

# 2021-2022 Annual Monitoring Network Plan for the North Carolina Division of Air Quality

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## Volume 2

### Site Descriptions by Division of Air Quality Regional Office and Metropolitan Statistical Area

#### A. The Asheville Monitoring Region



*July 1, 2021*

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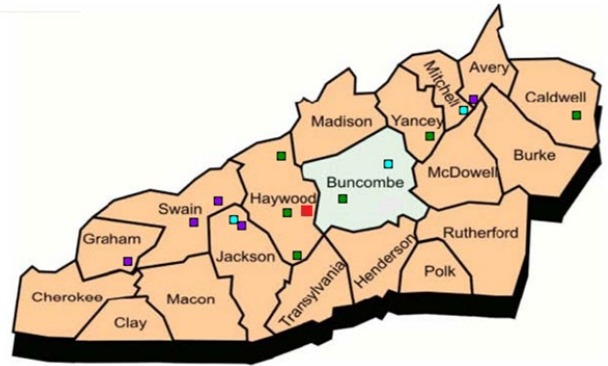
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## A. The Asheville Monitoring Region

The Asheville monitoring region, shown in Figure A-1, consists of four sections: (1) the mountain-top areas, those areas above 1.2 kilometers (km) or 4,000 feet in elevation in Avery, Cherokee, Clay, Graham, Haywood, Jackson, Madison, Macon, Mitchell, Swain, Transylvania and Yancey counties, (2) the Asheville metropolitan statistical area, or MSA, i.e., valley sites below 1.2 km in Buncombe, Haywood, Henderson and Madison counties, (3) the non-MSA valley areas, those areas below 1.2 km in elevation in Avery, Cherokee, Clay, Graham, Jackson, Macon, McDowell, Mitchell, Polk, Rutherford, Swain, Transylvania and Yancey counties and (4) the western portion of the Hickory-Lenoir-Morganton MSA, i.e., valley sites in Burke and Caldwell counties. This section of the monitoring plan focuses on the first three sections. Monitoring in Burke and Caldwell is

covered in Section C, the Mooresville Monitoring Region.

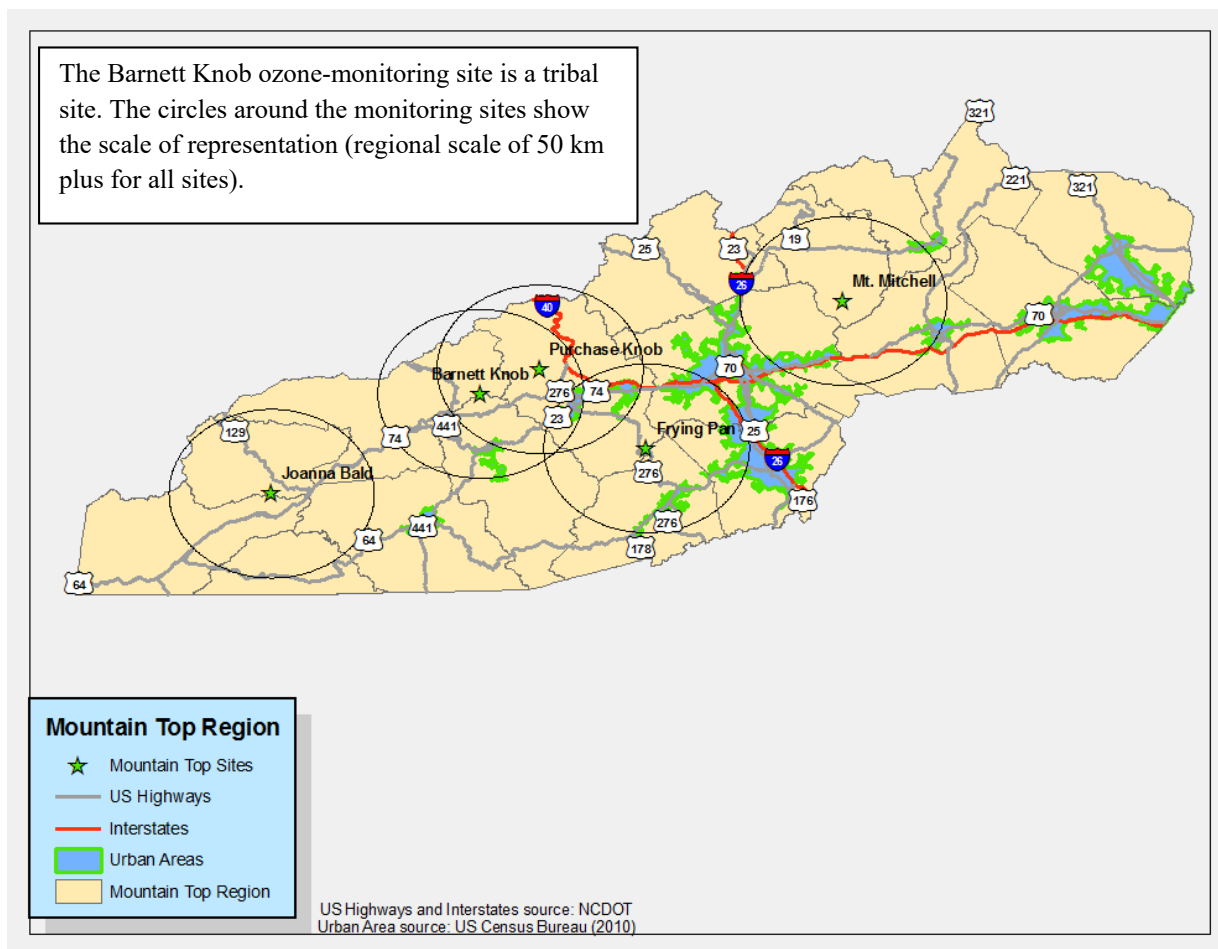


**Figure A-1. The Asheville monitoring region**  
The squares show the approximate locations of the monitoring sites in this region.

### (1) The Mountain Top Areas

The mountain top areas consist of elevations at or above 1.2 km or 4,000 feet in 12 counties in western North Carolina: Avery, Cherokee, Clay, Graham, Haywood, Jackson, Madison, Macon, Mitchell, Swain, Transylvania and Yancey. No metropolitan or micropolitan statistical areas (MiSA) are located at these elevations. The North Carolina Division of Air Quality, or DAQ, currently operates four monitoring sites and the Eastern Band of Cherokee Indians, or EBCI, operates one monitoring site on mountain tops at elevations greater than 1.2 km. The United States Environmental Protection Agency, or EPA, also operates a Clean Air Status and Trends Network, or CASTNET, site at an elevation of 1.2 km. The Barnett Knob tribal monitor is discussed further in the EBCI network plan. The Cranberry CASTNET site is discussed further in the CASTNET network plan.<sup>1</sup> One DAQ site is an ozone-monitoring site located on Joanna Bald Mountain in the Joyce Kilmer National Wilderness Area. In addition to this site, the division operates two high-elevation sites in Haywood County located in or near class 1 areas: Frying Pan in the Shining Rock Wilderness Area and Purchase Knob in the Great Smoky Mountains National Park. A fourth DAQ site is in Mount Mitchell State Park. The locations of the DAQ and the tribal monitors are shown in Figure A-2.

<sup>1</sup> 2020 CASTNET Draft Annual Network Plan, April 30, 2020, available online at <http://xapps.ncdenr.org/daq/documents/DocsSearch.do?dispatch=download&documentId=13138>.



**Figure A-2. Location of mountain top monitoring sites**

At the **Joanna Bald** site in Graham County, DAQ operates an ozone monitor that belongs to the United States Department of Agriculture Forest Service. The relative humidity and air temperature sensors that were installed in 2005 were shut down on Oct. 8, 2014. A picture of the site as well as views looking north, east, south and west are provided in Figure A-4 through Figure A-11. Table A1 summarizes monitoring information for the site. This monitoring site is in the Joyce Kilmer-Slickrock Wilderness Area, a Class I area. This monitor is a rural monitor. The location of the monitor with regards to the flood plain is shown in Figure A-12.



**Figure A-3. Joanna Bald ozone monitoring site**





Figure A-4. The Joanna Bald site looking north



Figure A-8. Looking northeast from the Joanna Bald site



Figure A-5. Looking northwest from the Joanna Bald site



Figure A-9. The Joanna Bald site looking east



Figure A-6. The Joanna Bald site looking west



Figure A-10. Looking southeast from the Joanna Bald site



Figure A-7. Looking southwest from the Joanna Bald site

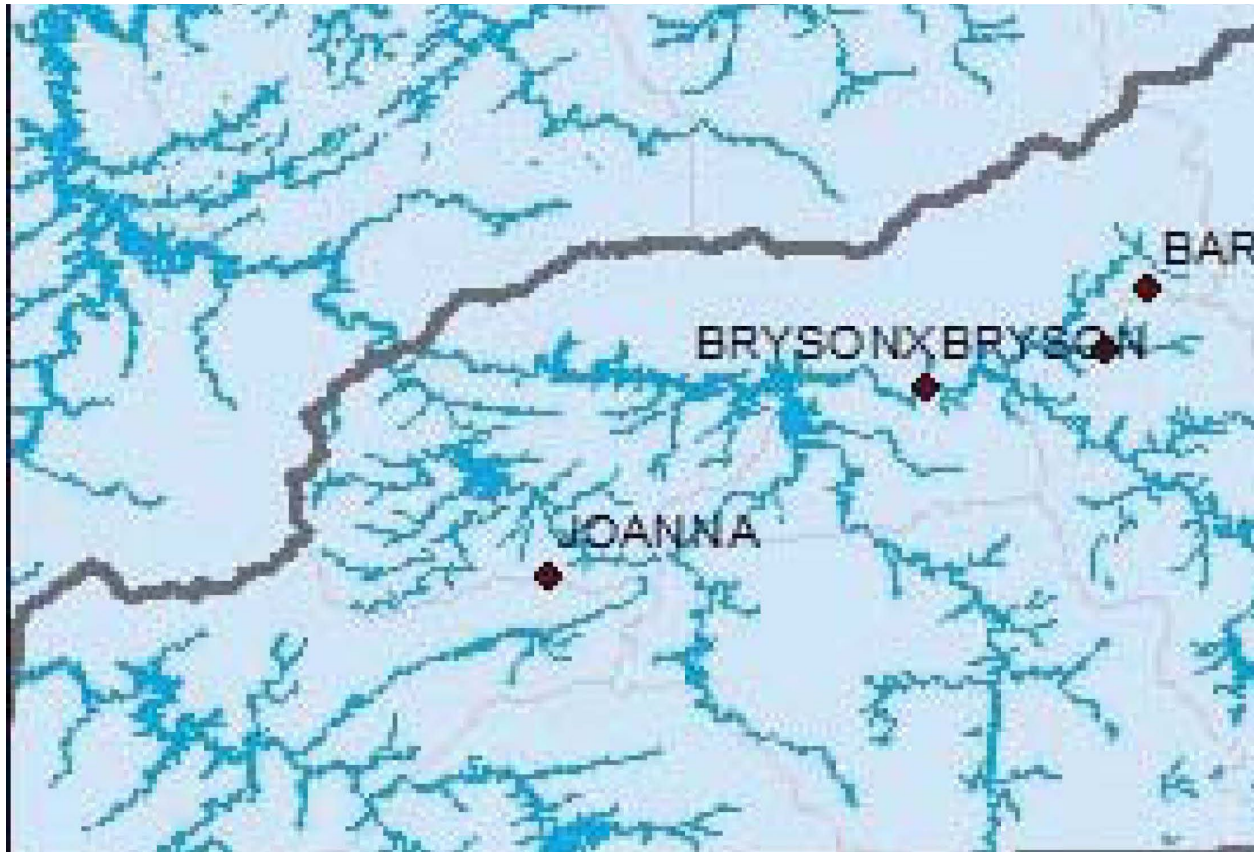


Figure A-11. The Joanna Bald site looking south



**Table A1. Site Information Table for Joanna Bald**

Site Name:	Joanna Bald			AQS Site Identification Number:		37-075-0001		
Location:	National Forest Road 423 Spur, Robbinsville, North Carolina							
CBSA:	None			CBSA #:		00000		
Latitude	35.257930	Longitude	-83.795620	Datum:		WGS84		
Elevation	1436 meters							
Parameter Name	Method			Method Reference ID		Sample Duration	Sampling Schedule	
Ozone	Instrumental with ultra violet photometry (047)			EQOA-0880-047		1-Hour	April 1 to Oct. 31	
Date Monitor Established:		Ozone					April 3, 2003	
Nearest Road:	National Forest Road		Traffic Count:		< 10	Year of Count:	2018 Estimate	
Parameter Name	Distance to Road		Direction to Road		Monitor Type	Statement of Purpose		
Ozone	3 meters		Southeast		Special purpose	Real-time AQI reporting and forecasting. Compliance w/NAAQS.		
Parameter Name	Monitoring Objective		Scale	Suitable for Comparison to NAAQS			Proposal to Move or Change	
Ozone	General background		Regional	Yes			None	
		Meets Part 58 Requirements for:						
Parameter Name		Appendix A		Appendix C		Appendix D		Appendix E
Ozone		Yes		Yes		Yes		Yes
Parameter Name		Probe Height (m)		Distance to Support		Distance to Trees		Obstacles
Ozone		4.4 meters		1.8 meters		10.97 meters to northwest		None



**Figure A-12. Location of Joanna Bald relative to the flood plain**

At the **Frying Pan Mountain** monitoring site, 37-087-0035, DAQ operates a seasonal ozone monitor. At the end of the 2011 ozone season, a new monitoring shelter was constructed at the site. A picture of the site as well as views looking north, northeast, east, southeast, south, southwest, west and northwest are provided in Figure A-13 through Figure A-21. Table A2 provides information on the site. This site is in a Class 1 area (the Shining Rock Wilderness Area) and is collocated with an Interagency Monitoring of Protected Visual Environments (IMPROVE) monitor. This monitor is a rural monitor. The location of the monitor with regards to the flood plain is shown in Figure A-22.



**Figure A-13. Frying Pan Mountain ozone and IMPROVE monitoring site, 37-087-0035**



**Figure A-14. Looking north from the Frying Pan site**



**Figure A-16. Looking northeast from the Frying Pan site**



**Figure A-15. Looking northwest from the Frying Pan site**



**Figure A-17. Looking east from the Frying Pan site**





**Figure A-18. Looking west from the Frying Pan site**



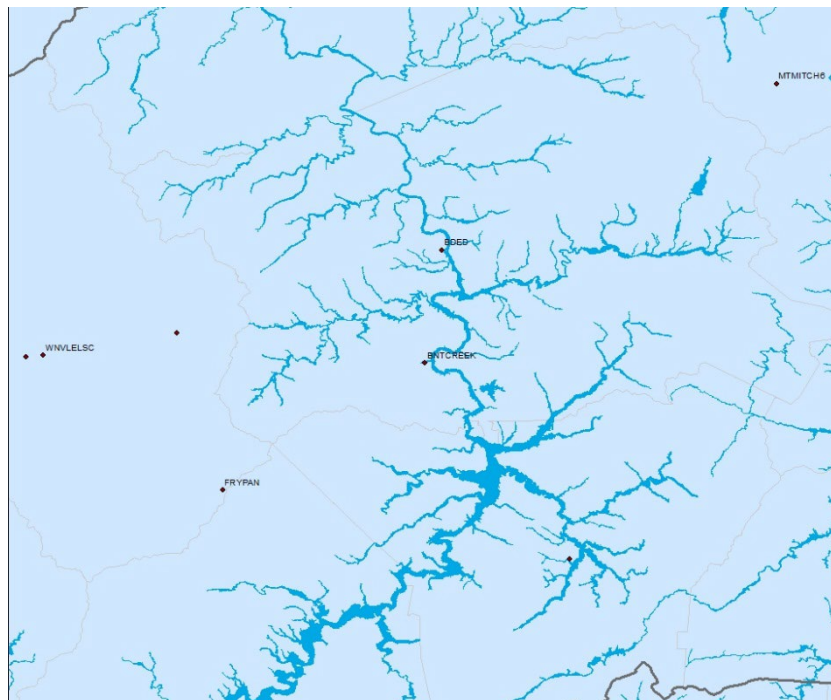
**Figure A-20. Looking southeast from the Frying Pan site**



**Figure A-19. Looking southwest from the Frying Pan site**



**Figure A-21. Looking south from the Frying Pan site**



**Figure A-22 Asheville area monitors in relation to the flood plain**

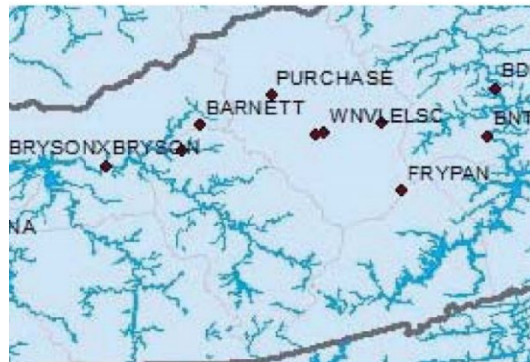
**Table A2. Site Information Table for Frying Pan Mountain**

<b>Site Name:</b>	Frying Pan Mountain			<b>AQS Site Identification Number:</b>	37-087-0035
<b>Location:</b>	Tower Blue Ridge Pkwy Mile Marker 410, Canton, North Carolina				
<b>CBSA:</b>	None			<b>CBSA #:</b>	00000
<b>Latitude</b>	35.393719	<b>Longitude</b>	-82.774386	<b>Datum:</b>	WGS84
<b>Elevation</b>	1617.88 meters				
<b>Parameter Name</b>	<b>Method</b>	<b>Method Reference ID</b>	<b>Sample Duration</b>	<b>Sampling Schedule</b>	
Ozone	Instrumental with ultra violet photometry, 047	EQOA-0880-047	1-Hour	April 1 to Oct. 31	
<b>Date Monitor Established:</b>		Ozone			May 8, 1990
<b>Nearest Road:</b>	Blue Ridge Parkway	<b>Traffic Count:</b>	300	<b>Year of Count:</b>	Estimated
<b>Parameter Name</b>	<b>Distance to Road</b>	<b>Direction to Road</b>	<b>Monitor Type</b>	<b>Statement of Purpose</b>	
Ozone	315 meters	Southeast	Special purpose	Compliance w/NAAQS. Real-time AQI reporting & forecasting.	
<b>Parameter Name</b>	<b>Monitoring Objective</b>	<b>Scale</b>	<b>Suitable for Comparison to NAAQS</b>	<b>Proposal to Move or Change</b>	
Ozone	General background	Regional	Yes	None	
<b>Parameter Name</b>	<b>Meets 40 CFR Part 58 Requirements for:</b>				
	<b>Appendix A</b>		<b>Appendix C</b>	<b>Appendix D</b>	
Ozone	Yes		Yes	Yes	
<b>Parameter Name</b>	<b>Probe Height (m)</b>	<b>Distance to Support</b>	<b>Distance to Trees</b>	<b>Obstacles</b>	
Ozone	4.5	1.1 meter	> 20 meters	None	

At the **Purchase Knob** monitoring site, 37-087-0036, DAQ operates a seasonal ozone monitor. Figure A-23 shows the site. The location of the monitor with regards to the flood plain is shown in Figure A-24. Views looking north, northeast, east, southeast, south, southwest, west and northwest are provided in Figure A-25 through Figure A-32. This site is in a class 1 area (Great Smokey Mountains National Park). This monitor is a rural monitor.



