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West Virginia Division of Environmental Protection

Cecil H. Underwood
Governor

Michael C. Castle
Director

June 29, 2000

Bradley M. Campbell, Regional Administrator
United States Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Re: Recommendations for Area Designations
Under the Eight-Hour Ozone Standard

Dear Administrator Campbell:

This letter is in response to the U.S. EPA's request (Memorandum dated March 28, 2000 from OAQPS Director John Seitz) for Governors (or Designees) to submit designation recommendations based upon the 8-hour ozone standard by June 30, 2000. Quality assured air monitoring data for the period 1997-1999 are suggested as the basis for these recommendations.

West Virginia fulfilled its related statutory obligations under Section 107 of the Clean Air Act and the Transportation Equity Act for the 21st Century (TEA-21) in a letter from Governor Underwood dated July 22, 1999. The Governor noted that the validity of the revised standards had been challenged by ongoing litigation and, in fact, the standards had been remanded to the U.S. EPA by a federal court. Since then, an *en banc* review was subsequently denied, but the U.S. Supreme Court has agreed to hear the case. Significantly, the Court has agreed to hear arguments on cost-benefits in establishing the standard. This may signal a greater jeopardy for the revised standard than widely supposed previously. Should the Supreme Court determine that economics must be considered, the standard may very well be vacated rather than remanded.

The designations are more than a label. They generate serious consequences such as Transportation Conformity and New Source Review requirements for nonattainment areas.
U.S. EPA has downplayed the complexities of redesignating areas if the currently remanded standard is nullified or revised to a less stringent level. Even if expedited time-frames are achieved, adverse economic impacts and substantial transportation infrastructure delays for the affected areas will almost certainly result.

Because of these confounding and uncertain circumstances, we continue to assert that it would be both inappropriate and imprudent to formally designate areas within West Virginia until the Supreme Court's decision has been rendered. Indeed, U.S. EPA has delayed other aspects of its implementation schedule as a consequence of other court rulings. However, if some interim nomenclature should be applied until most of these issues are resolved, then it seems best to use

the "unclassifiable" specification for all areas within West Virginia. The state routinely provides complete air quality data to U.S. EPA through the AIRS computer system which contains comprehensive data for the past several years. The attachments also summarize the 8-hour, quality-assured ozone data for 1997, 1998 and 1999.

Should U.S. EPA promulgate designations based on the remanded standard and determine that it is inappropriate to use the attainment/unclassifiable designation for areas with monitored air quality violations, then we have the following suggestions. With the sole exception noted below, we generally agree with U.S. EPA's presumptive boundaries for West Virginia nonattainment areas. Metropolitan Statistical Areas (MSAs) appropriately establish the boundaries for such areas. West Virginia has five urban areas that violated the contested 8-hour ozone standard for the period 1997-1999. Four of these have MSAs that include portions of other states, namely Kentucky and Ohio. Our Air Quality staff has conferred with staff from both these states. We have conveyed to them that we feel it appropriate in each of these cases for the entire MSA to be designated nonattainment if any portion is so designated.

The exception is an unmonitored area in our eastern panhandle. Berkeley and Jefferson Counties are now considered part of the Baltimore-Washington Consolidated Metropolitan Statistical Area (CMSA). Although monitored violations occur in this CMSA, we believe there is an important distinction between primary MSAs and fringe parts of CMSAs. Berkeley and Jefferson certainly fall into the latter category. Further, U.S. EPA's guidance memorandum (March 28, 2000) lists factors that states should address in proposing boundaries different from the presumption. Office of Air Quality staff members have met with U.S. EPA and air quality officials from Maryland, Virginia, and the District of Columbia to discuss the appropriate designation for these counties. Hereto attached is West Virginia's rationale outlining our basis for removing Berkeley and Jefferson counties from the potential Baltimore-Washington 8-hour ozone nonattainment area. Our designation recommendations are also summarized in the attachments.

