Annual Ambient Air Monitoring Network Plan

2020

COMMONWEALTH OF VIRGINIA
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR and RENEWABLE DIVISION – OFFICE OF AIR QUALITY MONITORING

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ACRONYM LISTING

Acronym	Acronym Description
AQCR	Air Quality Control Region (see 9 VAC 5-20-200)
BAM	Beta Attenuation Monitor
CAA	Clean Air Act
CBSA	Core Based Statistical Area
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CSN	Chemical Speciation Network
EMP	Enhanced Monitoring Plan
ES	Elementary School
FEM	Federal Equivalent Method
FRM	Federal Reference Method
IMPROVE	Interagency Monitoring of Protected Visual Environments
MSA	Metropolitan Statistical Area
NATTS	National Air Toxics Trend Site
NCore	National Core Monitoring Site
NO2	Nitrogen Dioxide
OTR	Ozone Transport Region
PAMS	Photochemical Assessment Monitoring
Pb	Chemical Symbol for metallic Lead
PM2.5	Particulate Matter less than 2.5 microns in diameter
PM10	Particulate Matter less than 10 microns in diameter
SLAMS	State/Local Air Monitoring Site
SO2	Sulfur Dioxide
SO2 DRR	Sulfur Dioxide Data Requirements Rule
TEOM	Tapered Element Oscillating Microbalance PM2.5 monitoring technology

GLOSSARY

AADT means the annual average daily traffic.

Act means the Clean Air Act as amended (42 U.S.C. 7401, et seq.)

Air quality system (AQS) means the EPA's computerized system for storing and reporting of information relating to ambient air quality data.

Chemical Speciation Network (CSN) includes Speciation Trends Network stations as specified in paragraph 4.7.4 of appendix D of this part and supplemental speciation stations that provide chemical species data of fine particulate.

CO means carbon monoxide.

Design value means the calculated concentration according to the applicable appendix of part 50 of 40 CFR for the highest site in an attainment or nonattainment area.

Federal equivalent method (FEM) means a method for measuring the concentration of an air pollutant in the ambient air that has been designated as an equivalent method in accordance with part 53 of this chapter; it does not include a method for which an equivalent method designation has been canceled in accordance with §53.11 or §53.16.

Federal reference method (FRM) means a method of sampling and analyzing the ambient air for an air pollutant that is specified as a reference method in an appendix to part 50 of this chapter, or a method that has been designated as a reference method in accordance with this part; it does not include a method for which a reference method designation has been canceled in accordance with §53.11 or §53.16 of this chapter.

Meteorological measurements means measurements of wind speed, wind direction, barometric pressure, temperature, relative humidity, solar radiation, ultraviolet radiation, and/or precipitation that occur at SLAMS stations including the NCore and PAMS networks.

Metropolitan Statistical Area (MSA) means a CBSA associated with at least one urbanized area of 50,000 population or greater. The central-county, plus adjacent counties with a high degree of integration, comprise the area.

Monitor means an instrument, sampler, analyzer, or other device that measures or assists in the measurement of atmospheric air pollutants and which is acceptable for use in ambient air surveillance under the applicable provisions of appendix C to this part.

Monitoring agency means a state, local or tribal agency responsible for meeting the requirements of this part.

Monitoring organization means a monitoring agency responsible for operating a monitoring site for which the quality assurance regulations apply.

NATTS means the National Air Toxics Trends Stations. This network provides hazardous air pollution ambient data.

NCore means the National Core multipollutant monitoring stations. Monitors at these sites are required to measure particles ($PM_{2.5}$ speciated $PM_{2.5}$, $PM_{10-2.5}$), O_3, SO_2, CO, nitrogen oxides (NO/NO_y), and meteorology (wind speed, wind direction, temperature, relative humidity).

Near-road monitor means any approved monitor meeting the applicable specifications described in 40 CFR part 58, appendix D (sections 4.2.1, 4.3.2, 4.7.1(b)(2)) and appendix E (section 6.4(a), Table E-4) for near-road measurement of $PM_{2.5}$, CO, or NO_2.

Network means all stations of a given type or types.

Network Plan means the Annual Monitoring Network Plan described in §58.10.

PAMS means Photochemical Assessment Monitoring stations as prescribed in 40 CFR part 58 Appendix D paragraph 5.

Pb means lead.

PM means particulate matter, including but not limited to PM_{10}, PM_{10C}, $PM_{2.5}$, and $PM_{10-2.5}$.

$PM_{2.5}$ means particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers as measured by a reference method based on appendix L of part 50 and designated in accordance with part 53 of this chapter, by an equivalent method designated in accordance with part 53, or by an approved regional method designated in accordance with appendix C to this part.

PM_{10} means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by a reference method based on appendix J of part 50 of this chapter and designated in accordance with part 53 of this chapter or by an equivalent method designated in accordance with part 53.

$PM_{10-2.5}$ means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers and greater than a nominal 2.5 micrometers as measured by a reference method based on appendix O to part 50 of this chapter and designated in accordance with part 53 of this chapter or by an equivalent method designated in accordance with part 53.

SLAMS means state or local air monitoring stations. The SLAMS include the ambient air quality monitoring sites and monitors that are required by appendix D of this part and are needed for the monitoring objectives of appendix D, including NAAQS comparisons, but may serve other data purposes. The SLAMS includes NCore, PAMS, CSN, and all other state or locally operated criteria pollutant monitors, operated in accordance to this part, that have not been designated and approved by the Regional Administrator as SPM stations in an annual monitoring network plan.

SO_2 means sulfur dioxide.

Special purpose monitor (SPM) station means a monitor included in an agency's monitoring network that the agency has designated as a special purpose monitor station in its annual monitoring network plan and in the AQS, and which the agency does not count when showing compliance with the minimum requirements of this subpart for the number and siting of monitors of various types. Any SPM operated by an air monitoring agency must be included in the periodic assessments and annual monitoring network plan required by §58.10 and approved by the Regional Administrator.

Total Suspended Particulates (TSP) means particulate matter as measured by the method described in appendix B of Part 50.

VOC means volatile organic compounds

INTRODUCTION

40 CFR Part 58 Paragraph 10 states as follows:

§58.10 Annual monitoring network plan and periodic network assessment

(a)(1) Beginning July 1, 2007, the state, or where applicable local, agency shall submit to the Regional Administrator an annual monitoring network plan which shall provide for the documentation of the establishment and maintenance of an air quality surveillance system that consists of a network of SLAMS monitoring stations that can include FRM, FEM, and ARM monitors that are part of SLAMS, NCore, CSN, PAMS, and SPM stations. The plan shall include a statement of whether the operation of each monitor meets the requirements of appendices A, B, C, D, and E of this part, where applicable. The Regional Administrator may require additional information in support of this statement. The annual monitoring network plan must be made available for public inspection and comment for at least 30 days prior to submission to the EPA and the submitted plan shall include and address, as appropriate, any received comments.

This document is intended to address this regulatory requirement for an annual air monitoring network plan for the Commonwealth of Virginia. The requirements for the components of the annual monitoring network plan are contained in §58.10 paragraphs (2) through (13).

NETWORK DESIGN

The monitoring program for the DEQ operates the ambient air monitoring network of both gaseous and particulate pollutant monitors required in 42 US Code §7410 (a) (2) (B) (i) which requires that the Commonwealth of Virginia:

> *(B) provide for establishment and operation of appropriate devices, methods, systems, and procedures necessary to—*
> *(i) monitor, compile, and analyze data on ambient air quality,*

The implementation and operating requirements of the ambient monitoring network are contained in 40 CFR Part 58 as defined below in §58.2 as follows:

> *(1) Quality assurance procedures for monitor operation and data handling.*
> *(2) Methodology used in monitoring stations.*
> *(3) Operating schedule.*
> *(4) Siting parameters for instruments or instrument probes.*
> *(5) Minimum ambient air quality monitoring network requirements used to provide support to the State implementation plans (SIP), national air quality assessments, and policy decisions. These minimums are described as part of the network design requirements, including minimum numbers and placement of monitors of each type.*

Table 1 below shows the number of monitors and types of pollutants monitored and how they are distributed throughout the Commonwealth by Air Quality Control Region and Metropolitan Statistical Area (MSA). This table demonstrates air monitor distribution

and pollutant measurement consistent with Part 58 Appendix D. In addition to the MSA and Core Based Statistical Area (CBSA) based pollutant monitoring, Virginia maintains additional monitoring sites to meet additional federal and state based monitoring programs. These programs are listed below.

Table 1 Air Monitoring Samplers/Analyzers in Virginia and Pollutants Monitored

MSA/CBSA(a)	Ozone	PM2.5	NO2	SO2	CO	PM 10	Lead (Pb)
Kingsport-Bristol-Bristol, TN-VA		1 FRM					
Winchester, VA-WV	1	1 FRM				1	
Harrisonburg, VA	1	1 FRM	1	1			
Roanoke, VA	1	2 FRM	1	2	1		1
Blacksburg-Christiansburg-Radford VA				1			1
Lynchburg, VA		1 FRM					
Charlottesville, VA	1	1 FEM 1 FRM					
Richmond, VA	5	5 FRM, 2 FEM	3	2	2	2	
Virginia Beach-Norfolk-Newport News, VA-NC	3	3 FRM 1 FEM	2	2	2	2	
Washington-Arlington-Alexandria, DC-VA-MD-WV	6	3 FRM, 1 FEM	4	1	2	2	
Total – MSA/CBSA	18	23	11	9	7	7	2
Total- all sites(b)	21	25	11	10	7	8	2

(a) Metropolitan Statistical Areas/Core based statistical areas

(b) Includes sites not incorporated into an MSA or CBSA i.e. Shenandoah National Park (ozone, IMPROVE); Rockbridge County (Ozone, IMPROVE); Carroll County (PM10); Wythe County (Ozone); City of Covington (SO2).

Ozone Network of Monitors – Virginia maintains a highly robust system of ozone monitors throughout the Commonwealth. As seen in Table 1 above, Virginia maintains more than the minimum number of ozone monitors required by regulations for the MSAs where the population is greater than one million i.e. the Washington-Arlington-Alexandria, DC-VA-MD-WV MSA, Richmond, VA MSA and Virginia Beach-Norfolk-Newport News, VA-NC MSA. The actual regulatory required number of monitors is shown in Attachment 1 to this document. In Virginia, there is an ozone monitoring "season" that runs from March 1 through Oct. 31 as outlined in 40 CFR Part 58 Appendix D Table D-3. DEQ operates its monitors throughout the year to maintain operational consistency and to prevent the system-wide shut down and start-up that would be required if twelve month operation were not followed.

PM2.5 Network of Monitors – Virginia also maintains a highly robust system of PM2.5 monitors throughout the Commonwealth. As seen in Table 1 above, DEQ maintains more than the minimum number of PM2.5 monitors required by regulations for the MSAs where the population is greater than one million i.e. the Washington-Arlington-Alexandria, DC-VA-MD-WV MSA, Richmond, VA MSA and Virginia Beach-Norfolk-Newport News, VA-NC MSA. The actual regulatory required number of monitors is shown in Attachment 1 to this document. DEQ is working towards replacing the PM2.5 FRM filter-based samplers with continuous FEM monitors. This is an ongoing effort. The rate of these replacements is dictated by funding and technical developments in the market availability of these continuous monitors.

Urban Air Toxics Programs – The DEQ maintains two urban air toxics sites at: 51-670-0010 Hopewell City Woodson Middle School, and 51-810-0008 Virginia Beach City Virginia Beach DEQ Tidewater Regional Office. DEQ is currently only sampling for metals at the Virginia Beach site due to funding considerations. The Urban Air Toxics program operates on a one in six day basis.

Ncore - The National Core Monitoring Network (Ncore) site maintained by DEQ is located at 51-087-0014 Henrico County MathScience Innovation Center (MSIC). The Design Criteria for the NCore site in Virginia is defined in Appendix D of Part 58 of 40 CFR.

NATTS – DEQ maintains a National Air Toxics Trend Site (NATTS) site located at 51-087-0014 Henrico County MSIC site. In addition to the suite of pollutants measured in the Urban Air Toxics Program, NATTS also samples for Polycyclic Aromatic Hydrocarbons (PAHs). The National Air Toxics Trend Site operates on a one in 6 day basis.

Near Road Monitoring – DEQ will install three near road monitoring sites consistent with the design requirements contained in Appendix D. DEQ currently has two operating sites located at 51-760-0025 Richmond City Joseph Bryan Park and 51-059-0031 located in Springfield at the Backlick Road Park and Ride. The third site will be located in the Virginia Beach-Norfolk-Newport News VA-NC is described in the Virginia Network Changes section.

DATA REQUIREMENTS RULE

EPA published a rule entitled "Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide (SO_2) Primary National Ambient Air Quality Standard (NAAQS)," on Aug. 21, 2015 (80 FR 51052). This rule, referred to as the DRR, directed states to provide data characterizing air quality in areas with large sources of SO_2 emissions and to identify maximum one-hour SO_2 concentrations in ambient air. The DRR required that, at a minimum, air agencies characterize air quality around facilities that emitted 2,000 tons per year (tpy) or more of SO_2 in 2014. For areas that were originally characterized using air quality modeling, the DRR includes an ongoing data requirement that applies only where the modeling was based on actual emissions and where the area has not

subsequently received a nonattainment designation. In such cases, the air agency is required to submit an annual report to the EPA providing updated emissions information and recommending to the EPA whether further modeling is warranted to assess any expected changes in recent air quality.

Virginia has evaluated the original DRR modeling and most recent actual emissions data and determined that no additional modeling analyses are warranted for this annual review period. Specifically, this decision is based on three factors:
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1. A comparison of the original actual modeled emissions to the most recent annual emissions for each affected facility.
2. The fact that there have been no increases in short-term emissions at any facility.
3. The original modeling demonstrated NAAQS compliance.

The table below provides a comparison of the most recent emissions (2018) to the modeling period.

Table 2 SO2 Emissions Summary

Federal ID	Facility	2012 SO_2 Emissions (TPY)	2013 SO_2 Emissions (TPY)	2014 SO_2 Emissions (TPY)	2015 SO_2 Emissions (TPY)	2018 SO_2 Emissions (TPY)	Jurisdiction
VA000000 5119900001	Dominion – Yorktown Power Station	---	9,052.27	9,755.51	4,549.34	4,110.91	York County
VA000000 5104100002	Dominion - Chesterfield Power Station	1,229.90	1,966.42	2,180.92	---	925.71	Chesterfield County
VA000000 5108300046	Dominion/ODEC – Clover Power Station	1,875.14	2,262.22	2,083.52	---	940.71	Halifax County

In all cases, the most recent emissions are lower than the average modeled emission rates used in the original submittal to EPA. Dominion – Yorktown Power Station and Dominion/ODEC – Clover Power Station have experienced substantial reductions due to retired units (Yorktown) and reduced utilization (Clover). There also has been an emissions reduction at the Dominion – Chesterfield Power Station. The original modeling demonstrated NAAQS compliance for all three facilities as shown in the table below.

Table 3 SO2 Modeled Concentrations

Modeling Analysis Results Summary	Modeled SO_2 Concentration ($\mu g/m^3$)	Monitored SO_2 Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	Percent of NAAQS
Clover Power Station	38.09	14.06	52.15	27

Modeling Analysis Results Summary	Modeled SO_2 Concentration ($\mu g/m^3$)	Monitored SO_2 Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	Percent of NAAQS
Chesterfield Power Station	62.53	18	80.53	41
All modeled sources - Chesterfield	120.09	18	138.09	70
Yorktown Power Station	180.61	11.68	192.29	98

The results for Dominion/ODEC Clover Power Station fall below 50% of the NAAQS. Analogous to the monitor shutdown provisions, the requirement for the annual emissions assessments for this facility may be terminated. The results for the Chesterfield Power Station are expected to remain well below the NAAQS. In fact, the impact from the facility itself, including background is less than 50% of the NAAQS. The cumulative modeled design value from all sources was 138.09 $\mu g/m^3$; however, the contribution from the Chesterfield Power Station to the maximum design value was minimal (0.0072 µg/m3). Finally, the results for the Yorktown Power Station are expected to decrease substantially due to recently retired coal units and the facility will remain in compliance with the NAAQS.

MULTI-STATE/MULTI-AGENCY MONITORING

Virginia shares monitoring responsibilities in MSA's where multiple states or localities are included in the definition of the MSA. For the most part Virginia meets the minimum monitoring requirements individually without requiring the inclusion of another state or localities in meeting the minimum monitoring requirements.

Washington Metropolitan area – This area is defined as the Washington-Arlington-Alexandria, DC-VA-MD-WV metropolitan statistical area. In this area Virginia generally meets the minimum monitoring requirements individually with the exception of the SO_2 Population Weighted Emissions Inventory (PWEI) requirements located in 40 CFR 58 Appendix D paragraphs 4.4.2 and 4.4.2(1). DEQ currently has one SO_2 monitor located at the Lee Park Site (51-059-0030).

Hampton Roads – Hampton Roads is made up of the VA Beach-Norfolk-Newport News VA-NC Metropolitan Statistical Area. This MSA includes Currituck County and Gates County in N.C. By Memorandum of Agreement signed April 5, 2016 by both DEQ and NC Department of Environmental Quality, the respective agencies agree that the monitoring requirements for this MSA to include the North Carolina Counties are currently met by the monitors maintained in Virginia.

AIR QUALITY MONITORING NETWORK CHANGES

MONITORING SITE CHANGES SINCE LAST REVIEW
JULY 1, 2019 to JUNE 30, 2020

Photochemical Assessment Monitoring Station
51-087-0014, 72-M, MathScience Innovation Center Continuous PM2.5, Henrico County, AQCR5

Based on 40 CFR part 58, Appendix D, State air monitoring agencies are required to begin making PAMS measurements at their NCore location(s) by June 1, 2019. The equipment needed to measure PAMS parameters were to be purchased by EPA using a nationally negotiated contract and delivered to the monitoring agencies. Due to national contract development delays the necessary equipment was not delivered in time to begin making PAMS measurements by June 1, 2019. In recognition of the implementation issues with some of the PAMS equipment, EPA promulgated a revised implementation date for the PAMS program. The PAMS program sites are now to be up and fully operational by June 1, 2021. DEQ has received all needed instrumentation and has most of the instrumentation up and running.

Figure 1 MSIC monitoring site with PAMS component locations identified

40 CFR Part 58 Appendix D paragraph 5 (b) contains the listing of the required PAMS measurements to be performed at the MSIC NCore site. Table 4 below provides a listing of the measured parameters and the status of each instrument.

Table 4 PAMS Parameter Measurement Method and Status

No.	Measured Parameter	Instrument	Status July 1, 2020
1	Hourly averaged speciated volatile organic compounds (VOCs)	Markes/Agilent Automated Gas Chromatograph with Kori Drying system	In place
2	Three 8-hour averaged carbonyl samples per day on a 1 in 3 day schedule	ATEC Model 8000 Cartridge Sampler	In place and operating
3	Hourly averaged O_3	Thermo 49i ozone monitor, EQOA-0880-047	In place and operating
4	Hourly averaged NO	Teledyne T200P NO2 monitor, EQNA-1016-241	In place and operating
5	Hourly averaged True NO_2	TAPI T500U True NO2 monitor, EQNA-0512-200	In place and operating
6	Hourly averaged total reactive NO_y	Teledyne T200U NOy monitor, RFNA-1194-099	In place and operating
7	Hourly averaged ambient temperature	MetOne 061A-2	In place and operating
8	Hourly vector-averaged wind direction	Young 053005 V	In place and operating
9	Hourly vector-averaged wind speed	Young 053005V	In place and operating
10	Hourly average atmospheric pressure	COMET T760	In place and operating
11	Hourly averaged relative humidity	MetOne 083E-0-35 RH Sensor	In place and operating
12	Hourly precipitation	Young 52202 Tipping Rain Bucket Gauge	In place and operating
13	Hourly averaged mixing-height	Vaisala CL51 High Range Ceilometer	In place and operating
14	Hourly averaged solar radiation	MetOne 094-2 Solar Radiation Sensor	In place and operating

No.	Measured Parameter	Instrument	Status July 1, 2020
15	Hourly averaged ultraviolet radiation	Eppley TUVR Ultraviolet Radiation	In place and operating

51-770-0016, 109-N, Patterson Ave Lead (Pb) site, City of Roanoke AQCR2

DEQ placed a TSP-Lead (Pb) monitoring site at 2502 Patterson Avenue at the front of property operated by Mario Industries Inc. This monitor is required by 40 CFR Part 58 Appendix D as a source-oriented monitoring requirement for Roanoke Electric Steel d/b/a Steel Dynamics Roanoke Bar Division. The site was installed and began operating on Nov. 1, 2014.The monitoring site is pictured below.

Figure 2 TSP-Lead (Pb) site on Mario Industries property

Consistent with 40 CFR 58.10 paragraph 10 and Part 58 Appendix D paragraph 4.5 (a) (ii), DEQ is requesting a waiver of the source oriented monitoring requirement for this monitoring site. The regulatory citation is as follows:

the State ... can demonstrate the Pb source will not contribute to a maximum Pb concentration in ambient air in excess of 50 percent of the NAAQS (based on historical monitoring data, modeling, or other means)…

The monitor has operated for more than three years so a regulatorily accurate design value for Lead can be determined. The primary and secondary ambient air quality standard for Lead (Pb) TSP is specified in 40 CFR §50.16(a) and is described as "0.15 micrograms per cubic meter, arithmetic mean concentration over a 3-month period, measured in the ambient air as Pb". The AQS AMP 480 Design Value Report for design value years 2017 -2019 indicates that the design value for this monitor is .02 which is less than 50% of the NAAQS which is the criteria for granting the waiver.

DEQ transmitted a request for this waiver in a package dated May 1, 2020. The contents of this package are contained in Appendix A to this monitoring network plan.

INSTRUMENT CHANGES SINCE LAST REVIEW
JULY 1, 2019 through JUNE 30, 2020

DEQ Air Monitoring Network, Richmond area sites (AQCR5), Tidewater area sites (AQCR6) and certain Northern Virginia area sites

Effective Sept. 10, 2019 the DEQ entered into a new data acquisition contract. As part of this contract, the Office of Air Quality Monitoring (AQM) has begun upgrading the data logger hardware throughout the network. The hardware upgrades are outlined in Table 5 below:

Table 5 Data Acquisition System Hardware Upgrades

MSA	Sites	Dates
Richmond MSA	51-036-0002, Charles City Co.	Dec. 10 – Dec. 12, 2019
Richmond MSA	51-041-0004, Chesterfield Co.	Dec. 10 – Dec. 12, 2019
Richmond MSA	51-085-0003, Hanover Co.	Dec. 10 – Dec. 12, 2019
Richmond MSA	51-087-0014, Henrico Co.	Dec. 10 – Dec. 12, 2019
Richmond MSA	51-760-0025, Richmond City	Dec. 10 – Dec. 12, 2019
Virginia Beach-Norfolk-Newport News, VA-NC MSA	51-650-0008, Hampton City	Feb. 11 – Feb. 13, 2020
Virginia Beach-Norfolk-Newport News, VA-NC MSA	51-710-0024, Norfolk City	Feb. 11 – Feb. 13, 2020
Virginia Beach-Norfolk-Newport News, VA-NC MSA	51-800-0004, Suffolk City	Feb. 11 – Feb. 13, 2020
Virginia Beach-Norfolk-Newport News, VA-NC MSA	51-800-0005, Suffolk City	Feb. 11 – Feb. 13, 2020
Washington-Arlington-Alexandria, DC-VA-MD-WV MSA	51-013-0020, Arlington Co. 51-059-0030, Fairfax Co. 51-059-0031 – Fairfax Co.	March 10 – March 12, 2020

The work to upgrade the other continuous sites in the network is ongoing but has been interrupted by implementation of the COVID-19 Protocols that DEQ has put in

place. The projected completion date for completion of the data logger upgrades is Oct., 2020.

51-161-1004, 19-A6, Herman Horn ES (Vinton) T-640 Continuous $PM_{2.5}$ monitor, Roanoke County, AQCR2

As a result of the failure of the existing TEOM continuous $PM_{2.5}$ monitor at the Vinton site, a new T-640 continuous FEM instrument was installed. The new T640 was installed on Oct. 16, 2019. The instrument began reporting data to EPA's AQS database on Jan. 1, 2020. The hourly $PM_{2.5}$ data from the Vinton site is posted to the public web page and is updated hourly. The monitor is currently co-located with a filter-based FRM monitor. AQM will evaluate and compare the data from both monitors after a full year of operation.

