Greater Roanoke Valley Asthma and Air Quality Coalition

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April 11, 2006

Docket ID No. EPA–HQ–OAR–2001–0017
Air and Radiation Docket and Information Center
Environmental Protection Agency
Mailcode: 6102T
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear EPA:

Comments regarding Proposal to Revise the National Ambient Air Quality Standards for Particulate Matter Docket ID No. OAR-2001-0017

We are submitting comments on behalf of the steering committee of the Greater Roanoke Valley Asthma and Air Quality Coalition (GRVAAQC). The Greater Roanoke Valley Asthma and Air Quality Coalition mission is to improve air quality and respiratory health for the Greater Roanoke Valley through education and partnerships with other organizations with similar goals.

The Greater Roanoke Valley is home to over 350,000 residents. Nestled between the Blue Ridge Mountains and the Allegheny Mountains, the Roanoke Valley has an elevation around 300 m asl. While providing a scenic setting, the bowl-like feature aids the entrapment of pollutants emitted in the area as well as those transported into the valley from regional sources.

According to the Southern Appalachian Mountains Initiative, "the southeastern United States has more frequent episodes of air stagnation than most other areas of the country. During these periods, pollutants can remain over the mountains for several days at a time. The naturally high humidity of the area magnifies the haze generated by airborne particles."

Based on the last 6 years of Air Stagnation Index maps from the National Climatic Data Center (NCDC), it is not uncommon for the Roanoke Valley to experience a high number of stagnation days especially during the June to October months (Attachment 1). According to the NCDC, "stagnation is considered to consist of light winds so that horizontal dispersion is at a minimum, a stable lower atmosphere that effectively prevents vertical escape, and no precipitation to wash any pollution away. These conditions are most frequently met when there is a persistent or slow moving high pressure system."[1]

Since 1999, when the Virginia Department of Environmental Quality PM 2.5 monitoring network began, the Roanoke Valley monitors have either exceeded the annual standard or have been borderline

[1] http://www.ncdc.noaa.gov/oa/climate/research/stagnation/stagnation.html

more times than not (Attachment 2). As the EPA knows, since the 1997 particulate matter standards were set, we have learned even more about the significant adverse health impacts from particulates.

EPA acknowledges in its factsheet for this proposal that "Many scientific studies have found an association between exposure to particulate matter and a series of significant health problems, including: aggravated asthma; chronic bronchitis; reduced lung function; irregular heartbeat; heart attack; and premature death in people with heart or lung disease. Particulate matter is also the main cause of visibility impairment in the nation's cities and national parks."

We, too, are concerned about particulate matter and impacts to human health. As EPA knows, many studies have linked particulate matter pollution to lung and heart disease.

According to the American Lung Association's *State of the Air 2005* Report, more than 26 percent of the U.S. population lives in areas with unhealthful short-term levels of particle pollution and one in five of the U.S. population lives in areas with unhealthful year-round levels of particle pollution.[2]

According to the "Indicators of Healthy Communities Report 2003", in 2001, the heart disease death rate in Virginia was 206 per 100,000. According to the Virginia Department of Health, diseases of the heart include hypertensive and cerebrovascular diseases, atherosclerosis, and other diseases of the arteries, arterioles, and capillaries."[3] According to the American Heart Association, in 2003, U.S. coronary heart disease death rates per 100,000 people were 209.2 for white males and 241.1 for black males; and 125.1 for white females and 160.3 for black females (preliminary).[4] Based on Virginia and U.S. heart disease death rates, the Greater Roanoke Valley jurisdictions – except Bedford County – exceed these rates (Attachment 3).

In addition, the "Indicators of Healthy Communities Report 2003", indicates that in 2001, the asthma hospital admissions were higher in three of the Roanoke Valley localities when compared to the statewide rate of 176.29 per 100,000 (Attachment 3). Statewide, the prevalence of asthma rose each year from 2000 – 2002. In 2003, it remained at 2002 levels (Attachment 4).

