

# EMISSION AND AIR QUALITY TRENDS REVIEW

## Fact Sheet



### OVERVIEW

Alpine Geophysics, LLC and ENVIRON International Corporation recently reviewed trends in emissions and ambient air quality from 1999 through 2009. The results of the review are encapsulated in a report for each state and in five regional reports. The reports show that significant air quality improvements have occurred at the same time that significant reduction in emissions have been made by the electric utility fuel combustion source category.

### REPORT OBJECTIVE

As described in each of the reports, the objective of the analysis was two-fold: first, to develop and present publicly available information on trends in emissions and ambient air quality over the past ten years in easy to understand visual and tabular formats; and second, to include qualitative assessment of meteorological influences on these trends as available for temperature and rainfall anomalies. Metrics were developed by Regional Planning Organizations (RPOs). The metrics were then broken down by state for use in individual state reports.

### REPORT METHODOLOGY

Alpine Geophysics and ENVIRON collected and processed U.S. EPA emission inventories from 1999 through 2009 by pollutant and source category. They obtained their data from U.S. EPA's National Emission Inventory and Trends web sites and augmented the data with year specific continuous emission monitoring emissions (2002 through 2008) and wildfire emissions data (2005 through 2008). They analyzed the emission data by pollutant and source category. In particular, they analyzed emission data for:

- Volatile organic compound (VOC)
- Nitrogen oxides ( $\text{NO}_x$ )
- Carbon monoxide (CO)
- Sulfur dioxide ( $\text{SO}_2$ )
- Particulate matter less than or equal to 10 microns ( $\text{PM}_{10}$ )
- Particulate matter less than or equal to 2.5 microns ( $\text{PM}_{2.5}$ )
- Ammonia ( $\text{NH}_3$ )

They also analyzed the data for each of the following source categories:

- Electric utility fuel combustion
- Industrial fuel combustion
- Other fuel combustion
- Industrial processes
- Highway vehicles
- Off-highway vehicles
- Miscellaneous

Their analysis includes emission trends expressed in terms of annual emissions in tons and in percentage increases and/or decreases for each of these pollutants and source categories.

## EMISSIONS

Publicly available EPA emission data sets (NEI, CAMD-CEM, SMARTFIRE) of emissions were used in the development of emission trends summaries. For non-annually reporting categories and years outside of the three year reporting cycle (1999, 2002, 2005), values were calculated using an interpolation between the closest two reporting years. For 2006 - 2008 the values were interpolated between NEI 2005 and the 2009 model predicted inventory from EPA's most recent ozone NAAQS simulations.

## AIR QUALITY TRENDS

Summaries of ambient air quality measurements for the period 1999 - 2009 were obtained from U.S. EPA databases. At the time of this study, only data for a portion of 2009 were available from EPA. Most states had reported data through the end of July and therefore only a portion of the 2009 summer ozone season is represented. For this reason, we note that the 2007 - 2009 ozone design values are preliminary. Similarly, PM2.5 design value data were not available for 2009 so PM2.5 design value trends were only reported up through the most recent three-year attainment period (2006 - 2008).

## REPORT FINDINGS

Overall, the reports reveal that there have been significant decreases in all pollutants from all source categories in all five regions. These downward trends for the past ten years document that air quality is improving in response to current emission reduction measures.

We encourage you to take a copy of the Regional Report and we will send your state report to you separately. We hope that you will find this report helpful as you consider your response to new more stringent NAAQS and the CAIR replacement rule that U.S. EPA is considering and as you undertake future state and regional air quality planning.

## FOR MORE INFORMATION

Should you have any questions, need additional copies of the report or simply wish to discuss the report, do not hesitate to contact us at the following:

Gregory Stella  
Alpine Geophysics, LLC  
387 Pollard Mine Road  
Burnsville, NC 28714  
(828) 675-9045  
gms@alpinegeophysics.com  
www.alpinegeophysics.com

