



2015 Air Quality Summaries Introduction

New Jersey Department of Environmental Protection



New Jersey Department of Environmental Protection
Bureau of Air Monitoring
Trenton, New Jersey

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INTRODUCTION

This series of reports summarizes the New Jersey air quality monitoring data for 2015, collected from New Jersey's extensive air monitoring network. The state of New Jersey has been monitoring air quality since 1965. During that time pollution levels have improved significantly as a result of state, regional and national air pollution reduction efforts.

The summaries contain information on the Air Quality Index (AQI), and concentrations of individual pollutants including carbon monoxide, nitrogen oxides, ozone, particulate matter, and sulfur dioxide. These are known as criteria pollutants, for which National Ambient Air Quality Standards (NAAQS) have been set. Data on atmospheric deposition, haze, speciation of fine particulates, air toxics, and meteorological data are also provided.

Figures 1 through 5 below illustrate the remarkable downward trends in concentrations of criteria pollutants over the past few decades.

Because ozone is formed in the presence of sunlight and high temperatures, it can reach significant levels in the summer months. It also has been found to have serious health effects at lower levels than previously thought. In response, the United States Environmental Protection Agency (USEPA) periodically revises and lowers the NAAQS. Thanks to pollution control efforts both in and out of state, New Jersey was able to comply with the ozone NAAQS of 0.075 ppm in 2015. However, USEPA will lower the standard to 0.070 ppm in 2016. In order to meet the new standard, New Jersey will continue to implement emission control strategies while pursuing emissions reductions in upwind states that affect New Jersey's air.

The sharp increase and subsequent decrease in sulfur dioxide (SO₂) concentrations in Figure 3 are attributable to a coal-burning facility across the river in Pennsylvania. The New Jersey Department of Environmental Protection established the Columbia Wildlife Management Area monitoring station in 2010 to determine whether the facility was impacting New Jersey's air quality. Exceedances of the SO₂ NAAQS were recorded that same year. Since it stopped operating under a court agreement, SO₂ levels in New Jersey have fallen below the standard once again.

Nitrogen dioxide (NO₂) is also known cause serious health problems, especially for sensitive individuals such as children, the elderly, and people with asthma. New Jersey has always been in compliance with the NAAQS for NO₂.

Particulate air pollution less than 2.5 micrometers in diameter is referred to as fine particulate or PM_{2.5}. These small particles can be inhaled deep into the lungs, and are known to have a greater impact on public health than larger particles, which were the focus of previous ambient air quality standards. Monitoring data in New Jersey shows a steady decline in PM_{2.5} levels, and is now in compliance with the NAAQS.

Questions or comments can be made by e-mailing us at bamweb@dep.nj.gov, by phone at (609) 292-0138, or by writing to us at:

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Figure 1
 Ozone Design Value* Trend in New Jersey, 1990-2015
 *3-Year Average of 4th-Highest Daily Maximum 8-Hour Average Concentrations
 in Parts per Million (ppm)