I hope that U.S. EPA will weigh carefully the supporting documentation and fully consider the ramifications of its nonattainment designations.

Sincerely,

Michael C. Castle
Director, WV DEP

attch: attachments

cc: Edward L. Kropp, Chief, Office of Air Quality

State of West Virginia
8-Hour Ozone Designations

Primary Recommendation:

WEST VIRGINIA
NONATTAINMENT AREAS: NONE
ATTAINMENT/UNCLASSIFIABLE AREAS: ALL OF STATE (55 COUNTIES)

Secondary Recommendation:

WEST VIRGINIA
NONATTAINMENT AREAS:
- Charleston (WV) MSA
  - including Kanawha and Putnam (WV) Counties
- Huntington (WV)-Ashland (KY)-Ironton (OH) MSA
  - including Cabell and Wayne (WV) Counties
- Parkersburg (WV)- Marietta (OH) MSA
  - including Wood (WV) County
- Steubenville (OH)-Weirton (WV) MSA
  - including Brooke and Hancock (WV) Counties
- Wheeling (OH/WV) MSA
  - including Marshall and Ohio (WV) Counties
- Greenbrier (WV) County

ATTAINMENT/UNCLASSIFIABLE AREAS:
- Rest of State

STATE: **West Virginia**
COUNTIES: **Berkeley and Jefferson**
AQCR: 10 (Eastern Panhandle Intrastate)

Executive Summary

U.S. EPA plans to go forward with 8-hour ozone designations despite the uncertainty caused by litigation and related judicial decisions. Further, the agency has published guidance wherein it presumes that any potential nonattainment area will have boundaries which coincide with those of the associated Metropolitan Statistical Area (MSA) or Consolidated MSA (CMSA). States are expected to address eleven factors including air emissions, growth, traffic and monitoring data, among others, in an attempt to rebut this presumption and exclude any portions of a CMSA or MSA from the boundaries of a nonattainment area.

Berkeley and Jefferson Counties are now considered part of the Baltimore-Washington CMSA. Historically, there has been little reason to site an air pollution monitor in the West Virginia portion of the area due to its relatively low population and agricultural nature. Subsequent growth in Berkeley and Jefferson has largely been residential in character with few new large air pollution sources. Although monitored violations occur in other parts of this CMSA, it would be unfair to arbitrarily include the West Virginia counties in a nonattainment area solely because of artificial boundaries. Based on an analysis of the pertinent factors outlined below, we strongly believe Berkeley and Jefferson Counties should be excluded from any potential Baltimore-Washington 8-hour ozone nonattainment area.

Emissions and Air Quality in Adjacent Areas

No electric generating units (EGUs) are located in Berkeley or Jefferson Counties (BJC). EPA's NET96 (v3) emissions inventory lists only four major (>100 tons per year - tpy) point sources of ozone precursors in BJC. Two are located in Berkeley County with a total of 3,935 tpy NOx; two are located in Jefferson County with 116 tpy NOx and 425 tpy VOC (1996 NET v3, State review indicates the listed 425 tpy VOC source should actually show about 250 tpy). While the NET96 inventory data is herein used for comparison, staff noted significant discrepancies in several source categories between NET data and corrected Office of Air Quality (OAQ) data. Generally, NET data substantially overestimates emissions compared to the OAQ data.

Table 1, *Demographic, Travel, and Emission Statistics for the Washington-Baltimore CMSA* (source 1996 NETv3, http://www.pechan.com/emissions3/dlcnty.htm, imported to spreadsheet and amended) outlines county level ozone precursor emissions. These data show that total annual CMSA emissions of NOx and VOCs are 364,782 tpy and 260,478 tpy, respectively. BJC has corresponding totals of 9,415 tpy and 6,798 tpy, respectively, equivalent to 2.6% of the CMSA total. BJC ozone season daily contributions are similar with 2.7% and 2.9% for NOx and VOCs, respectively. CO contribution falls below 2%. **Therefore, BJC contributes less than 3% of the CMSA total ozone precursors, both annually and on an ozone season daily basis.** This fact is also illustrated graphically on the accompanying charts, *Contribution of BJC to CMSA Total Population, VMT and Emissions.*