While air pollution is just one of several factors that contribute to heart disease death and asthma prevalence, lessening particulate matter through a more stringent standard would be a step in the right direction. A study released in the March 15 issue of The American Journal of Respiratory and Critical Care Medicine found that when air pollution in a city declines, the city benefits with a directly proportional drop in death rates. The study stated for each decrease of 1 microgram of soot per cubic meter of air, death rates from cardiovascular disease, respiratory illness and lung cancer decrease by 3 percent. (Attachment 5).

We support EPA efforts to strengthen the particulate standard; however, the EPA proposal to revise the National Ambient Air Quality Standards for Particle Pollution falls short in efforts to protect public health as required by the Clean Air Act. A slightly stronger standard would prevent a greater number of premature deaths. Therefore, we strongly urge more stringent standards for particulate matter than EPA is proposing.

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[2] Factsheet, *State of the Air 2005*, American Lung Association, http://www.lungusa.org/site/pp.asp?c=dvLUK9O0E&b=564423
[3] "Indicators of Healthy Communities 2003", The Virginia Center for Healthy Communities in collaboration with the Virginia Hospital and Healthcare Association. http://67.92.69.86/atlas.aspx
[4] American Heart Association, http://www.americanheart.org/presenter.jhtml?identifier=4478

In our following comments, GRVAAQC lists the EPA proposed standards along with our recommendations, which are offset by an asterisk *.

Fine Particles PM2.5 Primary (Health-Related) 24-hour standard

The EPA proposal includes strengthening the 24-hour fine particle standard from the current level of 65 micrograms per cubic meter (µg/m3) to 35 µg/m3.

* GRVAAQC endorses strengthening the 24-hour fine particle standard to 25 µg/m3.

Fine Particles PM2.5 Primary (Health-Related) Annual Standard

EPA is proposing to retain the current standard at 15µg/m3. The state of California currently has an annual standard set at 12 µg/m3.

* GRVAAQC urges strengthening the annual standard to 12 µg/m3.

Fine Particles PM2.5 Secondary Standards

The EPA proposal would set the secondary standards for both the annual and 24-hour standards at levels identical to the primary standards.

* GRVAAQC agrees with the EPA proposal to set the secondary standards for both the annual and 24-hour standards at levels identical to the primary standards, if the primary standards are set at GRVAAQC recommended levels. Thus, we recommend the secondary standards for the annual standard be set at 12 µg/m3 and the 24-hour standard set at 25 µg/m3.

Coarse PM10-2.5 Primary (Health-Related) Standard

Currently, EPA has coarse standards for particles 10 micrometers in diameter and smaller. The current PM10 standards are a 24-hour standard of 150 µg/m3 and an annual standard of 50 µg/m3. Citing a 1999 U.S. Court of Appeals for the D.C. Circuit decision, EPA has been directed to ensure that regulations for coarse particles did not duplicate regulation of fine particles.

The EPA proposed new PM10-2.5 standard for "inhalable coarse particles" would be a 24-hour standard set at 70 µg/m3. EPA is not proposing an annual standard for PM10-2.5.

* GRVAAQC urges a stringent 24-hour average PM10-2.5 standard set at 25-30 µg/m3 applied equally to all areas of the country, regardless of population and sources.

Coarse PM10-2.5 Secondary Standard

EPA proposes that the secondary 24-hour standard for PM10-2.5 be identical to the primary standard.

* GRVAAQC urges a stringent 24-hour average PM10-2.5 standard applied equally to all areas of the country, regardless of population and sources.

DETERMINING COMPLIANCE: THE FORM OF THE STANDARDS

Fine particles - 24-hour Standard

EPA proposes that an area would meet the 24-hour standard if the 98th percentile of 24-hour PM2.5 concentrations in a year, averaged over three years, is less than or equal to the level of the standard EPA sets in its final rule (35µg/m3 in the EPA proposal).

* GRVAAQC urges a stringent 24-hour compliance standard based on the 99th percentile of 24-hour PM2.5 concentrations in a year, average over there years, is less than or equal to 25µg/m3. Using the 99th percentile will minimize the number of days localities are allowed to exceed the standard.

Fine particles – Annual Standard

EPA proposes that an area would be in compliance with the annual PM2.5 standard when the three-year average of the annual average PM2.5 concentration is less than or equal to 15 µg/m3.

