31/2012	Monmouth University	117	O ₃	USG	O ₃ (10)
9/1/2012	Brigantine	127	O ₃	USG	O ₃ (2)

Figure 4
2012 Air Quality Index Summary
Number of Days by Reporting Region^a



^a Some days there was no index available see Figure 5

Figure 5
Days in 2012 Without Index Values
Available by Reporting Region



REFERENCES

Air Quality Index, A Guide to Air Quality and Your Health, USEPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC, June 2000, EPA-454/R-00-005, URL: www.epa.gov/airnow/aqi_cl.pdf

Guideline for Reporting of Daily Air Quality - Air Quality Index (AQI), USEPA, Office of Air Quality Planning and Standards, July 1999, EPA-454/R-99-010, URL: www.epa.gov/ttn/oarpg/t1/memoranda/rg701.pdf

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National Air Quality and Emissions Trend Report, 1999, EPA-454/R-01-004, USEPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC, March 2001, URL: www.epa.gov/air/airtrends/aqtrnd99/