Historically, there has been little reason to site an ambient ozone monitor in the BJC area due to the relatively low population and its agricultural nature. Therefore, no data is available from within Berkeley or Jefferson counties. With the exception of one violating monitor in Virginia, most nearby monitors have incomplete data. The attached maps *Counties and MSA's Exceeding 8 Hour Ozone Standard (1997-1999)* and *8 Hour Ozone Design Value (1997-1999)* show the locations and status of regional air monitors, along with EPA's presumptive boundaries for nonattainment areas.

Population Density and Degree of Urbanization (source: Region 9 Planning & Development Council)
The largest incorporated community (and area of highest population density) is the City of Martinsburg in Berkeley County (1995 population estimate = 15,386). The next largest community is the town of Charles Town in Jefferson County (1990 census population = 3,122).

Land use categories:(percent of total surface area):

Jefferson County = 83% agriculture/forest
2% water
2% commercial/industrial (unincorporated)
5% residential (unincorporated)
8% urban (mixed build-up)

Berkeley County = 81% agriculture/forest
1% water
4% commercial/industrial (unincorporated)
6% residential (unincorporated)
8% urban (mixed build-up)

The largest incorporated communities in surrounding CMSA counties include:

Hagerstown, MD in Washington County	(1990 population census = 35,445)
Frederick, MD in Frederick County	(1990 population census = 40,146)
Rockville, MD in Montgomery County	(1990 population census = 44,800)
Leesburg, VA in Loundoun County	(1998 population estimate= 27,009)
Berryville, VA in Clarke County	(1998 population estimate = 3,240)

Selected Population Densities (based on year 2000 estimates)

		People/Sq. Mile
WV Counties:	Berkeley:	227
	Jefferson:	202
MD Counties:	Washington	283
	Montgomery	1,178
	Prince George	1,719
	Calvert	391
	Charles	316
	Frederick	291
VA Counties:	Loudoun	307
	Frederick	123
	Clarke	73
	Fairfax	3,814
	Prince William	883
	Arlington	7,399
Washington, DC		8,432

The average population density for the above counties is about 1,709 p/sq.mi., more than 7 ½ times the density in BJC. Hence, Berkeley and Jefferson Counties (WV) are considerably less populated on average than other parts of the CMSA.

Commercialization (the growth of commerce) is primarily concentrated along the U.S. I-81 and U.S. I-70 highway corridors. Leesburg and Berryville (VA), and the concomitant commercialization associated with these urban places, are located along the U.S. Highway 7 corridor. Since the basic infrastructure systems (sewer, water, power utilities, and non-highway transportation facilities) and industrial parks/sites are mostly developed/prevalent along these highways, it is relatively safe to assume that the pattern and trend of future commercial growth will continue to occur within these corridors.

Monitoring Data representing ozone concentrations in local areas and larger areas (urban and local scales)

As noted in the *Emissions and Air Quality* section above, there has been little reason historically to site an ambient ozone monitor in the BJC area due to its relatively low population and agricultural nature. Therefore, no air quality data is available from within Berkeley or Jefferson counties. With the exception of one violating monitor in Virginia, most nearby monitors have incomplete data. The attached maps *Counties and MSA's Exceeding 8 Hour Ozone Standard (1997-1999)* and *8 Hour Ozone Design Value (1997-1999)* show the locations and status of regional air monitors, along with EPA's presumptive boundaries for nonattainment areas.