51-059-0030, 46-B9, Lee District park T-640 Continuous $PM_{2.5}$ monitor, Fairfax County, AQCR7

As a result of the failure of the existing TEOM continuous $PM_{2.5}$ monitor at the Lee District Park site, a new T-640 continuous FEM instrument was installed. The T640 began operation on Nov. 22, 2019. The instrument began reporting data to EPA's AQS database on Jan. 1, 2020. The hourly $PM_{2.5}$ data from the Lee District Park site is being to the public web page and is updated hourly. The monitor is currently co-located with a filter-based FRM monitor. AQM will evaluate and compare the data from both monitors after a full year of operation.

Enhanced Monitoring Plan, Va. Localities included in the Ozone Transport Region

Beginning Jan. 1, 2020 Virginia began implementation of the enhanced monitoring requirements outlined in 40 CFR §58.10 (11) and detailed in the 2019 Air Monitoring Network Plan. Tables 6 and 7 listed the affected monitoring sites.

Table 6 Ozone sites included in the Enhanced Monitoring Plan

Jurisdiction	EPA ID (State ID)	Site Name	Site Location
Arlington County	51-013-0020 (47-T)	Aurora Hills	735 18th street South
Fairfax County	51-059-0030 (46-B9)	Lee Park	6601 Telegraph Road
Loudoun County	51-107-1005 (38-I)	Ashburn – Broad Run HS	21670 Ashburn Road
Prince William County	51-153-0009 (45-L	Long Park	4603 James Madison Highway
Stafford County	51-179-0001 (44-A)	Widewater ES	101 Den Rich Road

Table 7 Nitrogen Dioxide sites included in the Enhanced Monitoring

Jurisdiction	EPA ID (State ID)	Site Name	Site Location
Arlington County	51-013-0020 (47-T)	Aurora Hills	735 18th street South
Loudoun County	51-107-1005 (38-I)	Ashburn – Broad Run HS	21670 Ashburn Road
Prince William County	51-153-0009 (45-L)	Long Park	4603 James Madison Highway

51-023-0004, 20-E, Roanoke Cement Company DRR SO_2 Monitor, Botetourt County, AQCR2

40 CFR 51.1203 (c) (3) provided the basis for allowing shutdown of the SO_2 DRR after 3 years of operation if the Design Value is below 50% of the NAAQS standard. On Feb. 27, 2020 Roanoke Cement submitted a data certification package that acknowledged certification of the data gathered for 2017 – 2019 and requested approval of shutdown of the SO2 monitor. EPA RIII approved the removal of the monitor in a letter to DEQ Director David K. Paylor dated April 22, 2020. In an e-mail dated May 11, 2020 Roanoke Cement Company indicated that the projected shutdown date of the monitor is July 1, 2020.

51-580-0008, 104-M, WestRock, Inc. DRR SO2 Monitor, Covington City, AQCR2

40 CFR 51.1203 (c) (3) provided the basis for allowing shutdown of the SO_2 DRR after 3 years of operation if the Design Value is below 50% of the NAAQS standard. On March 2, 2020 WestRock, Inc. submitted a data certification package that acknowledged certification of the data gathered for 2017 – 2019 and requested approval of shutdown of the SO2 monitor. EPA RIII approved the removal of the monitor in a letter to DEQ Director David K. Paylor dated April 22, 2020. In an e-mail dated May 7, 2020 WestRock Inc. indicated that the projected shutdown date of the monitor is June 25, 2020.

ANTICIPATED SITE CHANGES
JULY 1, 2019 through JUNE 30, 2020

51-650-XXXX Hampton Roads Near Road Site, AQCR6

Multiple efforts have been made to locate the Hampton Roads Near road site in the highest possible Fleet Adjusted AADT road segment. Table 8 below documents the evaluated road segments, the potential siting location(s), and the results of the monitoring site approval process.

Table 8 Near Road site location attempts

Road Segment	Fleet Adj.- AADT	Location of Site	Results of Approval Process
I-264 EB – I-64 to WCL VA Beach	132939	36° 51.185′ N; -76° 11.706′ W	City would not approve site due to proximity to underground water line
1-264 EB – SR 190 to SR225	125120	36° 50.05833′ N; 76° 8.5633′ W	Easement owned by contiguous Apartment developer; would not allow construction
1-264 EB – SR 190 to SR225	125120	36.836963° N; -76.157183° W	Site located on newly sold Easement intended for VDOT road widening
1-264 EB – SR 190 to SR225	125120	36.843942° N; -76.169970° W	Exit from I-264 to be extended site is part of VDOT I-264 upgrade
I-64 WB – SR 134 to US 258	114323	37.043505° N -76.397359° W	Could not secure Locality approval and added construction eliminated access
I-64 EB – SR 134 to US 258	115266	Various Locations	No locations that meet the siting requirements could be identified
I-64 WB – HR Center parkway to ECL Newport News	107598	37.06249° N - 76.42181° W	Property owner, Thomas Nelson CC, indicated installation conflicted with planned construction for site
I-64 EB – SR 134 Mercury Blvd to I-664 HR Beltway	104266	37.036745° N -76.391074° W	City of Hampton rejected proposal due to conflict with proposed 5 year development plan for site

In addition to the eight listed sites, AQM rejected the road segment identified as US-13 from I-64 to WCL Virginia Beach because no suitable location could be identified.

The Office of AQM has done additional monitor siting evaluations in the Tidewater area and have identified two additional possible sites along I-264 in Virginia Beach. These sites are described below:

1. <u>EB I-264 SR 403 Newtown Road to SR 190 Witchduck Road (36.8431 N; -76.1833 W)</u>

This road segment has the highest FAADT in the Tidewater area based on 2018 Virginia Department of Transportation (VDOT) Data. Figure 3 below provides an overhead view of the proposed road segment with the range of possible sites highlighted.

Figure 3 Overhead of EB I-264 between Newtown Road and Witchduck Road

2. <u>WB I-264 SR 403 Newtown Road to SR 190 Witchduck Road (36.8444 N; -76.16583 W)</u>

This road segment has the highest FAADT in the Tidewater area based on 2018 VDOT data. Figure 4 below provides an overhead view of the proposed road segment with the range of possible sites highlighted.

Figure 4 Overhead of WB I-264 between Newtown Road and Witchduck Road

Extensive construction was going on at both locations when the site visits were made. Additional field visits are scheduled for summer, 2020.

ANTICIPATED INSTRUMENTATION CHANGES
JULY 1, 2020 through JUNE 30, 2021

51-650-0008, 179-K, NASA Langley T-640 Continuous PM2.5 monitor, Hampton City, AQCR6

As a result of operational issues with the existing 5014i BAM continuous $PM_{2.5}$ monitor at the Hampton site a new T-640 continuous FEM instrument will be installed. The new T640 is projected for Oct. 2020. AQM will keep the existing $PM_{2.5}$ FRM sampler in place to evaluate and compare the data from both monitors for a full year of operation.

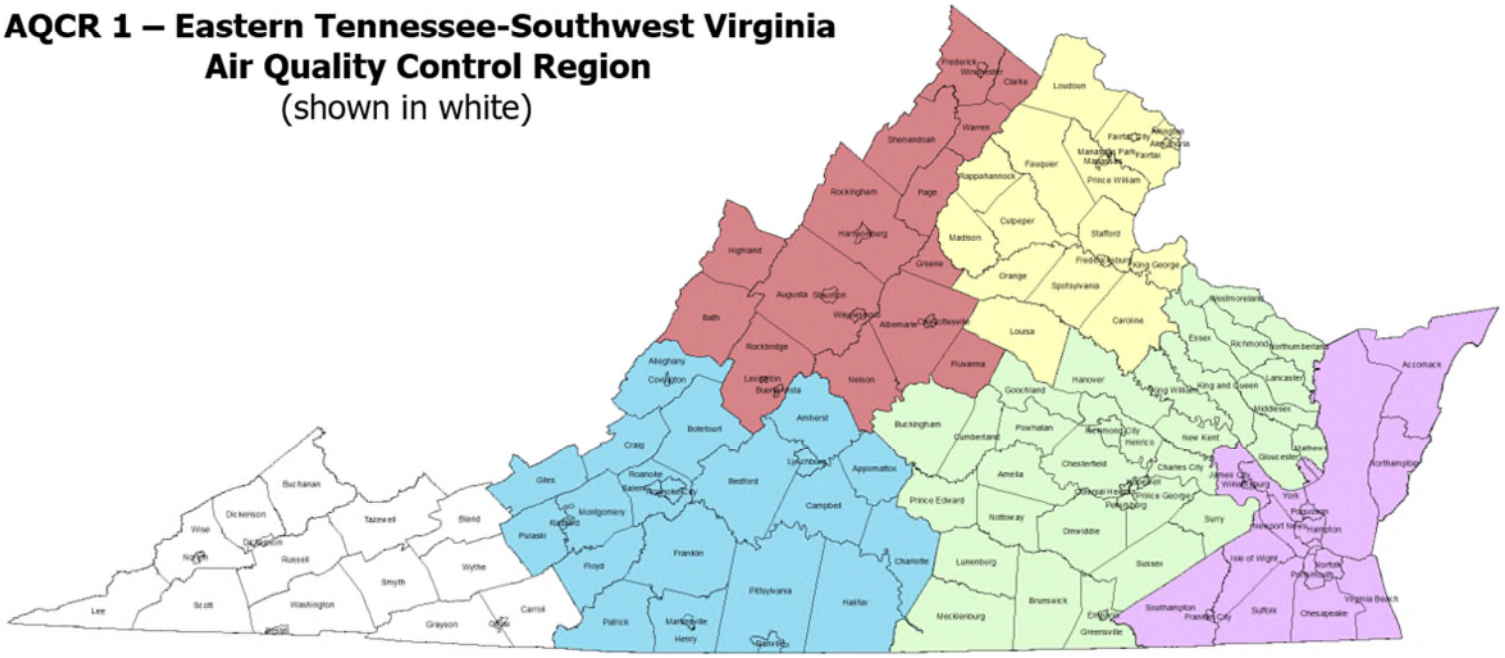
MONTORING SITES

OVERHEAD VIEWS OF MONITORING SITES
WITH IDENTIFYING ADDRESS INFORMATION

Each overhead view contains a brief discussion of the original purpose for the site being located where it is. In some cases the current reason for the siting has changed.

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

AQCR 1 – Eastern Tennessee-Southwest Virginia Air Quality Control Region
(shown in white)



Counties: Bland, Buchanan, Carroll, Dickenson, Grayson, Lee, Russell, Scott, Smyth, Tazewell, Washington, Wise, Wythe

Cities: Bristol, Galax, Norton

CBSA/MSA: 28700 – Kingsport-Bristol-Bristol, TN-VA

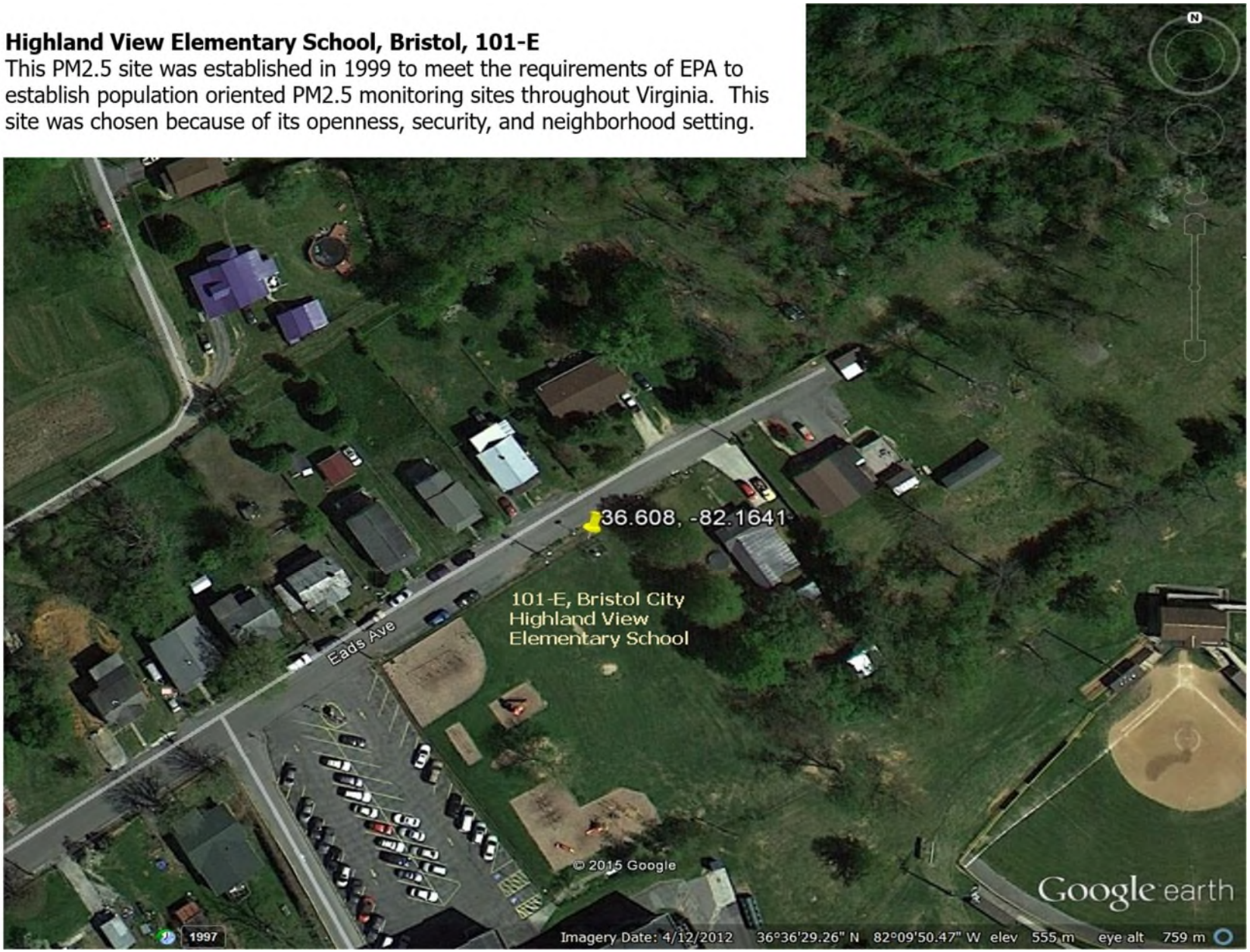
Gladeville Elementary School, Galax, 23-A

The TSP sampler was installed in June 1983 as a replacement site for a close by monitoring location that was unduly influenced by a nearby source. The TSP was removed January 1989 and a PM10 sampler was installed in its place.

Rural Retreat, Wythe County, 16-B
This site began in April 1990 as a replacement site for the Marion, VA ozone site. This site is downwind of the potential sources of VOCs and more representative of the area.

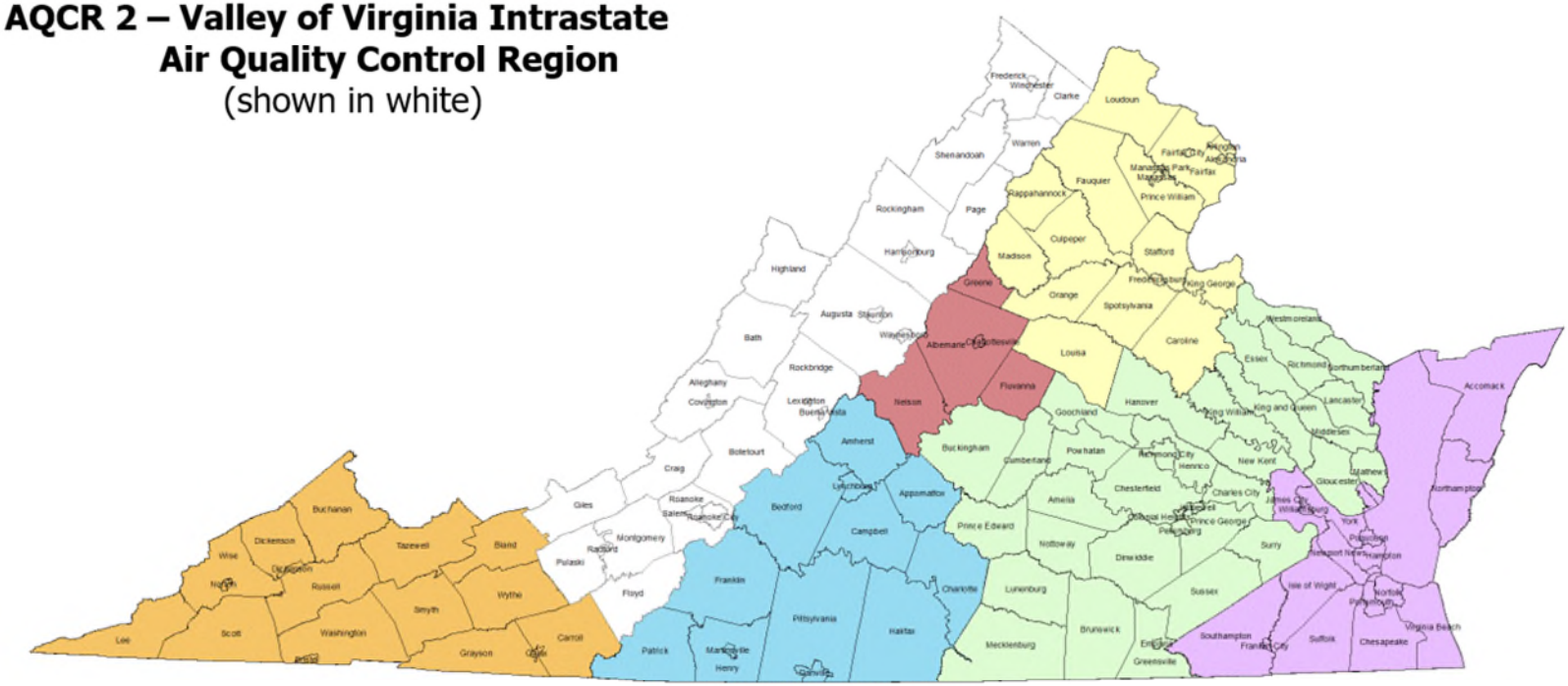
Highland View Elementary School, Bristol, 101-E

This PM2.5 site was established in 1999 to meet the requirements of EPA to establish population oriented PM2.5 monitoring sites throughout Virginia. This site was chosen because of its openness, security, and neighborhood setting.



VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

AQCR 2 – Valley of Virginia Intrastate Air Quality Control Region
(shown in white)



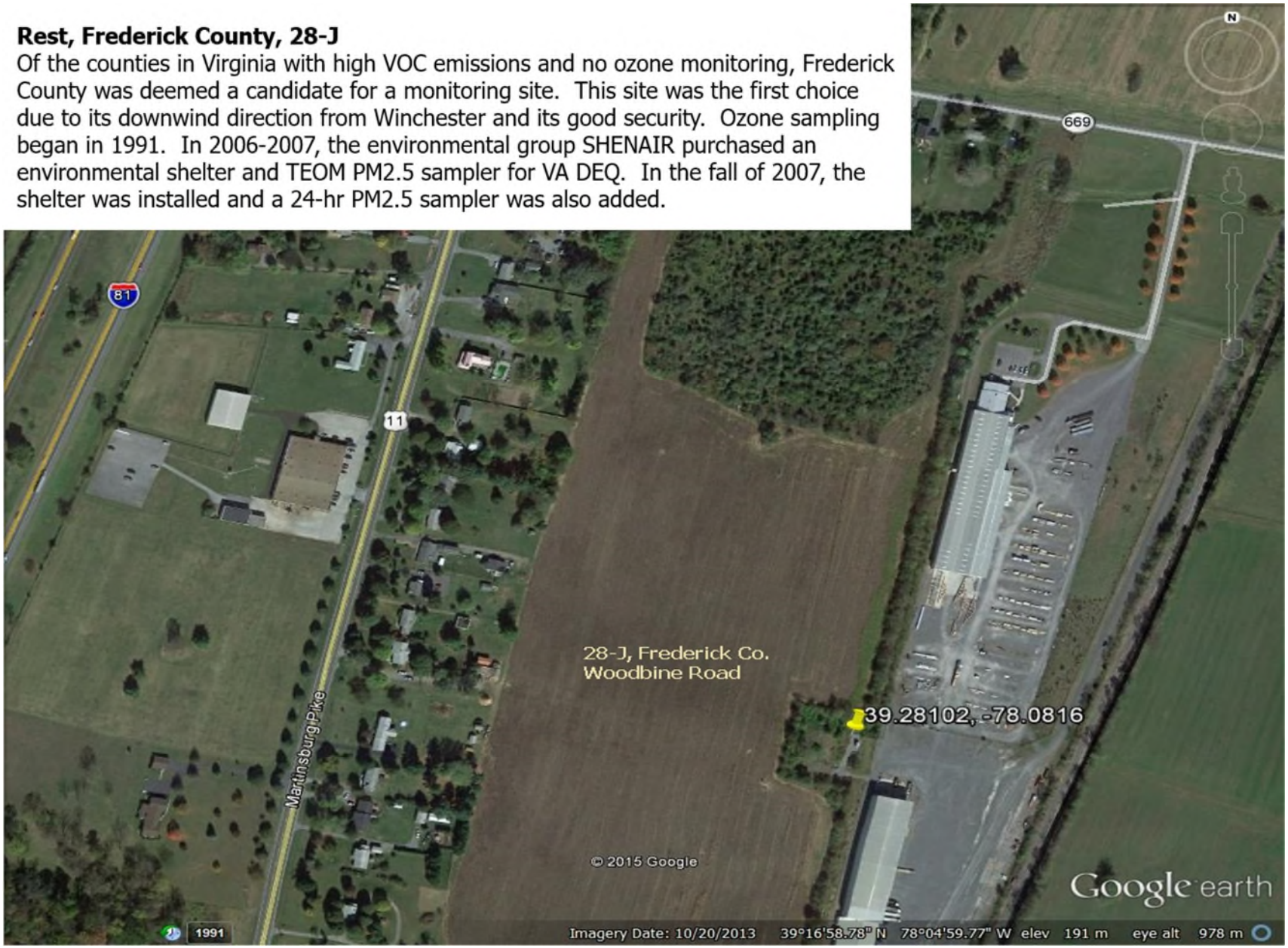
Counties: Alleghany, Augusta, Bath, Botetourt, Clarke, Craig, Floyd, Frederick, Giles, Highland, Montgomery, Page, Pulaski, Roanoke, Rockbridge, Rockingham, Shenandoah, Warren

Cities: Buena Vista, Clifton Forge, Covington, Harrisonburg, Lexington, Radford, Roanoke, Salem, Staunton, Waynesboro, Winchester

CBSA/MSA: 49020 – Winchester VA-WV; 40220 – Roanoke, VA; 25500 – Harrisonburg, VA

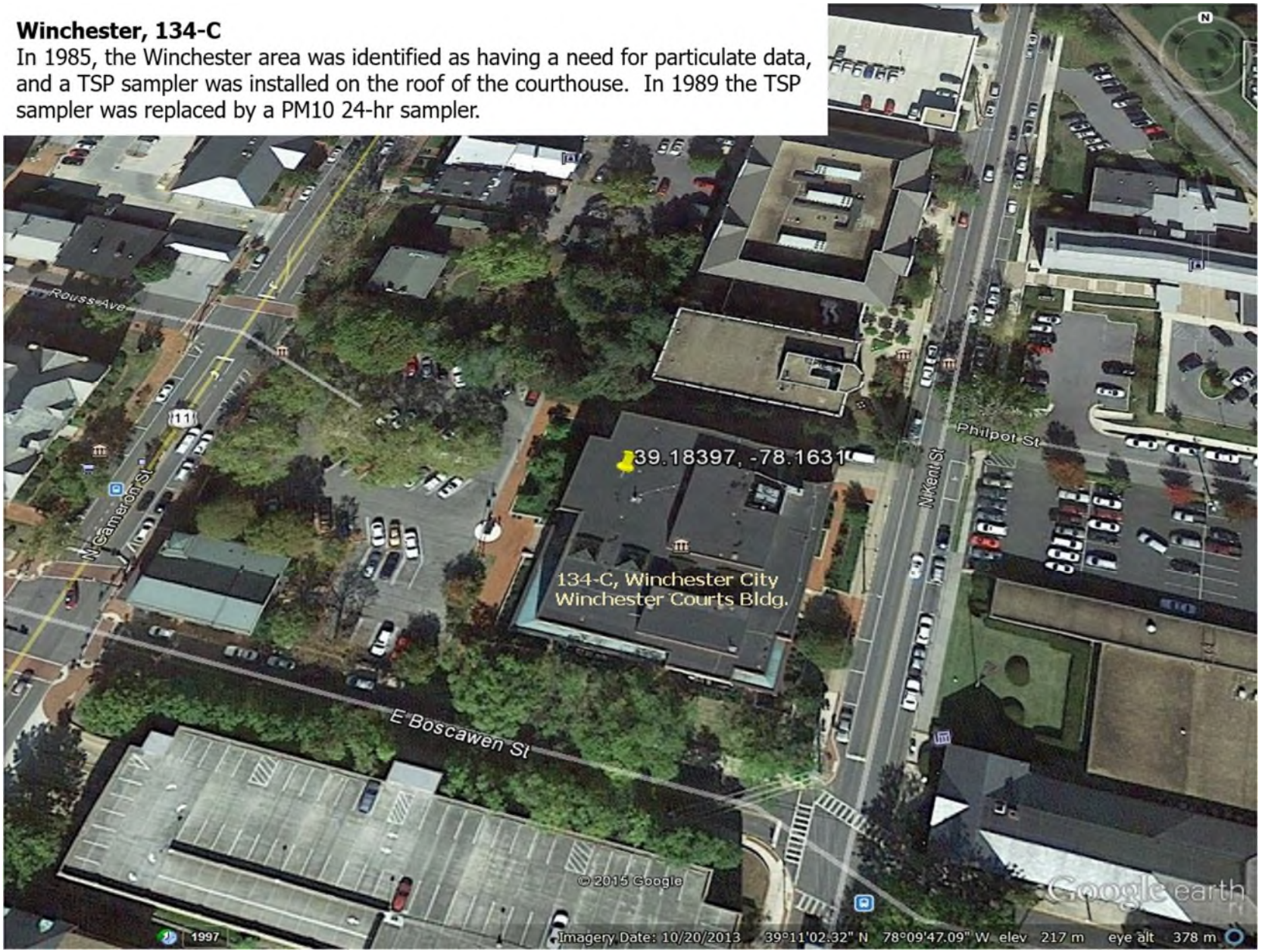
Rest, Frederick County, 28-J

Of the counties in Virginia with high VOC emissions and no ozone monitoring, Frederick County was deemed a candidate for a monitoring site. This site was the first choice due to its downwind direction from Winchester and its good security. Ozone sampling began in 1991. In 2006-2007, the environmental group SHENAIR purchased an environmental shelter and TEOM PM2.5 sampler for VA DEQ. In the fall of 2007, the shelter was installed and a 24-hr PM2.5 sampler was also added.



