

MOUNTAIN AREA
EARLY ACTION COMPACT

December 21, 2006 Voluntary Submittal to

United States Environmental Protection Agency

North Carolina Department of Environment and Natural Resources
Division of Air Quality

The Mountain Area Early Action Compact is comprised of the three Western North Carolina Counties of Buncombe, Haywood, and Madison as well as municipalities within those Counties. Two Counties, Madison and Buncombe, are part of a decades old Metropolitan Statistical Area in the region. Haywood County is part of the newly expanded MSA. These sister governments have all elected to participate in the EAC process. Each desires to improve air quality in our area; to partner with and support State and Federal clean air initiatives; and to avoid the regional consequence of non-attainment.

1. *The following actions have taken place within the three Counties during the past six months.*

The Western North Carolina (WNC) 3 County Region as a whole

- The Regional Clean Air Campaign (CAC) held monthly meetings to plan and implement air quality educational programs in the region.
 - The CAC had a booth where air quality information was distributed at the annual Bele Chere street festival in Asheville on July 28th through the 30th. A Ford Escape Hybrid was displayed. Over 300,000 citizens attend this festival.
 - The CAC participated in the Clean Air Car Fair and Alternative Fuels Forum at the Southern Energy and Environment Expo in Asheville on August 25th through the 27th. The Car Fair and Alternative Fuels Forum was sponsored by several local organizations.
 - On August 28, 2006, the CAC sponsored an air quality presentation on the "Tennessee Valley Authority and Regional Air Quality" by John Myers, TVA Air Quality Manager at A.B. Tech College in Asheville.

- Several local agencies including the NC DAQ, and the Western North Carolina Regional Air Quality Agency (WNCRAQA) participated in an Advanced Air

- Quality Workshop on Ground Level Ozone that was sponsored by the US Forest Service on August 17, 2006.
- Several local partners including the NC DAQ participated in a Forum at UNC Asheville to discuss clean technologies in the auto industry on October 19, 2006.
 - The Land of Sky Regional Council of Governments (LOS) Clean Vehicles Coalition (CVC) continued their work during the last 6 months of 2006 to promote the use of alternative fueled and advanced technology vehicles. On November 15, 2006, the CVC helped organize a Clean Vehicles Showcase at an Energy Independence Summit sponsored by Western Carolina University. The CVC assisted in setting up Apple Tree Honda in Asheville to sell and service the Honda Civic GX natural gas vehicle.
 - Progress Energy began using B20 biodiesel in its local fleet.

Buncombe County (and Asheville)

- The City of Asheville provided 90 days of free bus service (from August 21 through November 11) to encourage citizens to try the city's public transportation system and increase the number of regular riders. They also expanded their evening service routes to run an hour later starting on November 13, 2006.
- During 2006, Buncombe County has been utilizing biodiesel (B10) in all landfill equipment and B5 in most other diesel vehicles.
- Buncombe County, the City of Asheville, and ten other local organizations (Basofil Fibers, BorgWarner Turbo Systems, Ohio Electric Motors, Inc., Volvo Construction Equipment North America, Inc., Rockwell Automation, B.V. Hedrick Gravel & Sand Company, Alcan Packaging, Shorewood Packaging Corporation, Warren Wilson College, Land of Sky Regional Council of Governments) are participating in the EPA's ENERGY STAR Million Monitor Drive to conserve electricity and reduce air pollution. A total of 2,893 computer monitors in Buncombe County are being powered down when not in use as part of this program.
- The WNCRAQA joined the Southeast Diesel Collaborative in July of 2006.
- The WNCRAQA sponsored an Open Burning Ad "Burning Trash is Illegal" that was printed on 24,000 Pharmacy Bags to be distributed at the Ingles on Leicester Highway (distribution time approximately 11 months).
- The NC DAQ and CVC had an air quality booth and clean air car display at the Biltmore Company's August 16th Health Fair.
- The NC DAQ had two field days featuring air quality information with Buncombe County Soil and Water on September 27th and 28th.
- The NC DAQ did an air quality presentation for staff at the NC Arboretum on October 26th.
- The NC DAQ, the Clean Air Community Trust, and the WNCRAQA have given air quality presentations including tips to reduce pollution in several schools in Buncombe County during the last 6 months of 2006.