Location of Emission Sources

As noted above in the section, *Emissions and Air Quality in Adjacent Areas*, no electric generating units (EGUs) are located in Berkeley or Jefferson Counties (BJC). EPA's NET96 (v3) emissions inventory lists only four major (>100 tons per year - tpy) point sources of ozone precursors in BJC. Distances range from fifty to seventy-five miles from the center of Washington (DC) and roughly the same distances to downtown Baltimore. An examination of the map, *Washington-Baltimore, DC-MD-VA-WV* showing the location of major point sources in the CMSA reveals about fifteen major point sources, including two EGUs, within a twenty-five mile radius of downtown Washington. Nearly two dozen more are added at the fifty mile radius, including six large EGUs. Baltimore exhibits even higher emission density with fifteen major point sources within a twenty-five mile radius, including three large EGUs.

It should be re-emphasized that Berkely and Jefferson Counties (WV) contribute less than 3% of the total CMSA ozone precursor emissions. This negligible amount, coupled with the relatively large distance from the high density emission areas, further distinguishes BJC from the other portions of the CMSA.

Traffic and Commuting Patterns

Motor vehicle emissions in BJC are less than 2.5% of the total motor vehicle emissions in the CMSA for all of the annual and seasonal ozone precursor pollutants (Table 2). Furthermore, vehicle miles traveled (VMT) in BJC comprises only 1.6% of the total VMT in the CMSA (Table 2). Both of these values show that BJC mobile sources contribute an insignificant amount to the total mobile emissions for the CMSA. VMT in BJC is expected to increase during the next several decades, according to *VMT Growth Factors (%) by County* (source EPA, http://www.epa.gov/ttn/rto/areas/vmt). However, this growth is directly proportional to the increase in VMT projected for other counties within the CMSA. Therefore, after growth factors

are taken into consideration, the VMT in BJC will remain approximately 1.6% of the total VMT in the CMSA. Emissions are generally proportional to VMT (for similar vehicle classes, road types and speeds). It follows that the mobile emission contributions from BJC will remain less than 2.5% of the CMSA total in the future, even with growth.

Expected Growth

The BJC area has experienced population growth in the last decade. The combined population increased from 95,179 (1990) to 108,176 (1996 est.), approximately 13.7%. The CMSA total population increased from 5,797,935 to 6,277,434 during the same period, about 8.3%. However, the percent of BJC/total CMSA population only increased from 1.6% to 1.7%. Therefore, even with growth, the BJC area contributes negligibly to the population in the CMSA. As noted above, commercialization is primarily concentrated in the I-70 and I-81 corridors (and the Highway 7 corridor). This trend can reasonably be expected to continue. VMT growth was addressed in the previous section.

Region Meteorology

Climatology of the region is typified by cold winters, warm and moderately humid summers, stormy springs, and fair autumns. Precipitation averages 38 to 40 inches per year, with the lightest amounts during the colder months as storms originating in the cold, dry regions to the west and northwest swing eastward losing most of their moisture supply on the western slopes of the mountains to the west. Prevailing winds are from the west through north and stronger in the colder months, while they are from the south through west and lighter from May through October. Stagnation conditions involving poor dispersion lasting 4 days or more occur about 1 to 2 times a year. About once in 7 to 10 years a 7-day stagnation occurs.

Region Topography

This region is characterized by ridge lines and broad valleys which are oriented northeast to southwest across the entire region. Elevations range from 300 feet above mean sea level in the extreme east to 2000-2300 feet in the west. Ridge lines are forested with the broad valley areas being open farm and orchard land.

Jurisdictional Boundaries

The attached maps, *Baltimore, MD* and *Washington, DC-MD-VA* illustrate the designations and boundaries of the present ozone nonattainment areas. Berkeley and Jefferson Counties are not only excluded from these areas but also from the Ozone Transport Region established under the Clean Air Act Amendments of 1990.