**Figure A-23. The Purchase Knob seasonal ozone monitoring site**



**Figure A-24. Location of Purchase Knob relative to the flood plain**





**Figure A-25. Looking north from the Purchase Knob site**



**Figure A-29. Purchase Knob site looking northeast**



**Figure A-26. Purchase Knob site looking northwest**



**Figure A-30. Looking east from the Purchase Knob site**



**Figure A-27. Looking west from the Purchase Knob site**



**Figure A-31. Looking southeast from the Purchase Knob site**



**Figure A-28. Purchase Knob site looking southwest**



**Figure A-32. Looking south from the Purchase Knob site**



At **Mount Mitchell**, DAQ operates a seasonal ozone monitor. A picture of the site as well as views looking north, east, south and west are provided in Figure A-33 through Figure A-40. This site is located at the Mount Mitchell State Park visitor center. The location of the monitor with regards to the flood plain is shown in Figure A-41.



**Figure A-33. The Mount Mitchell ozone monitoring site**



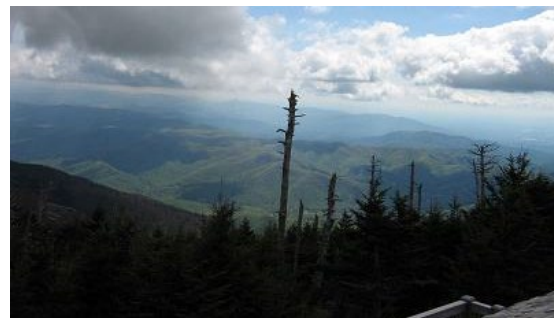
**Figure A-34. Looking north from the Mount Mitchell site**



**Figure A-37. Looking northeast at the Mount Mitchell shelter**



**Figure A-35. Mount Mitchell site looking northwest**



**Figure A-38. Mount Mitchell site looking east**



**Figure A-36. Looking west from the Mount Mitchell site**



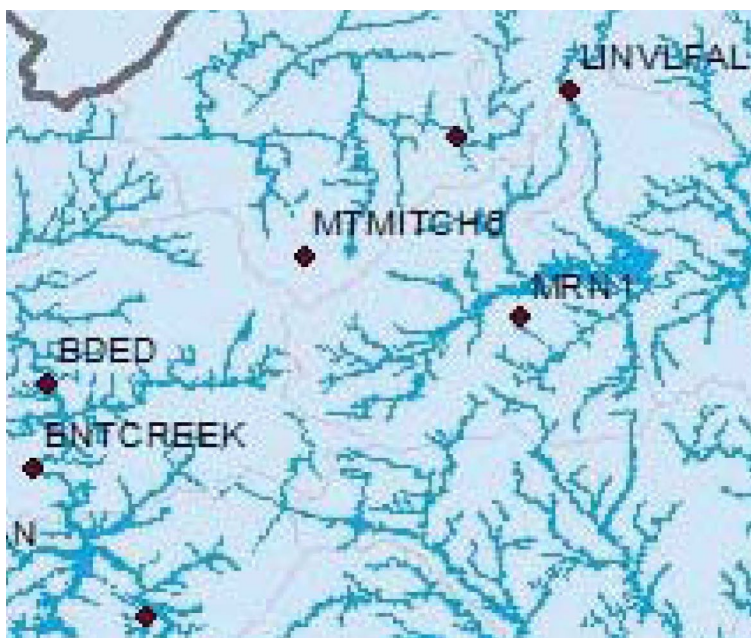
**Figure 39. Looking southeast at the Mount Mitchell shelter**



**Figure A-40. Mount Mitchell looking southwest**



**Figure A-41. Looking south from the Mount Mitchell site**



**Figure A-42. Location of the Mount Mitchell site relative to the flood plain**

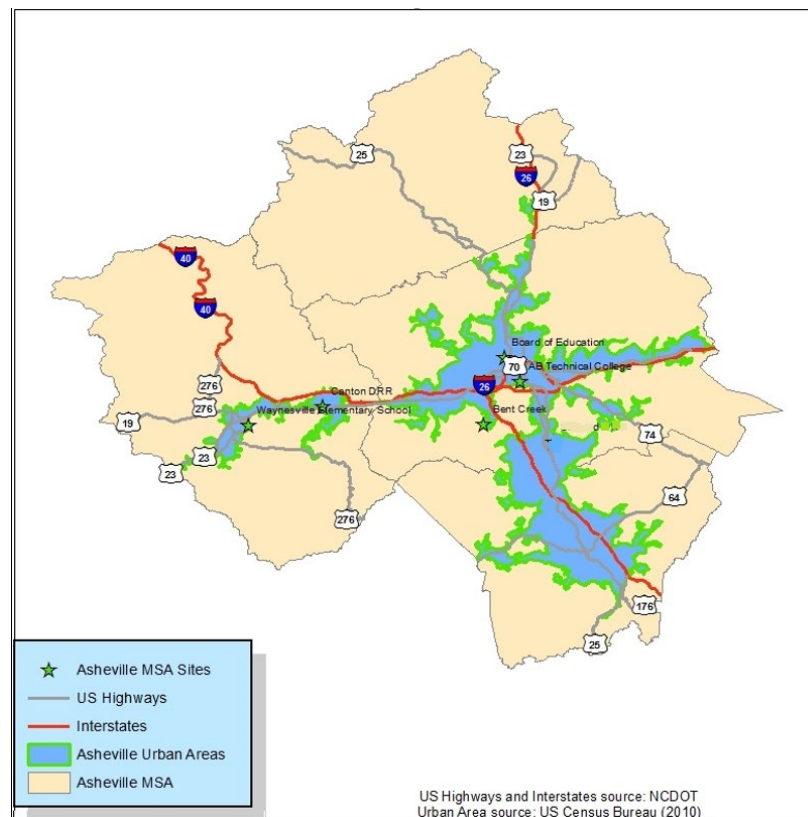
There are no new monitoring rules that require additional monitoring in these high-elevation areas. The mountain top seasonal ozone monitors started on March 1, 2017, because the ozone monitoring season was extended to March in 2015. The division requested and received a waiver for March ozone monitoring for the Joanna Bald, Frying Pan, Purchase Knob and Mount Mitchell sites in years when the weather does not allow access to these sites. Access is often limited during the winter. Sometimes these sites remain inaccessible until early to mid-April. The waiver request approval was granted by the EPA in December 2016.

## **(2) The Asheville MSA**

The Asheville MSA consists of the valley portions (areas under the elevation of 1.2 km or 4,000 feet) of four counties: Buncombe, Haywood, Henderson and Madison. The major urban areas



are Asheville, Waynesville and Hendersonville. The division currently operates two monitoring sites in the Asheville MSA, the Western North Carolina Regional Air Quality Agency, WNC, operates two and both agencies jointly operate an urban-air-toxics monitoring site. These sites are located at the Board of Education, Bent Creek and AB Tech in Buncombe County and the Waynesville Elementary School and Canton in Haywood County. The locations of these five monitoring sites are shown in Figure A-42. In 2013, WNC relocated its ozone monitor at Bent Creek to another location within the park. On Dec. 31, 2015, the division shut down the fine particle monitor at the Waynesville Recreation Center. On Jan. 1, 2017, two new source-oriented monitoring sites began operating in this MSA. One is operated by DAQ in Canton near the Evergreen facility. The other was jointly operated by WNC, DAQ and Duke Energy Progress in Skyland near the Asheville Steam Station. The Skyland sulfur dioxide data requirements rule, DRR, site shut down on July 1, 2020.



**Figure A-43. Locations of Monitoring Sites in the Asheville MSA**

At the **Board of Education** site, WNC operates a one-in-six-day collocated precision fine particle FRM monitor and a continuous fine particle monitor. The one-in-six-day SASS and URG 3000 speciation fine particle monitors were shut down in January 2015 when the EPA stopped funding them. A picture of the site as well as views looking north, northeast, east, southeast, south, southwest, west and northwest are provided in Figure A-43 through Figure A-51. On Jan. 1, 2016, WNC changed from using the well impactor ninety-six, or WINS, to very sharp cut cyclones, or VSCC, on the FRMs. In June 2017, WNC changed the method for

continuously measuring fine particles. On Jan. 1, 2019, WNC changed the primary fine particle monitor at the site to the continuous fine particle monitor.



**Figure A-44. WNC Board of Education fine particle monitoring site, 37-021-0024**



**Figure A-45. Board of Education site looking north**



**Figure A-48. Board of Education site looking northeast**



**Figure A-46. Board of Education site looking northwest**



**Figure A-49. Board of Education site looking east**



**Figure A-47. Board of Education site looking west**



**Figure A-50. Board of Education site looking southeast**





Figure A-51. Board of Education site looking southwest



Figure A-52. Board of Education site looking south

At the **Bent Creek** site, 37-021-0030, WNC operates a seasonal ozone monitor. A picture of the site as well as views looking north, northeast, east, southeast, south, southwest, west and northwest are provided in Figure A-52 through Figure A-60. This site is one of two urban ozone-monitoring sites in the MSA. 40 CFR 58 Appendix D requires the Asheville MSA to have two ozone monitoring sites. Because of the growth of the trees at the old Bent Creek location, WNC moved the site to a new Bent Creek location that is within a mile of the old Bent Creek location on June 6, 2013.



Figure A-53. The Bent Creek ozone monitoring site, 37-021-0030





**Figure A-54. Looking north from the Bent Creek site**



**Figure A-58. Looking northeast from the Bent Creek site**



**Figure A-55. Looking northwest from the Bent Creek site**



**Figure A-59. Looking east from the Bent Creek site**



**Figure A-56. Looking west from the Bent Creek site**



**Figure A-60. Looking southeast from the Bent Creek site**



**Figure A-57. Looking southwest from the Bent Creek site**



**Figure A-61. Looking south from the Bent Creek site**



At the **AB Tech** site, 37-021-0035, WNC operates a year-round air toxics volatile organic compound sampler. Samples are collected in stainless steel canisters and sent to the Laboratory Analysis Branch, LAB, where they are analyzed for 68 compounds using the Compendium Method for Toxic Organics 15. A picture of the site as well as views looking north, northeast, east, southeast, south, southwest, west and northwest are provided in Figure A-61 through Figure A-69.



Figure A-62. AB Tech urban air toxics monitoring site



Figure A-63. Looking north from the AB Tech site



Figure A-65. Looking northeast from the AB Tech site



Figure A-64. Looking northwest from the AB Tech site



Figure A-66. Looking east from the AB Tech site



**Figure A-67. Looking west from the AB Tech site**



**Figure A-69. Looking southeast from the AB Tech site**



**Figure A-68. Looking southwest from the AB Tech site**



**Figure A-70. Looking south from the AB Tech site**

In 2015, the division began working with Duke Energy Progress to establish a sulfur dioxide monitoring station in Skyland, North Carolina, to characterize the ambient sulfur dioxide concentrations near the Asheville steam station as required by the DRR for sulfur dioxide.<sup>2</sup> The area chosen for placement of the monitor was selected using the results of modeling done as described in the technical assistance document and was reported in the NC DEQ 2016-2017 Network Monitoring Plan Volume 1 Addendum 2 Duke Progress Energy Skyland Siting Analysis and Additional Site Information.<sup>3</sup> The division operated this monitor in collaboration with Duke Energy Progress to ensure the air in the Asheville area complies with the national ambient air quality standards for sulfur dioxide. The NC DAQ submitted to the EPA an addendum to the 2019-2020 network plan on April 8, 2020, requesting permission to shut down

<sup>2</sup> Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide Primary National Ambient Air Quality Standard, Federal Register of Aug. 21, 2015, (80 FR 51052)(FRL-9928-18-OAR), 2015-20367.

<sup>3</sup> The NC DEQ 2016-2017 Network Monitoring Plan Volume 1 Addendum 2 Duke Progress Energy Skyland Siting Analysis and Additional Site Information, Dec. 28, 2016, available on the worldwide web at <http://xapps.ncdenr.org/eq/documents/DocsSearch.do?dispatch=download&documentId=13136>.



the site.<sup>4</sup> The EPA granted DAQ approval to shut down this monitor on July 1, 2020, and Duke shut down the monitor the same day.



**Figure A-71. The Waynesville elementary school ozone monitoring site**

At the **Waynesville Elementary School** site, 37-087-0008, DAQ operates a seasonal ozone monitor, one of two urban ozone monitoring sites in the MSA. 40 CFR 58 Appendix D requires the Asheville MSA to have two ozone monitoring sites. The site is shown in Figure A-79. Table A3 provides information on the site. This site started at the beginning of the 2011 ozone monitoring season and is across the street from the Haywood County Health Department where the previous site was located.

**Table A3. Site Information Table for Waynesville Elementary School**

Site Name:	Waynesville Elementary School				AQS Site Identification Number:				37-087-0008			
Location:	2236 Asheville Road, Waynesville, North Carolina						CBSA:	Asheville, NC		MSA #:	11700	
Latitude	35.507224	Longitude	-82.963625	Datum:	WGS84	Elevation	793 meters					
Parameter Name	Method					Method Reference ID		Sample Duration	Sampling Schedule			
Ozone	Instrumental with ultra violet photometry (047)					EQOA-0880-047		1-Hour	March 1 to Oct. 31			
Date Monitor Established:		Ozone							April 1, 2011			
Nearest Road:		Asheville Road		Traffic Count:		11,000		Year of Count:		2018		
Parameter Name	Distance to Road		Direction to Road		Monitor Type		Statement of Purpose					
Ozone	151 meters		East northeast		SLAMS		Compliance w/NAAQS. Real-time AQI reporting & forecasting.					
Parameter Name	Monitoring Objective		Scale	Suitable for Comparison to NAAQS					Proposal to Move or Change			
Ozone	Population exposure		Regional	Yes					None			
Parameter Name		Meets Part 58 Requirements for:										
		Appendix A		Appendix C		Appendix D			Appendix E			
Ozone		Yes		Yes		Yes			Yes			
Parameter Name		Probe Height (m)		Distance to Support		Distance to Trees			Obstacles			
Ozone		3.8		1.02 meters		>20 meters			None			

The site was relocated on April 1, 2011, to Junaluska Elementary School at 2238 Asheville Road, Waynesville, NC 28786, approximately 200 meters east of the previous Waynesville health department site. An aerial view of the area is shown in Figure A-80. Figure A-81 through

<sup>4</sup> 2019-2020 Annual Monitoring Network Plan for the North Carolina Division of Air Quality, Volume 1, Addendum 2: Skyland Data Requirements Rule (DRR) and Semora DRR Data Analysis for Shutting Down the DRR Sulfur Dioxide (SO<sub>2</sub>) Monitors, available on the worldwide web at <http://xapps.ncdenr.org/daq/documents/DocsSearch.do?dispatch=download&documentId=13023>.



Figure A-88 provide views looking north, northeast, east, southeast, south, southwest, west and northwest from the new site.



Figure A-72. Aerial view of the Waynesville ozone monitoring site (A is the old site location)





**Figure A-73. Looking north from Waynesville ozone site**



**Figure A-76. Waynesville ozone site looking northeast**



**Figure A-74. Waynesville ozone site looking northwest**



**Figure A-77. Waynesville ozone site looking east**



**Figure A-75. Waynesville ozone site looking west**



**Figure A-78. Waynesville ozone site looking southeast**





FigureA-79. Waynesville ozone site looking southwest



Figure A-80. Waynesville ozone site looking south

At the **Canton DRR** site, 37-087-0013, DAQ operates a source-oriented sulfur dioxide monitor to meet the requirements in the 2010 sulfur dioxide data requirements rule. The monitor started operating in late 2016 to ensure ambient air in the proximity of the Evergreen/Blue Ridge Paper facility meets the national ambient air quality standards for sulfur dioxide. Figure A-89 through Figure A-98 show an aerial view of the site in relationship to the Evergreen facility, the site and views from the site looking north, northeast, east, southeast, south, southwest, west and northwest.