* GRVAAQC recommends that an area would be in compliance with the annual PM2.5 standard when the three-year average of the annual average PM2.5 concentration is less than or equal to 12 µg/m3.

Coarse - 24-hour Standard

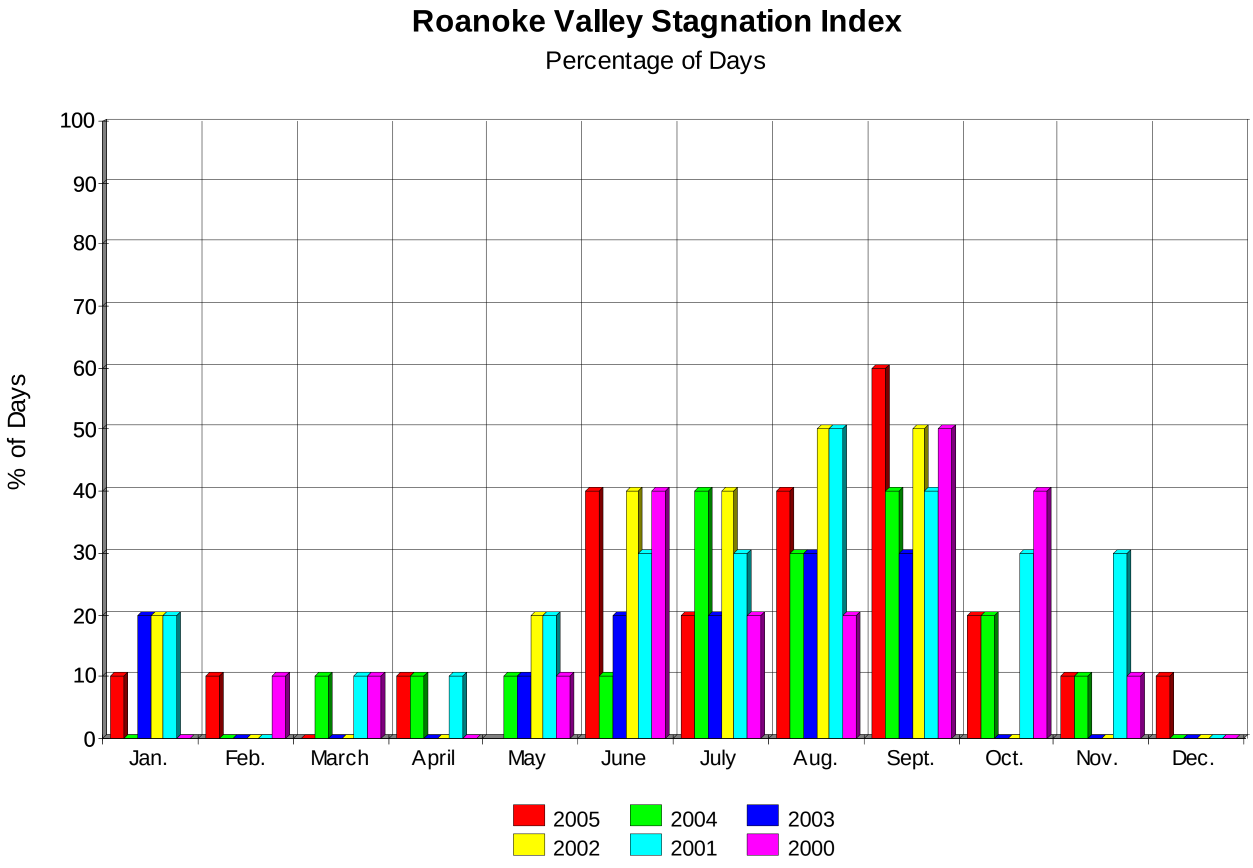
EPA proposes that an area would meet the coarse particle standard if the 98th percentile of 24-hour PM10-2.5 concentrations in a year, averaged over three years, is less than or equal to the level set in the final rule (70µg/m3 in the EPA proposal).

* GRVAAQC recommends that an area would meet the coarse particle standard if the 99th percentile of 24-hour PM10-2.5 concentrations in a year, averaged over three years, is less than or equal to a level set at 25-30 µg/m3.

Thank you for this opportunity to comment.