Level of Control of Emission Sources

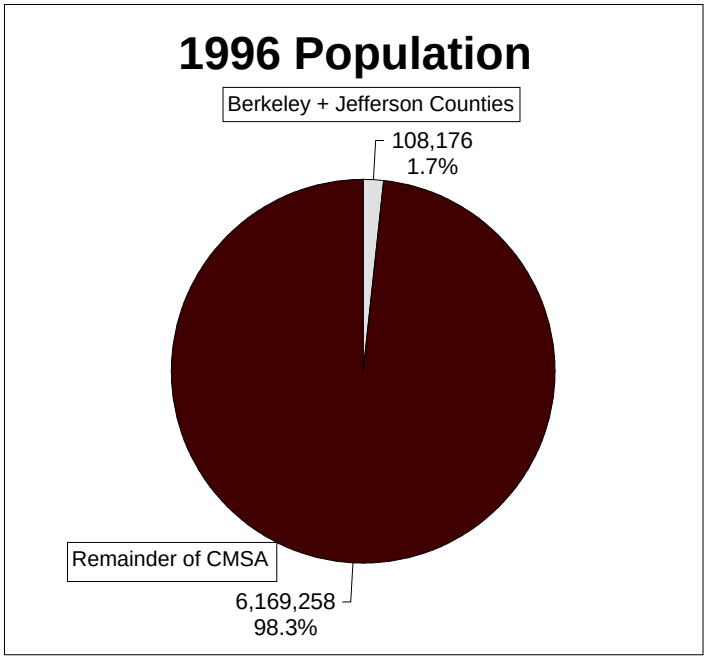
Of the four major point sources located in BJC, three are NOx sources and one is a VOC source. The largest NOx source (3,505 tpy) is a cement kiln which will be required to reduce emissions under EPA's NOx SIP Call. The reduction level is expected to equal Reasonably Available Control Technology (RACT) or better. The VOC source (listed at 425 tpy) actually emitted about 250 tpy according to a review of emission inventory data. This source is installing permitted control equipment which will reduce its potential to emit by an order of magnitude. Another VOC source (data unavailable for 1996 NET inventory) was permitted requiring Best Available Control Technology (BACT). It is not expected that additional significant emission reductions would occur in BJC through the development of an attainment demonstration for the area.

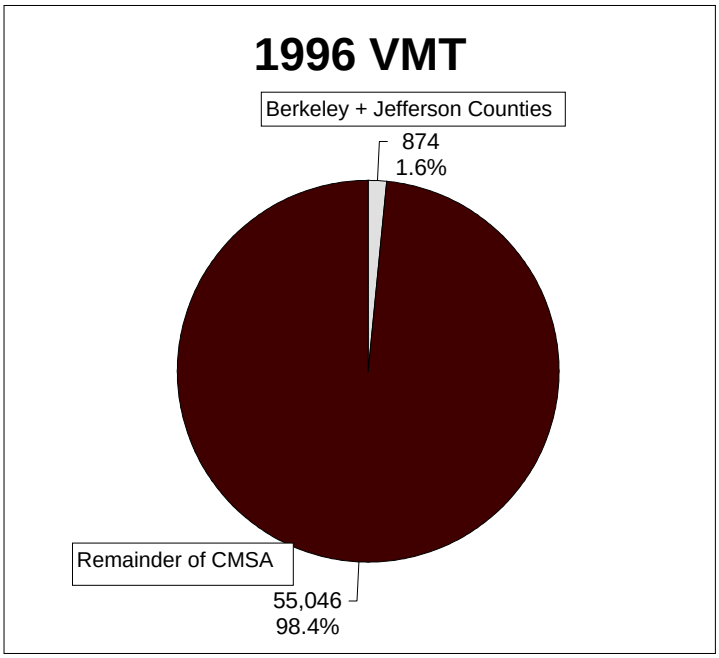
Further, as noted in the *Traffic and Commuting Patterns* section, the small fraction of VMT and vehicle registration in the BJC area in comparison to the entire CMSA render most potential mobile source controls in the West Virginia portion practically ineffective. For example, the BJC fraction of vehicle registrations is less than 2%. Enhanced Vehicle Inspection and Maintenance (I& M) programs typically apply only to light duty vehicles, so that such controls potentially applied to BJC would capture considerably less than 2% of the CMSA total.