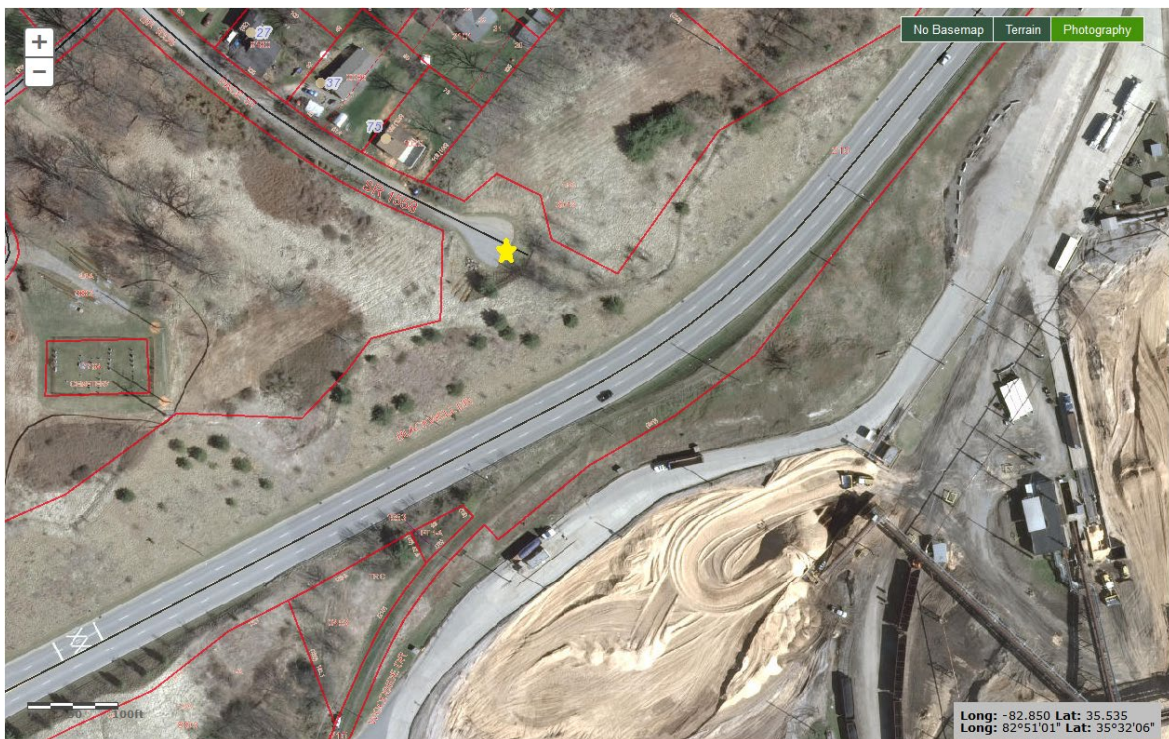


Figure A-81. Aerial view showing the location of the Canton DRR monitoring station





**Figure A-82. Canton DRR sulfur dioxide monitoring site**



**Figure A-83. The Canton DRR site looking north**



**Figure A-84. Looking northeast from the Canton DRR site**





**Figure A-85. The Canton DRR site looking northwest**



**Figure A-88. Looking east from Canton DRR site**



**Figure A-86. The Canton DRR site looking west**



**Figure A-89. Looking southeast from the Canton DRR site**



**Figure A-87. Looking southwest from the Canton DRR site**



**Figure A-90. Looking south from the Canton DRR site**

The December 2010 changes to the **lead monitoring** regulations<sup>5</sup> impacted the Asheville MSA because Evergreen/Blue Ridge Paper Products, located in Haywood County, emitted over 0.5 ton of lead to the air in 2009 and 2010.<sup>6</sup> In 2011, the division requested and received a waiver for lead monitoring at Blue Ridge Paper based on results of modeling.<sup>7</sup> Model results indicate the maximum ambient lead concentration in the ambient air at and beyond the fence line is 0.006 micrograms per cubic meter, well below the 0.075 micrograms per cubic meter (50 percent of the NAAQS) threshold for monitoring. The division did not renew the waiver in 2015 because the facility currently emits less than 0.5 ton of lead.<sup>8</sup>

The 2015 sulfur dioxide monitoring requirements required additional sulfur dioxide monitoring in this MSA.<sup>9</sup> The sulfur dioxide monitors required by this rule are discussed in detail in the NC DEQ 2016-2017 Network Monitoring Plan Volume 1 Addendum 2 Duke Progress Energy Skyland Siting Analysis and Additional Site Information<sup>10</sup> and Appendix E. Evergreen Packaging Canton Siting Analysis and Additional Site Information.<sup>11</sup> Both sites started in January 2017. Monitoring at the Skyland DRR site ended on July 1, 2020.

### (3) The Non-MSA Valley Areas

The non-MSA valley areas consist of those areas below 1.2 km (4,000 feet) in 13 counties: Avery, Cherokee, Clay, Graham, Jackson, Macon, McDowell, Mitchell, Polk, Rutherford, Swain, Transylvania and Yancey. There are no major metropolitan areas. The Brevard MiSA is in Transylvania County and the Forest City MiSA is in Rutherford County. DAQ operates three monitoring sites, the EBCI operates two sites, and the EPA operates a CASTNET site. The Coweeta CASTNET site is discussed further in the CASTNET network plan.<sup>12</sup> The EBCI operates a fine-particle monitoring site in Cherokee, North Carolina and an ozone-monitoring site in Swain County at the old high school. Both sites are tribal monitors and not part of the

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<sup>5</sup> Revisions to Lead Ambient Air Monitoring Requirements, Federal Register, Vol. 75, No. 247, Monday, Dec. 27, 2010, p. 81126, available online at <https://www.gpo.gov/fdsys/pkg/FR-2010-12-27/pdf/2010-32153.pdf#page=1>.

<sup>6</sup> **North Carolina Criteria and Toxic Air Pollutant Point Source Emissions Report**, available online at [https://xapps.ncdenr.org/aq/ToxicsReport/ToxicsReportFacility.jsp?ibeam=true&year=2009&pollutant=153&county\\_code=087](https://xapps.ncdenr.org/aq/ToxicsReport/ToxicsReportFacility.jsp?ibeam=true&year=2009&pollutant=153&county_code=087).

<sup>7</sup> 2011 State of North Carolina Ambient Air Monitoring Network Plan, The U. S. EPA Region 4 Comments and Recommendations, p3-4, available at <http://xapps.ncdenr.org/aq/documents/DocsSearch.do?dispatch=download&documentId=7843>.

<sup>8</sup> Data obtained from the DAQ emission inventory database available online at [https://xapps.ncdenr.org/aq/ToxicsReport/ToxicsReportFacility.jsp?ibeam=true&year=2015&pollutant=153&county\\_code=087](https://xapps.ncdenr.org/aq/ToxicsReport/ToxicsReportFacility.jsp?ibeam=true&year=2015&pollutant=153&county_code=087), accessed on May 12, 2017

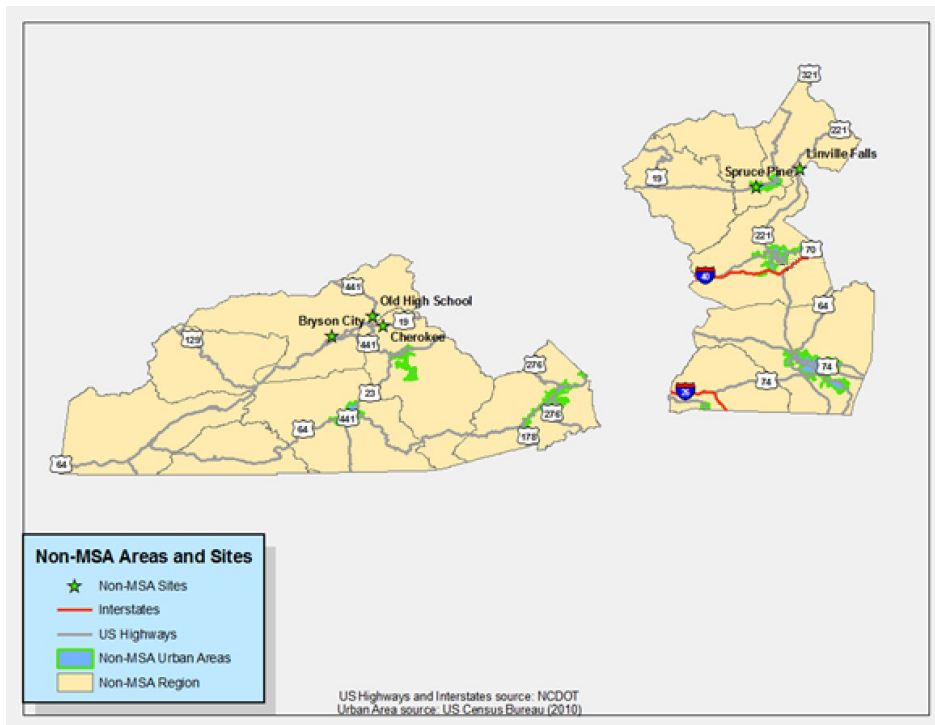
<sup>9</sup> Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide Primary National Ambient Air Quality Standard, Federal Register of Aug. 21, 2015, (80 FR 51052) (FRL-9928-18-OAR), 2015-20367.

<sup>10</sup> The NC DEQ 2016-2017 Network Monitoring Plan Volume 1 Addendum 2 Duke Progress Energy Skyland Siting Analysis and Additional Site Information, Dec. 28, 2016, available on the worldwide web at <http://xapps.ncdenr.org/aq/documents/DocsSearch.do?dispatch=download&documentId=13136>.

<sup>11</sup> The NC DEQ 2016-2017 Network Monitoring Plan Volume 1 Appendix E. Evergreen Packaging Canton Siting Analysis and Additional Site Information, July 1, 2016, available on the worldwide web at <http://xapps.ncdenr.org/aq/documents/DocsSearch.do?dispatch=download&documentId=13137>.

<sup>12</sup> 2020 CASTNET Draft Annual Network Plan, April 30, 2020, available online at <http://xapps.ncdenr.org/aq/documents/DocsSearch.do?dispatch=download&documentId=13138>.

DAQ monitoring network. This section focuses on the three monitoring sites operated by DAQ. These sites are located at Bryson City in Swain County, Linville Falls in Avery County and Spruce Pine in Mitchell County. Figure A-99 shows the locations of these monitoring sites. The Marion particle monitoring station in McDowell County was shut down on Dec. 31, 2015.



**Figure A-91. Monitoring sites in the non-MSA valley areas of the Asheville monitoring region**

At **Bryson City** in Swain County, 37-173-0002, DAQ operates a seasonal ozone monitor and a federal equivalent method, FEM, beta attenuation, BAM, continuous fine particle monitor. In April 2014, the Tennessee Valley Authority added a hydrologic gauging station. A 12-month special purpose sulfur dioxide monitor collected background data for modeling attainment demonstrations for the Asheville power plant from August 2014 to August 2015. Figure A-100 through Figure A-108 shows the site and views looking north, northeast, east, southeast, south, southwest, west and northwest. The site is collocated with a meteorological tower measuring wind speed and wind direction, ambient temperature and relative humidity.



**Figure A-92. The Bryson City ozone, particle and meteorological monitoring station, 37-173-0002**





**Figure A-93. Looking north from the Bryson site**



**Figure A-96. The Bryson site looking northeast**



**Figure A-94. The Bryson site looking northwest**



**Figure A-97. Looking east from the Bryson site**



**Figure A-95. Looking west from the Bryson site**



**Figure A-98. The Bryson site looking southeast**



Figure A-99. The Bryson site looking southwest



Figure A-100. Looking south from the Bryson site

Table A4 summarizes monitoring information for the Bryson City site.

**Table A4. Site Information Table for Bryson City**

<b>Site Name:</b>	Bryson City			<b>AQS Site Identification Number</b>	37-173-0002
<b>Location:</b>	30 Recreation Park Drive, Bryson City, North Carolina				
<b>CBSA:</b>	Not in a CBSA			<b>CBSA #:</b>	00000
<b>Latitude</b>	35.434767	<b>Longitude</b>	-83.442133	<b>Datum:</b>	WGS84
<b>Elevation</b>	560 meters				
<b>Parameter Name</b>	<b>Method</b>		<b>Method Reference ID</b>	<b>Sample Duration</b>	<b>Sampling Schedule</b>
Ozone	Instrumental with ultra violet photometry (047)		EQOA-0880-047	1-Hour	March 1 to Oct. 31
PM 2.5 local conditions	Met One BAM-1020 Mass Monitor w/VSCC - beta attenuation		EQPM-0308-170	1-Hour	Year round
Outdoor temperature & temperature difference	Instrumental - electronic or machine avg. (041)		Not a reference method	1-Hour	Year round
Relative humidity	Instrumental - hygrothermograph elec or mach avg (011)		Not a reference method	1-Hour	Year round
Wind direction/speed	Instrumental - electronic or machine avg. (050)		Not a reference method	1-Hour	Year round
<b>Date Monitor Established:</b>	Ozone				April 1, 1995
	PM 2.5 local conditions				June 17, 2009
	Outdoor temperature & temperature difference				April 25, 2001
	Relative humidity				April 25, 2001
	Solar radiation				April 25, 2001
	Wind direction/speed				April 25, 2001
<b>Nearest Road:</b>	Recreation Park Drive		<b>Traffic Count:</b>	20	<b>Year of Count:</b> 2018
<b>Parameter Name</b>	<b>Distance to Road</b>	<b>Direction to Road</b>	<b>Monitor Type</b>	<b>Statement of Purpose</b>	
Ozone	18 meters	Northeast	SLAMS	Compliance w/NAAQS. Real-time AQI reporting & forecasting.	
PM 2.5 local conditions	25 meters	Northeast	SLAMS	Compliance w/NAAQS. Real-time AQI reporting & forecasting.	
Outdoor temperature & temperature difference	25 meters	Northeast	Non-regulatory	Real-time information & modeling	
Relative humidity	25 meters	Northeast	Non-regulatory	Real-time information & modeling	
Wind direction/speed	25 meters	Northeast	Non-regulatory	Real-time information & modeling	

**Table A4. Site Information Table for Bryson City**

Parameter Name	Monitoring Objective	Scale	Suitable for NAAQS Comparison	Proposal to Move or Change
Ozone	General background	Neighborhood	Yes	None
PM 2.5 local conditions	Regional transport	Regional	Yes	None
Outdoor temperature & temperature difference	Not applicable	Not applicable	Not applicable	None
Relative humidity	Not applicable	Not applicable	Not applicable	None
Wind direction/speed	Not applicable	Not applicable	Not applicable	None
<b>Meets Part 58 Requirements for:</b>				
Parameter Name	Appendix A	Appendix C	Appendix D	Appendix E
Ozone	Yes	Yes	Yes	Yes
PM 2.5 local conditions	Yes	Yes	Yes	Yes
Outdoor temperature & temperature difference	Not applicable	Not applicable	Not applicable	Not applicable
Relative humidity	Not applicable	Not applicable	Not applicable	Not applicable
Wind direction/speed	Not applicable	Not applicable	Not applicable	Not applicable
Parameter Name	Probe Height (m)	Distance to Support	Distance to Trees	Obstacles
Ozone	4.57	1.82 meters	15.54 meters southwest	None
PM 2.5 local conditions	2.286	2.0574 meters	10.97 meters	None
Outdoor temperature & temperature difference	2 & 10	> 1 meters	>20 meters	None
Relative humidity	2	> 1 meters	>20 meters	None
Wind direction/speed	10	> 1 meters	>20 meters	None

At the **Linville Falls** site, DAQ operates a seasonal ozone monitor. A picture of the site as well as views looking north, northeast, east, southeast, south, southwest, west and northwest are provided in Figure A-109 through Figure A-117. This monitoring site is in the Linville Gorge Wilderness Area class 1 area and is collocated with an IMPROVE monitor. This monitor is a rural monitor. The collocated relative humidity and ambient temperature sensor was shut down on Oct. 30, 2014.





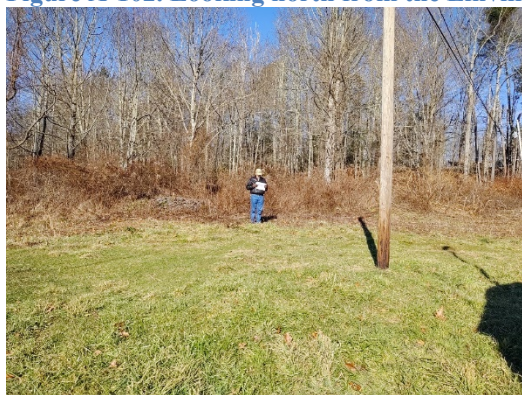
**Figure A-101. Linville Falls ozone and IMPROVE monitoring site**



**Figure A-102. Looking north from the Linville site**



**Figure A-104. The Linville site looking northeast**



**Figure A-103. The Linville site looking northwest**



**Figure A-105. Looking east from the Linville site**





Figure A-106. Looking west from the Linville site



Figure A-108. The Linville site looking southeast



Figure A-107. The Linville site looking southwest



Figure A-109. Looking south from the Linville site

**Table A5. Site Information Table for Linville Falls**

Site Name:	Linville Falls			AQS Site Identification Number:	37-011-0002
Location:	100 Linville Falls Road, Linville Falls				
CBSA:	None			CBSA #:	00000
Latitude	35.972347	Longitude	-81.933072	Datum:	WGS84
Elevation	987 meters				
Parameter Name	Method		Method Reference ID	Sample Duration	Sampling Schedule
Ozone	Instrumental with ultra violet photometry (047)		EQOA-0880-047	1-Hour	March 1 to Oct. 31
Date Monitor Established:		Ozone			Aug. 1, 1999
Nearest Road:	Linville Falls Road	Traffic Count:		500	Year of Count: 2018 Estimate
Parameter Name	Distance to Road	Direction to Road	Monitor Type	Statement of Purpose	
Ozone	86 meters	East	SLAMS	Compliance w/NAAQS. Real-time AQI reporting and forecasting.	
Parameter Name	Monitoring Objective	Scale	Suitable for Comparison to NAAQS		Proposal to Move or Change
Ozone	General background	Urban	Yes		None
		Meets Part 58 Requirements for:			
Parameter Name	Appendix A	Appendix C	Appendix D		Appendix E
Ozone	Yes	Yes	Yes		Yes
Parameter Name	Probe Height (m)	Distance to Support	Distance to Trees	Obstacles	
Ozone	3.66 meters	1.295 meters	16 meters east	None	



In the fall of 2013, DAQ was evicted from the monitoring site located in Spruce Pine on the top of the town hall, 37-121-0001. Figure A-118 provides the eviction notice from the Town of Spruce Pine. The Town of Spruce Pine purchased a building and relocated their offices at the end of 2013. Thus, the division shut down the Spruce Pine site at the end of 2013 and established a new site at the Blue Ridge Regional Hospital, 37-121-0004. Because of the timing of the notice, DAQ was unable to include this network modification in the July 2013 network monitoring plan. Thus, the division requested emergency approval from the EPA Region 4 for shutting down the old site and establishing the new site. Details on the new site are provided below.

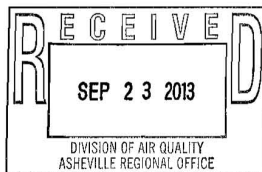


Town of Spruce Pine, North Carolina

Paul —  
Steve —  
Fitz

September 19, 2013

Mr. Steve D. Ensley  
Division of Air Quality, NCDENR  
2090 US Highway 70  
Swannanoa, NC 28778



Dear Mr. Ensley:

**Air Quality Equipment Atop the Spruce Pine Town Hall**

As you may be aware, the Town of Spruce Pine has purchased a building and plans to relocate our town hall. If all goes as anticipated, the closing on the property will be on September 27, 2013. We hope to have our offices moved by the end of the current calendar year.