Winchester, 134-C

In 1985, the Winchester area was identified as having a need for particulate data, and a TSP sampler was installed on the roof of the courthouse. In 1989 the TSP sampler was replaced by a PM10 24-hr sampler.



Herman Horn Elementary School, Vinton, 19-A6

This site was installed at the request of locality (Roanoke County Health Department). NO2 sampling began in December 1980 and Ozone was added in August 1981. In January 1987, SO2 and CO analyzers were added in effort to consolidate monitoring efforts in the Roanoke area. In 2013, PM2.5 24-hr and continuous samplers were added.

Natural Bridge Station, 21-C

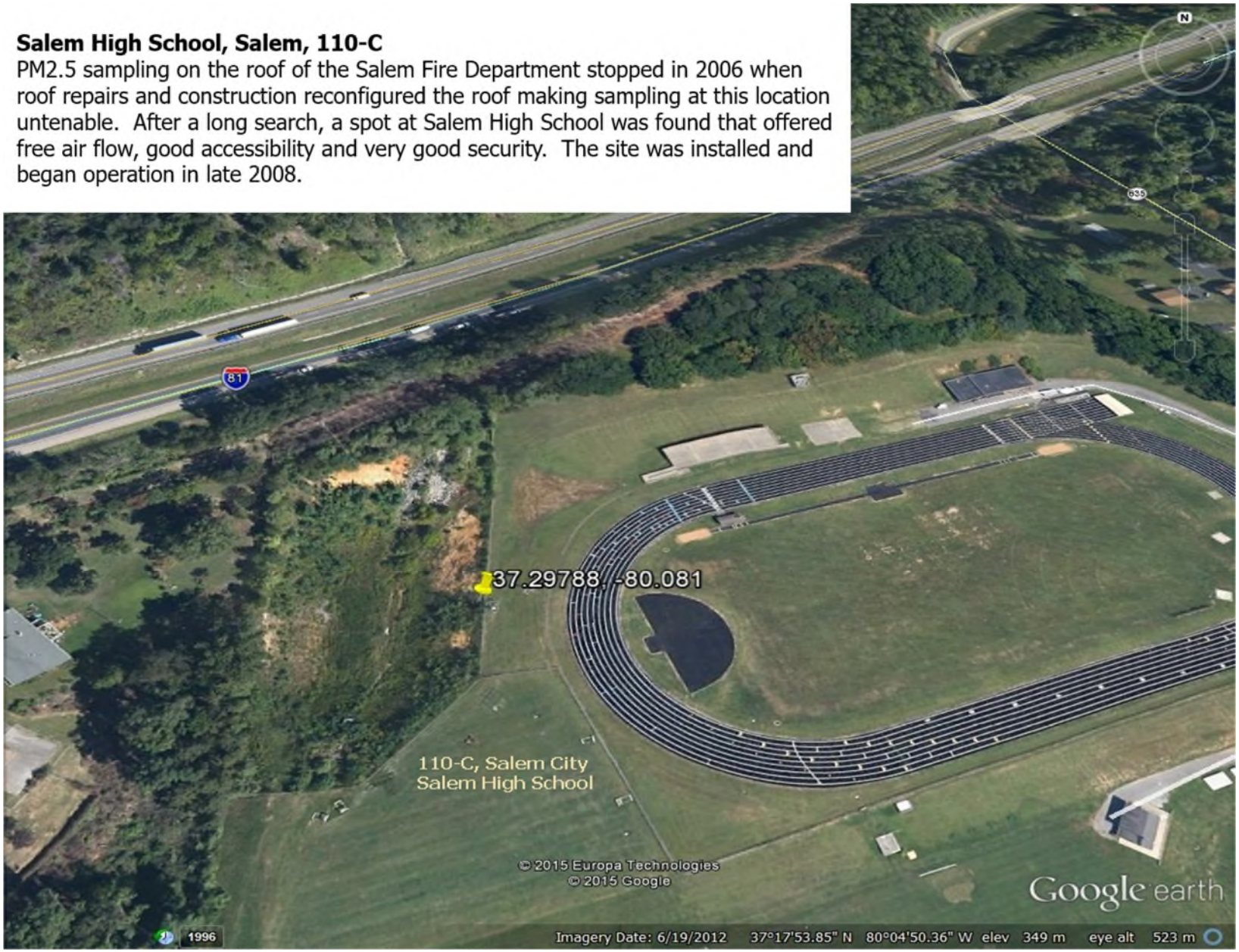
This site is a cooperative effort between VA DEQ and the National Forest Service. Sampling began in April 1999. The current shelter was supplied by the Forest Service, and the sampling equipment was supplied by VA DEQ. The area is rural, open and has good security.

VDOT, Rockingham County, 26-F

This site was established as a replacement for a monitoring site to the south of the city of Harrisonburg. This site is ten miles north of the city and began in April 2004. On the property of VDOT, it is situated between Route 11 and I-81, with open air flow and good security.

Salem High School, Salem, 110-C

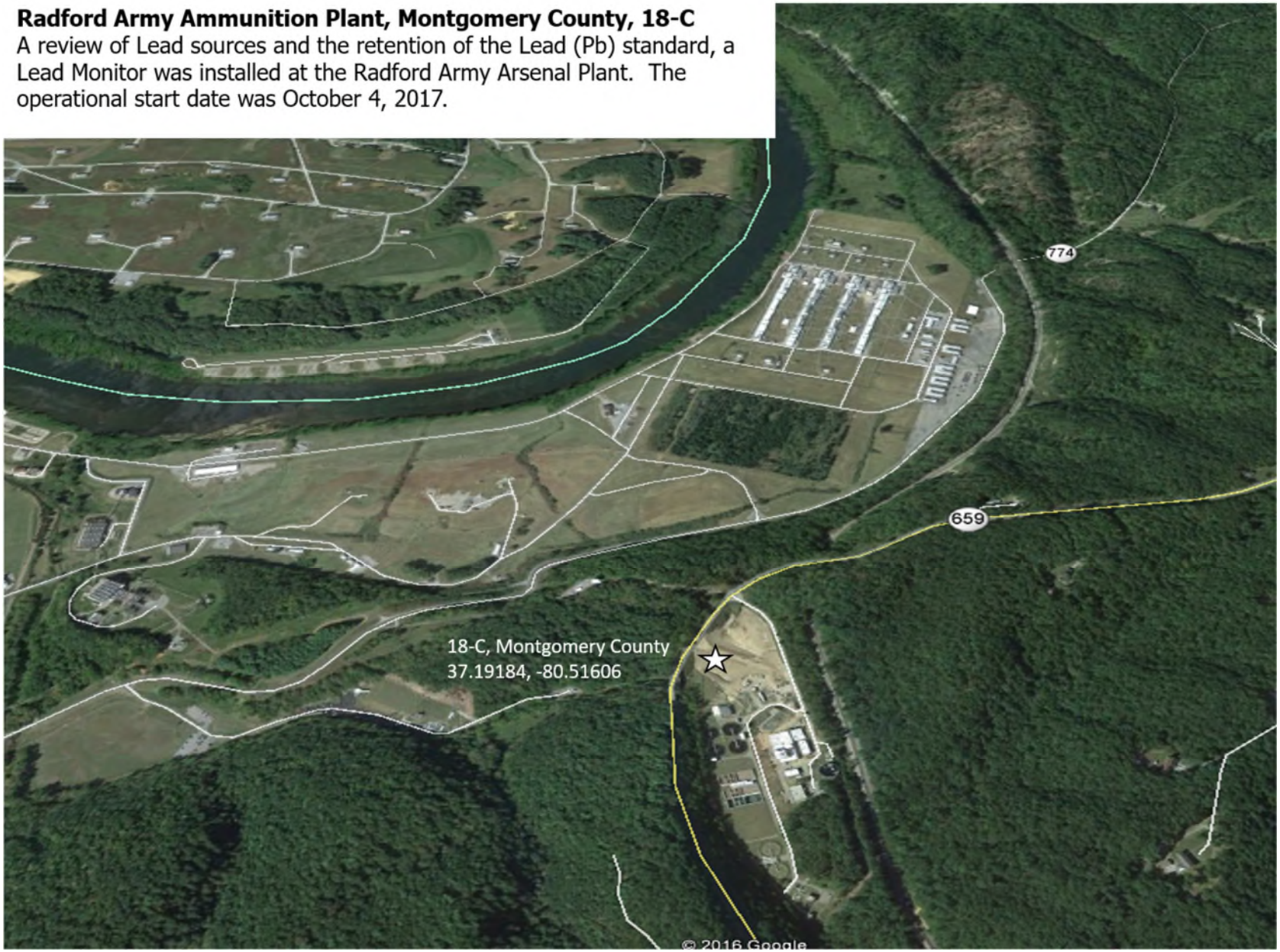
PM2.5 sampling on the roof of the Salem Fire Department stopped in 2006 when roof repairs and construction reconfigured the roof making sampling at this location untenable. After a long search, a spot at Salem High School was found that offered free air flow, good accessibility and very good security. The site was installed and began operation in late 2008.



Mario Industries, Roanoke, 109-N

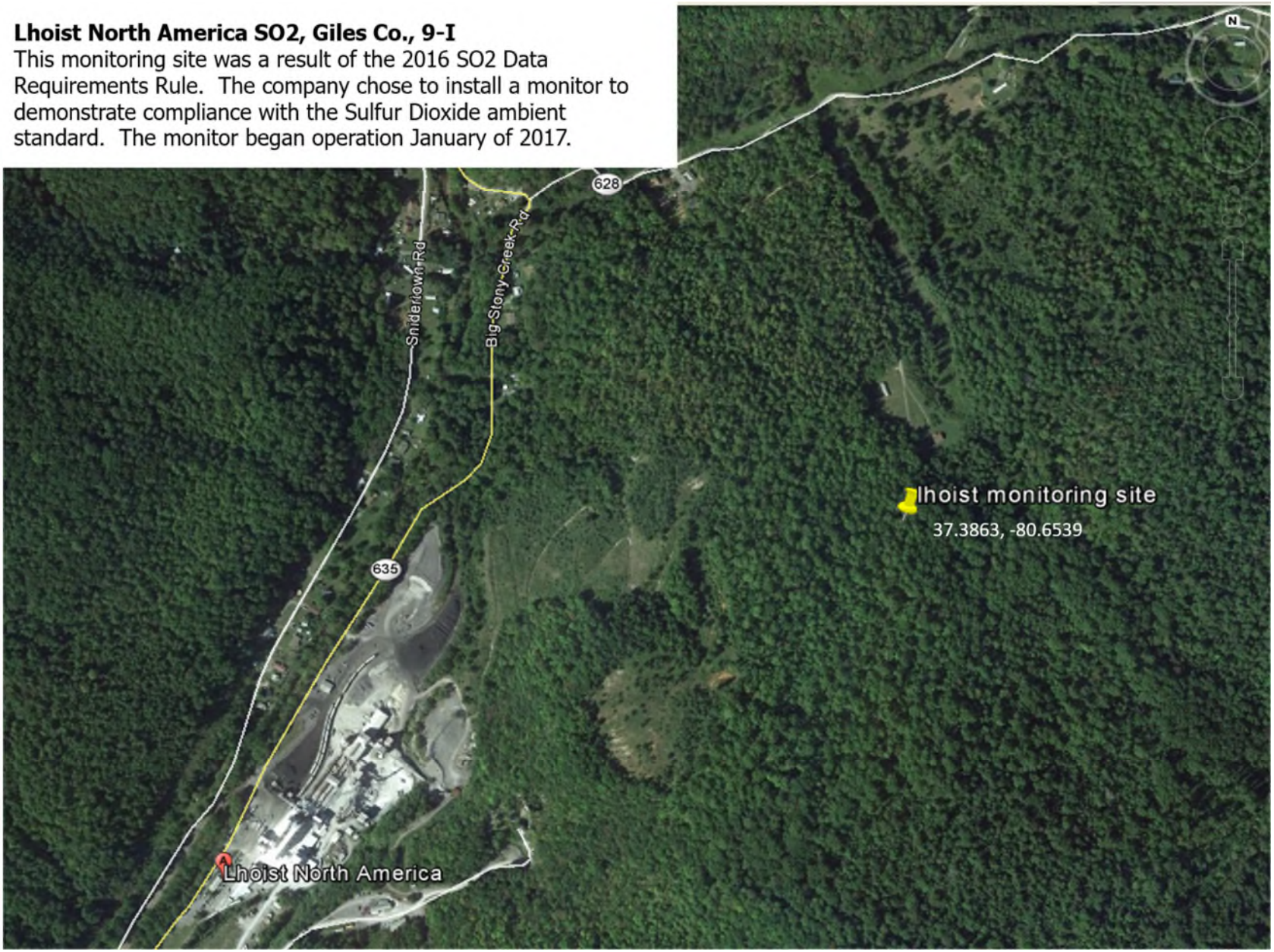
A Lead sampler was installed in late 2014 as a replacement to the Lead monitoring site at Cherry Hill Circle, Roanoke. The site is situated in Roanoke River valley as a source specific Lead (Pb) monitor.

Radford Army Ammunition Plant, Montgomery County, 18-C
A review of Lead sources and the retention of the Lead (Pb) standard, a Lead Monitor was installed at the Radford Army Arsenal Plant. The operational start date was October 4, 2017.

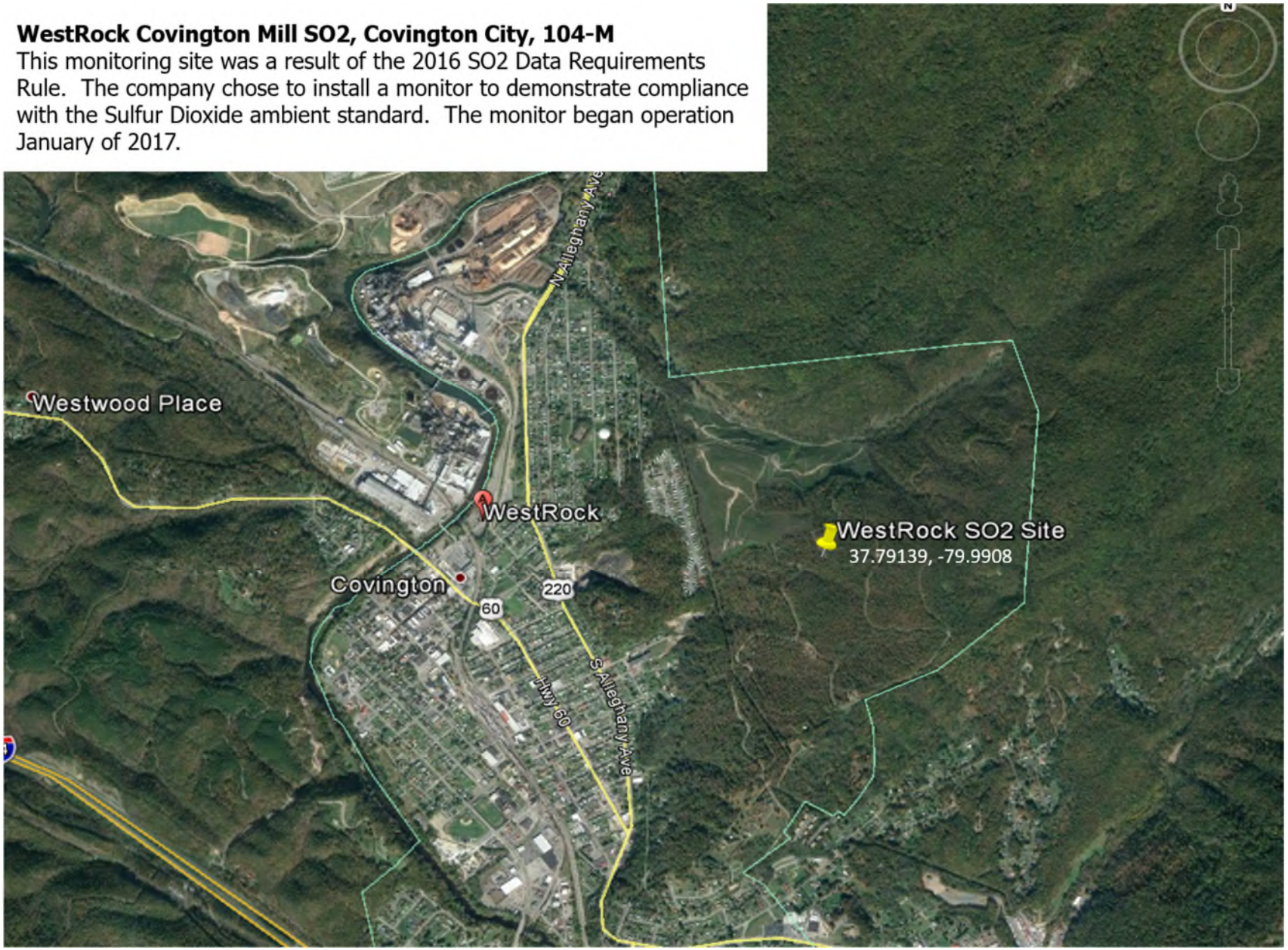



Roanoke Cement SO2, Botetourt Co., 20-E
This monitoring site was a result of the 2016 SO2 Data Requirements Rule. The company chose to install a monitor to demonstrate compliance with the Sulfur Dioxide ambient standard. The monitor began operation January of 2017.
Roanoke Cement Co
Haymakertown
N
RCC SO2 Site
37.44796, -79.98649

Lhoist North America SO2, Giles Co., 9-I
This monitoring site was a result of the 2016 SO2 Data Requirements Rule. The company chose to install a monitor to demonstrate compliance with the Sulfur Dioxide ambient standard. The monitor began operation January of 2017.

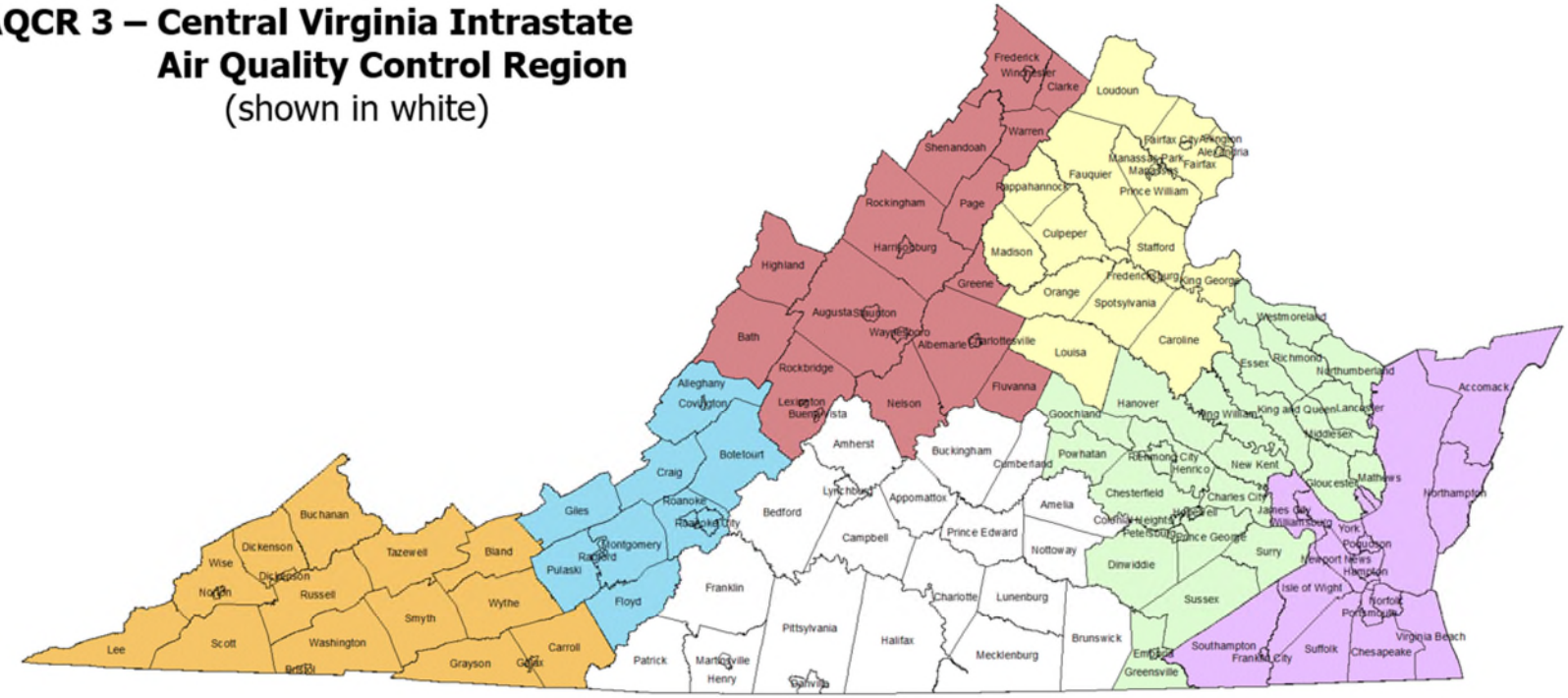


WestRock Covington Mill SO2, Covington City, 104-M
This monitoring site was a result of the 2016 SO2 Data Requirements Rule. The company chose to install a monitor to demonstrate compliance with the Sulfur Dioxide ambient standard. The monitor began operation January of 2017.



VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

AQCR 3 – Central Virginia Intrastate Air Quality Control Region
(shown in white)



Counties: Amelia, Amherst, Appomattox, Bedford, Brunswick, Buckingham, Campbell, Charlotte, Cumberland, Franklin, Halifax, Henry, Lunenburg, Mecklenburg, Nottoway, Patrick, Pittsylvania, Prince Edward

Cities: Bedford, Danville, Lynchburg, Martinsville, South Boston

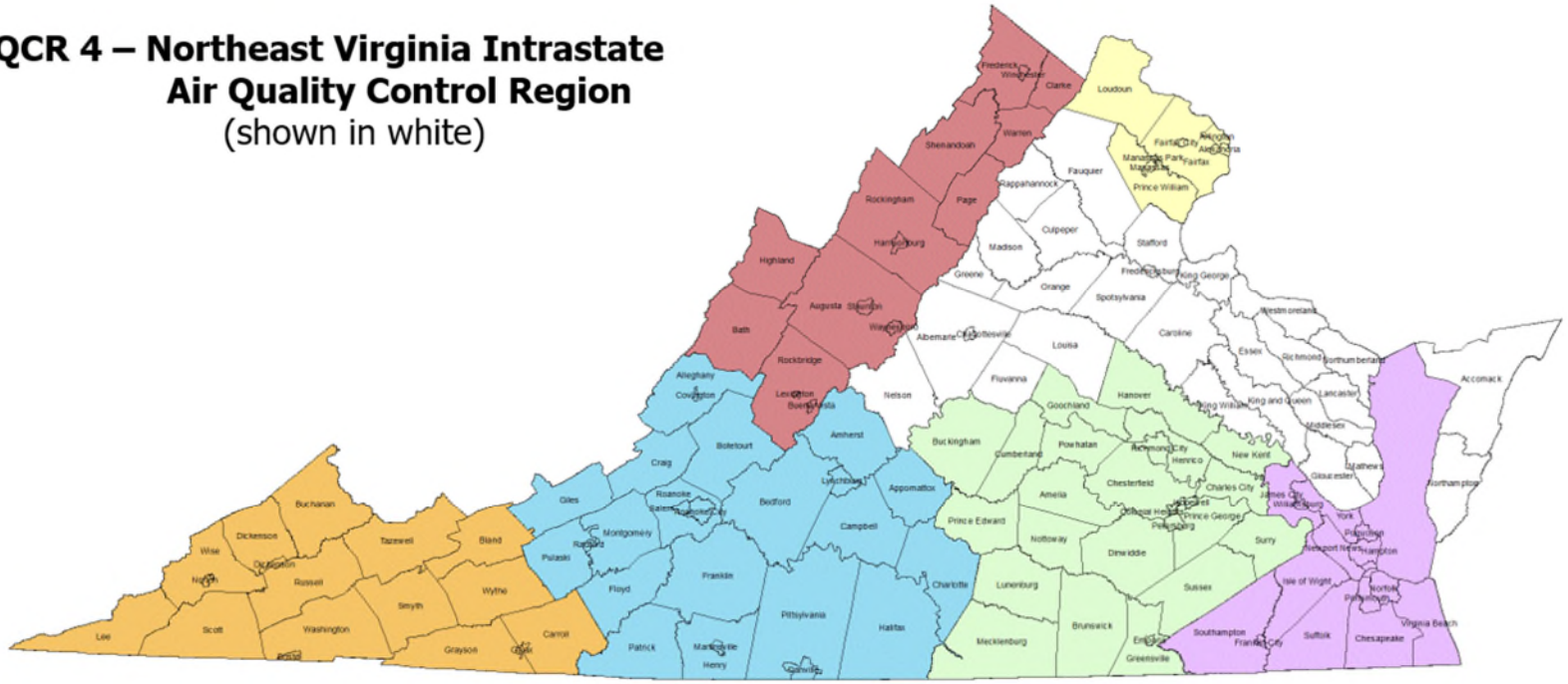
CBSA/MSA: 31340 – Lynchburg, VA

Leesville Road Water Tower, Lynchburg, 155-Q

When the PM2.5 network was put together, it was determined a sampler was needed in Lynchburg. A sampler was installed but it was found that the site had electrical problems that could not be resolved. A secure location was found on city property and the PM2.5 sampler began operation at this site in April 2003.

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

AQCR 4 – Northeast Virginia Intrastate Air Quality Control Region
(shown in white)



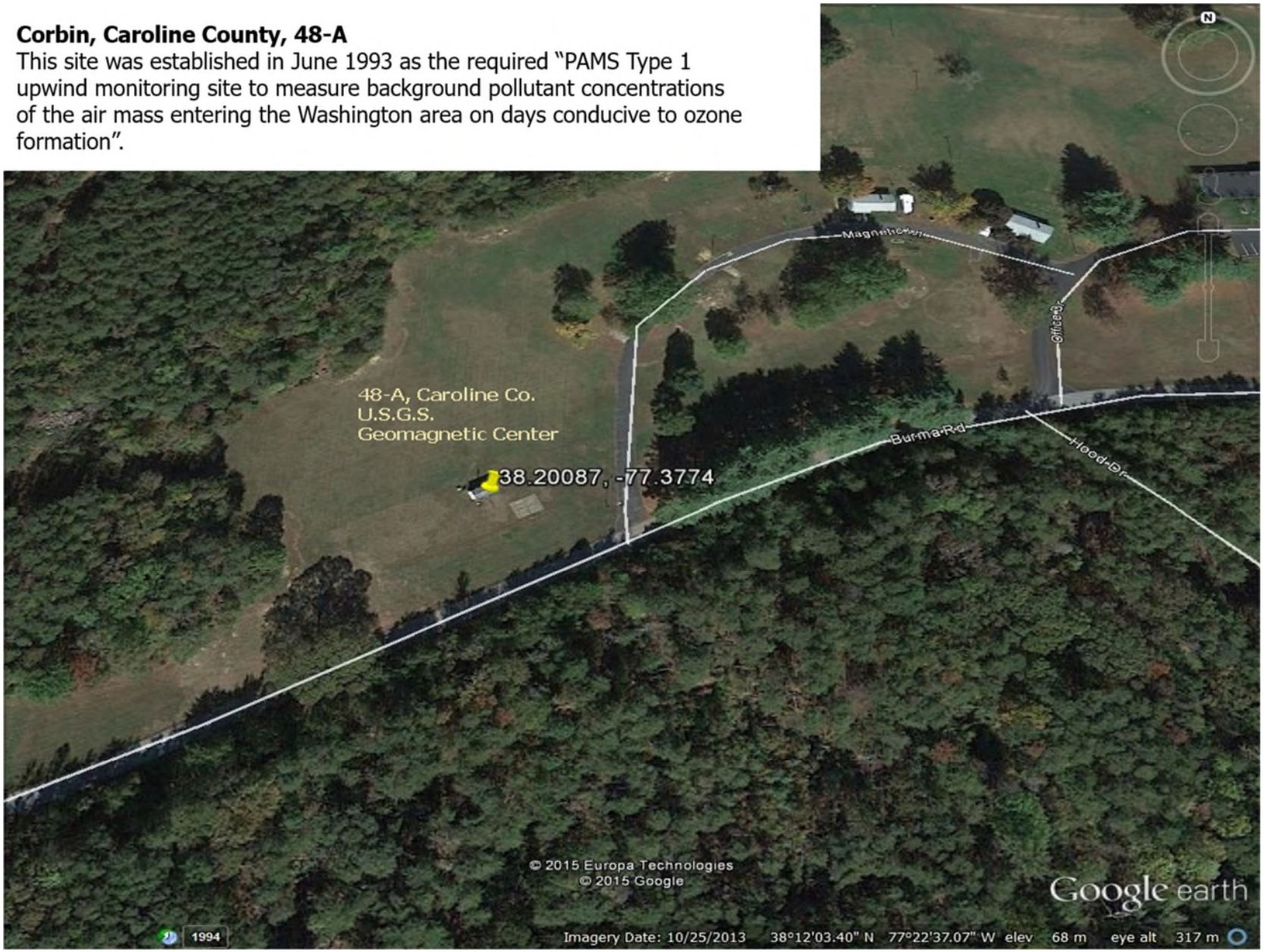
Counties: Accomack, Albemarle, Caroline, Culpeper, Essex, Fauquier, Fluvanna, Gloucester, Greene, King and Queen, King George, King William, Lancaster, Louisa, Madison, Mathews, Middlesex, Nelson, Northampton, Northumberland, Orange, Rappahannock, Richmond, Spotsylvania, Stafford, Westmoreland

Cities: Charlottesville, Fredericksburg

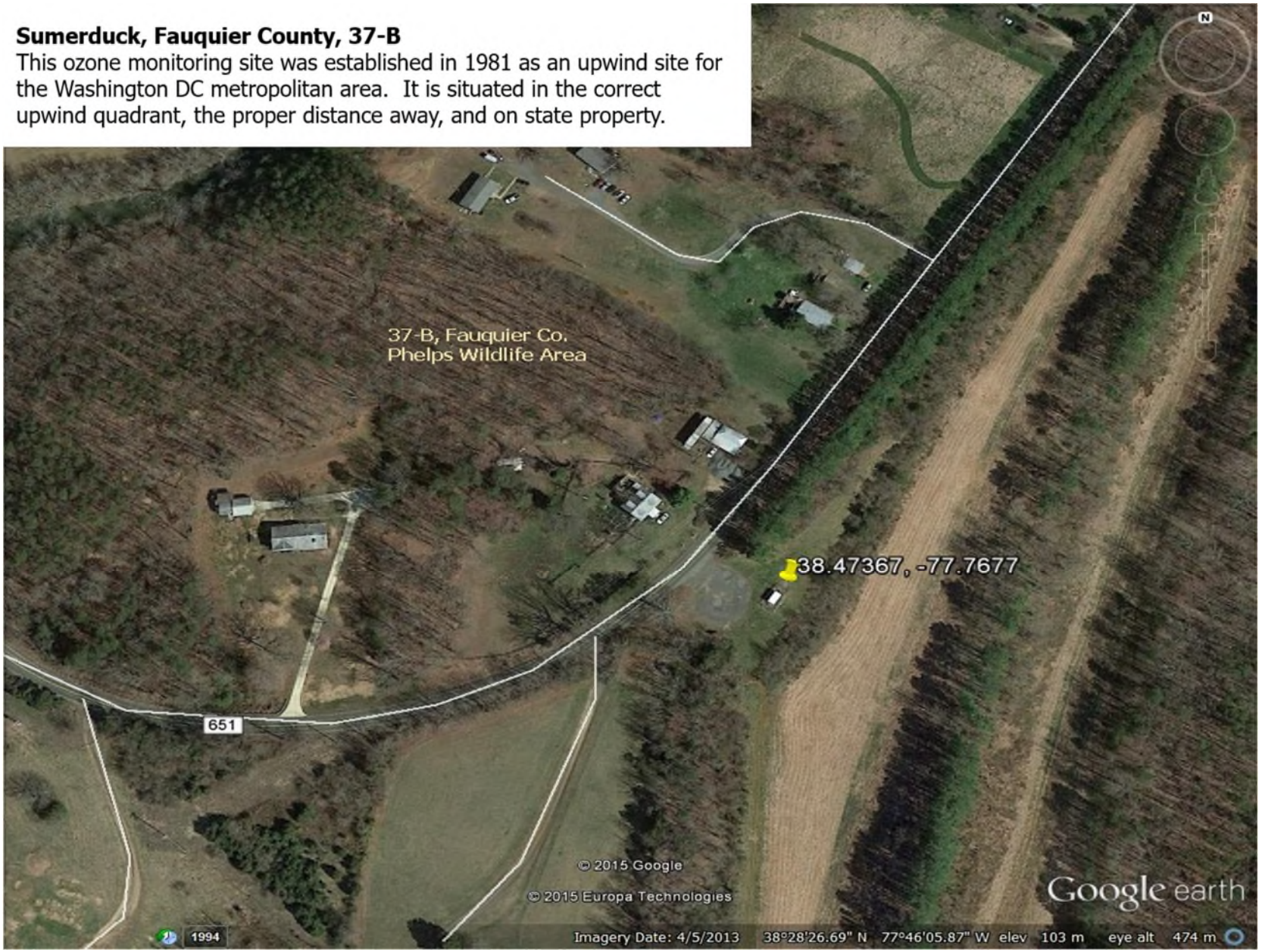
CBSA/MSA: 40060 – Richmond, VA; 16820 – Charlottesville, VA; 47900 – Washington-Arlington-Alexandria, DC-VA-MD-WV

Corbin, Caroline County, 48-A

This site was established in June 1993 as the required "PAMS Type 1 upwind monitoring site to measure background pollutant concentrations of the air mass entering the Washington area on days conducive to ozone formation".



Sumerduck, Fauquier County, 37-B
This ozone monitoring site was established in 1981 as an upwind site for the Washington DC metropolitan area. It is situated in the correct upwind quadrant, the proper distance away, and on state property.

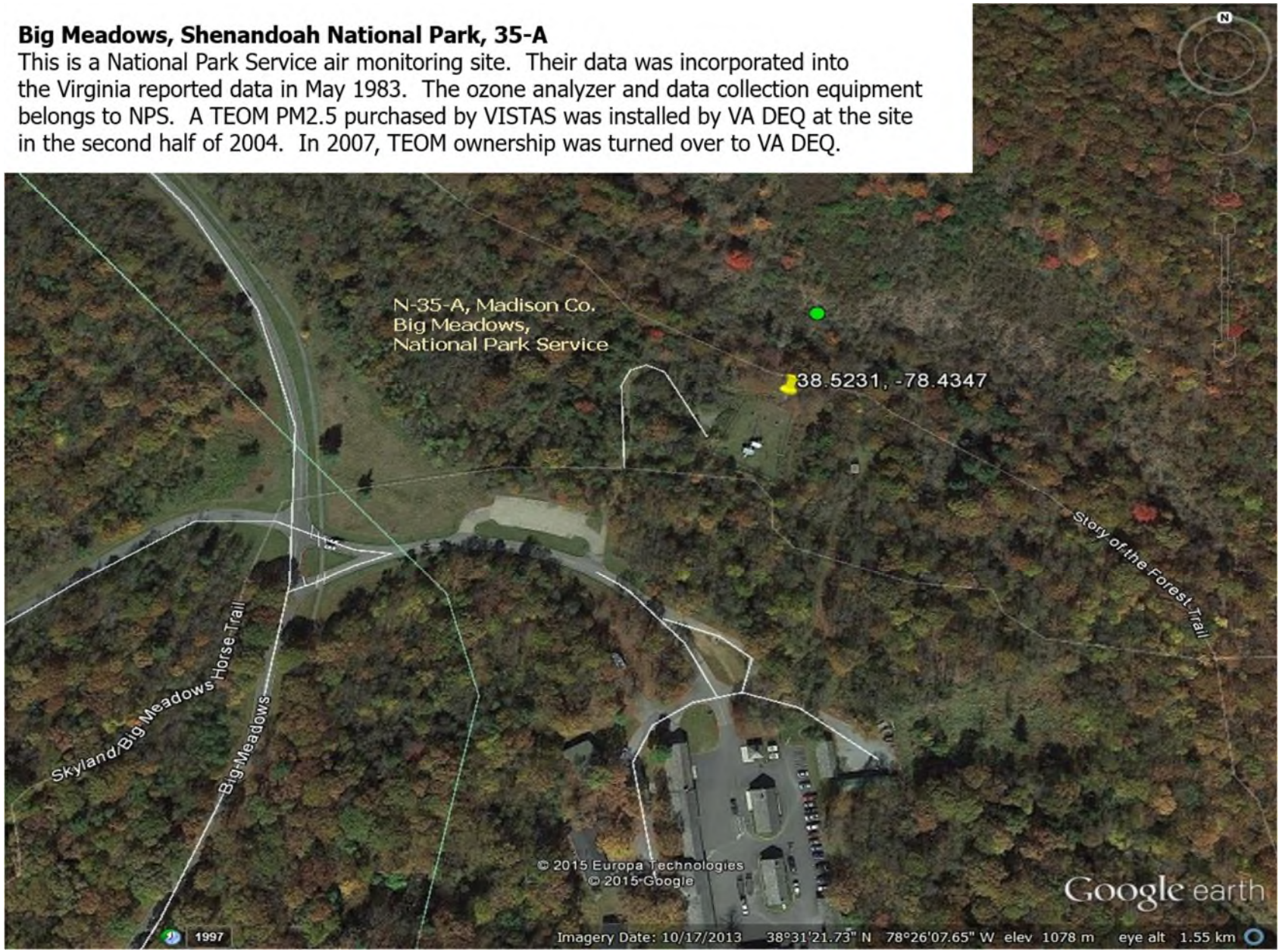


Widewater Elementary School, Stafford County, 44-A

The Ozone monitoring site at Widewater Elementary School was established to characterize ambient ozone concentrations in Stafford County. Ozone sampling began in September 1992, PM-10 sampling began in 2017.

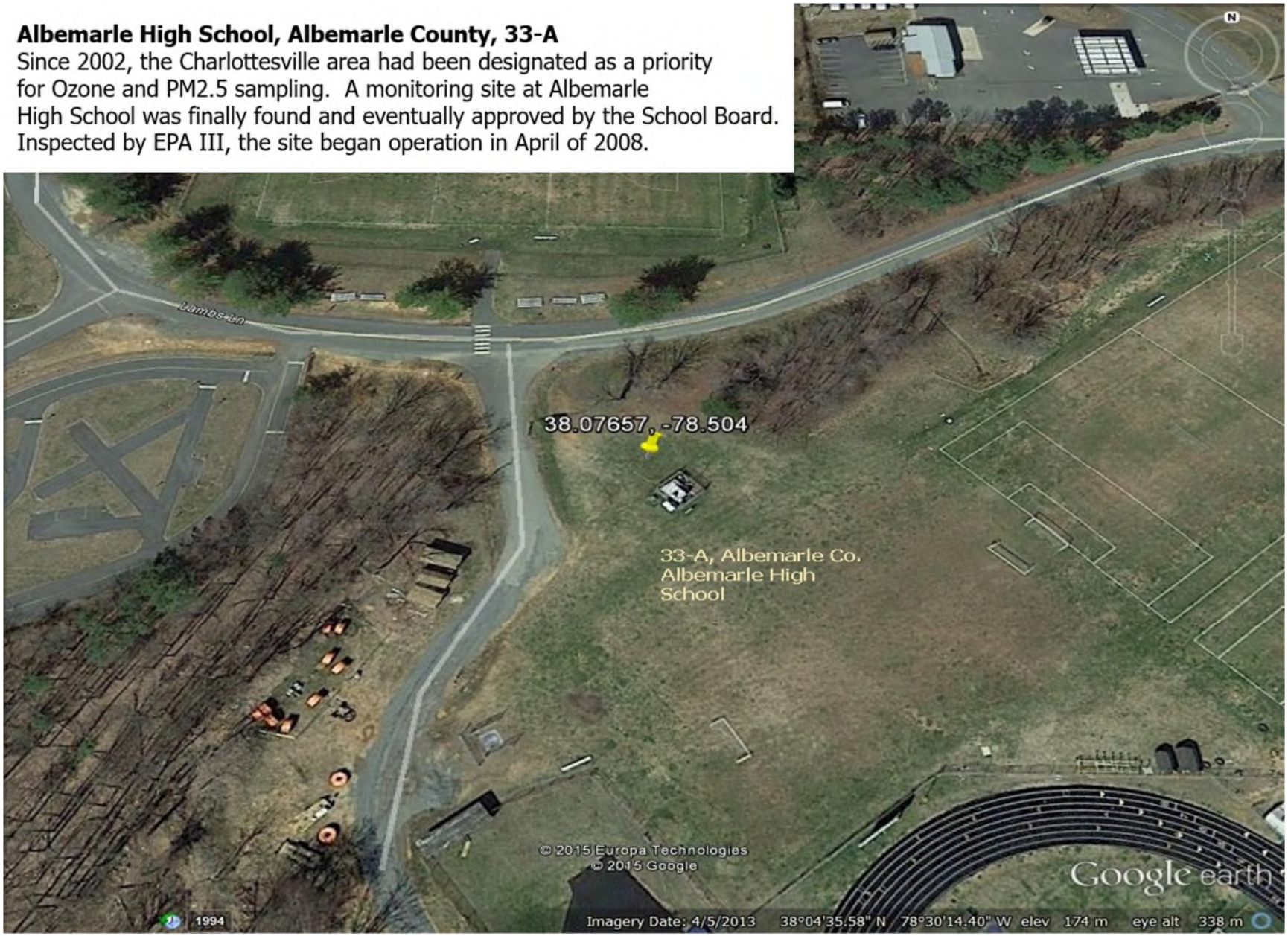
Big Meadows, Shenandoah National Park, 35-A

This is a National Park Service air monitoring site. Their data was incorporated into the Virginia reported data in May 1983. The ozone analyzer and data collection equipment belongs to NPS. A TEOM PM2.5 purchased by VISTAS was installed by VA DEQ at the site in the second half of 2004. In 2007, TEOM ownership was turned over to VA DEQ.

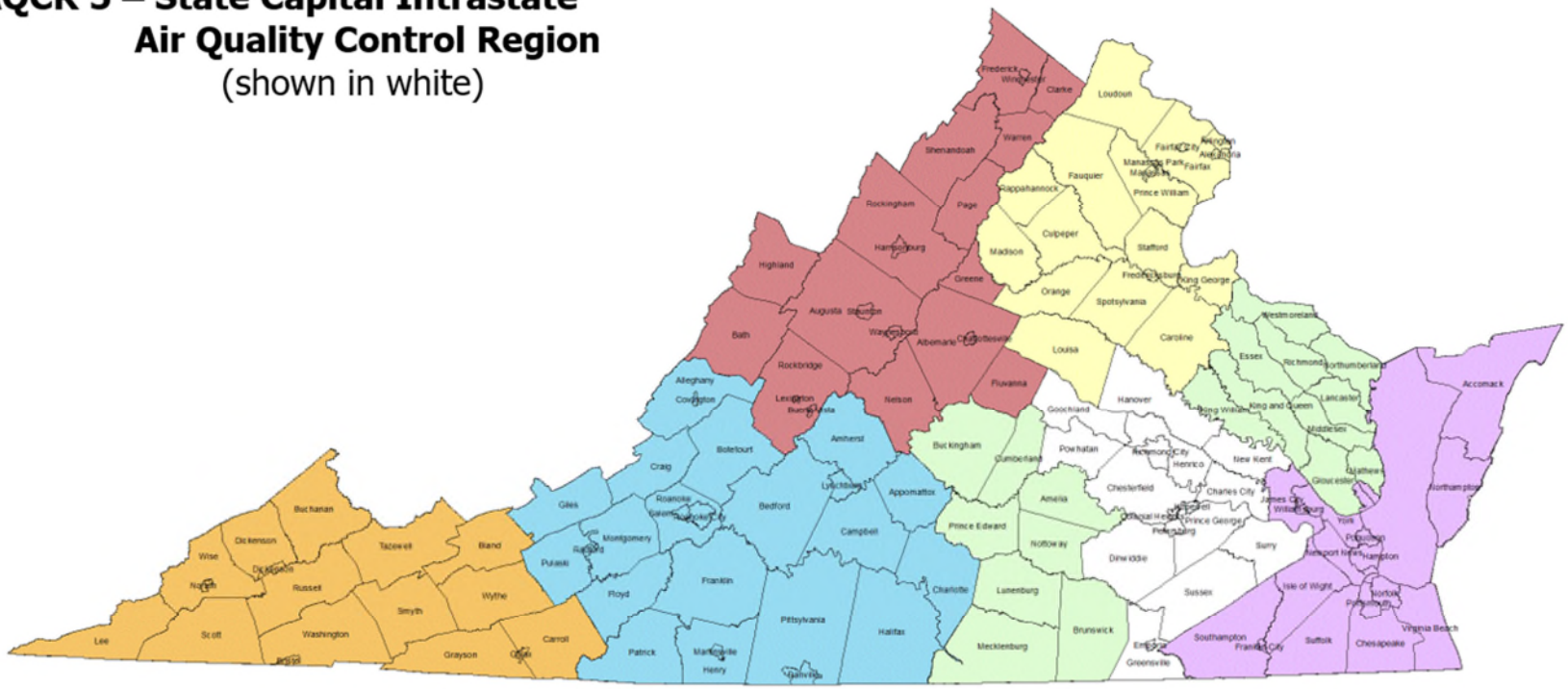


Albemarle High School, Albemarle County, 33-A

Since 2002, the Charlottesville area had been designated as a priority for Ozone and PM2.5 sampling. A monitoring site at Albemarle High School was finally found and eventually approved by the School Board. Inspected by EPA III, the site began operation in April of 2008.