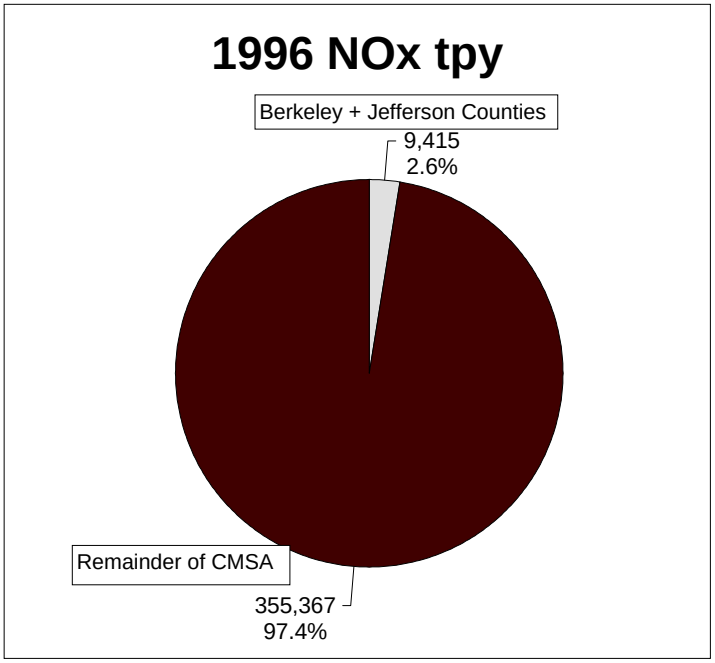
Regional Emission Reductions

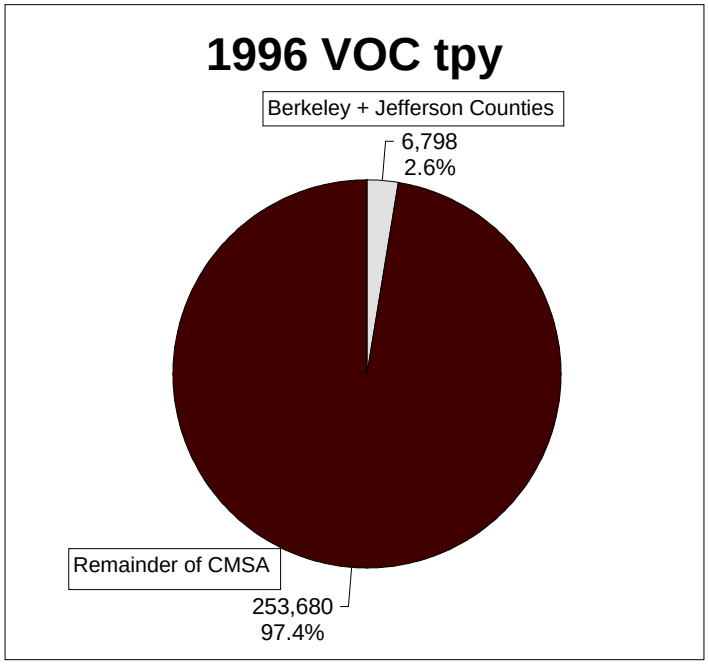
As noted above, the cement kiln located in BJC should reduce emissions under the NOx SIP Call. More importantly, the six large EGUs (79,740 tpy NOx) located in other portions of the CMSA, should achieve dramatic reductions (>75%) as well. The resulting air quality benefits would dwarf any improvement from additional controls in the West Virginia portion of the CMSA.