No decision has been made as to the use or disposition of the existing building. I wanted to give you ample time to make your decisions regarding the location of the air quality equipment currently located on top of our building. Please feel free to contact me with questions or comments.

Sincerely,

A handwritten signature in cursive script that reads "Richard Canipe".

Richard Canipe  
Manager, Town of Spruce Pine

cc: Terri Davis, NCDENR Division of Air Quality

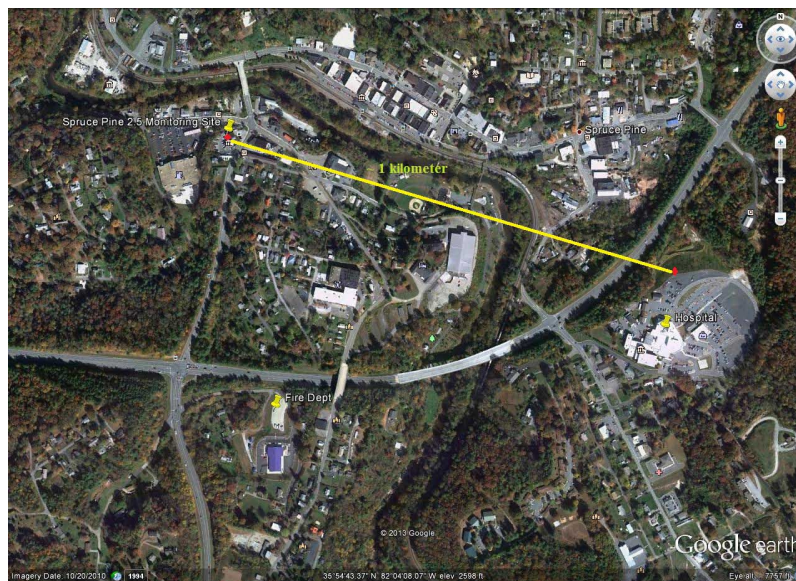
Post Office Box 189, Spruce Pine, North Carolina 28777-0189  
Telephone: (828) 765-3000 Fax: (828) 765-3014 Website: [www.sprucepine-nc.gov](http://www.sprucepine-nc.gov)

Figure A-110. Eviction notice from the Town of Spruce Pine



North Carolina Department of Environmental Quality | Division of Air Quality  
217 West Jones Street | 1641 Mail Service Center | Raleigh, North Carolina 27699-1641  
919.707.8400

Spruce Pine is in the mountains where there are very few flat open spaces to locate a monitor. The division prefers to keep the monitors on the ground for safety reasons and for ease of access. After searching around Spruce Pine within a mile of the city hall location, a new location at Blue Ridge Regional Hospital, 272 Hospital Dr., Spruce Pine, NC, was identified. As shown in Figure A-119, the hospital location is approximately 1 km east southeast of the city hall site. It is approximately 75 meters southeast of Highway U.S. 19 East, which had an average annual daily traffic count of 9,500 in 2012. Based on Figure E-1 in 40 CFR 58 Appendix E, the monitor is on the edge of the neighborhood-urban scale boundary. The site is located at latitude 35.912487 and longitude -82.062082. A picture of the site and pictures taken from the site looking in 8 compass directions are provided in Figure A-120 through Figure A-128.



**Figure A-111. Aerial view of city hall and hospital monitoring sites**



**Figure A-112. Spruce Pine hospital, 37-121-0004, fine particle monitoring site**





**Figure A-113. Spruce Pine hospital site looking north**



**Figure A-116. Spruce Pine hospital site looking northeast**



**Figure A-114. Spruce Pine hospital site looking northwest**



**Figure A-117. Spruce Pine hospital site looking east**



**Figure A-115. Spruce Pine hospital site looking west**



**Figure A-118. Spruce Pine hospital site looking southeast**



**Figure A-119. Spruce Pine hospital site looking southwest**



**Figure A-120. Spruce Pine hospital site looking south**

The hospital has a boiler house and emergency generators but the monitor is at least 200 meters northeast from them. The trees to the northeast are about 32 meters high and 80 meters from the site. The trees to the east are about 33 meters high and 86 meters away. The trees to the southeast are 60 meters tall and 140 meters away. The building to the southwest is about 11 meters high and 130 meters from the site. The trees to the west are about 38 meters tall and 90 meters away. All the trees and buildings are far enough away as to not be obstacles to the flow of the air. In 2015 the hospital expanded the parking lot. The monitor was moved 9 meters to the north on March 31, 2015.

There are no new monitoring rules that require additional monitoring in these non-MSA valley areas.



## **Appendix A.1 Annual Network Site Review Forms for 2020**

Joanna Bald in Joyce Kilmer-Slickrock Wilderness Area

Frying Pan in the Shining Rock Wilderness Area

Purchase Knob in the Great Smoky Mountains National Park

Mount Mitchell in the Mount Mitchell State Park

Bent Creek in Asheville, operated by the WNCRAQA

Board of Education in Asheville, operated by the WNCRAQA

AB Tech Air Toxics Site, operated by WNCRAQA & the Laboratory Analysis Branch

Skyland DRR

Waynesville Elementary School in Waynesville

Canton DRR in Canton

Bryson City

Linville Falls in the Linville Gorge Wilderness Area

Spruce Pine

# Site Review Form Calendar Year 2020

## Site Information

Region <u>ARO</u>	Site Name <u>Joanna Bald</u>	AQS Site # <u>37-075-0001</u>
Street Address <u>National Forest Road 423 Spur</u>		City <u>Robbinsville</u>
Urban Area <input type="checkbox"/> Not in an Urban Area <input type="checkbox"/>	Core-based Statistical Area <input type="checkbox"/> None <input type="checkbox"/>	
Enter Exact		
Latitude <u>-83.7955</u>	Longitude <u>35.2577</u>	Method of Measuring
In Decimal Degrees	In Decimal Degrees	Explanation: <u>Googel Earth Pro</u>
Elevation Above/below Mean Sea Level (in meters)		<u>1436.00</u>
Name of nearest road to inlet probe <u>National Forest Road</u> ADT <u>10</u> Year estimated <u>2020</u>		
Distance of ozone probe to nearest traffic lane (m) <u>3</u> Direction from ozone probe to nearest traffic lane <u>SE</u>		
Comments: <u>No count available. Estimate less than 10 cars per day</u>		
Name of nearest major road <u>US 129</u> ADT <u>3400</u> Year latest available <u>2019</u>		
Distance of site to nearest major road (m) <u>3717.00</u> Direction from site to nearest major road <u>NNE</u>		
Comments: _____		
Site located near electrical substation/high voltage power lines?		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Distance of site to nearest railroad track	(m) _____	Direction to RR <input checked="" type="checkbox"/> NA
**OPTIONAL** Distance of site to nearest power pole w/transformer	(m) _____	Direction _____
Distance between site and drip line of water tower (m)	_____	Direction from site to water tower <input checked="" type="checkbox"/> NA
Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad tracks, construction activities, fast food restaurants, and swimming pools. _____		

## ANSWER ALL APPLICABLE QUESTIONS:

Parameters	Monitoring Objective	Scale	Site Type
<input checked="" type="checkbox"/> O <sub>3</sub>	<input checked="" type="checkbox"/> General/Background <input type="checkbox"/> Highest Concentration <input type="checkbox"/> Max O <sub>3</sub> Concentration <input type="checkbox"/> Population Exposure <input type="checkbox"/> Source Oriented <input checked="" type="checkbox"/> Transport <input type="checkbox"/> Upwind Background <input checked="" type="checkbox"/> Welfare Related Impacts	<input type="checkbox"/> Micro <input type="checkbox"/> Middle <input type="checkbox"/> Neighborhood <input type="checkbox"/> Urban <input checked="" type="checkbox"/> Regional	<input type="checkbox"/> SLAMS <input checked="" type="checkbox"/> SPM
Probe inlet height (from ground) 2-15 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Give actual measured height from ground (meters) <u>4.40</u>			
Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (roof) supporting structure > 1 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Actual measured distance from outer edge of probe to supporting structure (meters) <u>1.80</u>			
Is probe > 20 m from the nearest tree drip line? Yes <input checked="" type="checkbox"/> *No <input type="checkbox"/> (answer *'d questions)			
*Is probe > 10 m from the nearest tree drip line? Yes <input type="checkbox"/> *No <input type="checkbox"/> *Number of trees within 10 meters _____			
*Distance from probe to closest tree (m) _____ Direction from probe to tree _____ *Height of tree above probe (m) _____			
Are there any obstacles to air flow? *Yes <input type="checkbox"/> (answer *'d questions) No <input checked="" type="checkbox"/>			
*Identify obstacle _____ Distance from probe inlet (m) _____ Direction from probe inlet to obstacle _____			
*Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes <input type="checkbox"/> No <input type="checkbox"/>			



# Site Review Form Calendar Year 2020

## RECOMMENDATIONS:

1) Maintain current site status? Yes ☒ \*No ☐ (answer \*'d questions)

\*2) Change monitoring objective? Yes ☐ (enter new objective: \_\_\_\_\_) No ☐

\*3) Change scale of representativeness? Yes ☐ (enter new scale: \_\_\_\_\_) No ☐

\*4) Relocate site? Yes ☐ No ☐

Comments: \_\_\_\_\_

Date of Last Site Pictures: November 4, 2019 New Pictures Submitted? Yes ☐ No ☒

Reviewer Terri Davis Date: 11/9/2020

Ambient Monitoring Coordinator Steve Ensley Date: December 16, 2020

## Instructions:

**Trees:** The probe or inlet must be at least 10 meters or further from the drip line of trees. A distance of at least 20 meters between the probe and any tree or trees is preferred.

**Obstacles:** An obstacle is anything that restricts air flow. A tree can be an obstacle because it has branches and leaves that restrict the flow of air but a pole is not considered to be an obstacle. To avoid interference from obstacles, the probe or inlet must have unrestricted airflow and be located away from obstacles. The distance from the obstacle to the probe or inlet must be at least twice the height that the obstacle protrudes above the probe, inlet, or monitoring path.

If the annual network review has indicated that the monitoring objectives and scale of representativeness for the site have not changed and the siting criteria still meets those monitoring objectives and that scale of representativeness and there are no other reasons to modify the site in any way, check "Yes" to the question "Maintain current site status?" and skip the rest of the recommendations section.

If the annual network review has indicated that the monitoring objectives, scale of representativeness, or siting criteria have changed for some reason or there is another reason to modify the site in some way, check "No" to the question "Maintain current site status?" and complete the rest of the recommendations section. If the monitoring objective or scale of representativeness needs to be changed, check the "Yes" box and write in the new monitoring objective or scale of representativeness on the line. Otherwise check the "No" box. If the site needs to be relocated, check the "Yes" box. If the site needs to be shut down, write "Shut down" in the comments line. Also, use the comments line to explain any change requested.

Check the site picture archive to find out when the last set of site pictures were taken and write the date down on the line. If the pictures are more than five years old or if something at the site has changed in the past year, take new site pictures. Changes that require new site pictures include additions, removals, or movement of monitors at the site, growth or removal of trees and other shrubs at the site, and construction of roads or buildings at or in the vicinity of the site.

Pictures of the site should at a minimum include at least one picture showing the site itself and pictures standing at the probe or inlet or as close as possible to the probe or inlet looking in the four compass directions (north, east, south, and west). If meteorological data are collected at the site, pictures standing at the meteorological tower looking southwest and northeast should also be included. Sometimes pictures looking at the site from the four compass directions are also helpful.

Be sure to correctly identify the pictures as to which compass direction they show. This documentation may be achieved by using good notes when taking the pictures, holding a compass in front of the camera, or placing a sign with the appropriate direction indicated somewhere in the picture. Label the pictures with the name of the site using the two-digit logger ID (HC, JW, etc.), the direction (N, NE, E, SE, S, SW, W, NW), and the date taken (YYYYMMDD) and transfer the pictures to the group drive in the appropriate Incoming/Regional Office directory.

# Site Review Form Calendar Year 2020

## Site Information

Region <u>ARO</u>	Site Name <u>Frying Pan</u>	AQS Site # <u>37-097-0035</u>	
Street Address <u>Tower Blue Ridge Pkwy Mile Marker 410</u>		City <u>Not in a City</u>	
Urban Area <u>Not in an Urban Area</u>	Core-based Statistical Area <u>None</u>		
Enter Exact			
Latitude <u>-82.7745</u>	Longitude <u>35.3940</u>	Method of Measuring	
In Decimal Degrees	In Decimal Degrees	Explanation: <u>Google map plus</u>	
Elevation Above/below Mean Sea Level (in meters)		<u>1617.88</u>	
Name of nearest road to inlet probe <u>Blue Ridge Parkway</u> ADT <u>668</u> Year latest available <u>2019</u>			
Distance of ozone probe to nearest traffic lane (m) <u>315</u> Direction from ozone probe to nearest traffic lane <u>SE</u>			
Comments: _____			
Name of nearest major road <u>Blue Ridge Parkway</u> ADT <u>668</u> Year <u>2019</u>			
Distance of site to nearest major road (m) <u>315.00</u> Direction from site to nearest major road <u>SE</u>			
Comments: _____			
Site located near electrical substation/high voltage power lines?			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Distance of site to nearest railroad track _____ (m)		Direction to RR <u>NA</u>	
**OPTIONAL** Distance of site to nearest power pole w/transformer _____ (m)		Direction _____	
Distance between site and drip line of water tower (m) _____		Direction from site to water tower <u>NA</u>	
Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad tracks, construction activities, fast food restaurants, and swimming pools. _____			

### ANSWER ALL APPLICABLE QUESTIONS:

Parameters	Monitoring Objective	Scale	Site Type
<input checked="" type="checkbox"/> O <sub>3</sub>	<input checked="" type="checkbox"/> General/Background <input type="checkbox"/> Highest Concentration <input type="checkbox"/> Max O <sub>3</sub> Concentration <input type="checkbox"/> Population Exposure <input type="checkbox"/> Source Oriented <input checked="" type="checkbox"/> Transport <input type="checkbox"/> Upwind Background <input checked="" type="checkbox"/> Welfare Related Impacts	<input type="checkbox"/> Micro <input type="checkbox"/> Middle <input type="checkbox"/> Neighborhood <input type="checkbox"/> Urban <input checked="" type="checkbox"/> Regional	<input type="checkbox"/> SLAMS <input checked="" type="checkbox"/> SPM
Probe inlet height (from ground) 2-15 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Give actual measured height from ground (meters) <u>4.49</u>			
Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (roof) supporting structure > 1 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Actual measured distance from outer edge of probe to supporting structure (meters) <u>1.27</u>			
Is probe > 20 m from the nearest tree drip line? Yes <input checked="" type="checkbox"/> *No <input type="checkbox"/> (answer *'d questions)			
*Is probe > 10 m from the nearest tree drip line? Yes <input type="checkbox"/> *No <input type="checkbox"/> *Number of trees within 10 meters _____			
*Distance from probe to closest tree (m) _____ Direction from probe to tree _____ *Height of tree above probe (m) _____			
Are there any obstacles to air flow? *Yes <input type="checkbox"/> (answer *'d questions) No <input checked="" type="checkbox"/>			
*Identify obstacle _____ Distance from probe inlet (m) _____ Direction from probe inlet to obstacle _____			
*Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes <input type="checkbox"/> No <input type="checkbox"/>			



# Site Review Form Calendar Year 2020

## RECOMMENDATIONS:

1) Maintain current site status? Yes ☒ \*No ☐ (answer \*'d questions)

\*2) Change monitoring objective? Yes ☐ (enter new objective: \_\_\_\_\_) No ☐

\*3) Change scale of representativeness? Yes ☐ (enter new scale: \_\_\_\_\_) No ☐

\*4) Relocate site? Yes ☐ No ☐

Comments: \_\_\_\_\_

Date of Last Site Pictures: October 31, 2019 New Pictures Submitted? Yes ☐ No ☒

Reviewer Terri Davis Date: November 19, 2020

Ambient Monitoring Coordinator Steve Ensley Date: 12/16/20

## Instructions:

**Trees:** The probe or inlet must be at least 10 meters or further from the drip line of trees. A distance of at least 20 meters between the probe and any tree or trees is preferred.

**Obstacles:** An obstacle is anything that restricts air flow. A tree can be an obstacle because it has branches and leaves that restrict the flow of air but a pole is not considered to be an obstacle. To avoid interference from obstacles, the probe or inlet must have unrestricted airflow and be located away from obstacles. The distance from the obstacle to the probe or inlet must be at least twice the height that the obstacle protrudes above the probe, inlet, or monitoring path.

If the annual network review has indicated that the monitoring objectives and scale of representativeness for the site have not changed and the siting criteria still meets those monitoring objectives and that scale of representativeness and there are no other reasons to modify the site in any way, check "Yes" to the question "Maintain current site status?" and skip the rest of the recommendations section.

If the annual network review has indicated that the monitoring objectives, scale of representativeness, or siting criteria have changed for some reason or there is another reason to modify the site in some way, check "No" to the question "Maintain current site status?" and complete the rest of the recommendations section. If the monitoring objective or scale of representativeness needs to be changed, check the "Yes" box and write in the new monitoring objective or scale of representativeness on the line. Otherwise check the "No" box. If the site needs to be relocated, check the "Yes" box. If the site needs to be shut down, write "Shut down" in the comments line. Also, use the comments line to explain any change requested.

Check the site picture archive to find out when the last set of site pictures were taken and write the date down on the line. If the pictures are more than five years old or if something at the site has changed in the past year, take new site pictures. Changes that require new site pictures include additions, removals, or movement of monitors at the site, growth or removal of trees and other shrubs at the site, and construction of roads or buildings at or in the vicinity of the site.

Pictures of the site should at a minimum include at least one picture showing the site itself and pictures standing at the probe or inlet or as close as possible to the probe or inlet looking in the four compass directions (north, east, south, and west). If meteorological data are collected at the site, pictures standing at the meteorological tower looking southwest and northeast should also be included. Sometimes pictures looking at the site from the four compass directions are also helpful.

Be sure to correctly identify the pictures as to which compass direction they show. This documentation may be achieved by using good notes when taking the pictures, holding a compass in front of the camera, or placing a sign with the appropriate direction indicated somewhere in the picture. Label the pictures with the name of the site using the two-digit logger ID (HC, JW, etc.), the direction (N, NE, E, SE, S, SW, W, NW), and the date taken (YYYYMMDD) and transfer the pictures to the group drive in the appropriate Incoming/Regional Office directory.