AQCR 5 – State Capital Intrastate Air Quality Control Region
(shown in white)



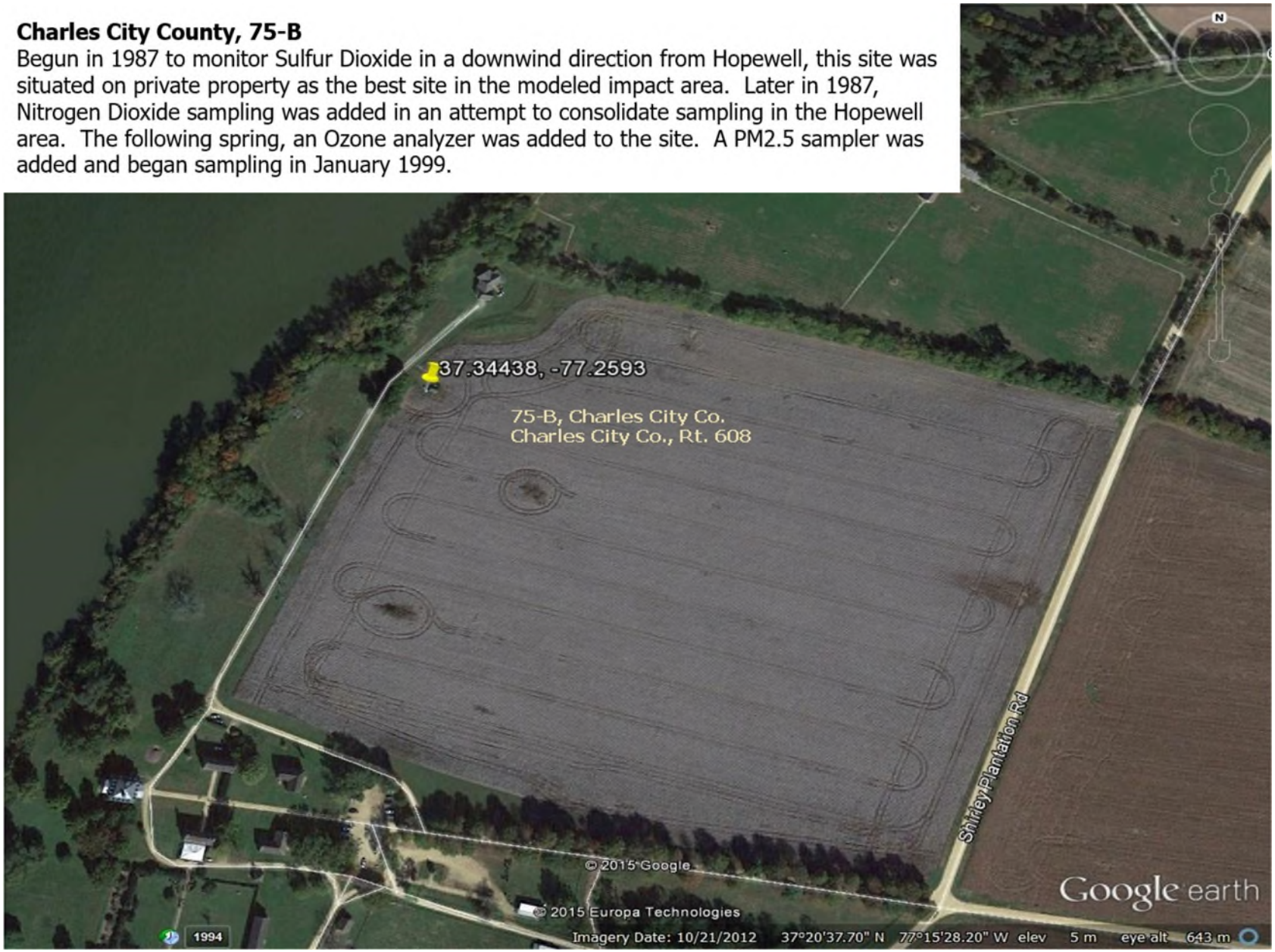
Counties: Charles City, Chesterfield, Dinwiddie, Goochland, Greensville, Hanover, Henrico, New Kent, Powhatan, Prince George, Surry, Sussex

Cities: Colonial Heights, Emporia, Hopewell, Petersburg, Richmond

CBSA/MSA: 40060 – Richmond, VA

Charles City County, 75-B

Begun in 1987 to monitor Sulfur Dioxide in a downwind direction from Hopewell, this site was situated on private property as the best site in the modeled impact area. Later in 1987, Nitrogen Dioxide sampling was added in an attempt to consolidate sampling in the Hopewell area. The following spring, an Ozone analyzer was added to the site. A PM2.5 sampler was added and began sampling in January 1999.



Beach Road, Chesterfield, 71-H

Air monitoring began in April 1980 at the Beach Road VDOT shop in Chesterfield County. Because of its location and security, this site was picked as the upwind Ozone site for the Richmond metropolitan area.

McClellan Road, Hanover County, 73-E

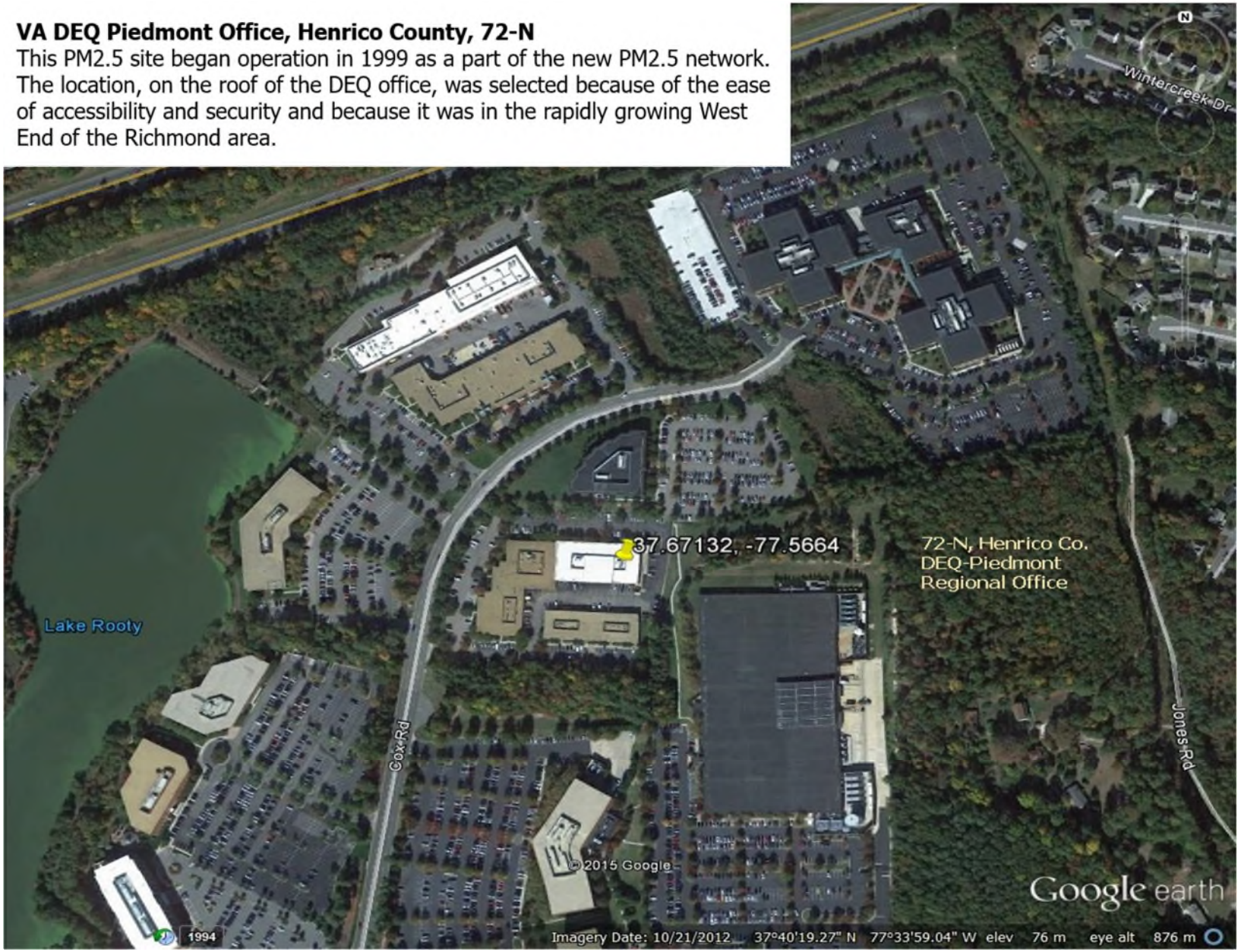
This site was established in 2001 as a replacement for the Richmond Metropolitan Area downwind ozone monitoring site. The original site was on county property and after many years of sampling, VA DEQ was asked to remove the shelter and sampling equipment. To maintain the correct distance and direction downwind of Richmond, the monitoring site had to be placed on private property.

MathScience Innovation Center, Henrico County, 72-M

This site began in 1981 as a replacement monitoring location for sites removed in the city of Richmond. Ozone and SO2 were located in a storage room with a probe support extending above the roof. A shelter was later added as well as more instrumentation. In 2008 the MSIC site became a National Air Toxics Trend Site. In 2011 this also became the NCore location for DEQ as well.

VA DEQ Piedmont Office, Henrico County, 72-N

This PM2.5 site began operation in 1999 as a part of the new PM2.5 network. The location, on the roof of the DEQ office, was selected because of the ease of accessibility and security and because it was in the rapidly growing West End of the Richmond area.



Woodson Middle School, Hopewell, 154-M

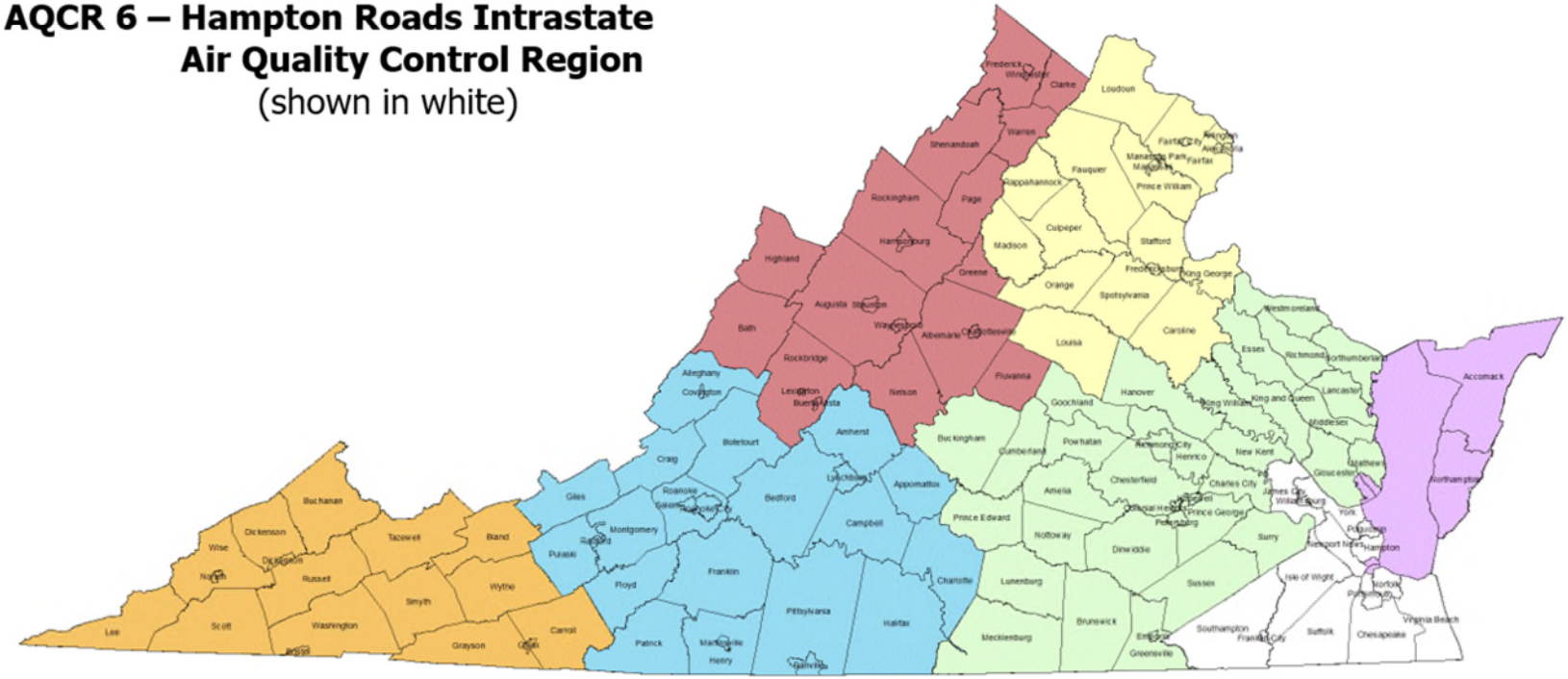
The Woodson Middle School site is currently one of two Urban Air Toxics Sites in Virginia. The site was originally established as part of the Hopewell Community Air Toxics Study which began in 2009. When the Study was completed, the site was retained for further sampling in the Hopewell area and was designated the Urban Air Toxics Site due to the existence of a NATTS site in the Richmond area at the MSIC site.

Bryan Park, Richmond, 158-X

Established in mid-2013 as part of the EPA mandated Near Road Monitoring program, this site is in Bryan Park alongside I-95 at its highest traffic volume stretch in the Richmond area.

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

AQCR 6 – Hampton Roads Intrastate Air Quality Control Region
(shown in white)



Counties: Isle of Wight, James City, Southampton, York

Cities: Chesapeake, Franklin, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, Williamsburg

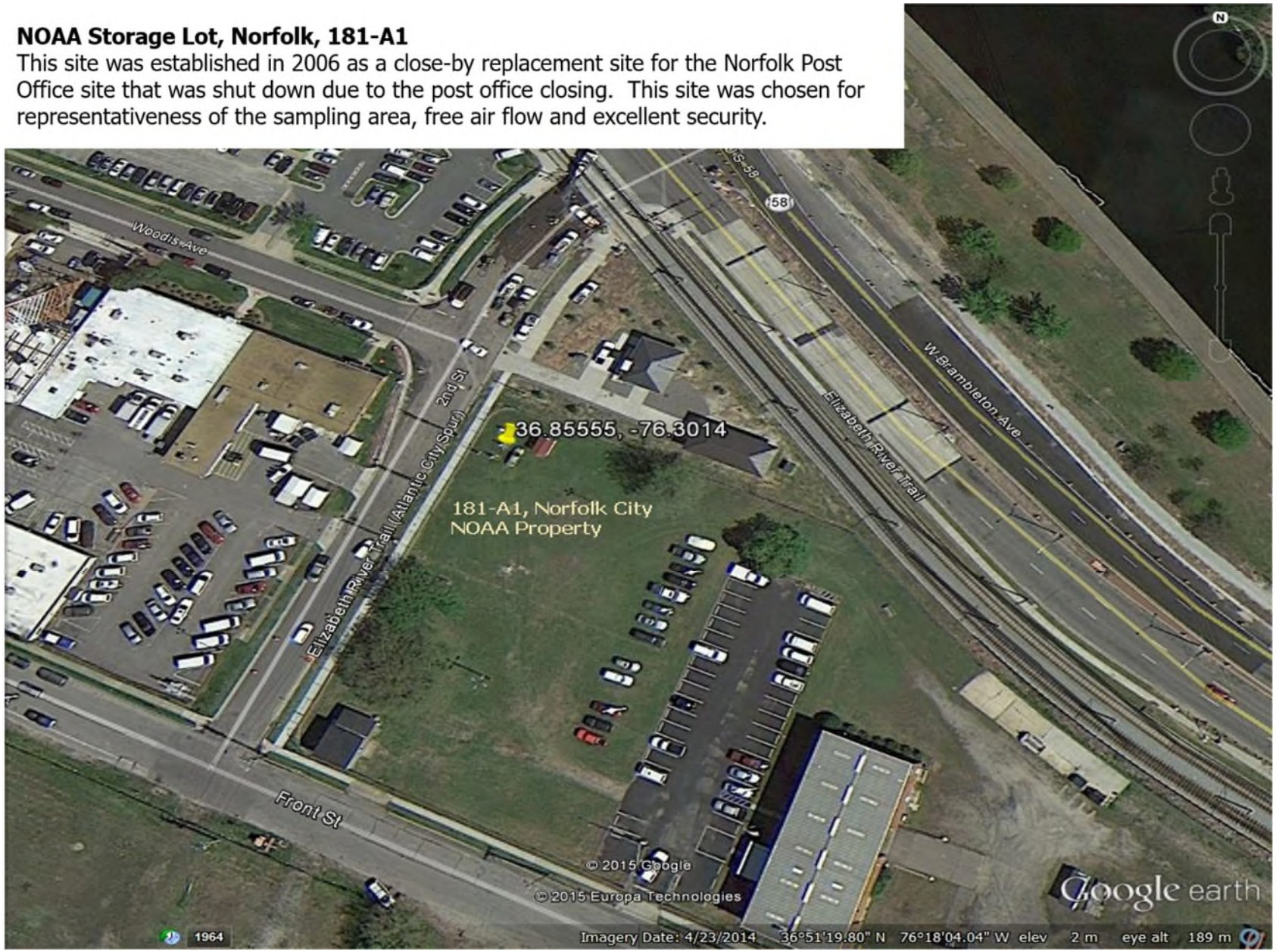
CBSA/MSA: 47260 – Virginia Beach-Norfolk-Newport News, VA-NC

NASA Langley Research Center, Hampton, 179-K

Sampling began in 2010 at this site. This location was a replacement site for the VA School in Hampton that had operated since 1972. The location on the northern portion of the NASA Langley Research Center property has free air flow and excellent security.

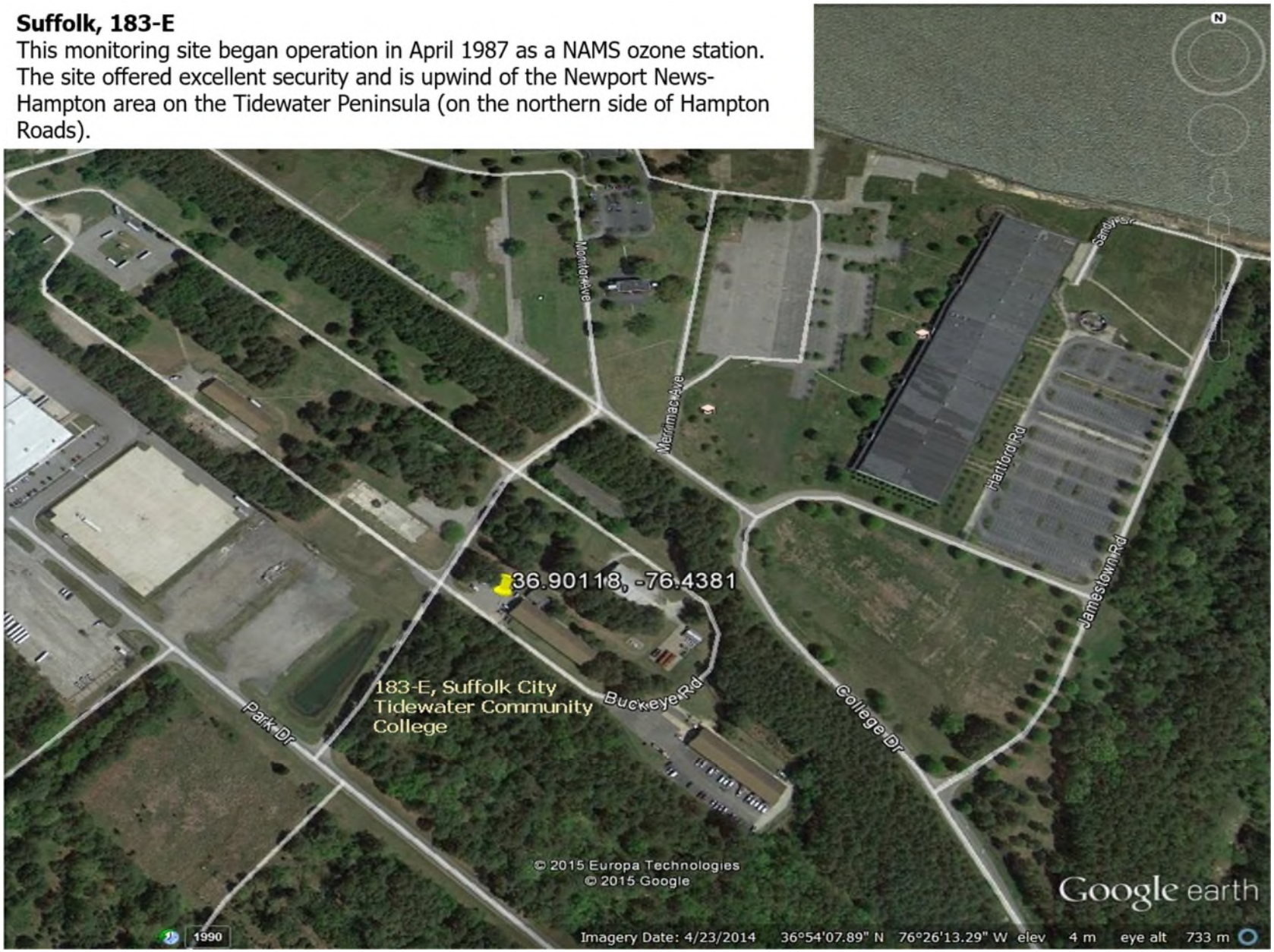
NOAA Storage Lot, Norfolk, 181-A1

This site was established in 2006 as a close-by replacement site for the Norfolk Post Office site that was shut down due to the post office closing. This site was chosen for representativeness of the sampling area, free air flow and excellent security.



Suffolk, 183-E

This monitoring site began operation in April 1987 as a NAMS ozone station. The site offered excellent security and is upwind of the Newport News-Hampton area on the Tidewater Peninsula (on the northern side of Hampton Roads).

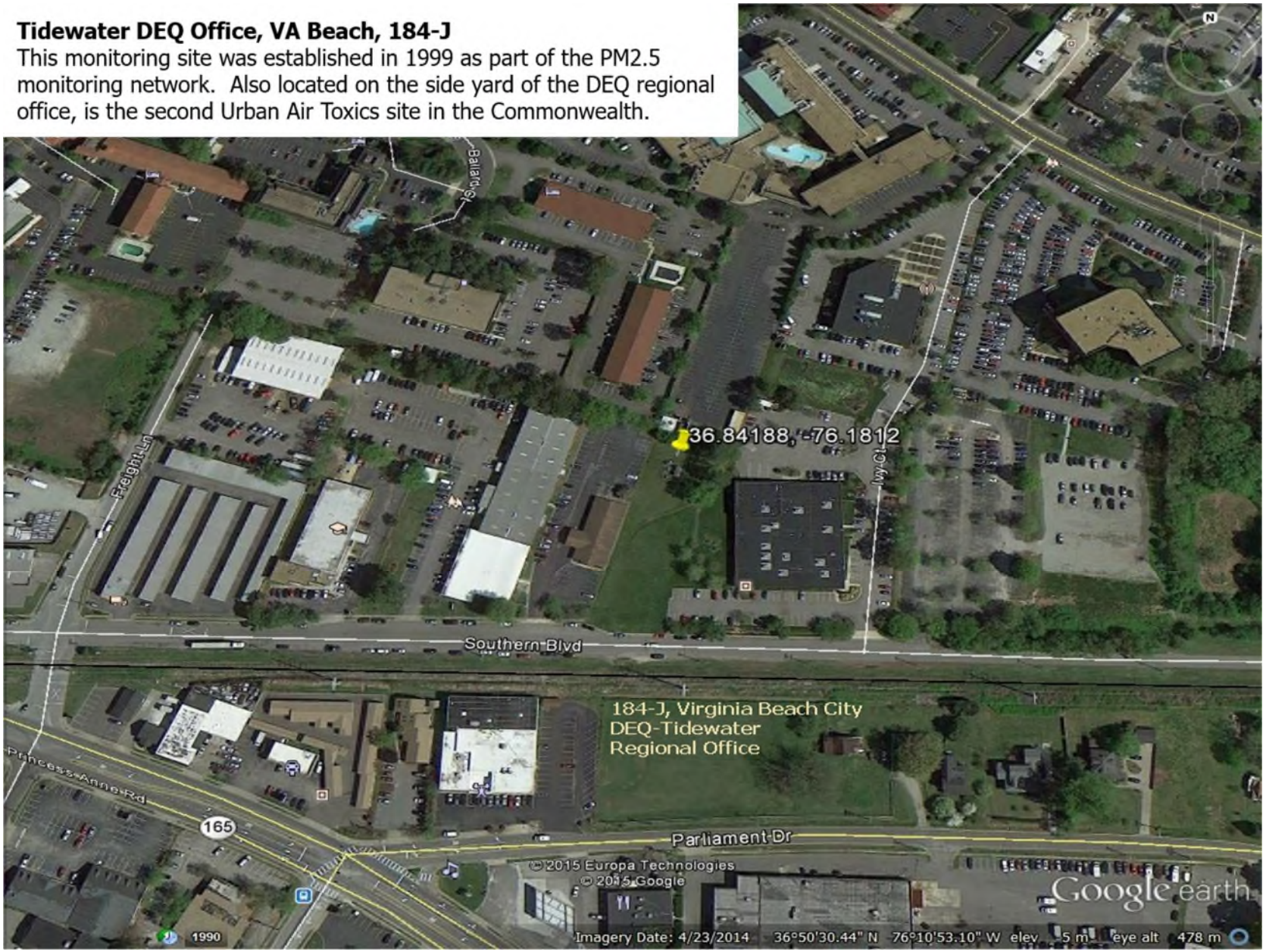


Suffolk, 183-F

This monitoring site was established in 1991 as an EPA required replacement for the terminated NAMS ozone monitoring site at the Cheriton Post Office on the eastern shore of Virginia.