Contribution of BJC to CMSA Total Population, VMT and Emissions

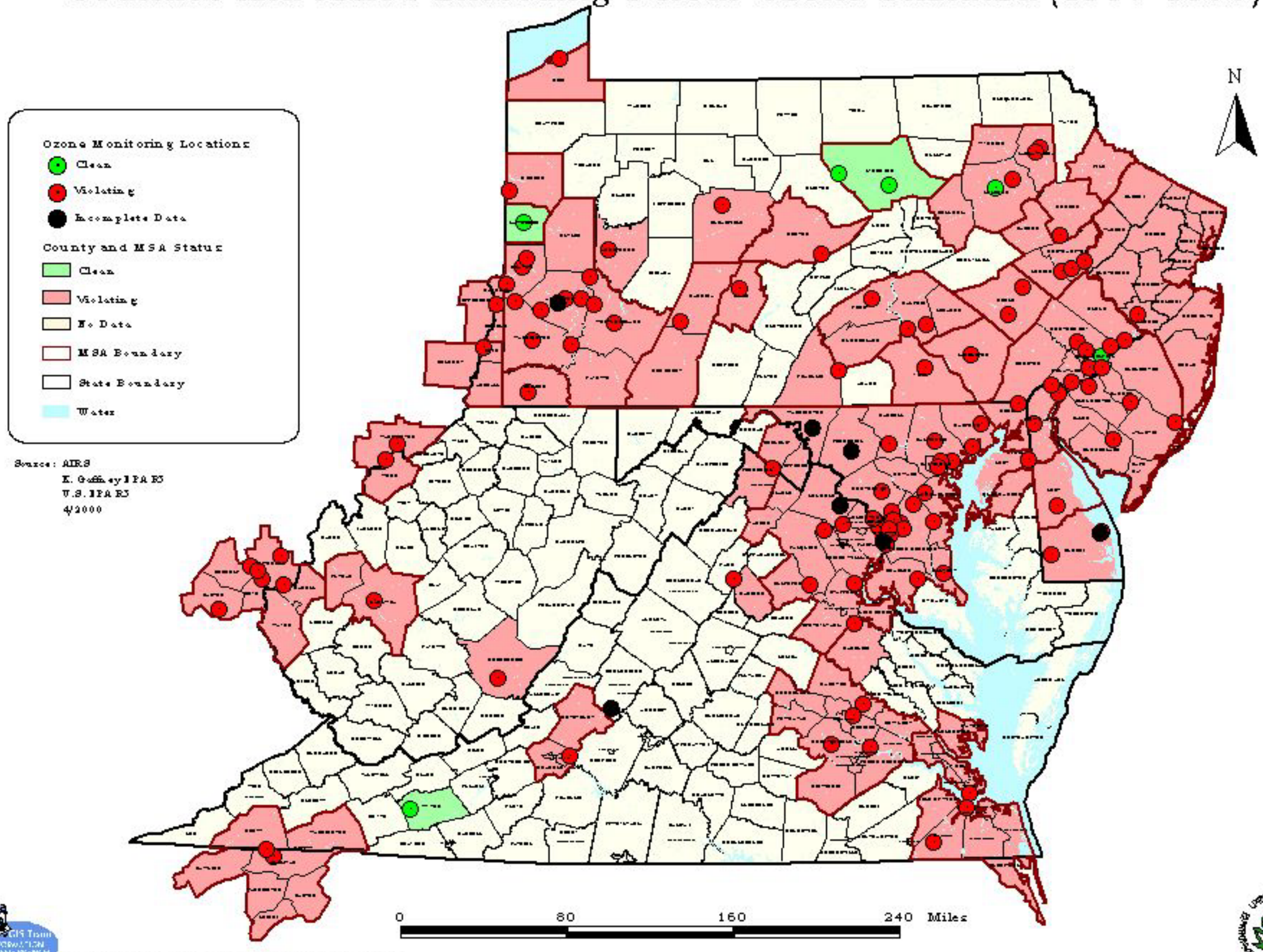






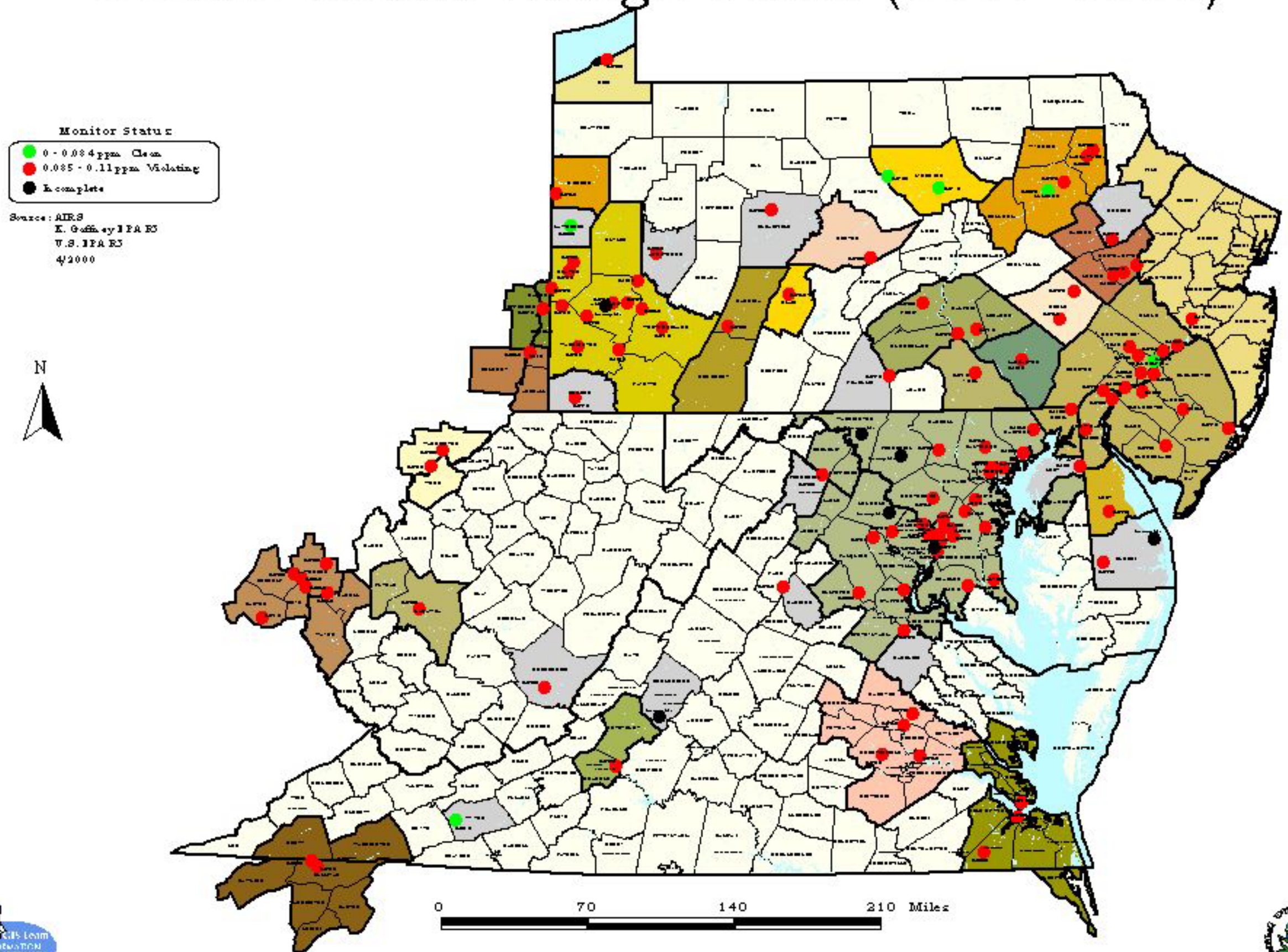


Counties and MSA's Exceeding 8 Hour Ozone Standard (1997-1999)



EPA R3 GIS Team SIG695 Bob Walker 4/20/2000 Map 1085

8 Hour Ozone Design Value (1997-1999)



EPA R3 GIS Team SIG695 Bob Walker 4/10/2000 Map 1083