Respectfully submitted,

Attachment 1



- chart compiled from National Climatic Data Center maps[5]

[5] National Climatic Data Center map for May 2005 was not available.

Attachment 2

		Roanoke PM 2.5 Data				
Year	1 Qtr	2 Qtr	3 Qtr	4 Qtr	Annual	3-yr ave.
1999	NA	14.7	20.0	NA	14.9	
2000	14.8	16.8	16.5	15.4	15.9	
						(1999-2001)
2001	11.6	15.9	19.1	12.5	14.8	15.2
						(2000-2002)
2002	12.8	13.4	19.7	11.6	14.4	15.0
						(2001-2003)
2003	11.0	13.3	18.4	11.3	13.5	14.2
						(2002-2004)
2004	10.7	14.4	18.3	10.8	13.5	13.8
						(2003-2005)
2005	11.4	14.6	22.7	11.8	15.1	14.0
- source DEQ data			- data in micrograms per cubic meter			
EPA annual standard is 15.0 ug/m3.						

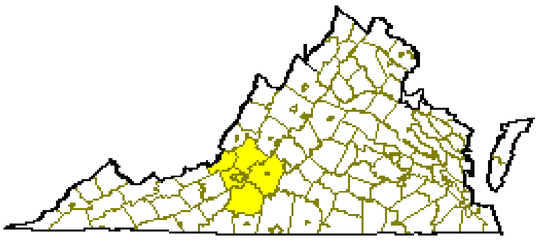
- Raleigh Court Library Monitor, Roanoke, VA[6]

		Salem PM 2.5 Data				
Year	1 Qtr	2 Qtr	3 Qtr	4 Qtr	Annual	3-yr ave.
1999	NA	15.1	17.9	NA	13.8	
2000	13.0	16.9	16.9	15.3	15.5	
						(1999-2001)
2001	11.3	16.5	20.4	12.2	15.1	14.8
						(2000-2002)
2002	12.2	14.5	21.7	11.9	15.1	15.2
						(2001-2003)
2003	11.3	13.8	18.9	11.2	13.8	14.7
						(2002-2004)
2004	11.1	15.1	19.3	11.6	14.3	14.4
						(2003-2005)
2005	12.1	16.3	24.3	11.2	16.0	14.7
- source DEQ data			- data in micrograms per cubic meter			
EPA annual standard is 15.0 ug/m3.						

- Market Street Fire Station Monitor – Salem, VA[7]

6 2005 data will not be official until quality assured by VA DEQ
7 2005 data will not be official until quality assured by VA DEQ

Attachment 3



Key
Cities of Bedford, Roanoke, & Salem
Counties of Bedford, Botetourt, Craig, Franklin & Roanoke

2001 Heart Disease rate/ Asthma Hospital admissions
(per 100,000)

Locality	Heart Disease /100,000	Asthma /100,000
Bedford City	605	-
Bedford County	173	142.17
Botetourt County	256	87.63
Craig County	275	275.05
Franklin County	261	52.16
Roanoke City	393	247.10
Roanoke County	282	106.70
Salem City	386	211.08
Virginia	**206**	**176.29**

- "Indicators of Healthy Communities 2003"[8]

The Heart Disease Death Rate in the chart above includes these diseases of the heart: hypertensive and cerebrovascular diseases, atherosclerosis, and other diseases of the arteries, arterioles, and capillaries

The asthma rate mentioned in the chart above is based on hospital discharge information categorized by zip code. The report's authors caution that the "level of admissions may indicate access to health care issues, lack of insurance, few options for service, or the presence of social issues that can influence patient adherence to medical regimes (homelessness, inconsistent caregivers, etc).