Haywood County

- Bill Eaker of Land of Sky Regional Council continued to hold meetings with various Haywood County officials to plan activities for its AQ and Clean Vehicle Education Program in the County.
 - The Clean Vehicles Coalition had a clean vehicles entry in the Waynesville and Maggie Valley Christmas Parades.
 - The CVC also sponsored the Haywood Co. Biofuels Forum on December 8 in partnership with the NC Dept of Agriculture and Haywood County Soil and Water Conservation District. The NC Commissioner of Agriculture was the keynote speaker.
 - The CVC assisted Haywood Community College with an application for a NC DAQ Mobile Source Emissions Reduction Grant that will be announced in March 2007. They also assisted the Great Smokey Mountains National Park in applying for a state grant to convert its NC fleet to B50 biodiesel.
- The NC DAQ and CVC had a clean air/vehicles display at the Haywood Co. Fair in late September.
- The NC DAQ had two field days featuring air quality information with Haywood County Soil and Water on October 4th and 5th.

Madison County

- Madison County Government is participating in the EPA's ENERGY STAR Million Monitor Drive campaign with the other organizations in Buncombe County. Madison County has pledged to power down 240 computer monitors when not in use as part of this program.
- The CVC assisted a group in Madison County with an application for NC DAQ grant funds to establish a new Green Transit System that will use biodiesel in its shuttles.

2. Air Quality Analysis

Assessment of Air Quality for Mountain EAC

Compact areas must certify progress toward attainment since their previous milestone, e. g., continued implementation and progress toward improvement in air quality and emissions reductions. On November 29, 2006, The U.S. Environmental Protection Agency (USEPA) deferred the effective date of the nonattainment designations for the counties participating in the three other Early Action Compacts in NC to April 15, 2008. The Mountain Area Early Action Compact was not included in the final deferral notice since it is now a voluntary program.

The North Carolina Division of Air Quality (NCDAQ) evaluated design value (DV) trends and ozone exceedance trends from 1994 to 2006 to determine if the Mountain EAC area shows decreases in ozone formation. Specifically, the NCDAQ evaluated the following data as part of the air quality analyses:

- 1-Hour Ozone Design Value Trends – Most recent 1-hour ozone design values compared to the trend in 1-hour ozone design values from the 1994-1996 timeframe to present.
- 8-hour Ozone Design Value Trends – Most recent design values (3 year average of the 4th highest 8-hour ozone average), compared to the trend in design values from the 1994-1996 timeframe to present.
- 1-Hour Ozone Exceedances – Number of exceedances of the 1-hour ozone standard at each monitor in the EAC area for the most recent ozone season, compared to the number of exceedances at each monitor from 1994 to present.
- 8-Hour Ozone Exceedances – Number of exceedances of the 8-hour ozone standard at each monitor in the EAC area for the most recent ozone season, compared to the number of exceedances at each monitor from 1994 to present.

The National Ambient Air Quality Standard (NAAQS) for 1-hour ozone is 0.12 parts per million (ppm). When a monitor measures ozone above 0.124 ppm (per rounding convention), an exceedance of the NAAQS occurs. The design value for 1-hour ozone is calculated by rank ordering the highest monitor reading for a three-year period and the 4th highest value is the design value for that monitor. The design value for an area would be the highest monitor design value.

The NAAQS for 8-hour ozone is 0.08 ppm. When a monitor measures ozone above 0.084 ppm, an exceedance of the NAAQS occurs. The design value for 8-hour ozone is calculated by averaging the annual 4th highest daily maximum for three consecutive years for a monitor. The design value for an area would be the highest monitor design value.

In the sections below the four matrices listed above are discussed.

1-hour Design Value Trends

In the Mountain EAC area, 1-hour ozone design values peaked during the 1997-1999 and 1998-2000 periods, then decreased consistently through the 2002-2004 period, with a greater decrease in the 2003-2005 period (see Table 1 below). The design values are presented in parts per million and the light shading indicates that no data was available.

Table 1: 1-Hour Ozone Design Values for Mountain EAC Area

Monitoring Sites	AIRS ID	Design Value Summary (ppm)										
		94-96	95-97	96-98	97-99	98-00	99-01	00-02	01-03	02-04	03-05	04-06
Frying Pan	37-087-0035	0.095	0.095	0.106	0.107	0.107	0.104	0.098	0.098	0.098	0.091	0.091
Purchase Knob	37-087-0036	0.094	0.106	0.103	0.105	0.103	0.102	0.104	0.104	0.104	0.091	0.091
Bent Creek	37-021-0030	0.085	0.086	0.108	0.111	0.111	0.106	0.106	0.103	0.103	0.092	0.092
Waynesville	37-087-0004				0.09	0.094	0.094	0.095	0.091	0.091	0.084	0.082

Figure 1 below shows the trend in highest monitor 1-hour DVs for the Mountain EAC area. The graph shows the peak in the 1997-1999 and 1998-2000 DV period. After that, design values decrease consistently and a significant drop is seen in the 2003-2005 DV, after which the values level off. The average DV for all monitors combined is the same for 2003-2005 and 2004-2006.