Tidewater DEQ Office, VA Beach, 184-J

This monitoring site was established in 1999 as part of the PM2.5 monitoring network. Also located on the side yard of the DEQ regional office, is the second Urban Air Toxics site in the Commonwealth.



VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

AQCR 7 – National Capital Interstate Air Quality Control Region
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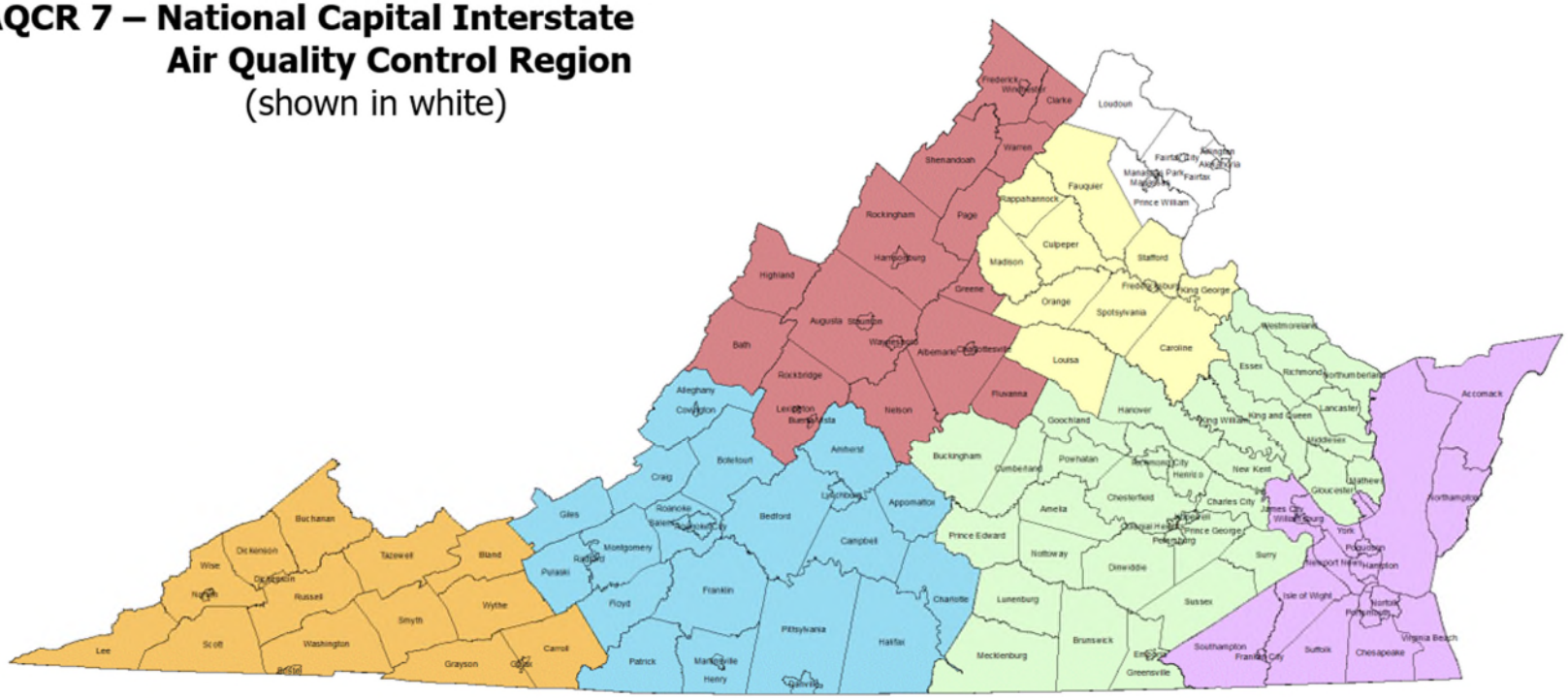


Counties: Arlington, Fairfax, Loudoun, Prince William

Cities: Alexandria, Fairfax, Falls Church, Manassas, Manassas Park

CBSA/MSA: 47900 – Washington-Arlington-Alexandria, DC-VA-MD-WV

Aurora Hills Visitor Center, Arlington, 47-T

This monitoring site was established in late 1977 and began operation in early 1978. The County of Arlington supplied the location and some of the instrumentation (Hydrogen Generator, O3 analyzer, SO2 analyzer, & NOx analyzer) with the stipulation that VA DEQ personnel operate the station. Instrumentation has been added and removed over the years, e.g. the hydrogen generator and the SO2 analyzer are no longer maintained at this site.

Lee District Park, Fairfax County, 46-B9

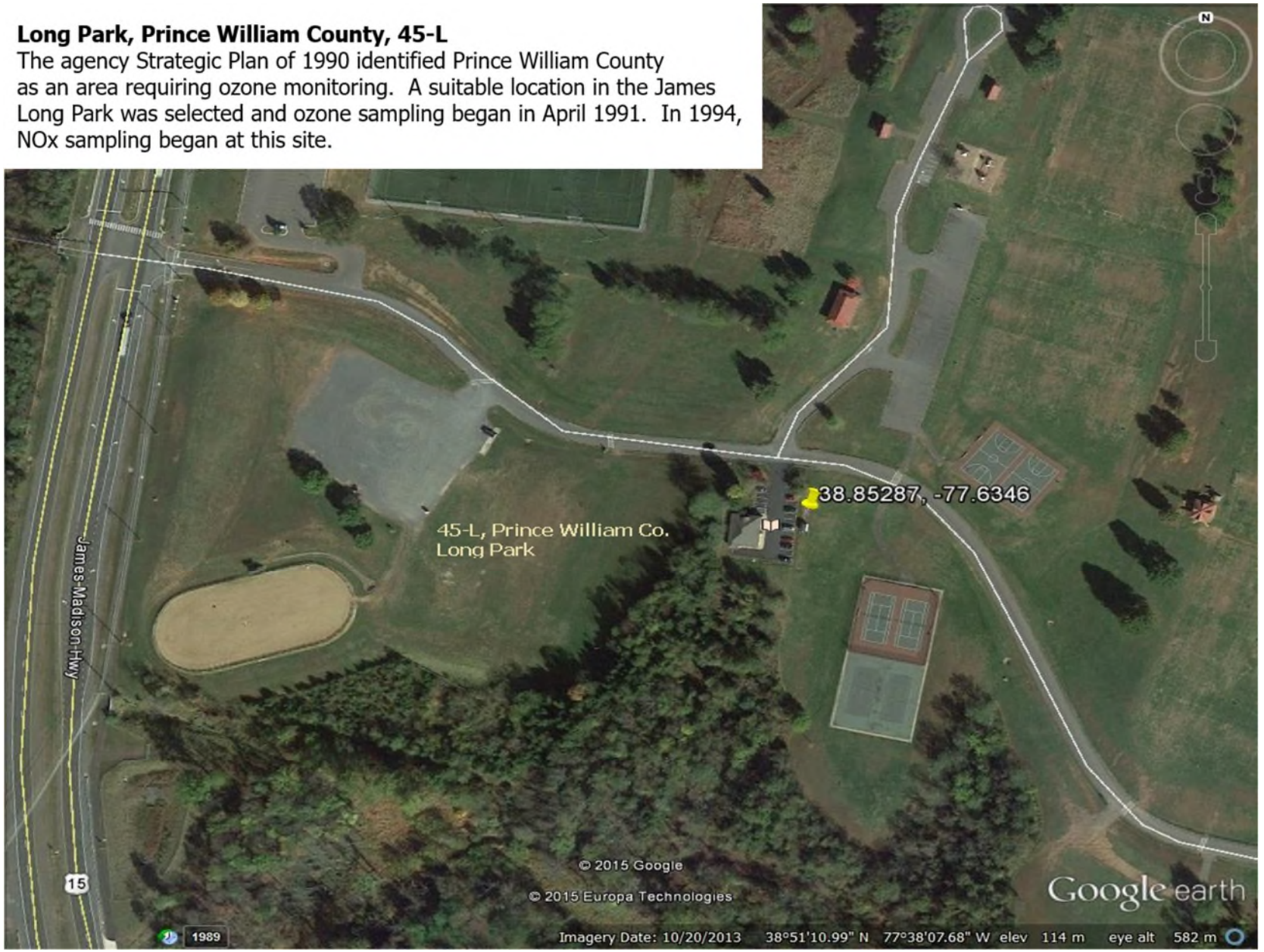
EPA required the Virginia DEQ to establish a PAMS in the secondary downwind direction from the area of maximum ozone precursor emissions for days when higher ozone concentrations were likely to occur. Lee District Park was in a good location for the establishment of this site, a PAMS Type II. Sampling began in July 1998.

Broad Run High School, Ashburn, Loudoun County, 38-I

In 1997 Virginia DEQ was looking for a suitable site in Loudoun County to monitor Ozone, Nitrogen Dioxide, and Particulate Matter to address citizen concerns. The site at Broad Run High School was deemed acceptable and sampling began in April 1998.

Long Park, Prince William County, 45-L

The agency Strategic Plan of 1990 identified Prince William County as an area requiring ozone monitoring. A suitable location in the James Long Park was selected and ozone sampling began in April 1991. In 1994, NOx sampling began at this site.



Tucker Elementary School, Alexandria, L126-H

The Tucker Elementary School site was established in 2006 at the request of the Alexandria Health Department to sample possible emissions and violations from Virginia Paving Company.

Backlick Road Park and Ride, Springfield, Fairfax County, 46-C2
Established in April 2015 as part of the EPA mandated Near Road Monitoring program, this site is located in the Backlick Road Park and Ride, along I-95 in the National Capital Interstate Air Quality Control Region.

MONITOR LOCATIONS

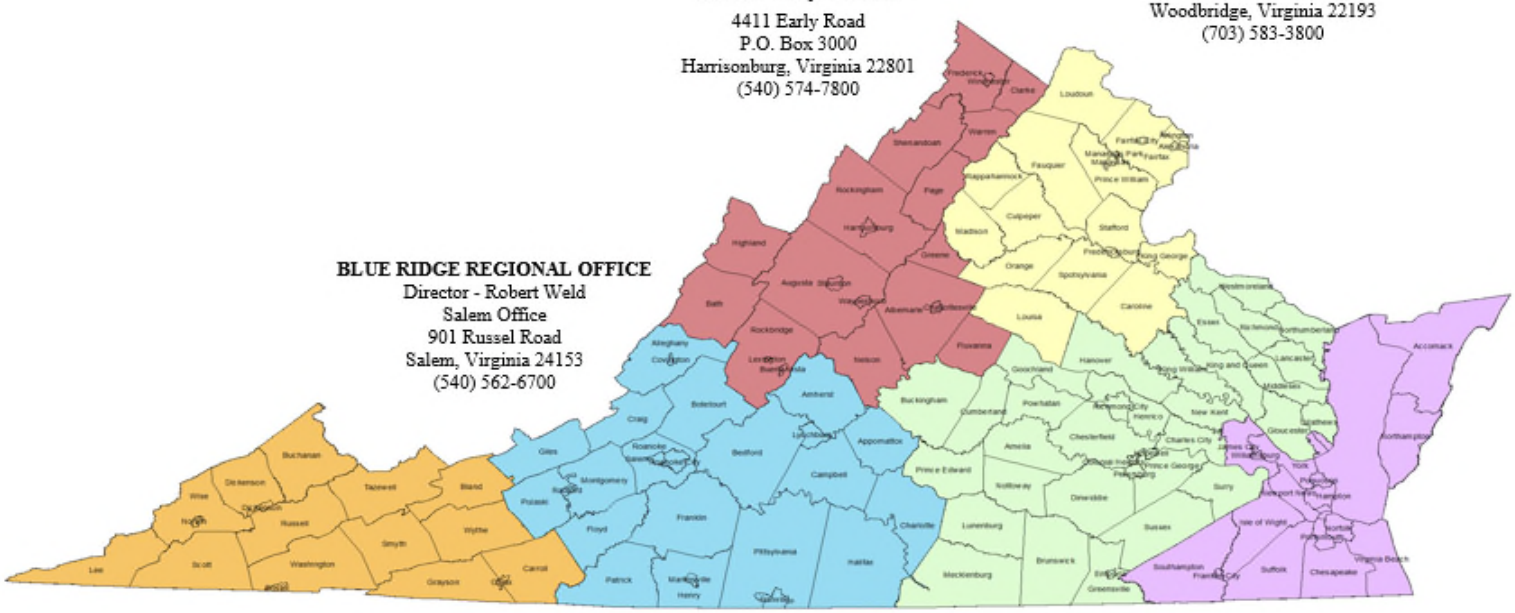
SITE MAPS – MONITOR LOCATIONS

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
Regional Offices

NORTHERN REGIONAL OFFICE
Director - Tom Faha
13901 Crown Court
Woodbridge, Virginia 22193
(703) 583-3800

VALLEY REGIONAL OFFICE
Director - Amy T. Owens
4411 Early Road
P.O. Box 3000
Harrisonburg, Virginia 22801
(540) 574-7800

BLUE RIDGE REGIONAL OFFICE
Director - Robert Weld
Salem Office
901 Russel Road
Salem, Virginia 24153
(540) 562-6700



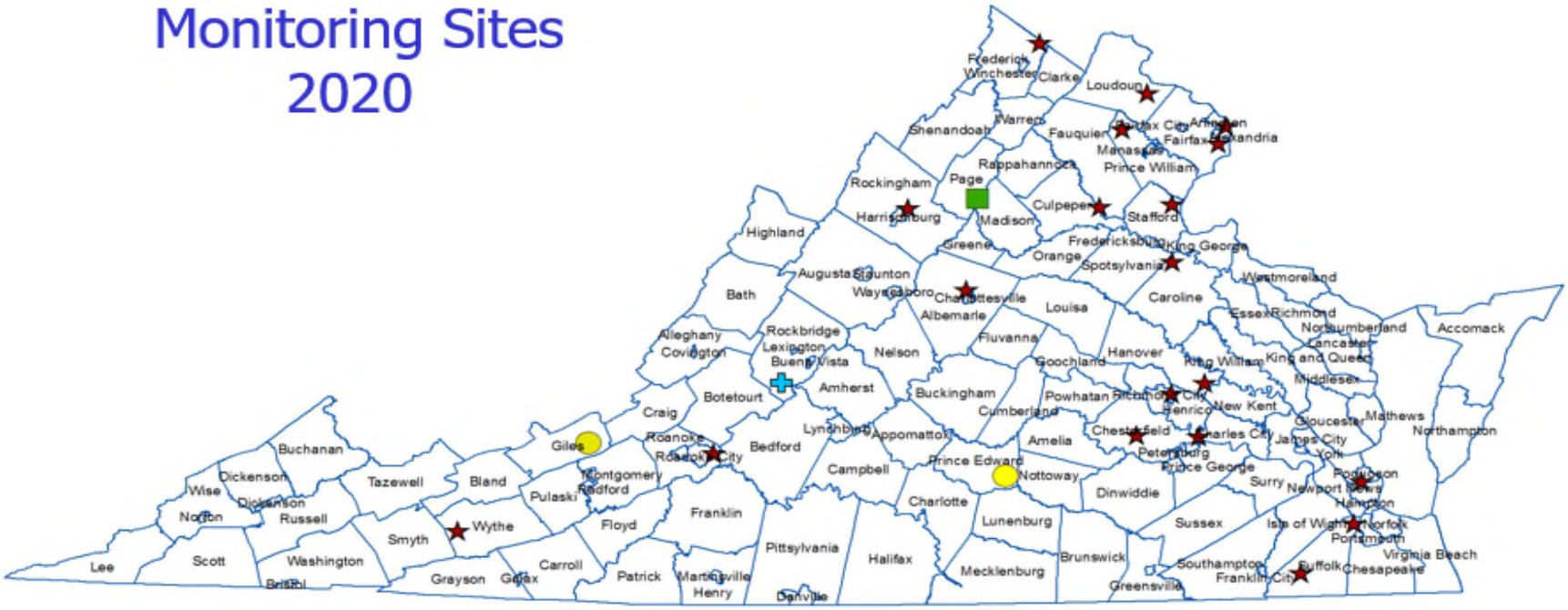
SOUTHWEST REGIONAL OFFICE
Director – Jeffery Hurst
355 Deadmore St.
P.O. Box 1688
Abingdon, Virginia 24212
(276) 676-4800

PIEDMONT REGIONAL OFFICE
Director – James Golden
4949-A Cox Road
Glen Allen, Virginia 23060
(804) 527-5020

TIDEWATER REGIONAL OFFICE
Director – Craig Nicol
5636 Southern Blvd.
Virginia Beach, Virginia 23462
(757) 518-2000

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Ozone Monitoring Sites 2020



VA Department of Environmental Quality

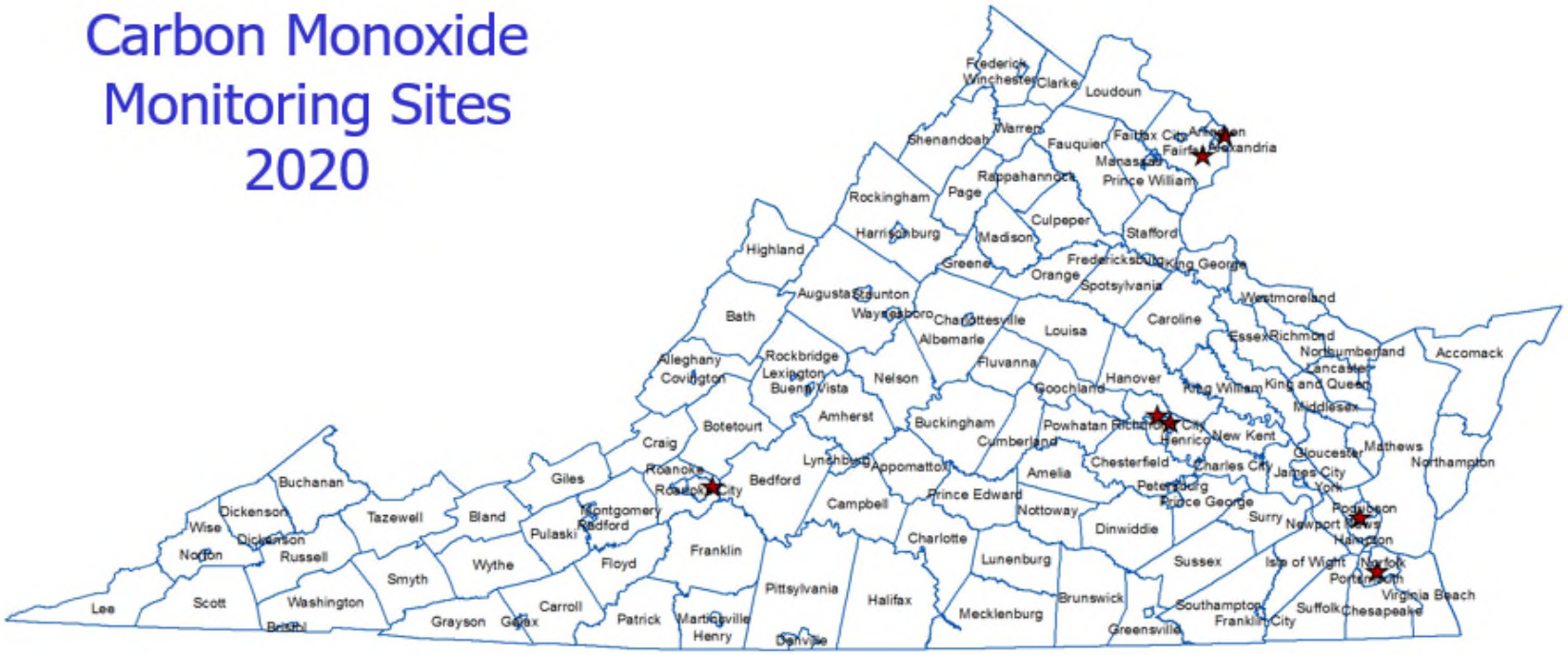
EPA CASTNET sites

National Park Service

U S Forest Service

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

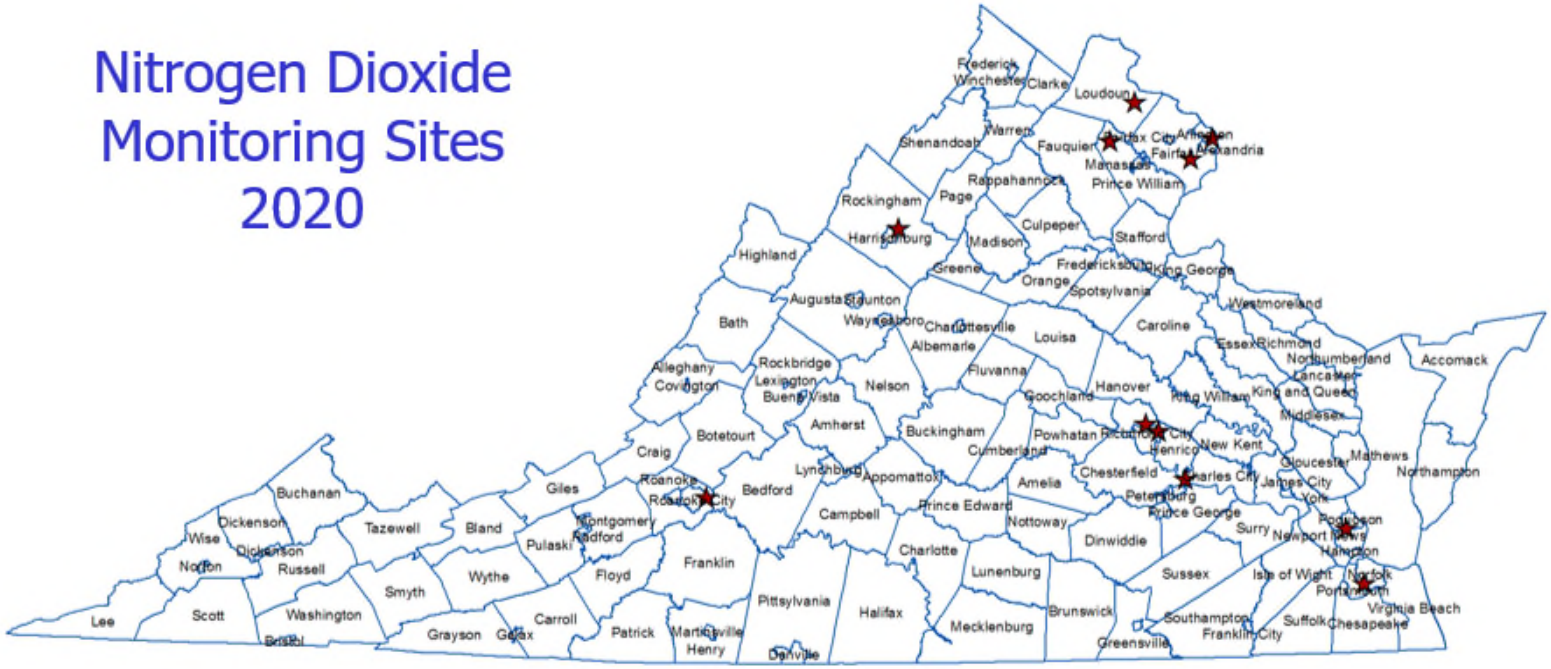
Carbon Monoxide Monitoring Sites 2020



★ **VA Department of Environmental Quality**

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Nitrogen Dioxide Monitoring Sites 2020



★ VA Department of Environmental Quality

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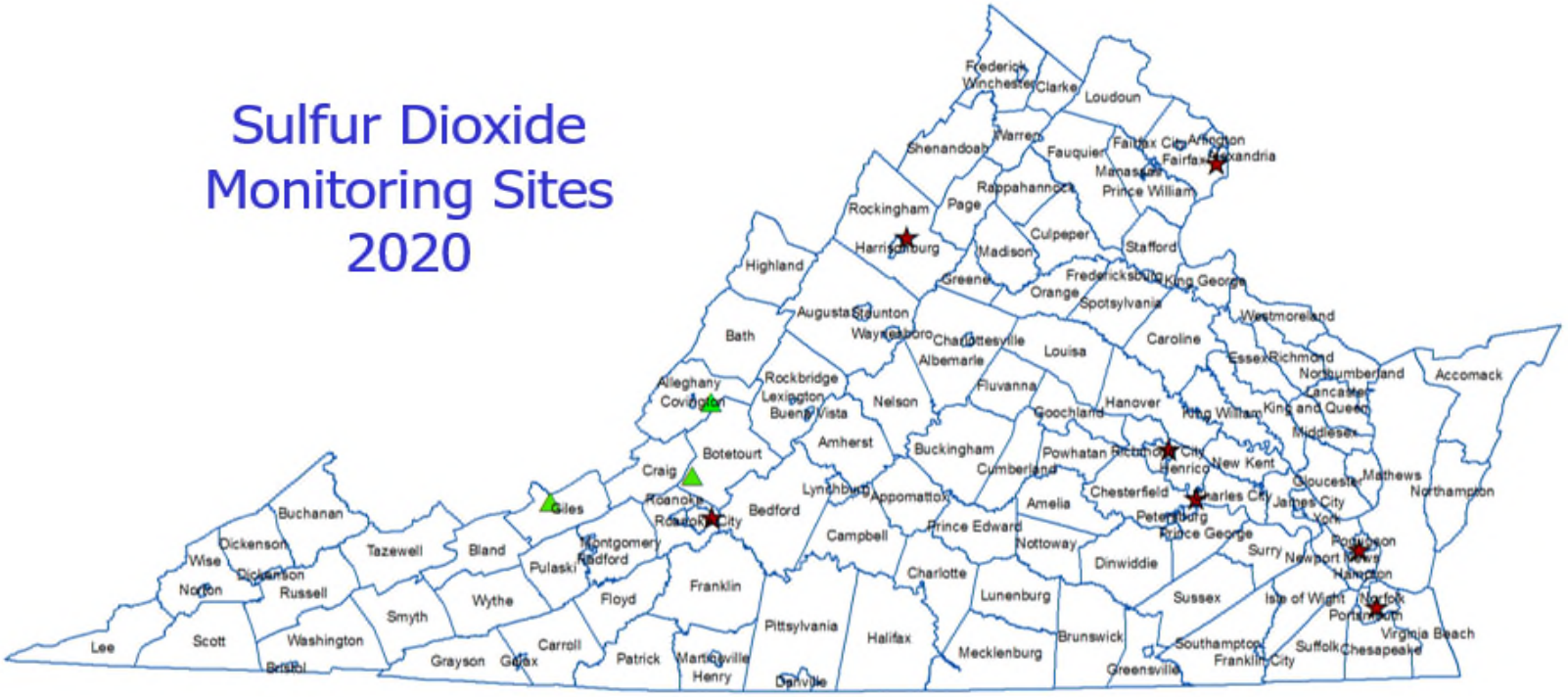

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

PM2.5 Monitoring Sites 2020

- FRM/FEM Monitors
- FRM/Continuous Samplers
- IMPROVE sampler
- FRM Mass, Speciation, FEM, Carbon
- TEOM & IMPROVE sampler, Big Meadows, NPS

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

PM10 Monitoring Sites 2020

★ **VA Department of Environmental Quality**

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

★ **VA Department of Environmental Quality**

MONITORING SITE INFORMATION

Monitoring Site Listing by AQCR

Virginia Monitoring Network Minimum Requirements

Ozone MSA Monitor requirements – Table D-2 of Appendix D to Part 58

Washington, DC-VA-MD-WV - 3 monitors,
Virginia Beach-Norfolk-Newport News, VA-NC - 2 monitors
Richmond, VA – 2 monitors
Roanoke, VA - 1 monitor
Blacksburg – Christiansburg, VA – 1 monitor

Ozone Monitors - Per 40 CFR 58.10(a) (9) all ozone monitors were in operation by March 1, 2020.