[8] "Indicators of Healthy Communities 2003", The Virginia Center for Healthy Communities in collaboration with the Virginia Hospital and Healthcare Association. http://67.92.69.86/atlas.aspx

Attachment 4

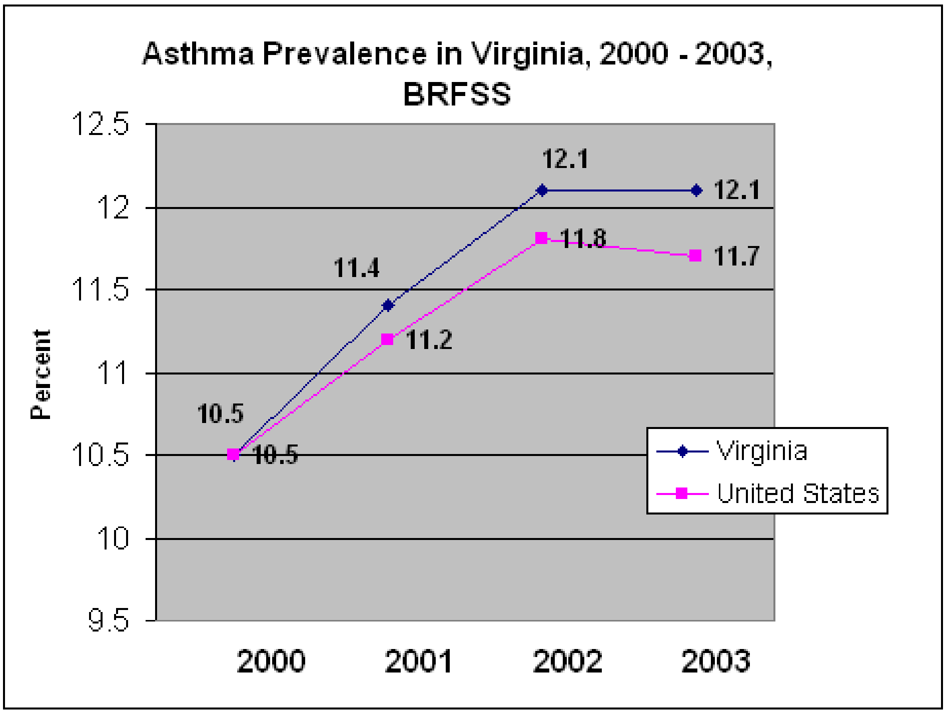


Chart is from http://www.vahealth.org/cdpc/asthma/data.asp

Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System, Prevalence Data http://apps.nccd.cdc.gov/brfss/index.asp

Attachment 5

March 21, 2006
Cleaner Air Brings Drop in Death Rate
By NICHOLAS BAKALAR
New York Times

When air pollution in a city declines, the city benefits with a directly proportional drop in death rates, a new study has found.

For each decrease of 1 microgram of soot per cubic meter of air, death rates from cardiovascular disease, respiratory illness and lung cancer decrease by 3 percent — extending the lives of 75,000 people a year in the United States. The association held even after controlling for smoking and body mass index.

The work, described in a paper in the March 15 issue of The American Journal of Respiratory and Critical Care Medicine, was carried out in six metropolitan areas: Watertown, Mass.; Kingston and Harriman, Tenn.; St. Louis; Steubenville, Ohio; Portage, Wyocena and Pardeeville, Wis.; and Topeka, Kan. The participants, ages 25 to 74 at enrollment, were followed from 1974 through 1998.

The scientists periodically measured concentrations of soot, or particulate air pollution, in each city. At the same time, they tracked disease and mortality among 8,096 residents. Particulate air pollution consists of a mixture of liquid and solid particles, mostly a result of fossil fuel combustion and high-temperature industrial processes. By definition, the particles have a diameter less than 2.5 microns, or about one ten-thousandth of an inch.

"For the most part, pollution levels are lower in this country than they were in the 70's and 80's," said Francine Laden, the study's lead author, "and the message here is that if you continue to decrease them, you will save more lives."

Further declines in air pollution are within reach, said Dr. Laden, an assistant professor of environmental epidemiology at Harvard. "The technology is out there," she said. "The cities that we've covered have cleaned up considerably over the course of the study."

In Steubenville, for example, soot declined to 22 micrograms per cubic meter from 27 over the course of the study, and the city had a corresponding 25 percent decrease in mortality risk. "Consistently," Dr. Laden said, "in the cities where there was the most cleanup, there was also the greatest decrease in risk of death."

Dr. Laden said the study supported what the federal scientific advisers had advocated: lowering the air quality standard below the present 15 micrograms per cubic meter. "There was discussion about lowering it to 12," she said, "and this study supports that."[9]

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