# Site Review Form Calendar Year 2020

## Site Information

Region <u>ARO</u>	Site Name <u>Purchase Knob</u>	AQS Site # <u>37-087-0036</u>	
Street Address <u>6904 Purchase Road</u>		City <u>Waynesville</u>	
Urban Area <input type="checkbox"/> Not in an Urban Area <input type="checkbox"/>	Core-based Statistical Area <u>Asheville, NC</u>		
Enter Exact		Method of Measuring	
Latitude <u>35.5871</u>	Longitude <u>-83.0741</u>		
In Decimal Degrees	In Decimal Degrees	Other (explain)	Explanation: <u>Google Earth</u>
Elevation Above/below Mean Sea Level (in meters)		<u>1504.49</u>	
Name of nearest road to inlet probe <u>Purchase Road</u> ADT <u>5</u> Year estimated <u>2020</u>			
Distance of ozone probe to nearest traffic lane (m) <u>103</u> Direction from ozone probe to nearest traffic lane <u>SE</u>			
Comments: _____			
Name of nearest major road <u>US-276 Jonathan Creek Road</u> ADT <u>7700</u> Year latest available <u>2019</u>			
Distance of site to nearest major road (m) <u>5418.00</u> Direction from site to nearest major road <u>SE</u>			
Comments: _____			
Site located near electrical substation/high voltage power lines?			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Distance of site to nearest railroad track	(m)	Direction to RR	<input checked="" type="checkbox"/> NA
**OPTIONAL** Distance of site to nearest power pole w/transformer		(m)	Direction
Distance between site and drip line of water tower (m)		Direction from site to water tower	<input checked="" type="checkbox"/> NA
Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad tracks, construction activities, fast food restaurants, and swimming pools. _____			

### ANSWER ALL APPLICABLE QUESTIONS:

Parameters	Monitoring Objective	Scale	Site Type
<input checked="" type="checkbox"/> O <sub>3</sub>	<input checked="" type="checkbox"/> General/Background <input type="checkbox"/> Highest Concentration <input type="checkbox"/> Max O <sub>3</sub> Concentration <input type="checkbox"/> Population Exposure <input type="checkbox"/> Source Oriented <input checked="" type="checkbox"/> Transport <input type="checkbox"/> Upwind Background <input checked="" type="checkbox"/> Welfare Related Impacts	<input type="checkbox"/> Micro <input type="checkbox"/> Middle <input type="checkbox"/> Neighborhood <input type="checkbox"/> Urban <input checked="" type="checkbox"/> Regional	<input checked="" type="checkbox"/> SLAMS <input type="checkbox"/> SPM
Probe inlet height (from ground) 2-15 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Give actual measured height from ground (meters) <u>3.937</u>			
Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (roof) supporting structure > 1 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Actual measured distance from outer edge of probe to supporting structure (meters) <u>1.09</u>			
Is probe > 20 m from the nearest tree drip line? Yes <input type="checkbox"/> *No <input checked="" type="checkbox"/> (answer *'d questions)			
*Is probe > 10 m from the nearest tree drip line? Yes <input checked="" type="checkbox"/> *No <input type="checkbox"/> *Number of trees within 10 meters _____			
*Distance from probe to closest tree (m) <u>16.40</u> Direction from probe to tree <u>SSE</u> *Height of tree above probe (m) <u>6.40</u>			
Are there any obstacles to air flow? *Yes <input checked="" type="checkbox"/> (answer *'d questions) No <input type="checkbox"/>			
*Identify obstacle <u>Tree 2</u> Distance from probe inlet (m) <u>20</u> Direction from probe inlet to obstacle <u>SW</u>			
*Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			



# Site Review Form Calendar Year 2020

## RECOMMENDATIONS:

1) Maintain current site status? Yes ☒ \*No ☐ (answer \*'d questions)

\*2) Change monitoring objective? Yes ☐ (enter new objective: \_\_\_\_\_) No ☐

\*3) Change scale of representativeness? Yes ☐ (enter new scale: \_\_\_\_\_) No ☐

\*4) Relocate site? Yes ☐ No ☐

Comments: Because of the difficulty obtaining obstacle measurements due to the terrain, a drone was employed last year to conduct these calculations. A drone could not be used this year due to NPS regulations, so last years measurements were used in this review. It is believed that given the high elevation nature of this site, tree growth is much lower and not significant year to year making last years numbers relevant. In that review, tree 2 was identified as meeting the criteria of an obstobacle due to its height relative to the probe, however the tree represents less than 90 degrees of the total air path. Furthermore, the tree is not in the the direction of the predominate wind flow.

The ADT for Purchase road was lower this year due to the park gate remaining closed due to Covid 19 restrictions. Park personnel estimate that number will be much higher in 2021.

Date of Last Site Pictures: January 20, 2017 New Pictures Submitted? Yes ☐ No ☒

Reviewer Steve Ensley/Paul Chappin Date: December 7, 2020

Ambient Monitoring Coordinator Steve Ensley Date: December 9, 2020

## Instructions:

**Trees:** The probe or inlet must be at least 10 meters or further from the drip line of trees. A distance of at least 20 meters between the probe and any tree or trees is preferred.

**Obstacles:** An obstacle is anything that restricts air flow. A tree can be an obstacle because it has branches and leaves that restrict the flow of air but a pole is not considered to be an obstacle. To avoid interference from obstacles, the probe or inlet must have unrestricted airflow and be located away from obstacles. The distance from the obstacle to the probe or inlet must be at least twice the height that the obstacle protrudes above the probe, inlet, or monitoring path.

If the annual network review has indicated that the monitoring objectives and scale of representativeness for the site have not changed and the siting criteria still meets those monitoring objectives and that scale of representativeness and there are no other reasons to modify the site in any way, check "Yes" to the question "Maintain current site status?" and skip the rest of the recommendations section.

If the annual network review has indicated that the monitoring objectives, scale of representativeness, or siting criteria have changed for some reason or there is another reason to modify the site in some way, check "No" to the question "Maintain current site status?" and complete the rest of the recommendations section. If the monitoring objective or scale of representativeness needs to be changed, check the "Yes" box and write in the new monitoring objective or scale of representativeness on the line. Otherwise check the "No" box. If the site needs to be relocated, check the "Yes" box. If the site needs to be shut down, write "Shut down" in the comments line. Also, use the comments line to explain any change requested.

Check the site picture archive to find out when the last set of site pictures were taken and write the date down on the line. If the pictures are more than five years old or if something at the site has changed in the past year, take new site pictures. Changes that require new site pictures include additions, removals, or movement of monitors at the site, growth or removal of trees and other shrubs at the site, and construction of roads or buildings at or in the vicinity of the site.

Pictures of the site should at a minimum include at least one picture showing the site itself and pictures standing at the probe or inlet or as close as possible to the probe or inlet looking in the four compass directions (north, east, south, and west). If meteorological data are collected at the site, pictures standing at the meteorological tower looking southwest and northeast should also be included. Sometimes pictures looking at the site from the four compass directions are also helpful.

Be sure to correctly identify the pictures as to which compass direction they show. This documentation may be achieved by using good notes when taking the pictures, holding a compass in front of the camera, or placing a sign with the appropriate direction indicated somewhere in the picture. Label the pictures with the name of the site using the two-digit logger ID (HC, JW, etc.), the direction (N, NE, E, SE, S, SW, W, NW), and the date taken (YYYYMMDD) and transfer the pictures to the group drive in the appropriate Incoming/Regional Office directory.

# Site Review Form Calendar Year 2020

## Site Information

Region <u>ARO</u>	Site Name <u>Mt. Mitchell</u>	AQS Site # <u>37-199-0004</u>	
Street Address <u>2388 State Hwy 128</u>		City _____	
Urban Area	<input type="checkbox"/> Not in an Urban Area	Core-based Statistical Area	<input type="checkbox"/> None
Enter Exact		Method of Measuring	
Latitude <u>-82.2649</u>	Longitude <u>35.7654</u>		
In Decimal Degrees	In Decimal Degrees	Other (explain)	Explanation: <u>Google earth pro</u>
Elevation Above/below Mean Sea Level (in meters)		<u>2022.00</u>	
Name of nearest road to inlet probe <u>State Hwy 128</u> ADT <u>450</u> Year latest available <u>2019</u>			
Distance of ozone probe to nearest traffic lane (m) <u>151</u> Direction from ozone probe to nearest traffic lane <u>W</u>			
Comments: _____			
Name of nearest major road <u>State Hwy 128</u> ADT <u>450</u> Year <u>2019</u>			
Distance of site to nearest major road (m) <u>151.00</u> Direction from site to nearest major road <u>W</u>			
Comments: _____			
Site located near electrical substation/high voltage power lines?			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Distance of site to nearest railroad track _____ (m)		Direction to RR _____ <input checked="" type="checkbox"/> NA	
**OPTIONAL** Distance of site to nearest power pole w/transformer _____ (m)		Direction _____	
Distance between site and drip line of water tower (m) _____		Direction from site to water tower _____ <input checked="" type="checkbox"/> NA	
Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad tracks, construction activities, fast food restaurants, and swimming pools. _____			

### ANSWER ALL APPLICABLE QUESTIONS:

Parameters	Monitoring Objective	Scale	Site Type
<input checked="" type="checkbox"/> O <sub>3</sub>	<input checked="" type="checkbox"/> General/Background <input type="checkbox"/> Highest Concentration <input type="checkbox"/> Max O <sub>3</sub> Concentration <input type="checkbox"/> Population Exposure <input type="checkbox"/> Source Oriented <input checked="" type="checkbox"/> Transport <input type="checkbox"/> Upwind Background <input checked="" type="checkbox"/> Welfare Related Impacts	<input type="checkbox"/> Micro <input type="checkbox"/> Middle <input type="checkbox"/> Neighborhood <input type="checkbox"/> Urban <input checked="" type="checkbox"/> Regional	<input type="checkbox"/> SLAMS <input checked="" type="checkbox"/> SPM
Probe inlet height (from ground) 2-15 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Give actual measured height from ground (meters) _____			
Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (roof) supporting structure > 1 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Actual measured distance from outer edge of probe to supporting structure (meters) _____			
Is probe > 20 m from the nearest tree drip line? Yes <input checked="" type="checkbox"/> *No <input type="checkbox"/> (answer *'d questions)			
*Is probe > 10 m from the nearest tree drip line? Yes <input type="checkbox"/> *No <input type="checkbox"/> *Number of trees within 10 meters _____			
*Distance from probe to closest tree (m) _____ Direction from probe to tree _____ *Height of tree above probe (m) _____			
Are there any obstacles to air flow? *Yes <input type="checkbox"/> (answer *'d questions) No <input checked="" type="checkbox"/>			
*Identify obstacle _____ Distance from probe inlet (m) _____ Direction from probe inlet to obstacle _____			
*Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes <input type="checkbox"/> No <input type="checkbox"/>			



## Site Review Form Calendar Year 2020

### RECOMMENDATIONS:

1) Maintain current site status? Yes ☒ \*No ☐ (answer \*'d questions)

\*2) Change monitoring objective? Yes ☐ (enter new objective: \_\_\_\_\_) No ☐

\*3) Change scale of representativeness? Yes ☐ (enter new scale: \_\_\_\_\_) No ☐

\*4) Relocate site? Yes ☐ No ☐

Comments: Unable to measure probe distance due to height from ground. Probe is actually within 20m of tree dripline but probe height is higher than the trees so it is recorded as not being within 20m of tree dripline. Recent pictures were not taken because of the difficulty of accessing the probe. Pictures from the probe are most relevant because of the significant probe height. The last pictures taken from the probe vantage were taken while the probe inlet was being installed using a cherry picker to access the probe. Due to the elevation, tree growth is very slow here and has not significantly changed since the pictures were taken.

Date of Last Site Pictures: November 6, 2014 New Pictures Submitted? Yes ☐ No ☒

Reviewer Terri Davis Date: October 19, 2020

Ambient Monitoring Coordinator Steve Ensley Date: December 16, 2020

### Instructions:

**Trees:** The probe or inlet must be at least 10 meters or further from the drip line of trees. A distance of at least 20 meters between the probe and any tree or trees is preferred.

**Obstacles:** An obstacle is anything that restricts air flow. A tree can be an obstacle because it has branches and leaves that restrict the flow of air but a pole is not considered to be an obstacle. To avoid interference from obstacles, the probe or inlet must have unrestricted airflow and be located away from obstacles. The distance from the obstacle to the probe or inlet must be at least twice the height that the obstacle protrudes above the probe, inlet, or monitoring path.

If the annual network review has indicated that the monitoring objectives and scale of representativeness for the site have not changed and the siting criteria still meets those monitoring objectives and that scale of representativeness and there are no other reasons to modify the site in any way, check "Yes" to the question "Maintain current site status?" and skip the rest of the recommendations section.

If the annual network review has indicated that the monitoring objectives, scale of representativeness, or siting criteria have changed for some reason or there is another reason to modify the site in some way, check "No" to the question "Maintain current site status?" and complete the rest of the recommendations section. If the monitoring objective or scale of representativeness needs to be changed, check the "Yes" box and write in the new monitoring objective or scale of representativeness on the line. Otherwise check the "No" box. If the site needs to be relocated, check the "Yes" box. If the site needs to be shut down, write "Shut down" in the comments line. Also, use the comments line to explain any change requested.

Check the site picture archive to find out when the last set of site pictures were taken and write the date down on the line. If the pictures are more than five years old or if something at the site has changed in the past year, take new site pictures. Changes that require new site pictures include additions, removals, or movement of monitors at the site, growth or removal of trees and other shrubs at the site, and construction of roads or buildings at or in the vicinity of the site.

Pictures of the site should at a minimum include at least one picture showing the site itself and pictures standing at the probe or inlet or as close as possible to the probe or inlet looking in the four compass directions (north, east, south, and west). If meteorological data are collected at the site, pictures standing at the meteorological tower looking southwest and northeast should also be included. Sometimes pictures looking at the site from the four compass directions are also helpful.

Be sure to correctly identify the pictures as to which compass direction they show. This documentation may be achieved by using good notes when taking the pictures, holding a compass in front of the camera, or placing a sign with the appropriate direction indicated somewhere in the picture. Label the pictures with the name of the site using the two-digit logger ID (HC, JW, etc.), the direction (N, NE, E, SE, S, SW, W, NW), and the date taken (YYYYMMDD) and transfer the pictures to the group drive in the appropriate Incoming/Regional Office directory.

# Site Review Form Calendar Year 2020

## Site Information

Region <u>WNC</u>	Site Name <u>Bent Creek</u>	AQS Site # <u>37-021-0030</u>
Street Address <u>125 Idlwood Drive</u>		City <u>Asheville</u>
Urban Area <u>ASHEVILLE</u>	Core-based Statistical Area <u>Asheville, NC</u>	
Enter Exact		
Latitude <u>-82.6133</u>	Longitude <u>35.5083</u>	Method of Measuring
In Decimal Degrees	In Decimal Degrees	Explanation: <u>Google Earth</u>
Elevation Above/below Mean Sea Level (in meters)		<u>669.03</u>
Name of nearest road to inlet probe <u>Bentcreekranch Rd.</u> ADT <u>880</u> Year _____		
Distance of ozone probe to nearest traffic lane (m) <u>337</u> Direction from ozone probe to nearest traffic lane <u>NE</u>		
Comments: _____		
Name of nearest major road _____ ADT _____ Year _____		
Distance of site to nearest major road (m) _____ Direction from site to nearest major road _____		
Comments: _____		
Site located near electrical substation/high voltage power lines?		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Distance of site to nearest railroad track	(m) <u>5371</u>	Direction to RR <input type="checkbox"/> NA
**OPTIONAL** Distance of site to nearest power pole w/transformer		(m) _____ Direction _____
Distance between site and drip line of water tower (m) _____		Direction from site to water tower <input checked="" type="checkbox"/> NA
Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad tracks, construction activities, fast food restaurants, and swimming pools.		

### ANSWER ALL APPLICABLE QUESTIONS:

Parameters	Monitoring Objective	Scale	Site Type
<input checked="" type="checkbox"/> O <sub>3</sub>	<input type="checkbox"/> General/Background <input type="checkbox"/> Highest Concentration <input type="checkbox"/> Max O <sub>3</sub> Concentration <input type="checkbox"/> Population Exposure <input type="checkbox"/> Source Oriented <input type="checkbox"/> Transport <input type="checkbox"/> Upwind Background <input type="checkbox"/> Welfare Related Impacts	<input type="checkbox"/> Micro <input type="checkbox"/> Middle <input type="checkbox"/> Neighborhood <input type="checkbox"/> Urban <input type="checkbox"/> Regional	<input type="checkbox"/> SLAMS <input type="checkbox"/> SPM
Probe inlet height (from ground) 2-15 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Give actual measured height from ground (meters) <u>5.00</u>			
Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (roof) supporting structure > 1 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Actual measured distance from outer edge of probe to supporting structure (meters) _____			
Is probe > 20 m from the nearest tree drip line? Yes <input checked="" type="checkbox"/> *No <input type="checkbox"/> (answer *'d questions)			
*Is probe > 10 m from the nearest tree drip line? Yes <input type="checkbox"/> *No <input type="checkbox"/> *Number of trees within 10 meters _____			
*Distance from probe to closest tree (m) _____ Direction from probe to tree _____ *Height of tree above probe (m) _____			
Are there any obstacles to air flow? *Yes <input type="checkbox"/> (answer *'d questions) No <input checked="" type="checkbox"/>			
*Identify obstacle _____ Distance from probe inlet (m) _____ Direction from probe inlet to obstacle _____			
*Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes <input type="checkbox"/> No <input type="checkbox"/>			



## Site Review Form Calendar Year 2020

### RECOMMENDATIONS:

1) Maintain current site status? Yes ☒ \*No ☐ (answer \*'d questions)

\*2) Change monitoring objective? Yes ☐ (enter new objective: \_\_\_\_\_) No ☐

\*3) Change scale of representativeness? Yes ☐ (enter new scale: \_\_\_\_\_) No ☐

\*4) Relocate site? Yes ☐ No ☐

Comments: \_\_\_\_\_

Date of Last Site Pictures: October 1, 2016 New Pictures Submitted? Yes ☐ No ☒

Reviewer \_\_\_\_\_ Date: \_\_\_\_\_

Ambient Monitoring Coordinator Kevin Lance Date: May 4, 2021

### Instructions:

**Trees:** The probe or inlet must be at least 10 meters or further from the drip line of trees. A distance of at least 20 meters between the probe and any tree or trees is preferred.