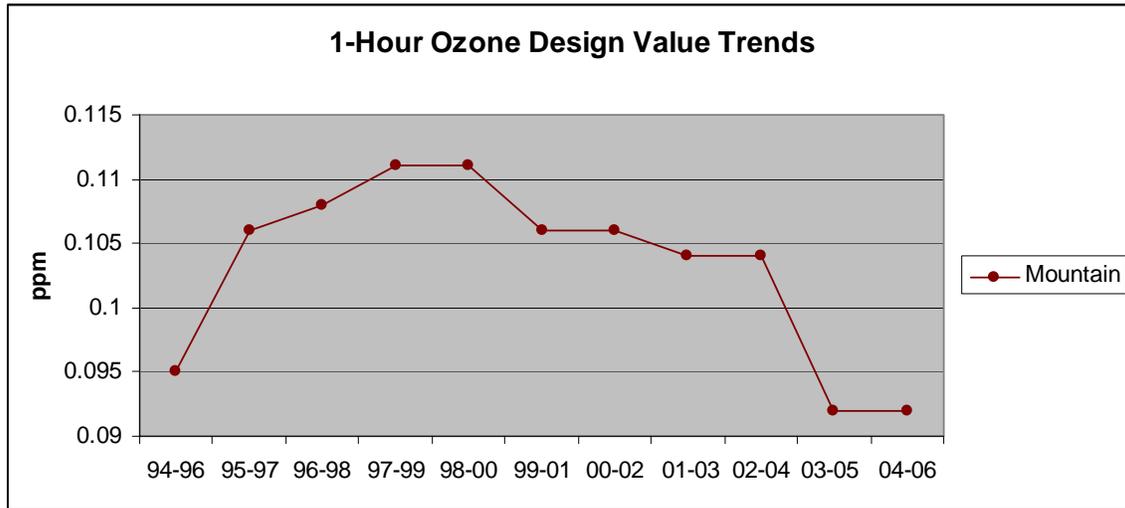


Figure 1: Trend in the area-wide 1-hour design values (in parts per million) for the Mountain EAC area from 1994 to 2006

8-hour Design Value Trends

Much like the 1-hour values, 8-hour design values peaked in 1997-1999 and 1998-2000, with a steady decline in DVs in following years and a significant drop in 2003-2005, followed by a leveling off. As for the 2002-2004, 2003-2005, and 2004-2006 DVs, all were 0.082 ppm or less. The design values are presented in parts per million, with design values exceeding the standard highlighted in orange. Light shading indicates that no data was available.

Table 2: 8-Hour Ozone Design Values for the Mountain EAC Area

Monitoring Sites	AIRS ID	Design Value Summary (ppm)										
		94-96	95-97	96-98	97-99	98-00	99-01	00-02	01-03	02-04	03-05	04-06
Frying Pan	37-087-0035	0.079	0.085	0.091	0.094	0.094	0.087	0.085	0.082	0.080	0.076	0.078
Purchase Knob	37-087-0036		0.083	0.085	0.090	0.090	0.087	0.087	0.085	0.082	0.078	0.076
Bent Creek	37-021-0030	0.073	0.075	0.079	0.083	0.088	0.083	0.085	0.078	0.077	0.074	0.074
Waynesville	37-087-0004						0.080	0.080	0.079	0.076	0.072	0.069

Figure 2 below shows the trend in the highest monitor 8-hour DVs for the Mountain EAC area. The graph shows the peak in the 1997-1999 and 1998-2000 design values. Design values decrease through the rest of the graph. The Mountain area drops below the 8-hour standard by the 2003-2005 period, and the levels are roughly the same for the 2004-2006 period.