Table 9 Virginia Site Listing – Ozone Monitoring Requirements

MSA	Population	Operating Monitors	Sites
Washington, DC-VA-MD-WV	6,280,487	51-061-0002	Fauquier County
Washington, DC-VA-MD-WV	6,280,487	51-179-0001	Stafford County
Washington, DC-VA-MD-WV	6,280,487	51-013-0020	Arlington County
Washington, DC-VA-MD-WV	6,280,487	51-059-0030	Fairfax County
Washington, DC-VA-MD-WV	6,280,487	51-107-1005	Loudon County
Washington, DC-VA-MD-WV	6,280,487	51-153-0009	Prince William Co.
Virginia Beach-Norfolk-Newport News, VA-NC	1,726,907	51-650-0008	Hampton City
Virginia Beach-Norfolk-Newport News, VA-NC	1,726,907	51-800-0004	Suffolk City
Virginia Beach-Norfolk-Newport News, VA-NC	1,726,907	51-800-0005	Suffolk City
Richmond, VA	1,281,708	51-033-0001	Caroline County
Richmond, VA	1,281,708	51-036-0002	Charles City County
Richmond, VA	1,281,708	51-041-0004	Chesterfield County
Richmond, VA	1,281,708	51-085-0003	Hanover County
Richmond, VA	1,281,708	51-087-0014	Henrico County
Roanoke, VA	313,698	51-161-1004	Roanoke County
Blacksburg – Christiansburg, VA	181,863	51-071-9991	Giles County

Virginia Monitoring Network Minimum Requirements

$PM_{2.5}$ MSA Monitor Requirements – Table D-5 of Appendix D to Part 58
Washington, DC-VA-MD-WV - 2 monitors,
Virginia Beach-Norfolk-Newport News, VA-NC - 2 monitors
Richmond, VA – 2 monitors

Table 10 Virginia Site Listing – $PM_{2.5}$ Monitoring Requirements

MSA	Population	Operating Monitors	Sites	Design Value – 24 hr.	Design Value - Annual
Washington-Arlington-Alexandria, DC-VA-MD-WV	6,280,487	51-107-1005	Loudon County	17	7.2
Washington-Arlington-Alexandria, DC-VA-MD-WV	6,280,487	51-013-0020	Arlington County	17	7.7
Washington-Arlington-Alexandria, DC-VA-MD-WV	6,280,487	51-059-0030	Fairfax County	17	7.0
Washington-Arlington-Alexandria, DC-VA-MD-WV	6,280,487	51-059-0031	Fairfax County	21	9.0
Virginia Beach-Norfolk-Newport News, VA-NC	1,726,907	51-650-0008	Hampton City	14	6.3
Virginia Beach-Norfolk-Newport News, VA-NC	1,726,907	51-710-0024	Norfolk City	14	6.9
Virginia Beach-Norfolk-Newport News, VA-NC	1,726,907	51-810-0008	Virginia Beach City	15	6.8
Richmond, VA	1,281,708	51-760-0025	Richmond City	19	8.3
Richmond, VA	1,281,708	51-036-0002	Charles City County	14	6.7
Richmond, VA	1,281,708	51-041-0004	Chesterfield County	14	6.8
Richmond, VA	1,281,708	51-087-0015	Henrico County	14	6.9
Richmond, VA	1,281,708	51-087-0014	Henrico County	15	7.1

Virginia Monitoring Network Site Monitoring Listing

The detailed listing of all monitors at all sites in Virginia is contained in a spreadsheet that is included with this notice. Due to the size and complexity of the spreadsheet it is being posted separately from document. The document is entitled "VA SITE LISTING 2020 AQCR I-VII DRAFT".

VA DEQ, AQCR I SOUTHWEST VIRGINIA, July 1, 2020

SITE I.D.	POLLUTANT MEASURED	METHOD OR INSTRUMENT (method code)	SAMPLING INTERVAL	MONITORING OBJECTIVE	SCALE	START DATE**	BEGINNING DATE	MONITOR NETWORK	MONITOR TYPE	LOCATION	LONGITUDE	LATITUDE	CBSAs/ MSAs	
51-035-0001/(23-A)	PM-10 (81102)	SSI HI VOL (062)	1/6	Population	Neighborhood	5/28/89	5/28/89		SLAMS	Carroll Co. - Gladeville Elem. Scl	-80.8798	36.7007	None	
51-197-0002/(16-B)	O3 (44201)	UV Absorption (047)	Continuous	Population Background	Regional	4/1/90	09/12/07		SLAMS	Rural Retreat - Wythe County Se	-81.2542	36.8912	None	
51-520-0006/(101-E)	'PM2.5 FRM* (88101	Sequential (145)	1/3	Population Highest Concentration	Neighborhood	1/1/99	12/28/16		SLAMS	Bristol - Highland View Elem. Scl	-82.1641	36.6080	28700/	Kingsport-Bristol-Bristol, TN-VA

There are no collocated monitors in AQCR I

*** Per 58.10(b)(7) this site is suitable for comparison with the NAAQS as described in 40 CFR §58.30.**

**** Start Date is the date that sampling began . Beginning Date is the date that monitoring commenced using the current method code.**

VA DEQ, AQCR II VALLEY OF VIRGINIA, July 1, 2020

	POLLUTANT	METHOD OR INSTRUMENT (method code)	SAMPLING INTERVAL	MONITORING OBJECTIVE	SCALE	START** DATE	BEGINNING DATE	MONITOR NETWORK	MONITOR TYPE	LOCATION	LONGITUDE	LATITUDE	CBSAs/ MSAs	
51-069-0010 (28-J)	O3(44201) PM2.5 FRM* (88101) PM2.5 (88501)	UV Absorption (047) Sequential (145) TEOM (701)	Continuous 1/3 Continuous	Population Population Population	Urban Urban Urban	4/1/91 11/8/07 11/6/07	4/6/06 12/28/16 11/6/07		SLAMS SLAMS OTHER	Rest, Frederick County - Lester Buildings	-78.0816	39.2810	49020/	Winchester, VA-WV
51-840-0002 (134-C)	PM-10 (81102)	SSI HI VOL (062)	1/6	Population	Neighborhood	9/13/89	9/13/89		SLAMS	Winchester - Courts Bldg.	-78.1631	39.1840	49020/	Winchester, VA-WV
51-161-1004 (19-A6)	NO2 (42602) O3(44201) SO2 (42401) CO (42101) PM2.5 FRM* (88101) PM2.5 (88101)	Chemiluminescence (074 UV Absorption (047) Fluorescence (060) Gas Filter Corr. (054) Sequential (145) Broadband Spectroscopy (236)	Continuous Continuous Continuous Continuous 1/3 Continuous	Population Population Population Population Population Background	Urban Urban Urban Urban Urban Urban	1/1/81 1/1/81 2/4/87 2/4/87 6/29/13 6/28/13	3/20/07 4/1/07 5/20/09 3/18/13 12/28/16 6/28/13		SLAMS SLAMS SLAMS SLAMS SLAMS SPM	Vinton - Roanoke Co. Herman Horn ES	-79.8845	37.2834	40220/	Roanoke, VA
51-163-0003 (21-C)	O3(44201) PM2.5*** (88502)	UV Absorption (047) IMPROVE (707)	Continuous 1/3	Background Transport	Regional Regional	4/8/99 9/1/94	9/15/06 9/1/94	IMPROVE	SLAMS	Rockbridge Co. - Natural Bridge Station	-79.5126	37.6267	None	
51-165-0003 (26-F)	SO2 (42401) NO2 (42602) PM2.5 FRM* (88101) O3(44201)	Fluorescence (060) Chemiluminescence (074 Sequential (145) UV Absorption (047)	Continuous Continuous 1/3 Continuous	Population Population Population Population	Urban Urban Urban Urban	4/13/04 4/13/04 1/3/07 4/1/07	8/24/10 10/6/06 12/27/16 4/1/07		SLAMS SLAMS SLAMS SLAMS	Rockingham Co. - VDOT	-78.8195	38.4775	25500/	Harrisonburg, VA
51-775-0011 (110-C)	PM2.5 FRM* (88101)	Sequential (145)	1/3	Population	Neighborhood	11/1/08	12/28/16		SLAMS	Salem - Salem High School	-80.0810	37.2979	40220/	Roanoke, VA
51-770-0016 (109-N)	TSP-Lead (14129)	Hi-Vol/ICP-MS TSP Sampler (192)	1/6	Source Oriented	Middle	12/11/14	12/11/14		SLAMS	Roanoke City Mario Industries 2490 Patterson Ave.	-79.9857	37.2749	40220/	Roanoke, VA
51-121-0009 (18-C)	TSP-Lead (14129)	Hi-Vol/ICP-MS TSP Sampler (192)	1/6	Source Oriented	Middle	10/4/17	10/4/17		SLAMS	Montgomery County Stroubles Creek WWTP 5277 Prices Fork Rd.	-80.51606	37.18494	13980/	Blacksburg-Christiansburg-Radford, VA
51-023-0004 (20-E)	SO2 (42401)	Fluorescence (100)	Continuous	Source Oriented	Neighborhood	1/1/17	1/1/17		INDUSTRIAL (SLAMS-equivalent)	Botetourt County Roanoke Cement 6071 Catawba Road	-79.98649	37.44796		
51-071-0007 (9-I)	SO2 (42401)	Fluorescence (100)	Continuous	Source Oriented	Neighborhood	1/1/17	1/1/17		INDUSTRIAL (SLAMS-equivalent)	Giles County Lhoist North America 2093 Big Stony Creek Rd.	-80.6539	37.3863		
51-580-0008 (104-M)	SO2 (42401)	Fluorescence (060)	Continuous	Source Oriented	Neighborhood	1/1/17	1/7/17		INDUSTRIAL (SLAMS-equivalent)	Covington City WestRock, Inc. 104 west Riverside St.	-79.9908	37.79139		

There are two collocated monitors in AQCR II. A collocated PM2.5 is located at 51-069-0010, Frederick County and a collocated TSP-Lead monitor is located at 51-121-0009, Montgomery County.

* **Per 58.10(b)(7) this site is suitable for comparison with the NAAQS as described in 40 CFR §58.30.**

** **Start Date is the date that sampling began . Beginning Date is the date that monitoring commenced using the current method code.**

*** **Required Transport Site per 40 CFR Part 58 Appendix D paragraph 4.7.3**

VA DEQ, AQCR III CENTRAL VIRGINIA, July 1, 2020

SITE I.D.	POLLUTANT MEASURED	METHOD OR INSTRUMENT	SAMPLING INTERVAL	MONITORING OBJECTIVE	SCALE	START** DATE	BEGINNING DATE	MONITOR NETWORK	MONITOR TYPE	LOCATION	LONGITUDE	LATITUDE	CBSAs/ MSAs	
51-680-0015 (155-Q)	PM2.5 FRM* (88101)	Sequential (145)	1/3	Population	Neighborhood	4/1/03	12/28/16		SLAMS	Lynchburg - Water Tank	-79.2150	37.3327	31340/	Lynchburg, VA

* **Per 58.10(b)(7) this site is suitable for comparison with the NAAQS as described in 40 CFR §58.30.**

** **Start Date is the date that sampling began . Beginning Date is the date that monitoring commenced using the current method code.**

VA DEQ, AQCR IV NORTHEAST VIRGINIA, July 1, 2020

SITE I.D.	POLLUTANT MEASURED	METHOD OR INSTRUMENT	SAMPLING INTERVAL	MONITORING OBJECTIVE	SCALE	START** DATE	BEGINNING DATE	MONITOR NETWORK	MONITOR TYPE	LOCATION	LONGITUDE	LATITUDE	CBSAs/ MSAs	
51-033-0001 (48-A)	O3(44201)	UV Absorption (047)	Continuous Continuous	Background	Regional	4/1/93	4/1/07		SLAMS	Caroline Co. - USGS Geomagnetic Center	-77.3774	38.2009	40060/	Richmond, VA
51-061-0002 (37-B)	O3(44201)	UV Absorption (047)	Continuous	Background	Regional	8/11/81	4/1/06		SLAMS	Fauquier Co. - Phelps Wildlife Area	-77.7677	38.4737	47900/	Washington-Arlington-Alexandria, DC-VA-MD-W
51-179-0001 (44-A)	O3(44201) PM-10 (81102)	UV Absorption (047) SSI HI VOL (062)	Continuous 1/6	Population Population	Urban Neighborhood	9/1/92 3/8/17	4/1/06 3/8/17		SLAMS	Stafford Co. - Widewater	-77.3704	38.4812	47900/	Washington-Arlington-Alexandria, DC-VA-MD-W
51-113-0003 (N-35-A)	O3(44201) PM2.5 (88502) PM2.5 (88501)	UV Absorption (047) IMPROVE TEOM (701)	Continuous 1/3 Continuous	Background Background	Regional Regional	5/1/83 5/12/04	4/1/95 5/12/04	CASTNET IMPROVE	EPA OTHER	Madison County - Shenandoah Nat'l Park Big Meadows	-78.4347	38.5231	None	
51-003-0001 33-A	O3(44201) PM2.5 FRM* (88101) PM2.5 FEM (88101)	UV Absorption (047) Sequential (145) Broadband Spectroscopy (236)	Continuous 1/3 Continuous	Population Population Population	Regional Neighborhood Neighborhood	4/1/08 4/1/08 4/1/08	4/1/08 12/27/16 12/18/18		SLAMS SLAMS SLAMS	Albemarle Co. - Albemarle HS	- 78.5040	38.0766	16820/	Charlottesville, VA

There are no collocated monitors in AQCR IV

* **Per 58.10(b)(7) this site is suitable for comparison with the NAAQS as described in 40 CFR §58.30.**

** **Start Date is the date that sampling began . Beginning Date is the date that monitoring commenced using the current method code.**

VA DEQ, AQCR V STATE CAPITOL, July 1, 2020

SITE I.D.	POLLUTANT MEASURED	METHOD OR INSTRUMENT	SAMPLING INTERVAL	MONITORING OBJECTIVE	SCALE	START** DATE	BEGINNING DATE	MONITOR NETWORK	MONITOR TYPE	LOCATION	LONGITUDE	LATITUDE	CBSAs/ MSAs	
51-036-0002	O3(44201)	UV Absorption (047)	Continuous	Population	Urban	4/1/88	3/5/08		SLAMS	Charles City Co. -	-77.2593	37.3444	40060/	Richmond, VA
(75-B)	SO2 (42401)	Fluorescence (060)	Continuous	Highest Concentration	Urban	1/1/92	5/15/07		SLAMS	Route #608 Shirley Plantation				
	NO2 (42602)	Chemiluminescence (074)	Continuous	Population	Neighborhood	3/9/93	3/5/08		SLAMS					
	PM2.5 FRM* (88101)	Sequential (145)	1/3	Population	Urban	1/1/99	12/12/16		SLAMS					
51-041-0004	O3(44201)	UV Absorption (047)	Continuous	Population	Neighborhood	1/1/81	4/1/06		SLAMS	Chesterfield Co. -	-77.5936	37.3575	40060/	Richmond, VA
(71-H)	PM2.5 FRM* (88101)	Sequential (145)	1/3	Population	Neighborhood	1/1/17	8/9/16			Beach Rd. VDOT				
51-085-0003	O3(44201)	UV Absorption (047)	Continuous	Highest Concentration	Urban	4/1/01	4/4/06		SLAMS	Hanover Co. -	-77.2188	37.6061	40060/	Richmond, VA
(73-E)										McClellan Road				
51-087-0014	O3(44201)	UV Absorption (047)	Continuous	Population	Neighborhood	6/23/81	4/1/05		SLAMS	Henrico Co. -	-77.4003	37.5565	40060/	Richmond, VA
(72-M)	Trace CO (42101)	Gas Filter Corr. (554)	Continuous	Population	Neighborhood	10/12/10	10/12/10	NCore	SLAMS	MathScience Center				
	Trace SO2 (42401)	Fluorescence (560)	Continuous	Population	Neighborhood	01/01/82	10/12/10	NCore	SLAMS					
	PM2.5 FRM* (88101)	Sequential (145)	1/3	Population	Neighborhood	1/1/99	12/30/16		SLAMS					
	PM2.5 FEM (88101)	Broadband Spectroscopy (236)	Continuous	Population	Neighborhood	2/17/00	1/8/19		Other					
	PM2.5 Speciation (88502)	MetOne SASS (811,812)	1/3 Mini-Trends	Population	Neighborhood	1/1/04	1/1/04	CSN, NCore	EPA					
	PM2.5 Carbon (88313)	URG 3000N (838)	1/3 Mini-Trends	Population	Neighborhood	1/1/10	1/1/10	CSN, NCore	EPA					
	PM-10 (81102)	SSI HI VOL (062)	1/6	Population	Neighborhood	7/23/08	7/23/08		SLAMS					
	PM10-2.5 (86101)	Sequential (176)	1/3	Population	Neighborhood	6/1/10	6/1/10	NCore						
	Metals	SSI HI VOL (062)	1/6	Population	Neighborhood	11/1/08	11/1/08	NATTS	SLAMS					
	Carbonyl	TO-11A	1/6	Population	Neighborhood	11/1/08	11/1/08	NATTS	SLAMS					
	VOCs	TO-15	1/6	Population	Neighborhood	11/1/08	11/1/08	NATTS	SLAMS					
	PAH	TSP	1/6	Population	Neighborhood	11/1/08	11/1/08	NATTS	SLAMS					
	NOy (42600)	Chemiluminescence (699)	Continuous	Population	Neighborhood	1/1/12	9/26/19	NCore						
	NO2 Trace (42602)	Photolytic - Chemiluminescence (099)	Continuous	Vulnerable and Susceptible Population	Neighborhood	1/1/10	9/1/18	NCore						
	NO2, True (42602)	CAPS (212)	Continuous	Population	Neighborhood	11/1/18	11/1/18	PAMS						
	Meteorological Instrumentation	Wind Speed, Humidity Temp., Wind direction Barometric Pressure, Rainfall, total Solar radiation UV radiation,	Continuous	Population	Neighborhood	1/1/11	4/1/17	NCore/PAMS						
51-087-0015	PM2.5 FRM* (88101)	Sequential (145)	1/3	Population	Neighborhood	1/1/99	12/30/16		SLAMS	Henrico Co. -	-77.5664	37.6713	40060/	Richmond, VA
(72-N)										Piedmont DEQ				
51-670-0010	PM-10 (81102)	SSI HI VOL (062)	1/6	Population	Neighborhood	11/8/08	11/8/08		SLAMS	Hopewell -	-77.2918	37.2896	40060/	Richmond, VA
(154-M)	Metals	TSP/ICPMS (191)	1/6	Population	Neighborhood	11/8/08	11/8/08		OTHER	Carter G. Woodson				
	VOCs	TO-15	1/6	Population	Neighborhood	11/8/08	11/8/08		OTHER	Middle School				
	Carbonyl	TO-11	1/6	Population	Neighborhood	11/8/08	11/8/08		OTHER					
51-760-0025	NO2 (42602)	Chemiluminescence (074)	Continuous	Source Oriented	Microscale	10/1/13	10/1/13	NEAR ROAD	SLAMS	City of Richmond -	77.4693	37.5909	40060/	Richmond, VA
(158-X)	CO (42101)	Gas Filter Corr. (054)	Continuous	Source Oriented	Microscale	10/1/13	10/1/13	NEAR ROAD	SLAMS	Joseph Bryan Park				
	PM2.5 FEM (88101)	Beta Attenuation (183)	Continuous	Source Oriented	Microscale	1/1/15	1/1/15	NEAR ROAD	SLAMS					
	PM2.5 FRM* (88101)	Sequential (145)	1/3	Source Oriented	Microscale	7/4/16	7/4/16	NEAR ROAD	SLAMS					

There are 3 collocated monitors in AQCR V. At Station 72-M, 510870014 - collocated PM2.5 FRM and Collocated Hi Vol PM10 and a collocated PM2.5 Beta Attenuation monitor at 158-X, 517600025 .