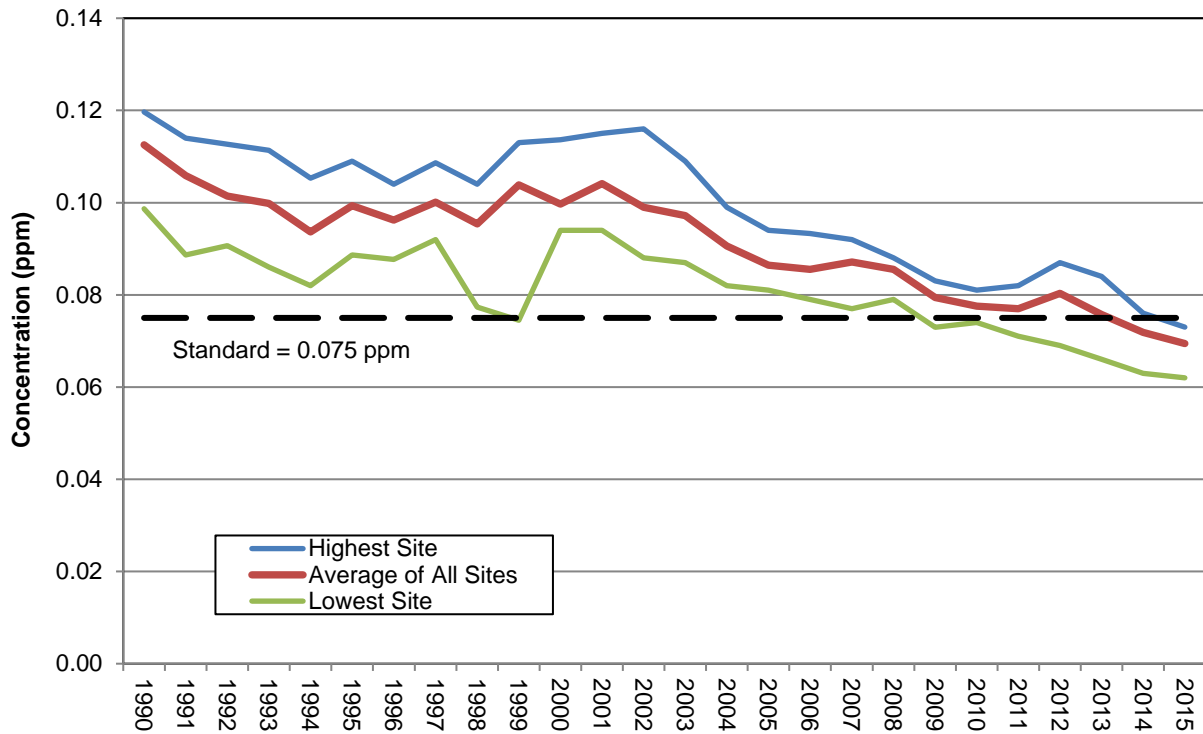


Figure 2
 Sulfur Dioxide (SO₂) Trend in New Jersey, 2000-2015
 99th Percentile of Daily Maximum 1-Hour Average Concentrations
 in Parts per Million (ppm)

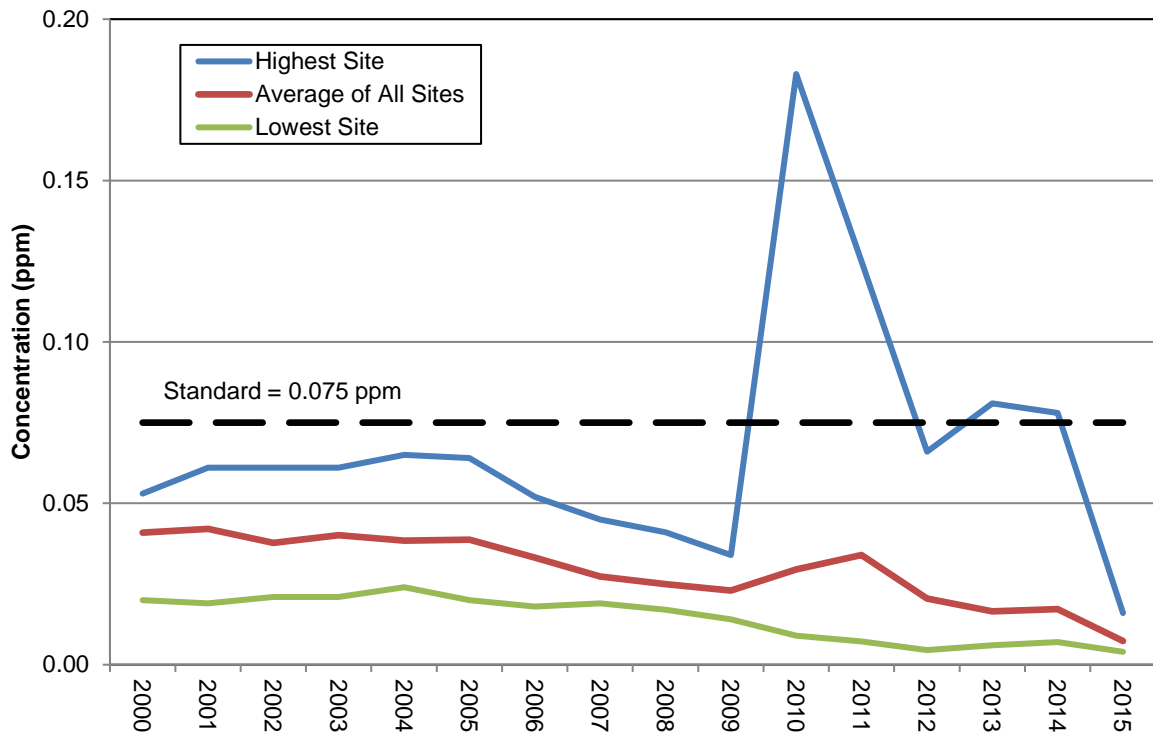


Figure 3
 Nitrogen Dioxide (NO₂) Trend in New Jersey, 1990-2015
 Annual Average Concentrations in Parts per Million (ppm)