**Obstacles:** An obstacle is anything that restricts air flow. A tree can be an obstacle because it has branches and leaves that restrict the flow of air but a pole is not considered to be an obstacle. To avoid interference from obstacles, the probe or inlet must have unrestricted airflow and be located away from obstacles. The distance from the obstacle to the probe or inlet must be at least twice the height that the obstacle protrudes above the probe, inlet, or monitoring path.

If the annual network review has indicated that the monitoring objectives and scale of representativeness for the site have not changed and the siting criteria still meets those monitoring objectives and that scale of representativeness and there are no other reasons to modify the site in any way, check "Yes" to the question "Maintain current site status?" and skip the rest of the recommendations section.

If the annual network review has indicated that the monitoring objectives, scale of representativeness, or siting criteria have changed for some reason or there is another reason to modify the site in some way, check "No" to the question "Maintain current site status?" and complete the rest of the recommendations section. If the monitoring objective or scale of representativeness needs to be changed, check the "Yes" box and write in the new monitoring objective or scale of representativeness on the line. Otherwise check the "No" box. If the site needs to be relocated, check the "Yes" box. If the site needs to be shut down, write "Shut down" in the comments line. Also, use the comments line to explain any change requested.

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Pictures of the site should at a minimum include at least one picture showing the site itself and pictures standing at the probe or inlet or as close as possible to the probe or inlet looking in the four compass directions (north, east, south, and west). If meteorological data are collected at the site, pictures standing at the meteorological tower looking southwest and northeast should also be included. Sometimes pictures looking at the site from the four compass directions are also helpful.

Be sure to correctly identify the pictures as to which compass direction they show. This documentation may be achieved by using good notes when taking the pictures, holding a compass in front of the camera, or placing a sign with the appropriate direction indicated somewhere in the picture. Label the pictures with the name of the site using the two-digit logger ID (HC, JW, *etc.*), the direction (N, NE, E, SE, S, SW, W, NW), and the date taken (YYYYMMDD) and transfer the pictures to the group drive in the appropriate Incoming/Regional Office directory.

# Site Review Form Calendar Year 2020

## Site Information

Region <u>WNC</u>	Site Name <u>Board of Education</u>	AQS Site # 37- <u>021</u> - <u>0034</u>
Street Address- <u>175 Bingham Road</u>	City <u>Asheville</u>	
Urban Area <u>ASHEVILLE</u>	Core-based Statistical Area <u>Asheville, NC</u>	
Enter Exact		
Latitude <u>-82.584400</u>	Longitude <u>35.606200</u>	Method of Measuring: Google Earth
In Decimal Degrees	In Decimal Degrees	Matches Web Map: Yes <input type="checkbox"/> No <input type="checkbox"/>
Elevation Above/below Mean Sea Level (in meters) <u>665.68</u>	Method of Measuring: <u>GoogleEarth</u>	
Name of nearest road to inlet probe <u>Bingham</u> ADT Choose an Item _____ Year _____		
Distance of PM inlet to nearest traffic lane (m) _____ Direction from inlet to nearest traffic lane _____		
Comments: _____		
Name of nearest major road <u>Bingham</u> ADT <u>2200</u> Year Choose an item <u>2012</u>		
Distance of site to nearest major road (m) _____ Direction from site to nearest major road _____		
Comments: _____		
Site located near electrical substation/high voltage power lines?		Yes <input type="checkbox"/> No <input type="checkbox"/>
Distance of site to nearest railroad track	(m) <u>138</u>	Direction to RR <u>W</u> <input type="checkbox"/> NA
**OPTIONAL** Distance of site to nearest power pole w/transformer	(m) _____	Direction _____
Distance between site and drip line of water tower (m) _____	Direction from site to water tower _____	<input checked="" type="checkbox"/> NA
Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad tracks, construction activities, fast food restaurants, and swimming pools.		

### Instructions:

**Address:** Sometimes local addresses change. Confirm the local address of the site using a 911 locator or the address used by the local utility company, community or county to identify the site location.

**Urban Area:** If the monitor is located within the bounds of an urban area (an incorporated area with a population of 10,000 or more people), select the appropriate urban area from the list. Otherwise select "Not in an Urban Area".

**Core-Based Statistical Area (CBSA):** If the monitor is located in a county that belongs to a metropolitan statistical area (MSA) or a micropolitan statistical area (MiSA), then it is in a core-based statistical area. If the monitoring station is located in a county included in a MSA or MiSA, select the CBSA from the list. Otherwise select "None".

**Longitude and Latitude:** Determine the longitude and latitude using Google Earth. Report the longitude and latitude that matches up with the exact location of the monitoring shelter or monitor if no shelter is at the site. The longitude and latitude should be entered in decimal degrees. Use a conversion program, such as <http://transition.fcc.gov/mb/audio/bickel/DDDMSS-decimal.html>, to convert to decimal degrees if needed.

**Road Information:** For the nearest road to the inlet probe, list whatever roadway that carries vehicles closest to the probe, whether it is a named or public road and even if it has very little traffic. Use the comments space to describe the road or the source of the annual average daily traffic (AADT) counts. If the monitor is located near an unnamed, little used, private road, use the nearest major road space to list the closest named public road to the site. Include the distance and direction of the nearest major road from the site and the AADT if available. If the closest road is a small public road but there is a large major roadway such as an interstate highway, divided highway, major thoroughfare, etc., near the monitoring station use the nearest major road space to list the information about this major roadway. Include the distance and direction of the major road from the site and the AADT. The AADT for state roads can be obtained from the North Carolina Division of Transportation at <http://www.ncdot.gov/travel/statemapping/trafficvolumemaps/default.html>. For AADT values for local roadways contact the appropriate local governments.

**Any Sources of Potential Bias:** Use this space to record information about the site that is not requested elsewhere. Especially note any changes that occurred near the site in the past year, such as road construction, building construction, new businesses, businesses closing, or changes in traffic patterns, crops or other agricultural activities.



## Site Review Form Calendar Year 2020

Parameters	Monitoring Objective	Scale	Monitor Type
Air flow < 200 L/min <input checked="" type="checkbox"/> PM2.5 FRM <input type="checkbox"/> PM10 Cont. (BAM) <input type="checkbox"/> PM10-2.5 FRM <input checked="" type="checkbox"/> PM10-2.5 BAM <input type="checkbox"/> PM2.5 Cont. (BAM1020) <input type="checkbox"/> PM2.5 Cont. (BAM1022) <input type="checkbox"/> PM2.5 Cont. (T640X)	<input type="checkbox"/> General/Background <input type="checkbox"/> Highest Concentration <input checked="" type="checkbox"/> Population Exposure <input type="checkbox"/> Source Oriented <input type="checkbox"/> Transport <input type="checkbox"/> Welfare Related Impacts	<input type="checkbox"/> Micro <input type="checkbox"/> Middle <input checked="" type="checkbox"/> Neighborhood  <input type="checkbox"/> Urban <input type="checkbox"/> Regional	<input checked="" type="checkbox"/> SLAMS <input type="checkbox"/> SPM  <input type="checkbox"/> Nonregulatory
Probe inlet height (from ground) <input type="checkbox"/> < 2 m <input type="checkbox"/> 2-7m <input checked="" type="checkbox"/> 7-15 m <input type="checkbox"/> > 15 m Actual measured distance from probe inlet to ground (meters) <u>8</u> Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (platform or roof) supporting structure > 2 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Actual measured distance from outer edge of probe inlet to supporting structure (meters) _____			
Distance (Y) between outer edge of probe inlets of any low volume monitor and any other low volume monitor at the site = 1 m or greater?			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Are collocated PM2.5 Monitors (Two FRMs, FRM & BAM, BAM & BAM) Located at Site?		*Yes <input checked="" type="checkbox"/> (answer *'d questions) No <input type="checkbox"/> NA <input type="checkbox"/>	
* Entire inlet opening of collocated PM 2.5 samplers (X) within 1 to 4 m of each other?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Give actual (meters): _____	
*Are collocated PM2.5 sampler inlets within 1 m vertically of each other?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Give actual (meters): _____	
Is a low-volume PM10 monitor collocated with a PM2.5 monitor at the site to measure PM10-2.5?		*Yes <input type="checkbox"/> (answer *'d questions) No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	
* Entire inlet opening of collocated PM10 and PM2.5 samplers for PM10-2.5 (X) within 2 to 4 m of each other?		Yes <input type="checkbox"/> No <input type="checkbox"/>	
*Are collocated PM10 and PM2.5 sampler inlets within 1 m vertically of each other?		Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is probe > 20 m from the nearest tree drip line? Yes <input checked="" type="checkbox"/> *No <input type="checkbox"/> (answer *'d questions)			
*Is probe > 10 m from the nearest tree drip line? Yes <input type="checkbox"/> *No <input type="checkbox"/> *Number of trees within 10 meters _____ *Distance from probe to closest tree (m) _____ Direction from probe to tree _____ *Height of tree above probe (m) _____			
Are there any obstacles to air flow? *Yes <input type="checkbox"/> (answer *'d questions) No <input checked="" type="checkbox"/>			
*Identify obstacle _____ Distance from probe inlet (m) _____ Direction from probe inlet to obstacle _____ *Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes <input type="checkbox"/> No <input type="checkbox"/> *Width of obstacle in terms of degrees blocked (see instructions) _____			

### RECOMMENDATIONS:

1) Maintain current site status? Yes ☒ \*No ☐ (answer \*'d questions)

\*2) Change monitoring objective? Yes ☐ (enter new objective: \_\_\_\_\_) No ☐

\*3) Change scale of representativeness? Yes ☐ (enter new scale: \_\_\_\_\_) No ☐

\*4) Relocate site? Yes ☐ No ☐

### Comments:

Date of Last Site Pictures: October 1, 2015 New Pictures Submitted? Yes ☐ No ☒

Reviewer \_\_\_\_\_ Date: \_\_\_\_\_

Ambient Monitoring Coordinator Kevin Lance Date: May 4, 2021

# Site Review Form Calendar Year 2020

## Site Information

<b>Region</b> <u>WNC</u>	<b>Site Name</b> <u>AB Tech</u>	<b>AQS Site #</b> <u>37-021-0035</u>	
<b>Street Address</b> <u>AB Technical Community College</u>		<b>City</b> <u>Asheville</u>	
<b>Urban Area</b> Choose an item.	<b>Core-based Statistical Area</b> Choose an item.		
<b>Enter Exact</b>		<b>Method of Measuring</b>	
<b>Latitude</b> <u>-82.58611</u>	<b>Longitude</b> <u>35.57222</u>		
In Decimal Degrees	In Decimal Degrees	___	<b>Explanation:</b> <u>Google Earth</u>
<b>Elevation Above/below Mean Sea Level (in meters)</b>			<u>647.39</u>
Name of nearest road to inlet probe <u>Victoria Rd.</u> ADT <u>2200</u> Year Choose an item <u>2010</u>			
Comments: _____			
Distance of site to nearest major road (m) <u>359.00</u> Direction from site to nearest major road <u>E</u>			
Name of nearest major road <u>Victoria Rd.</u> ADT <u>2200</u> Year <u>2010</u>			
Comments: _____			
Site located near electrical substation/high voltage power lines?			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Distance of site to nearest railroad track		(m) <u>341</u>	Direction to RR <u>WSW</u> <input type="checkbox"/> NA
<b>**OPTIONAL**</b> Distance of site to nearest power pole w/transformer		(m) _____	Direction _____
Distance between site and drip line of water tower (m) _____		Direction from site to water tower <input checked="" type="checkbox"/> NA	
Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad tracks, construction activities, fast food restaurants, and swimming pools. _____			

## ANSWER ALL APPLICABLE QUESTIONS:

Parameters	Monitoring Objective	Scale	Monitor Type
<input type="checkbox"/> NA <input type="checkbox"/> SO <sub>2</sub> (NAAQS) <input type="checkbox"/> SO <sub>2</sub> (trace-level) <input type="checkbox"/> NO <sub>2</sub> (NAAQS) <input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> O <sub>3</sub> <input type="checkbox"/> NH <sub>3</sub> <input type="checkbox"/> Hydrocarbon <input checked="" type="checkbox"/> Air Toxics <input type="checkbox"/> CO (trace-level)	<input checked="" type="checkbox"/> General/Background _____ <input type="checkbox"/> Highest Concentration _____ <input type="checkbox"/> Max O <sub>3</sub> Concentration _____ <input checked="" type="checkbox"/> Population Exposure _____ <input type="checkbox"/> Source Oriented _____ <input type="checkbox"/> Transport _____ <input type="checkbox"/> Upwind Background _____ <input type="checkbox"/> Welfare Related Impacts _____	<input type="checkbox"/> Micro _____ <input type="checkbox"/> Middle _____ <input type="checkbox"/> _____ Neighborhood _____ <input checked="" type="checkbox"/> Urban _____ <input type="checkbox"/> Regional _____	<input type="checkbox"/> SLAMS _____ <input checked="" type="checkbox"/> SPM _____ <b>Monitor Network Affiliation</b> <input type="checkbox"/> NCORE _____ <input type="checkbox"/> Unofficial PAMS _____
Probe inlet height (from ground) 2-15 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Give actual measured height from ground (meters) _____			
Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (roof) supporting structure > 1 m? Yes <input type="checkbox"/> No <input type="checkbox"/>			
Actual measured distance from outer edge of probe to supporting structure (meters) <u>1.00</u>			
Distance of outer edge of probe inlet from other monitoring probe inlets > 1 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>			
Is probe > 20 m from the nearest tree drip line? Yes <input checked="" type="checkbox"/> *No <input type="checkbox"/> (answer *'d questions)			
*Is probe > 10 m from the nearest tree drip line? Yes <input type="checkbox"/> *No <input type="checkbox"/> *Number of trees within 10 meters _____			
*Distance from probe to closest tree (m) _____ Direction from probe to tree _____ *Height of tree above probe (m) _____			
Are there any obstacles to air flow? *Yes <input checked="" type="checkbox"/> (answer *'d questions) No <input type="checkbox"/>			
*Identify obstacle _____ Distance from probe inlet (m) _____ Direction from probe inlet to obstacle _____			
*Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Distance of probe to nearest traffic lane (m) <u>359</u> Direction from probe to nearest traffic lane <u>E</u>			



## Site Review Form Calendar Year 2020

Parameters	Monitoring Objective	Scale	Site Type
<input checked="" type="checkbox"/> NA Air flow < 200 L/min <input type="checkbox"/> PM2.5 FRM <input type="checkbox"/> PM10 FRM <input type="checkbox"/> PM10 Cont. (BAM) <input type="checkbox"/> PM10-2.5 FRM <input type="checkbox"/> PM10-2.5 BAM <input type="checkbox"/> PM2.5 Cont. (BAM)	<input type="checkbox"/> General/Background _____ <input type="checkbox"/> Highest Concentration _____ <input type="checkbox"/> Population Exposure _____ <input type="checkbox"/> Source Oriented _____ <input type="checkbox"/> Transport _____ <input type="checkbox"/> Welfare Related Impacts _____	<input type="checkbox"/> Micro _____ <input type="checkbox"/> Middle _____ <input type="checkbox"/> Neighborhood _____ <input type="checkbox"/> Urban _____ <input type="checkbox"/> Regional _____	<input type="checkbox"/> SLAMS _____ <input type="checkbox"/> SPM _____  <b>Monitor NAAQS Exclusion</b> <input type="checkbox"/> NONREGULATORY _____
Probe inlet height (from ground) <input type="checkbox"/> < 2 m _____ <input type="checkbox"/> 2-7m _____ <input type="checkbox"/> 7-15 m _____ <input type="checkbox"/> > 15 m _____ Actual measured distance from probe inlet to ground (meters) _____ Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (platform or roof) supporting structure > 2 m? Actual measured distance from outer edge of probe inlet to supporting structure (meters) _____ Yes <input type="checkbox"/> No <input type="checkbox"/>			
Distance (Y) between outer edge of probe inlets of any low volume monitor and any other low volume monitor at the site = 1 m or greater?			Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Are collocated PM2.5 Monitors (Two FRMs, FRM & BAM, BAM & BAM) Located at Site? <span style="float: right;">*Yes <input type="checkbox"/> (answer *'d questions) No <input type="checkbox"/> NA <input type="checkbox"/></span>			
* Entire inlet opening of collocated PM 2.5 samplers (X) within 2 to 4 m of each other? <span style="float: right;">Yes <input type="checkbox"/> No <input type="checkbox"/> Give actual (meters) _____</span>			
*Are collocated PM2.5 sampler inlets within 1 m vertically of each other? <span style="float: right;">Yes <input type="checkbox"/> No <input type="checkbox"/> Give actual (meters) _____</span>			
Is a low-volume PM10 monitor collocated with a PM2.5 monitor at the site to measure PM10-2.5? <span style="float: right;">*Yes <input type="checkbox"/> (answer *'d questions) No <input type="checkbox"/> NA <input type="checkbox"/></span>			
* Entire inlet opening of collocated PM10 and PM2.5 samplers for PM10-2.5 (X) within 2 to 4 m of each other? <span style="float: right;">Yes <input type="checkbox"/> No <input type="checkbox"/></span>			
*Are collocated PM10 and PM2.5 sampler inlets within 1 m vertically of each other? <span style="float: right;">Yes <input type="checkbox"/> No <input type="checkbox"/></span>			
Is probe > 20 m from the nearest tree drip line? Yes <input type="checkbox"/> *No <input type="checkbox"/> (answer *'d questions)			
*Is probe > 10 m from the nearest tree drip line? Yes <input type="checkbox"/> *No <input type="checkbox"/> *Number of trees within 10 meters _____ *Distance from probe to closest tree (m) _____ Direction from probe to tree _____ *Height of tree above probe (m) _____			
Are there any obstacles to air flow? *Yes <input type="checkbox"/> (answer *'d questions) No <input type="checkbox"/>			
*Identify obstacle _____ Distance from probe inlet (m) _____ Direction from probe inlet to obstacle _____ *Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes <input type="checkbox"/> No <input type="checkbox"/>			
Distance of probe to nearest traffic lane (m) _____ Direction from probe to nearest traffic lane _____			

### RECOMMENDATIONS:

- 1) Maintain current site status? Yes ☐ \*No ☐ (answer \*'d questions)
- \*2) Change monitoring objective? Yes ☐ (enter new objective \_\_\_\_\_) No ☐
- \*3) Change scale of representativeness? Yes ☐ (enter new scale \_\_\_\_\_) No ☐
- \*4) Relocate site? Yes ☐ No ☐