* **Per 58.10(b)(7) this site is suitable for comparison with the NAAQS as described in 40 CFR §58.30.**

** **Start Date is the date that sampling began . Beginning Date is the date that monitoring commenced using the current method code.**

VA DEQ, AQCR VI HAMPTON ROADS, July 1, 2020

SITE I.D.	POLLUTANT MEASURED	METHOD OR INSTRUMENT	SAMPLING INTERVAL	MONITORING OBJECTIVE	SCALE	START** DATE	BEGINNING DATE	MONITOR NETWORK	MONITOR TYPE	LOCATION	LONGITUDE	LATITUDE	CBSAs/ MSAs	
51-650-0008	O3(44201)	UV Absorption (047)	Continuous	Population	Neighborhood	4/2/10	4/2/10		SLAMS	Hampton City -	-76.3870	37.1037	47260/	Virginia Beach-Norfolk-Newport News, VA-N
(179-K)	SO2 (42401)	Fluorescence (060)	Continuous	Population	Neighborhood	6/23/10	6/23/10		SLAMS	NASA Langley				
	NO2 (42602)	Chemiluminescence (074	Continuous	Population	Neighborhood	4/8/10	4/8/10		SLAMS	CAPABLE Site				
	CO (42101)	Gas Filter Corr. (054)	Continuous	Population	Neighborhood	6/23/10	6/23/10		SLAMS					
	PM2.5 FRM* (88101)	Sequential (145)	1/3	Population	Neighborhood	6/23/10	12/28/16		SLAMS					
	PM2.5 FEM (88101)	Beta Attenuation (183)	Continuous	Population	Neighborhood	6/23/10	4/10/17		SPM					
	PM10 (81102)	SSI HI VOL (062)	1/6	Population	Neighborhood	6/13/10	6/13/10		SLAMS					
51-710-0024	SO2 (42401)	Pulsed Fluorescence (100	Continuous	Population	Neighborhood	10/27/06	4/1/18		SLAMS	Norfolk City -	-76.3014	36.8556	47260/	Virginia Beach-Norfolk-Newport News, VA-N
(181-A1)	NO2 (42602)	Chemiluminescence (074	Continuous	Population	Neighborhood	1/23/07	1/23/07		SLAMS	NOAA Storage				
	CO (42101)	Gas Filter Corr. (054)	Continuous	Population	Neighborhood	10/27/06	1/06/11		SLAMS	Facility				
	PM10 (81102)	SSI HI VOL (062)	1/6	Population	Neighborhood	6/21/97	6/21/97		SLAMS					
	PM2.5 FRM* (88101)	Sequential (145)	1/3	Population	Neighborhood	1/1/99	12/28/16		SLAMS					
51-800-0004 (183-E)	O3(44201)	UV Absorption (047)	Continuous	Population	Urban	3/24/87	4/1/06		SLAMS	Suffolk City - Tidewater Community College	-76.4381	36.9012	47260/	Virginia Beach-Norfolk-Newport News, VA-N
51-800-0005 (183-F)	O3(44201)	UV Absorption (047)	Continuous	Population	Urban	4/1/91	4/1/05		SLAMS	Suffolk City - Tidewater Research Station, Holland	-76.7308	36.6653	47260/	Virginia Beach-Norfolk-Newport News, VA-N
51-810-0008	PM2.5 FRM* (88101)	Sequential (145)	1/3	Population	Neighborhood	1/1/99	12/30/16		SLAMS	VA Beach City -	-76.1812	36.8419	47260/	Virginia Beach-Norfolk-Newport News, VA-N
(184-J)	VOC	TO-15	1/6	Background	Neighborhood	8/14/05	7/1/05		OTHER	VA Beach DEQ Office				
	Carbonyl	TO-11A	1/6	Background	Neighborhood	8/14/05	7/1/05		OTHER					
	Metals	TSP/ICPMS (191)	1/6	Background	Neighborhood	8/14/05	8/2/05		OTHER					

There are two collocated monitors in AQCR VI. Collocated PM10 at 181-A1, 517100024, the NOAA Storage Facility in Norfolk, and collocated PM2.5 (FEM and FRM) at 179-K, 516500008, NASA Langley.

* **Per 58.10(b)(7) this site is suitable for comparison with the NAAQS as described in 40 CFR §58.30.**

** **Start Date is the date that sampling began . Beginning Date is the date that monitoring commenced using the current method code.**

VA DEQ, AQCR VII NORTHERN VIRGINIA, July 1, 2020

SITE I.D.	POLLUTANT MEASURED	METHOD OR INSTRUMENT	SAMPLING INTERVAL	MONITORING OBJECTIVE	SCALE	START** DATE	BEGINNING DATE	MONITOR NETWORK	MONITOR TYPE	LOCATION	LONGITUDE	LATITUDE	CBSAs/ MSAs	
51-013-0020	O3(44201)	UV Absorption (047)	Continuous	Population	Neighborhood	1/1/78	4/1/05		SLAMS	Arlington -	-77.0592	38.8577	47900/	Washington-Arlington-Alexandria, DC-VA-MD-WV
(47-T)	NO2 (42602)	Chemiluminescence (074)	Continuous	Population	Neighborhood	1/1/78	5/25/06		SLAMS	Aurora Hills				
	CO (42101)	Gas Filter Corr. (054)	Continuous	Population	Neighborhood	1/1/78	5/1/09		SLAMS	Visitors Center				
	PM2.5 FRM* (88101	Sequential (145)	1/3	Population	Neighborhood	1/1/99	12/30/16		SLAMS					
51-059-0030	O3(44201)	UV Absorption (047)	Continuous	Population	Urban	7/1/98	4/1/06		SLAMS	Fairfax -	-77.1047	38.7734	47900/	Washington-Arlington-Alexandria, DC-VA-MD-WV
(46-B9)	SO2 (42401)	Fluorescence (060)	Continuous	Population	Neighborhood	01/08/14	01/08/14		SLAMS	Lee District park				
	PM2.5 FRM* (88101	Sequential (145)	1/3	Population	Neighborhood	1/1/99	12/30/16		SLAMS					
	PM2.5 FEM (88101)	Broadband Spectroscopy (236)	Continuous	Population	Neighborhood	6/22/10	10/1/19		SPM					
	PM10 (81102)	SSI HI VOL (062)	1/6	Population	Neighborhood	5/6/15	5/6/15		SLAMS					
51-107-1005	O3(44201)	UV Absorption (047)	Continuous	Population	Neighborhood	4/4/98	8/25/05		SLAMS	Loudoun Co. -	-77.4893	39.0247	47900/	Washington-Arlington-Alexandria, DC-VA-MD-WV
(38-I)	NO2 (42602)	Chemiluminescence (074)	Continuous	Population	Neighborhood	4/4/98	3/23/06		SLAMS	Broad Run H.S.				
	PM2.5 FRM* (88101	Sequential (145)	1/3	Population	Neighborhood	1/1/99	12/30/16		SLAMS					
51-153-0009	O3(44201)	UV Absorption (047)	Continuous	Population	Neighborhood	4/1/91	4/1/06		SLAMS	Prince Wm. Co.	-77.6346	38.8529	47900/	Washington-Arlington-Alexandria, DC-VA-MD-WV
(45-L)	NO2 (42602)	Chemiluminescence (074)	Continuous	Population	Neighborhood	4/1/94	12/13/05		SLAMS	Long Park				
51-510-0020 (L-126-H)	PM10 (81102)	SSI HI VOL (062)	1/3	Population	Source Oriented	6/4/06	1/1/09		SPM	Alexandria - Tucker Elem. Sch.	-77.1269	38.8049	47900/	Washington-Arlington-Alexandria, DC-VA-MD-WV
51-059-0031	NO2 (42602)	Chemiluminescence (074)	Continuous	Source Oriented	Microscale	4/5/16	4/5/16	NEAR ROAD	SLAMS	Fairfax County	-77.1835	38.7684	47900/	Washington-Arlington-Alexandria, DC-VA-MD-WV
(46-C2)	CO (42101)	Gas Filter Corr. (054)	Continuous	Source Oriented	Microscale	4/5/16	4/5/16	NEAR ROAD	SLAMS	Backlick Rd. Park				
	PM2.5 FEM (88101)	Beta Attenuation (183)	Continuous	Source Oriented	Microscale	4/5/16	4/5/16	NEAR ROAD	SLAMS	and Ride				

There is 1 collocated monitor in AQCR7.
A collocated PM2.5 FRM is located at Station 47-T, 510130020, Aurora Hills Visitor Center, Arlington

* **Per 58.10(b)(7) this site is suitable for comparison with the NAAQS as described in 40 CFR §58.30.**

** **Start Date is the date that sampling began . Beginning Date is the date that monitoring commenced using the current method code.**

Appendix A Shut down Lead TSP Sampler 51-770-0016, 109-N, Patterson Ave site, City of Roanoke AQCR2

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

OFFICE OF AIR QUALITY MONITORING

Street Address: 4949-C Cox Road, Glen Allen, Virginia 23060

(804) 527-5178 Fax (804) 527-5160

www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

May 1 2020

Mr. Cosmo Servidio
Regional Administrator
U.S. EPA Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

Dear Mr. Servidio:

Virginia Department of Environmental Quality (DEQ) is formally requesting a waiver of the requirement for a source oriented Lead-TSP monitor in Roanoke City, Virginia. Appendix D of 40 CFR part 58 requires that state agencies install source oriented monitors at locations near sources that emit more than one half ton per year of Lead air emissions. This section of the regulations also provides the criteria for requesting a waiver of this requirement. The technical and regulatory basis for this request is outlined in Attachment A to this letter.

The original Lead monitor has been in place since November 1, 2014. The monitor has been in operation since this date and the most recent analytical information from this site indicates that there is no concern relative to any NAAQS compliance issues, and the maximum value for this site is below the regulatory threshold of less than 50 percent of the ambient air standard. The most recent design value calculations for this site are included in Attachment B to this letter. If you have any questions regarding this waiver request, please contact Chuck Turner, Manager of DEQ's Office of Air Quality Monitoring, at (804) 527-5178. Thank you for your consideration of this request.

Sincerely

David K. Paylor

Attachment A. - Waiver Request, Monitoring Site EPA No. 51-770-0016, Roanoke Lead TSP Site, Roanoke City, Air Quality Control Region 3

Regulatory Basis for Waiver Request

The requirement to submit an annual monitoring network plan is contained in 40 CFR §58.10 entitled "Annual monitoring network plan and periodic network assessment". Paragraph 10 of §58.10 allows for a waiver request for source oriented Lead TSP monitors according to the requirements of paragraph 4.5(a)(ii) of Appendix D to 40 CFR part 58. The basis upon which a waiver can be granted from the criteria from paragraph 4.5(a) (ii) is as follows:

the State ... can demonstrate the Pb source will not contribute to a maximum Pb concentration in ambient air in excess of 50 percent of the NAAQS (based on historical monitoring data, modeling, or other means).

Applicable Ambient Air Standard

The primary and secondary ambient air quality standard for Lead TSP is specified in 40 CFR §50.16(a) and is described as "0.15 micrograms per cubic meter, arithmetic mean concentration over a 3-month period, measured in the ambient air as **Pb". The method** by which compliance with these standards is demonstrated is contained in paragraph (b) of the same section which states that "The national primary and secondary ambient air quality standards for Pb are met when **the** maximum arithmetic 3-month mean concentration for a 3-year period, as determined in accordance with appendix R of this part, is less than or equal to 0.15 micrograms per cubic meter".

Background

The Source-oriented Lead TSP monitor located at the Roanoke City monitoring site (EPA no. 51-770-0016) was designated a source-oriented monitor intended to determine the ambient impacts on the ambient lead concentration from Roanoke Electric Steel (d/b/a Steel dynamics Roanoke Bar Division) air emissions. . The monitor is located on grounds of Mario Industries located at 2213 Patterson Avenue in the City of Roanoke. The site began operating on Nov. 1, 2014 and has been in operation since that time.

Request for Waiver

The Virginia Department of Environmental Quality is requesting a waiver of the requirement to locate a source oriented monitor for the purpose of determining ambient lead impacts from Roanoke Electric Steel Company (d/b/a Steel Dynamics Roanoke Bar Division). The monitor has operated for more than three years so a regulatorily accurate design value for Lead can be determined. The AQS AMP 480 Design Value Report for design value years 2017 -2019 indicates that the design value for this monitor is .02 which is less than 50% of the NAAQS which is the criteria for granting the waiver. The AQS AMP 480 report is attached for your review.

ATTACHMENT B. AQS DESIGN VALUE REPORT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

User ID: SQW

DESIGN VALUE REPORT

Report Request ID: 1829787 Report Code: AMP480 Apr. 8, 2020

GEOGRAPHIC SELECTIONS

Tribal Code	State	County	Site	Parameter	POC	City	AQCR	UAR	CBSA	CSA	EPA Region
	51	770	0016								

PROTOCOL SELECTIONS

Parameter Classification	Parameter	Method	Duration
DESIGN VALUE	1412	9	

SELECTED OPTIONS

Option Type	Option Value
WORKFILE DELIMITER	
SINGLE EVENT PROCESSING	EXCLUDE REGIONALLY CONCURRED EVENTS
QUARTERLY DATA IN WORKFILE	NO
AGENCY ROLE	PQAO
USER SITE METADATA	STREET ADDRESS
MERGE PDF FILES	YES
USE LINKED SITES	YES

DATE CRITERIA

Start Date	End Date
2019	2019

APPLICABLE STANDARDS

Standard Description
Lead 3-Month 2009

Selection Criteria Page 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
PRELIMINARY DESIGN VALUE REPORT

Report Date: Apr 8, 2020

Notes: 1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk (.*').

Pollutant: Lead (TSP) LC(14129)
Standard Units: Micrograms/cubic meter (LC) (105)
Standard: Lead 3-Month 2009
Statistic:3-Month Rolling Average **Level:** 15

Design Value Year: 2019
REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS. NAAQS
State Name: Virginia

Site ID	STREET ADDRESS	[Max Maximum 2019	Total, Certt& valid i[1] Max maxim= Max	2018 1 Valid[t1]	Total 1	2017	Cert&Valid (Max MaxCertZn [1 3-Year] DV and
		'Value Month EAENLIEval Monthly/aloe Month Parmum[vs]l Months [IValueMonthEALVIEval] m[es]th[s]Valid MmatIE months					
51-770-0016	2213 Patterson Ave, Roar	.01 JAN 14129	12	.02 JAN 14129	Y	12	.02 DEC 14129 Y 12 .02 YJAN 2018 36

Notes: 1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('•').

CERTIFICATION EVALUATION AND CONCURRENCE FLAG MEANINGS

FLAG	MEANING
	The monitoring organization has revised data from this monitor since the most recent certification letter received from the state.
N	The certifying agency has submitted the certification letter and required summary reports, but the certifying agency and/or EPA has determined that issues regarding the quality of the ambient concentration data cannot be resolved due to data completeness, the lack of performed quality assurance checks or the results of uncertainty statistics shown in the AMP255 report or the certification and quality assurance report.
	The certifying agency has submitted the certification letter and required summary reports. A value of "S. conveys no Regional assessment regarding data quality per se. This flag will remain until the Region provides an "N. or "Y" concurrence flag.
	Uncertified. The certifying agency did not submit a required certification letter and summary reports for this monitor even though the due date has passed, or Lie state's certification letter specifically did not apply the certification to this monitor.
	Certification is not required by 40 CFR 5P.15 and no conditions apply to be the basis for assigning another flag value
	The certifying agency has submitted a certification letter, and EPA has no unresolved reservations about data quality (after reviewing the letter, the attached summary reports, the amount of quality assurance data submitted to ADS, the quality statistics, and the highest reported concentrations).

Notes: 1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk (..').

Appendix B SO2 DRR Monitors

Request to shutdown 51-023-0004, 20-E, Roanoke Cement Company DRR SO2 monitor and 51-580-0008, 104-M, WestRock, Inc. DRR SO2 monitor

Data Requirements Rule – SO_2 Monitoring Waivers

1. So_2 Data Requirements Rule

On Aug. 10, 2015, the EPA finalized requirements to monitor or model ambient sulfur dioxide (SO_2) levels in areas with large sources of SO_2 emissions to help implement the 1-hour SO_2 NAAQS. This rule is known as the Data Requirements Rule or the SO_2 DRR. The final rule establishes that states, local and tribal agencies must characterize air quality around sources that emit 2,000 tons per year (tpy) or more of SO_2. Sources may avoid the requirement for air quality characterization near a source by adopting enforceable emission limits that ensure that the source will not emit more than 2,000 tpy of SO_2. The final rule gives agencies and sources the flexibility to characterize air quality using either modeling of actual source emissions or using appropriately sited ambient air quality monitors. Modeling and monitoring are both appropriate ways to assess local SO_2 concentrations, and this flexibility allows agencies to work with the sources to select a cost-effective approach that adequately characterizes each required area.

Three sources within the Commonwealth of Virginia elected to install monitoring sites as a means of demonstrating compliance with the 1-hour SO_2 National Ambient Air Quality Standard. These sources are listed below:

Table 11 – Facilities that are monitoring for SO_2 due to the DRR

Federal ID	Facility	2014 Annual SO_2 Emissions (tpy)
VA000005158000003	WestRock – Covington Mill	5,558
VA000005102300003	Roanoke Cement Company	2,398
VA000005107100001	Lhoist North America – Kimballton Plant	6,294

2. Three Year Source Monitoring Results

These sources have been monitoring since Jan. 1, 2017 and as of Jan. 1, 2020 have 3 years of data which can be used to calculate the Design Value for these sites consistent with per 40 CFR Part 50, Appendix T. In addition to the monitoring requirements the DRR included conditions by which a source can request a monitor shutdown after three years of operation. The conditions for the three year shut down are contained in 40 CFR 51.1203(c) (3) and state as follows:

Any SO_2 monitor identified by an air agency in its approved Annual Monitoring Network Plan as having the purpose of meeting the requirements of this paragraph (c) that: Is not located in an area designated as nonattainment as the 2010 SO_2 NAAQS is not also being used to satisfy other ambient SO_2 minimum monitoring requirements listed in 40 CFR part 58, appendix D, section 4.4; and is not otherwise required as part of a SIP, permit, attainment plan or maintenance plan, may be eligible for shut down upon EPA approval if it produces a design value no greater than 50 percent of the 2010 SO_2 NAAQS from data collected in either its first or second 3-year period of operation. The air agency must receive EPA Regional Administrator approval of a request to cease operation of the monitor as part of the EPA's action on the Annual Monitoring Network Plan under 40 CFR 58.10 prior to shutting down any qualifying monitor under this paragraph (c).

Any source requesting the shut down as outlined above must demonstrate a calculated design value of no greater than 50% of the 2010 SO_2 NAAQS. The 2010 SO_2 NAAQS value is 75 parts per billion calculated from the 99th percentile of the 1-hour daily maximums averaged over 3 years.

On Feb. 27, 2020 Roanoke Cement Corporation (RCC) submitted a data certification package to the DEQ that both certified the 2019 monitored data and requested approval to remove the Air Quality monitoring site installed to meet the DRR monitor requirements and located at 37.44796 N latitude and -79.98649 W Longitude. In support of this request RCC provided the Design Value (DV) calculation for the years 2017 – 2019. The calculated DV for RCC is 35 ppb.

On March 2, 2020 WestRock Company submitted a data certification package to the DEQ that both certified the 2019 monitored data and requested approval to remove the Air Quality monitoring site installed to meet the DRR monitor requirements and located at 37.79139 N latitude and -79.9908 W Longitude. In support of this request WestRock provided the Design Value (DV) calculation for the years 2017 – 2019. The calculated DV for RCC is 33 ppb.

3. DEQ Concurrence and EPA Review and Approval

DEQ reviewed the certifications submitted by both RCC and WestRock. In review of the certification packages from both Companies DEQ deemed that the certification processes in AQS were complete. As a component of the certification review process DEQ concurred with the AQS recommendation for certification. DEQ transmitted the entire certification package containing DEQ's concurrence, both RCC's and Westrock's shut down requests, the AMP 600 Certification and Concurrence Report for both facilities and the AMP450 Quick Look report for both companies on March 4, 2020.

On Aug. 6, 2019 (re-sent Jan. 8, 2020) AQM received an e-mail from EPA Region III outlining the procedures for requesting and receiving approval from EPA to shut down SO_2 DRR monitors based on the requirements outlined in 40 CFR §51.1203 (c) (3). The procedures laid out by EPA can be broken down as follows:

a. The entity must submit data for the specified, qualifying monitor(s), and certify those data so that a design value may be calculated (per 40 CFR Part 50, Appendix T) that meets the requirements under 40 CFR 51.1203(c)(3);
b. If data collected from the monitor(s)…produces a valid design value no greater than 50% of the NAAQS (which is 37.5 ppb), the monitor(s) is/are eligible for shut down.
c. Monitors that meet b. above are eligible for shutdown so long as it is not/they are not:
    1. located in an area designated as nonattainment of the 2010 SO_2 NAAQS;
    2. being used to satisfy other ambient SO_2 minimum monitoring requirements listed in 40 CFR Part 58, Appendix D, section 4.4; and
    3. not otherwise required as part of a SIP, permit, attainment plan or maintenance plan.

In addition to meeting the concentration requirement in b. above, both RCC and WestRock meet the requirements of c. above.

In addition to a., b. and c. above, the citation at 40 CFR 51.1203 (c) (3) includes the requirement that (t)he air agency must receive EPA Regional Administrator approval of a request to cease

operation of the monitor as part of the EPA's action on the Annual Monitoring Network Plan under 40 CFR 58.10 prior to shutting down any qualifying monitor under this paragraph (c). The Aug. 6 e-mail addresses the EPA approval process as follows:

a. If, at the time of (the) future request, the entity successfully submits data that demonstrate that the monitor[s] is/are eligible and the EPA calculates a valid design value that is no greater than 50% of the 2010 SO_2 NAAQS, the EPA Region 3 anticipates that at that time it will approve the entity's request.
b. Entity may only shut-down the monitor upon receipt of EPA approval.
c. The entity shall notify the EPA Regional office upon actual monitor shut-down and the specifics of that shut-down shall be reflected in the (state/local's) next Annual Monitoring Network Plan, which shall include the date of shut-down, and specific data and references to the satisfaction of the criteria listed above.

In a letter dated April 22, 2020 from the EPA Region III Administrator to DEQ Director David K. Paylor, Director DEQ EPA Region III approved Virginia's May 4th request to shut down the RCC and the WestRock SO_2 Data Requirements Rule monitors.

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
1111 E. Main Street, Suite 1400, Richmond, Virginia 23219
P.O. Box 1105, Richmond, Virginia 23218
800-592-5482
www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director

804-698-4000

March 4, 2020

Mr. Cosmo Servidio
Regional Administrator
U.S. EPA Region 3 (3RA00)
1650 Arch Street
Philadelphia, PA 19103-2029

Dear Mr. Servidio:

Roanoke Cement Company LLC and WestRock Company operate sulfur dioxide monitors in Virginia in compliance with the SO2 Data Requirements Rule, and they have completed the certification process in AQS for their 2019 air monitoring data. As the Primary Quality Assurance Organization (PQAO), the Virginia Department of Environmental Quality (DEQ) has reviewed the data submitted to AQS by each company, and DEQ concurs with the AQS recommendation for certification. Attached, please find the certification documentation for each company for calendar year 2019.

If you have any questions, please contact Chuck Turner at (804) 527-5178 or by email at Charles.Turner@deq.virginia.gov.

Sincerely,

G. Michael Dowd
Director, Air and Renewable Energy Division

Enclosure

cc: Alice Chow, EPA Region 3
Pauline Devose, EPA Region 3
Elizabeth Gaige, EPA Region 3

List of Sites and Parameters included in the AMP 600 and AMP 450 NC Reports:

Certifying Agency 2369 — ALL4 (on behalf of Roanoke Cement Company)

State	County	Site	Parameter	POC	Year
51	023	0004	42401	1	2019
51	023	0004	42401	2	2019

Certifying Agency 2370 — WestRock

State	County	Site	Parameter	POC	Year
51	580	0008	42401	1	2019
51	580	0008	42401	2	2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Mr. David K. Paylor, Director
Virginia Department of Environmental Quality
629 East Main Street
Richmond, Virginia 23219

Dear Mr. Paylor:

By letter and enclosures dated March 4, 2020, the Virginia Department of Environmental Quality (VADEQ) submitted to the U. S. Environmental Protection Agency (EPA) its intention of shutting down monitors with AQS IDs 51-023-0004 and 51-580-0008, which VADEQ represents is operated solely for the purpose of satisfying the 2015 sulfur dioxide (SO_2) Data Requirements Rule (DRR) for the listed DRR sources Roanoke Cement Company LLC and WestRock Company, respectively.

40 CFR Part 58, 58.14 allows for approval of requests to shut down monitors when doing so will not compromise data collection needed for implementation of the National Ambient Air Quality Standards (NAAQS) and the requirements in 40 CFR Part 58 Appendix D continue to be met. The DRR identifies specific criteria for discontinuing monitors operated to satisfy that rule. Roanoke Cement Company LLC and WestRock Company have submitted to VADEQ certified data for the years 2017 through 2019 indicating that their respective calculated design values are no greater than 50% of the SO_2 NAAQS standard of 75 parts per billion (ppb). Design values calculated via 40 CFR Part 50, Appendix T for Roanoke Cement Company LLC (35 ppb) and WestRock Company (33 ppb) meet the requirements under 40 CFR 51.1203(c)(3).

Based on our review, EPA hereby approves VADEQ's March 4, 2020 request to shut down the Roanoke Cement Company LLC and WestRock Company SO_2 DRR monitors.

If you have any questions, please do not hesitate to contact me or have your staff contact Mr. Mark Ferrell, EPA's Virginia Liaison, at (304) 542-0231. For questions regarding this approval action, your staff may contact Ms. Cristina Fernandez, Director, Air and Radiation Division, at (215) 814-2178.

Sincerely,

COSMO SERVIDIO
Digitally signed by COSMO SERVIDIO
Date: 2020.04.22 11:47:01 -04'00'

Cosmo Servidio
Regional Administrator

cc: Mr. Mike Dowd, VADEQ
Mr. Chuck Turner, VADEQ