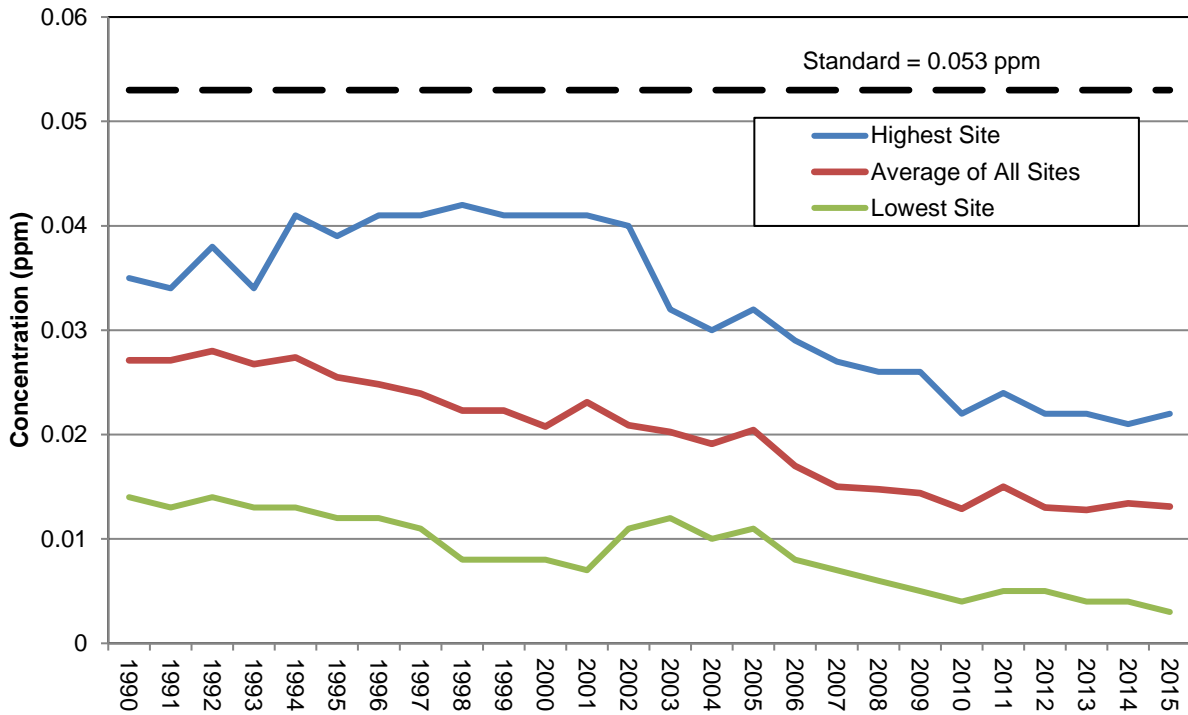


Figure 4
 Fine Particulate (PM_{2.5}) Trend in New Jersey, 1999-2015
 Annual Average Concentrations in Micrograms per Cubic Meter (µg/m³)

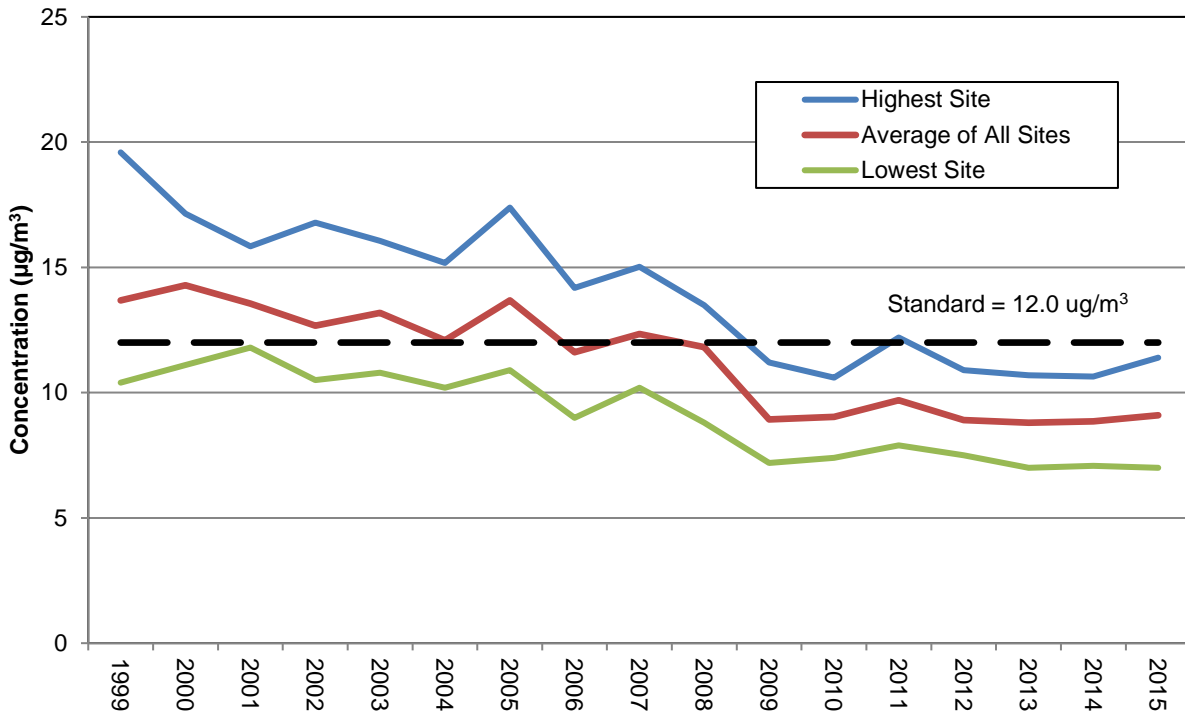


Figure 5
 Carbon Monoxide (CO) Trend in New Jersey, 1990-2015
 2nd-Highest 8-Hour Average Concentrations in Parts per Million (ppm)