### Comments:

Date of Last Site Pictures 10/1/2016 New Pictures Submitted? Yes ☐ No ☒

Reviewer \_\_\_\_\_ Date \_\_\_\_\_

Ambient Monitoring Coordinator Kevin Lance Date May 4, 2021

# Site Review Form Calendar Year 2020

## Site Information

Region <u>ARO</u>	Site Name <u>Waynesville School</u>	AQS Site # <u>37-087-0008</u>	
Street Address <u>2236 Asheville Road</u>		City <u>Waynesville</u>	
Urban Area <input type="checkbox"/> Not in an Urban Area <input type="checkbox"/>	Core-based Statistical Area <u>Asheville, NC</u>		
Enter Exact		Method of Measuring	
Latitude <u>35.5072</u>	Longitude <u>-82.9636</u>		
In Decimal Degrees	In Decimal Degrees	Other (explain)	Explanation: <u>Google Earth</u>
Elevation Above/below Mean Sea Level (in meters)		<u>792.00</u>	
Name of nearest road to inlet probe <u>Asheville Road</u> ADT <u>11000</u> Year latest available <u>2018</u>			
Distance of ozone probe to nearest traffic lane (m) <u>151</u> Direction from ozone probe to nearest traffic lane <u>SW</u>			
Comments: _____			
Name of nearest major road <u>HWY 74 (Great Smoky Mountains Expressway)</u> ADT <u>35000</u> Year latest available <u>2018</u>			
Distance of site to nearest major road (m) <u>1056.00</u> Direction from site to nearest major road <u>NW</u>			
Comments: _____			
Site located near electrical substation/high voltage power lines?			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Distance of site to nearest railroad track		(m) <u>756</u> Direction to RR <u>NW</u>	<input type="checkbox"/> NA
**OPTIONAL** Distance of site to nearest power pole w/transformer		(m) _____	Direction _____
Distance between site and drip line of water tower (m) _____		Direction from site to water tower <input checked="" type="checkbox"/> NA	
Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad tracks, construction activities, fast food restaurants, and swimming pools. _____			

### ANSWER ALL APPLICABLE QUESTIONS:

Parameters	Monitoring Objective	Scale	Site Type
<input checked="" type="checkbox"/> O <sub>3</sub>	<input type="checkbox"/> General/Background <input type="checkbox"/> Highest Concentration <input type="checkbox"/> Max O <sub>3</sub> Concentration <input checked="" type="checkbox"/> Population Exposure <input type="checkbox"/> Source Oriented <input type="checkbox"/> Transport <input type="checkbox"/> Upwind Background <input type="checkbox"/> Welfare Related Impacts	<input type="checkbox"/> Micro <input type="checkbox"/> Middle <input checked="" type="checkbox"/> Neighborhood <input type="checkbox"/> Urban <input type="checkbox"/> Regional	<input checked="" type="checkbox"/> SLAMS <input type="checkbox"/> SPM
Probe inlet height (from ground) 2-15 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Give actual measured height from ground (meters) <u>3.71</u>			
Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (roof) supporting structure > 1 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Actual measured distance from outer edge of probe to supporting structure (meters) <u>1.01</u>			
Is probe > 20 m from the nearest tree drip line? Yes <input checked="" type="checkbox"/> *No <input type="checkbox"/> (answer *'d questions)			
*Is probe > 10 m from the nearest tree drip line? Yes <input type="checkbox"/> *No <input type="checkbox"/> *Number of trees within 10 meters _____			
*Distance from probe to closest tree (m) _____ Direction from probe to tree _____ *Height of tree above probe (m) _____			
Are there any obstacles to air flow? *Yes <input type="checkbox"/> (answer *'d questions) No <input checked="" type="checkbox"/>			
*Identify obstacle _____ Distance from probe inlet (m) _____ Direction from probe inlet to obstacle _____			
*Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes <input type="checkbox"/> No <input type="checkbox"/>			



## Site Review Form Calendar Year 2020

### RECOMMENDATIONS:

- 1) Maintain current site status? Yes ☒ \*No ☐ (answer \*'d questions)
- \*2) Change monitoring objective? Yes ☐ (enter new objective: \_\_\_\_\_) No ☐
- \*3) Change scale of representativeness? Yes ☐ (enter new scale: \_\_\_\_\_) No ☐
- \*4) Relocate site? Yes ☐ No ☐

Comments: \_\_\_\_\_

Date of Last Site Pictures: November 19, 2019 New Pictures Submitted? Yes ☐ No ☒

Reviewer Steve Ensley Date: December 7, 2020

Ambient Monitoring Coordinator Steve Ensley Date: December 9, 2020

### Instructions:

**Trees:** The probe or inlet must be at least 10 meters or further from the drip line of trees. A distance of at least 20 meters between the probe and any tree or trees is preferred.

**Obstacles:** An obstacle is anything that restricts air flow. A tree can be an obstacle because it has branches and leaves that restrict the flow of air but a pole is not considered to be an obstacle. To avoid interference from obstacles, the probe or inlet must have unrestricted airflow and be located away from obstacles. The distance from the obstacle to the probe or inlet must be at least twice the height that the obstacle protrudes above the probe, inlet, or monitoring path.

If the annual network review has indicated that the monitoring objectives and scale of representativeness for the site have not changed and the siting criteria still meets those monitoring objectives and that scale of representativeness and there are no other reasons to modify the site in any way, check "Yes" to the question "Maintain current site status?" and skip the rest of the recommendations section.

If the annual network review has indicated that the monitoring objectives, scale of representativeness, or siting criteria have changed for some reason or there is another reason to modify the site in some way, check "No" to the question "Maintain current site status?" and complete the rest of the recommendations section. If the monitoring objective or scale of representativeness needs to be changed, check the "Yes" box and write in the new monitoring objective or scale of representativeness on the line. Otherwise check the "No" box. If the site needs to be relocated, check the "Yes" box. If the site needs to be shut down, write "Shut down" in the comments line. Also, use the comments line to explain any change requested.

Check the site picture archive to find out when the last set of site pictures were taken and write the date down on the line. If the pictures are more than five years old or if something at the site has changed in the past year, take new site pictures. Changes that require new site pictures include additions, removals, or movement of monitors at the site, growth or removal of trees and other shrubs at the site, and construction of roads or buildings at or in the vicinity of the site.

Pictures of the site should at a minimum include at least one picture showing the site itself and pictures standing at the probe or inlet or as close as possible to the probe or inlet looking in the four compass directions (north, east, south, and west). If meteorological data are collected at the site, pictures standing at the meteorological tower looking southwest and northeast should also be included. Sometimes pictures looking at the site from the four compass directions are also helpful.

Be sure to correctly identify the pictures as to which compass direction they show. This documentation may be achieved by using good notes when taking the pictures, holding a compass in front of the camera, or placing a sign with the appropriate direction indicated somewhere in the picture. Label the pictures with the name of the site using the two-digit logger ID (HC, JW, etc.), the direction (N, NE, E, SE, S, SW, W, NW), and the date taken (YYYYMMDD) and transfer the pictures to the group drive in the appropriate Incoming/Regional Office directory.

# Site Review Form Calendar Year 2020

## Site Information

<b>Region</b> <u>ARO</u>		<b>Site Name</b> <u>Canton DRR</u>		<b>AQS Site #</b> <u>37-087-0013</u>	
<b>Street Address</b> <u>104 Pace Street</u>			<b>City</b> <u>Canton</u>		
<b>Urban Area</b> <u>CANTON</u>			<b>Core-based Statistical Area</b> <u>Asheville, NC</u>		
<b>Enter Exact</b>			<b>Method of Measuring</b>		
<b>Latitude</b> <u>35.535044</u>		<b>Longitude</b> <u>-82.848689</u>			
In Decimal Degrees		In Decimal Degrees		<b>Other (explain)</b> <u>Google Earth</u>	
<b>Elevation Above/below Mean Sea Level (in meters)</b>				<u>813</u>	
Name of nearest road to inlet probe <u>Blackwell Drive (Hwy 215)</u> ADT <u>9900</u> Year latest available <u>2018</u>					
Comments: _____					
Distance of site to nearest major road (m) <u>331.00</u> Direction from site to nearest major road <u>SSW</u>					
Name of nearest major road <u>New Clyde Highway (Hwy 19/23)</u> ADT <u>20500</u> Year latest available <u>2018</u>					
Comments: _____					
<b>Site located near electrical substation/high voltage power lines?</b>				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<b>Distance of site to nearest railroad track</b>		(m) <u>311</u>		<b>Direction to RR</b> <u>SSW</u> <input type="checkbox"/> NA	
<b>**OPTIONAL** Distance of site to nearest power pole w/transformer</b>		(m) _____		<b>Direction</b> _____	
<b>Distance between site and drip line of water tower (m)</b>		<b>Direction from site to water tower</b>		<input checked="" type="checkbox"/> NA	
Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad tracks, construction activities, fast food restaurants, and swimming pools.					
_____					

### ANSWER ALL APPLICABLE QUESTIONS:

Parameters	Monitoring Objective	Scale	Monitor Type
<input checked="" type="checkbox"/> SO <sub>2</sub> (DRR) <input type="checkbox"/> SO <sub>2</sub> (NAAQS) <input type="checkbox"/> SO <sub>2</sub> (trace-level)	<input type="checkbox"/> General/Background <input type="checkbox"/> Highest Concentration <input type="checkbox"/> Population Exposure <input checked="" type="checkbox"/> Source Oriented <input type="checkbox"/> Transport <input type="checkbox"/> Upwind Background <input type="checkbox"/> Welfare Related Impacts	<input type="checkbox"/> Micro <input checked="" type="checkbox"/> Middle <input type="checkbox"/> Neighborhood <input type="checkbox"/> Urban <input type="checkbox"/> Regional	<input checked="" type="checkbox"/> INDUSTRIAL <input type="checkbox"/> SLAMS <input type="checkbox"/> SPM
Probe inlet height (from ground) 2-15 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Give actual measured height from ground (meters) <u>4.67</u>			
Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (roof) supporting structure > 1 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Actual measured distance from outer edge of probe to supporting structure (meters) <u>1.905</u>			
Distance of outer edge of probe inlet from other gas monitoring probe inlets > 0.25 m? Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>			
Is probe > 20 m from the nearest tree drip line? Yes <input checked="" type="checkbox"/> *No <input type="checkbox"/> (answer *d questions)			
*Is probe > 10 m from the nearest tree drip line? Yes <input type="checkbox"/> *No <input type="checkbox"/> *Number of trees within 10 meters _____			
*Distance from probe to closest tree (m) _____ Direction from probe to tree _____ *Height of tree above probe (m) _____			
Are there any obstacles to air flow? *Yes <input type="checkbox"/> (answer *d questions) No <input checked="" type="checkbox"/>			
*Identify obstacle _____ Distance from probe inlet (m) _____ Direction from probe inlet to obstacle _____			
*Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes <input type="checkbox"/> No <input type="checkbox"/>			
Distance of probe to nearest traffic lane (m) <u>10</u> Direction from probe to nearest traffic lane <u>NW</u>			

## Site Review Form Calendar Year 2020

### SULFUR DIOXIDE MONITOR RECOMMENDATIONS:

1) Maintain current monitor status? Yes ☒ \*No ☐ (answer \*d questions)

\*2) Change monitoring objective? Yes ☐ (enter new objective \_\_\_\_\_) No ☐ -

\*3) Change scale of representativeness? Yes ☐ (enter new scale \_\_\_\_\_) No ☐

\*4) Relocate monitor? Yes ☐ No ☐

Comments: \_\_\_\_\_

Date of Last Site Pictures 1/22/20 New Pictures Submitted? Yes ☐ No ☒

Reviewer Steve Ensely Date December 7, 2020

Ambient Monitoring Coordinator Steve Ensley Date December 9, 2020

Revised 2021-05-07

### Instructions:

If the annual network review has indicated that the monitoring objectives and scale of representativeness for the site have not changed and the siting criteria still meets those monitoring objectives and that scale of representativeness and there are no other reasons to modify the site in any way, check "Yes" to the question "Maintain current site status?" and skip the rest of the recommendations section.

If the annual network review has indicated that the monitoring objectives, scale of representativeness, or siting criteria have changed for some reason or there is another reason to modify the site in some way, check "No" to the question "Maintain current site status?" and complete the rest of the recommendations section. If the monitoring objective or scale of representativeness needs to be changed, check the "Yes" box and write in the new monitoring objective or scale of representativeness on the line. Otherwise check the "No" box. If the site needs to be relocated, check the "Yes" box. If the site needs to be shut down, write "Shut down" in the comments line. Also use the comments line to explain any change requested.

Check the site picture archive to find out when the last set of site pictures were taken and write the date down on the line. If the pictures are more than five years old or if something at the site has changed in the past year, take new site pictures. Changes that require new site pictures include additions, removals, or movement of monitors at the site, growth or removal of trees and other shrubs at the site, and construction of roads or buildings at or in the vicinity of the site.

Pictures of the site should at a minimum include at least one picture showing the site itself and pictures standing at the probe or inlet or as close as possible to the probe or inlet looking in the four compass directions (north, east, south, and west). If meteorological data are collected at the site, pictures standing at the meteorological tower looking southwest and northeast should also be included. Sometimes pictures looking at the site from the four compass directions are also helpful.

Be sure to correctly identify the pictures as to which compass direction they show. This documentation may be achieved by using good notes when taking the pictures, holding a compass in front of the camera, or placing a sign with the appropriate direction indicated somewhere in the picture. Label the pictures with the name of the site using the two digit logger ID (HC, JW, *etc.*), the direction (N, NE, E, SE, S, SW, W, NW), and the date taken (YYYYMMDD) and transfer the pictures to the group drive in the appropriate Incoming/Regional Office directory.



# Site Review Form Calendar Year 2020

## Site Information

<b>Region</b> <u>ARO</u>	<b>Site Name</b> <u>Bryson City</u>	<b>AQS Site #</b> <u>37-173-0002</u>	
<b>Street Address</b> <u>30 Recreation Park Drive</u>		<b>City</b> <u>Bryson City</u>	
<b>Urban Area</b> <u>Not in an Urban Area</u>	<b>Core-based Statistical Area</b> <u>None</u>		
<b>Enter Exact</b>			
<b>Latitude</b> <u>35.43804</u>	<b>Longitude</b> <u>-83.442195</u>	<b>Method of Measuring</b>	
In Decimal Degrees	In Decimal Degrees	<b>Other (explain)</b>	<b>Explanation:</b> <u>Google Earth</u>
<b>Elevation Above/below Mean Sea Level (in meters)</b>		<u>559</u>	
Name of nearest road to inlet probe <u>Recreation Park Drive</u> ADT <u>20</u> Year estimated <u>2018</u>			
Comments: <u>Park Supervisor estimated ADT</u>			
Distance of site to nearest major road (m) <u>416.00</u> Direction from site to nearest major road <u>SSE</u>			
Name of nearest major road <u>US 19</u> ADT <u>7200</u> Year latest available <u>2018</u>			
Comments: _____			
Site located near electrical substation/high voltage power lines?			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Distance of site to nearest railroad track		(m) <u>240</u>	Direction to RR <u>SSE</u> <input type="checkbox"/> NA
<b>**OPTIONAL**</b> Distance of site to nearest power pole w/transformer		(m) _____	Direction _____
Distance between site and drip line of water tower (m) _____		Direction from site to water tower <input checked="" type="checkbox"/> NA	
Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad tracks, construction activities, fast food restaurants, and swimming pools. _____			

## ANSWER ALL APPLICABLE QUESTIONS:

Parameters	Monitoring Objective	Scale	Monitor Type
<input type="checkbox"/> NA <input type="checkbox"/> SO <sub>2</sub> (NAAQS) <input type="checkbox"/> SO <sub>2</sub> (trace-level) <input type="checkbox"/> NO <sub>2</sub> (NAAQS) <input type="checkbox"/> HSN <sub>2</sub> <input checked="" type="checkbox"/> O <sub>3</sub> <input type="checkbox"/> NH <sub>3</sub> <input type="checkbox"/> Hydrocarbon <input type="checkbox"/> Air Toxics <input type="checkbox"/> CO (trace-level)	<input checked="" type="checkbox"/> General/Background _____ <input type="checkbox"/> Highest Concentration _____ <input type="checkbox"/> Max O <sub>3</sub> Concentration _____ <input type="checkbox"/> Population Exposure _____ <input type="checkbox"/> Source Oriented _____ <input checked="" type="checkbox"/> Transport _____ <input type="checkbox"/> Upwind Background _____ <input type="checkbox"/> Welfare Related Impacts _____	<input type="checkbox"/> Micro _____ <input checked="" type="checkbox"/> Middle _____ <input type="checkbox"/> _____ Neighborhood _____ <input type="checkbox"/> Urban _____ <input type="checkbox"/> Regional _____	<input checked="" type="checkbox"/> SLAMS _____ <input type="checkbox"/> SPM _____ <b>Monitor Network Affiliation</b> <input type="checkbox"/> NCORE _____ <input type="checkbox"/> Unofficial PAMS _____
Probe inlet height (from ground) 2-15 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Give actual measured height from ground (meters) <u>4.58</u>			
Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (roof) supporting structure > 1 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Actual measured distance from outer edge of probe to supporting structure (meters) <u>1.82</u>			
Distance of outer edge of probe inlet from other monitoring probe inlets > 1 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>			
Is probe > 20 m from the nearest tree drip line? Yes <input checked="" type="checkbox"/> *No <input checked="" type="checkbox"/> (answer *'d questions)			
*Is probe > 10 m from the nearest tree drip line? Yes <input type="checkbox"/> *No <input type="checkbox"/> *Number of trees within 10 meters _____			
*Distance from probe to closest tree (m) <u>19.10</u> Direction from probe to tree _____ *Height of tree above probe (m) <u>4.52</u>			
Are there any obstacles to air flow? *Yes <input type="checkbox"/> (answer *'d questions) No <input checked="" type="checkbox"/>			
*Identify obstacle _____ Distance from probe inlet (m) _____ Direction from probe inlet to obstacle _____			
*Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes <input type="checkbox"/> No <input type="checkbox"/>			
Distance of probe to nearest traffic lane (m) <u>18</u> Direction from probe to nearest traffic lane <u>NE</u>			