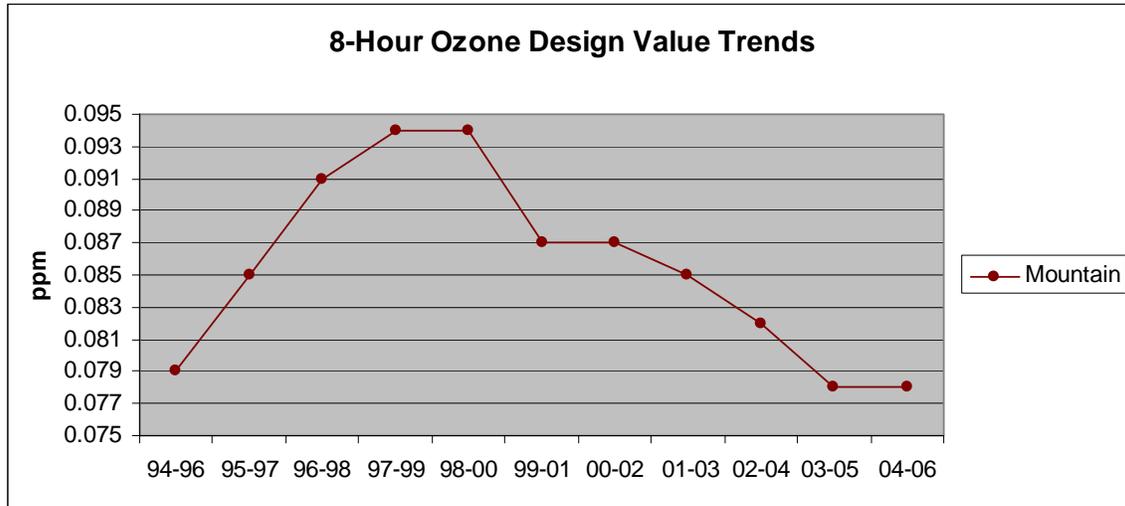


Figure 2: Trend in the area-wide 8-hour design values (in parts per million) for the Mountain EAC area from 1994 to 2006

1-hour & 8-Hour Ozone Exceedance Trends

An exceedance of the 1-hour standard occurred in the 1998 season at the Bent Creek monitor in the Mountain EAC area. There have been no exceedances of the 1-hour standard in the last 8 years in the Mountain EAC area (see Table 3 below). Light shading indicates that no data was available for the period.

Table 3: The Number of 1-Hour Ozone Exceedances Within the Mountain EAC Area

Number Of 1-Hour Exceedances Per Year		1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Bent Creek	37-021-0030	0	0	0	0	1	0	0	0	0	0	0	0	0
Frying Pan	37-087-0035	0	0	0	0	0	0	0	0	0	0	0	0	0
Purchase Knob	37-087-0036		0	0	0	0	0	0	0	0	0	0	0	0
Waynesville	37-087-0004						0	0	0	0	0	0	0	0

The number of 8-hour ozone exceedances (Table 4) shows a downward trend since peaking in 1998 and 1999 in the Mountain EAC area. The Mountain EAC area had one exceedance from 2003 to 2005 and two exceedances from 2004 to 2006. Light shading indicates that no data was available for the period and orange highlighting indicates a monitor with four or more exceedances for that year.

Table 4: The Number of 8-Hour Ozone Exceedances Within the Mountain EAC Area

Number Of 8-Hour Exceedances Per Year		1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Bent Creek	37-021-0030	0	0	0	0	5	2	7	1	7	0	0	1	0
Frying Pan	37-087-0035	0	5	5	4	23	24	4	1	13	0	0	0	1
Purchase Knob	37-087-0036		4	1	7	12	19	5	0	18	0	0	0	0
Waynesville	37-087-0004						1	3	0	2	0	0	0	0

Conclusions

The Mountain EAC area continues to show decreases in both the 1-hour and 8-hour ozone design values. In fact, the summers of 2005 and 2006 were both hot and dry and none of the Mountain area monitors had more than one exceedance of the 8-hour ozone standard. The USEPA allows three exceedances to be discounted when calculating the design value. It is believed that the Mountain EAC area is well on its way to meet the December 2007 milestone of having a design value below the 8-hour ozone standard.

3. Expected Emissions Reductions

- Open burning ban and ozone action days, implemented in June 2004:
 - i. VOC Reduction of 0.5 TPD
 - ii. NOx Reduction of 0.4 TPD

- Expand vehicle I&M, implemented in July 2005:
 - i. VOC Reduction of 0.6 TPD
 - ii. NOx Reduction of 0.7 TPD

- Progress Energy is installing 2 SCRs and 2 Scrubbers at the Asheville plant to comply with the NC Clean Smokestacks Act.
 - i. NOx Reduction of 8.2 TPD (The Unit 1 SCR began operating in June of 2006. The Unit 2 SCR will begin operating in 2007. Average 2004-2005 NOx emissions were approximately 4,500 tons per year. Estimated 2006 NOx emissions as of December 12, 2006 are 1,493 tons per year. Estimated 2007 NOx emissions are 1,500 tons per year, resulting in a reduction of approximately 3,000 tons per year.)