## Site Review Form Calendar Year 2020

Parameters	Monitoring Objective	Scale	Site Type
<input type="checkbox"/> NA Air flow < 200 L/min <input type="checkbox"/> PM2.5 FRM <input type="checkbox"/> PM10 FRM <input type="checkbox"/> PM10 Cont. (BAM) <input type="checkbox"/> PM10-2.5 FRM <input type="checkbox"/> PM10-2.5 BAM <input checked="" type="checkbox"/> PM2.5 Cont. (BAM)	<input type="checkbox"/> General/Background _____ <input type="checkbox"/> Highest Concentration _____ <input type="checkbox"/> Population Exposure _____ <input type="checkbox"/> Source Oriented _____ <input checked="" type="checkbox"/> Transport _____ <input type="checkbox"/> Welfare Related Impacts _____	<input type="checkbox"/> Micro _____ <input type="checkbox"/> Middle _____ <input checked="" type="checkbox"/> Neighborhood _____ <input type="checkbox"/> Urban _____ <input type="checkbox"/> Regional _____	<input checked="" type="checkbox"/> SLAMS _____ <input type="checkbox"/> SPM _____  <b>Monitor NAAQS Exclusion</b> <input type="checkbox"/> NONREGULATORY _____
Probe inlet height (from ground) <input type="checkbox"/> < 2 m <input checked="" type="checkbox"/> 2-7m <input type="checkbox"/> 7-15 m <input type="checkbox"/> > 15 m _____ Actual measured distance from probe inlet to ground (meters) <u>2.22</u> Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (platform or roof) supporting structure > 2 m? Actual measured distance from outer edge of probe inlet to supporting structure (meters) <u>2.0574</u> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/>			
Distance (Y) between outer edge of probe inlets of any low volume monitor and any other low volume monitor at the site = 1 m or greater?			Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Are collocated PM2.5 Monitors (Two FRMs, FRM & BAM, BAM & BAM) Located at Site? <input type="checkbox"/> *Yes <input type="checkbox"/> (answer *'d questions) No <input checked="" type="checkbox"/> NA <input type="checkbox"/>			
* Entire inlet opening of collocated PM 2.5 samplers (X) within 2 to 4 m of each other? Yes <input type="checkbox"/> No <input type="checkbox"/> Give actual (meters) _____ *Are collocated PM2.5 sampler inlets within 1 m vertically of each other? Yes <input type="checkbox"/> No <input type="checkbox"/> Give actual (meters) _____			
Is a low-volume PM10 monitor collocated with a PM2.5 monitor at the site to measure PM10-2.5? <input type="checkbox"/> *Yes <input type="checkbox"/> (answer *'d questions) No <input checked="" type="checkbox"/> NA <input type="checkbox"/>			
* Entire inlet opening of collocated PM10 and PM2.5 samplers for PM10-2.5 (X) within 2 to 4 m of each other? Yes <input type="checkbox"/> No <input type="checkbox"/> *Are collocated PM10 and PM2.5 sampler inlets within 1 m vertically of each other? Yes <input type="checkbox"/> No <input type="checkbox"/>			
Is probe > 20 m from the nearest tree drip line? Yes <input type="checkbox"/> *No <input checked="" type="checkbox"/> (answer *'d questions)			
*Is probe > 10 m from the nearest tree drip line? Yes <input checked="" type="checkbox"/> *No <input type="checkbox"/> *Number of trees within 10 meters _____ *Distance from probe to closest tree (m) <u>10.97</u> Direction from probe to tree _____ *Height of tree above probe (m) <u>3.36</u>			
Are there any obstacles to air flow? *Yes <input type="checkbox"/> (answer *'d questions) No <input checked="" type="checkbox"/>			
*Identify obstacle _____ Distance from probe inlet (m) _____ Direction from probe inlet to obstacle _____ *Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes <input type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/>			
Distance of probe to nearest traffic lane (m) _____ Direction from probe to nearest traffic lane _____			

### RECOMMENDATIONS:

- 1) Maintain current site status? Yes ☒ \*No ☐ (answer \*'d questions)
- \*2) Change monitoring objective? Yes ☐ (enter new objective \_\_\_\_\_) No ☐
- \*3) Change scale of representativeness? Yes ☐ (enter new scale \_\_\_\_\_) No ☐
- \*4) Relocate site? Yes ☐ No ☐

### Comments:

Date of Last Site Pictures November 19, 2019 New Pictures Submitted? Yes ☐ No ☒

Reviewer Steve Ensley Date November 17, 2020

Ambient Monitoring Coordinator Steve Ensley Date November 17, 2020

# Site Review Form Calendar Year 2020

## Site Information

Region <u>ARO</u>	Site Name <u>Linville Falls</u>	AQS Site # <u>37-011-0002</u>	
Street Address <u>100 Linville Falls Road</u>		City <u>Linville Falls</u>	
Urban Area <input type="checkbox"/> Not in an Urban Area <input type="checkbox"/>	Core-based Statistical Area <input type="checkbox"/> None <input type="checkbox"/>		
Enter Exact		Method of Measuring	
Latitude <u>-81.9331</u>	Longitude <u>35.9723</u>		
In Decimal Degrees	In Decimal Degrees	Other (explain)	Explanation: <u>Google Earth</u>
Elevation Above/below Mean Sea Level (in meters)		<u>988.16</u>	
Name of nearest road to inlet probe <u>Linville Falls Road</u> ADT <u>500</u> Year estimated <u>2018</u>			
Distance of ozone probe to nearest traffic lane (m) <u>93</u> Direction from ozone probe to nearest traffic lane <u>E</u>			
Comments: _____			
Name of nearest major road <u>US 221 Hwy</u> ADT <u>2300</u> Year latest available <u>2018</u>			
Distance of site to nearest major road (m) <u>1600.00</u> Direction from site to nearest major road <u>SW</u>			
Comments: _____			
Site located near electrical substation/high voltage power lines?			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Distance of site to nearest railroad track _____ (m)		Direction to RR <input checked="" type="checkbox"/> NA	
**OPTIONAL** Distance of site to nearest power pole w/transformer _____ (m)		Direction _____	
Distance between site and drip line of water tower (m) _____		Direction from site to water tower <input checked="" type="checkbox"/> NA	
Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad tracks, construction activities, fast food restaurants, and swimming pools. _____			

### ANSWER ALL APPLICABLE QUESTIONS:

Parameters	Monitoring Objective	Scale	Site Type
<input checked="" type="checkbox"/> O <sub>3</sub>	<input checked="" type="checkbox"/> General/Background <input type="checkbox"/> Highest Concentration <input type="checkbox"/> Max O <sub>3</sub> Concentration <input type="checkbox"/> Population Exposure <input type="checkbox"/> Source Oriented <input type="checkbox"/> Transport <input type="checkbox"/> Upwind Background <input type="checkbox"/> Welfare Related Impacts	<input type="checkbox"/> Micro <input type="checkbox"/> Middle <input type="checkbox"/> Neighborhood <input type="checkbox"/> Urban <input checked="" type="checkbox"/> Regional	<input type="checkbox"/> SLAMS <input checked="" type="checkbox"/> SPM
Probe inlet height (from ground) 2-15 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Give actual measured height from ground (meters) <u>3.80</u>			
Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (roof) supporting structure > 1 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Actual measured distance from outer edge of probe to supporting structure (meters) <u>1.10</u>			
Is probe > 20 m from the nearest tree drip line? Yes <input type="checkbox"/> *No <input checked="" type="checkbox"/> (answer *'d questions)			
*Is probe > 10 m from the nearest tree drip line? Yes <input checked="" type="checkbox"/> *No <input type="checkbox"/> *Number of trees within 10 meters <u>0.00</u>			
*Distance from probe to closest tree (m) <u>16.00</u> Direction from probe to tree <u>SE</u> *Height of tree above probe (m) <u>3.00</u>			
Are there any obstacles to air flow? *Yes <input type="checkbox"/> (answer *'d questions) No <input checked="" type="checkbox"/>			
*Identify obstacle _____ Distance from probe inlet (m) _____ Direction from probe inlet to obstacle _____			
*Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes <input type="checkbox"/> No <input type="checkbox"/>			



## Site Review Form Calendar Year 2020

### RECOMMENDATIONS:

- 1) Maintain current site status? Yes ☒ \*No ☐ (answer \*'d questions)
- \*2) Change monitoring objective? Yes ☐ (enter new objective: \_\_\_\_\_) No ☐
- \*3) Change scale of representativeness? Yes ☐ (enter new scale: \_\_\_\_\_) No ☐
- \*4) Relocate site? Yes ☐ No ☐

Comments: \_\_\_\_\_

Date of Last Site Pictures: December 4, 2019 New Pictures Submitted? Yes ☐ No ☒

Reviewer Bob Graves Date: December 21, 2020

Ambient Monitoring Coordinator Steve Ensley Date: December 23, 2020

### Instructions:

**Trees:** The probe or inlet must be at least 10 meters or further from the drip line of trees. A distance of at least 20 meters between the probe and any tree or trees is preferred.

**Obstacles:** An obstacle is anything that restricts air flow. A tree can be an obstacle because it has branches and leaves that restrict the flow of air but a pole is not considered to be an obstacle. To avoid interference from obstacles, the probe or inlet must have unrestricted airflow and be located away from obstacles. The distance from the obstacle to the probe or inlet must be at least twice the height that the obstacle protrudes above the probe, inlet, or monitoring path.

If the annual network review has indicated that the monitoring objectives and scale of representativeness for the site have not changed and the siting criteria still meets those monitoring objectives and that scale of representativeness and there are no other reasons to modify the site in any way, check "Yes" to the question "Maintain current site status?" and skip the rest of the recommendations section.

If the annual network review has indicated that the monitoring objectives, scale of representativeness, or siting criteria have changed for some reason or there is another reason to modify the site in some way, check "No" to the question "Maintain current site status?" and complete the rest of the recommendations section. If the monitoring objective or scale of representativeness needs to be changed, check the "Yes" box and write in the new monitoring objective or scale of representativeness on the line. Otherwise check the "No" box. If the site needs to be relocated, check the "Yes" box. If the site needs to be shut down, write "Shut down" in the comments line. Also, use the comments line to explain any change requested.

Check the site picture archive to find out when the last set of site pictures were taken and write the date down on the line. If the pictures are more than five years old or if something at the site has changed in the past year, take new site pictures. Changes that require new site pictures include additions, removals, or movement of monitors at the site, growth or removal of trees and other shrubs at the site, and construction of roads or buildings at or in the vicinity of the site.

Pictures of the site should at a minimum include at least one picture showing the site itself and pictures standing at the probe or inlet or as close as possible to the probe or inlet looking in the four compass directions (north, east, south, and west). If meteorological data are collected at the site, pictures standing at the meteorological tower looking southwest and northeast should also be included. Sometimes pictures looking at the site from the four compass directions are also helpful.

Be sure to correctly identify the pictures as to which compass direction they show. This documentation may be achieved by using good notes when taking the pictures, holding a compass in front of the camera, or placing a sign with the appropriate direction indicated somewhere in the picture. Label the pictures with the name of the site using the two-digit logger ID (HC, JW, etc.), the direction (N, NE, E, SE, S, SW, W, NW), and the date taken (YYYYMMDD) and transfer the pictures to the group drive in the appropriate Incoming/Regional Office directory.

# Site Review Form Calendar Year 2020

## Site Information

Region <u>ARO</u>	Site Name <u>Spruce Pine Hospital</u>	AQS Site # <u>37- 121 -0004</u>
Street Address- <u>272 Hospital Drive</u>		City <u>Spruce Pine</u>
Urban Area <u>SPRUCE PINE</u>	Core-based Statistical Area <u>None</u>	
Enter Exact		
Latitude <u>-82.062209</u>	Longitude <u>35.912505</u>	Method of Measuring: <u>Google Earth</u>
In Decimal Degrees	In Decimal Degrees	Matches Web Map: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Elevation Above/below Mean Sea Level (in meters) <u>787.00</u>	Method of Measuring: <u>th</u>	
Name of nearest road to inlet probe <u>Hospital Drive</u> ADT Latest available <u>500</u> Year <u>2018</u>		
Distance of PM inlet to nearest traffic lane (m) <u>90</u> Direction from inlet to nearest traffic lane <u>NW</u>		
Comments: _____		
Name of nearest major road <u>US 19</u> ADT <u>9900</u> Year latest available <u>2019</u>		
Distance of site to nearest major road (m) <u>90.00</u> Direction from site to nearest major road <u>NW</u>		
Comments: _____		
Site located near electrical substation/high voltage power lines?		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Distance of site to nearest railroad track	(m) <u>327</u> Direction to RR <u>W</u>	<input type="checkbox"/> NA
**OPTIONAL** Distance of site to nearest power pole w/transformer		(m) _____ Direction _____
Distance between site and drip line of water tower (m) _____	Direction from site to water tower _____	<input checked="" type="checkbox"/> NA
Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad tracks, construction activities, fast food restaurants, and swimming pools.		

### Instructions:

**Address:** Sometimes local addresses change. Confirm the local address of the site using a 911 locator or the address used by the local utility company, community or county to identify the site location.

**Urban Area:** If the monitor is located within the bounds of an urban area (an incorporated area with a population of 10,000 or more people), select the appropriate urban area from the list. Otherwise select "Not in an Urban Area".

**Core-Based Statistical Area (CBSA):** If the monitor is located in a county that belongs to a metropolitan statistical area (MSA) or a micropolitan statistical area (MiSA), then it is in a core-based statistical area. If the monitoring station is located in a county included in a MSA or MiSA, select the CBSA from the list. Otherwise select "None".

**Longitude and Latitude:** Determine the longitude and latitude using Google Earth. Report the longitude and latitude that matches up with the exact location of the monitoring shelter or monitor if no shelter is at the site. <http://transition.fcc.gov/mb/audio/bickel/DDDMSS-decimal.html> to convert to decimal degrees if needed.

**Road Information:** For the nearest road to the inlet probe, list whatever roadway that carries vehicles closest to the probe, whether it is a named or public road and even if it has very little traffic. Use the comments space to describe the road or the source of the annual average daily traffic (AADT) counts. If the monitor is located near an unnamed, little used, private road, use the nearest major road space to list the closest named public road to the site. Include the distance and direction of the nearest major road from the site and the AADT if available. If the closest road is a small public road but there is a large major roadway such as an interstate highway, divided highway, major thoroughfare, etc., near the monitoring station use the nearest major road space to list the information about this major roadway. Include the distance and direction of the major road from the site and the AADT. The AADT for state roads can be obtained from the North Carolina Division of Transportation at <http://www.ncdot.gov/travel/statemapping/trafficvolumemaps/default.html>. For AADT values for local roadways contact the appropriate local governments.

**Any Sources of Potential Bias:** Use this space to record information about the site that is not requested elsewhere. Especially note any changes that occurred near the site in the past year, such as road construction, building construction, new businesses, businesses closing, or changes in traffic patterns, crops or other agricultural activities.

## Site Review Form Calendar Year 2020

Parameters	Monitoring Objective	Scale	Monitor Type
Air flow < 200 L/min <input type="checkbox"/> PM2.5 FRM <input type="checkbox"/> PM10 Cont. (BAM) <input type="checkbox"/> PM10-2.5 FRM <input type="checkbox"/> PM10-2.5 BAM <input type="checkbox"/> PM2.5 Cont. (BAM1020) <input checked="" type="checkbox"/> PM2.5 Cont. (BAM1022) <input type="checkbox"/> PM2.5 Cont. (T640X)	<input type="checkbox"/> General/Background <input type="checkbox"/> Highest Concentration <input checked="" type="checkbox"/> Population Exposure <input type="checkbox"/> Source Oriented <input type="checkbox"/> Transport <input type="checkbox"/> Welfare Related Impacts	<input type="checkbox"/> Micro <input type="checkbox"/> Middle <input checked="" type="checkbox"/> Neighborhood <input type="checkbox"/> Urban <input type="checkbox"/> Regional	<input checked="" type="checkbox"/> SLAMS <input type="checkbox"/> SPM <input type="checkbox"/> Nonregulatory
Probe inlet height (from ground) <input type="checkbox"/> < 2 m <input checked="" type="checkbox"/> 2-7m <input type="checkbox"/> 7-15 m <input type="checkbox"/> > 15 m Actual measured distance from probe inlet to ground (meters) <u>2.3876</u> Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (platform or roof) supporting structure > 2 m? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Actual measured distance from outer edge of probe inlet to supporting structure (meters) <u>2.159</u>			
Distance (Y) between outer edge of probe inlets of any low volume monitor and any other low volume monitor at the site = 1 m or greater?			Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Are collocated PM2.5 Monitors (Two FRMs, FRM & BAM, BAM & BAM) Located at Site?		*Yes <input type="checkbox"/> (answer *'d questions) No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	
* Entire inlet opening of collocated PM 2.5 samplers (X) within 1 to 4 m of each other?		Yes <input type="checkbox"/> No <input type="checkbox"/> Give actual (meters): _____	
*Are collocated PM2.5 sampler inlets within 1 m vertically of each other?		Yes <input type="checkbox"/> No <input type="checkbox"/> Give actual (meters): _____	
Is a low-volume PM10 monitor collocated with a PM2.5 monitor at the site to measure PM10-2.5?		*Yes <input type="checkbox"/> (answer *'d questions) No <input checked="" type="checkbox"/> NA <input type="checkbox"/>	
* Entire inlet opening of collocated PM10 and PM2.5 samplers for PM10-2.5 (X) within 2 to 4 m of each other?		Yes <input type="checkbox"/> No <input type="checkbox"/>	
*Are collocated PM10 and PM2.5 sampler inlets within 1 m vertically of each other?		Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is probe > 20 m from the nearest tree drip line? Yes <input checked="" type="checkbox"/> *No <input type="checkbox"/> (answer *'d questions)			
*Is probe > 10 m from the nearest tree drip line? Yes <input type="checkbox"/> *No <input type="checkbox"/> *Number of trees within 10 meters _____			
*Distance from probe to closest tree (m) _____ Direction from probe to tree _____ *Height of tree above probe (m) _____			
Are there any obstacles to air flow? *Yes <input type="checkbox"/> (answer *'d questions) No <input checked="" type="checkbox"/>			
*Identify obstacle _____ Distance from probe inlet (m) _____ Direction from probe inlet to obstacle _____			
*Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes <input type="checkbox"/> No <input type="checkbox"/>			
*Width of obstacle in terms of degrees blocked (see instructions) _____			

### RECOMMENDATIONS:

1) Maintain current site status? Yes ☒ \*No ☐ (answer \*'d questions)

\*2) Change monitoring objective? Yes ☐ (enter new objective: \_\_\_\_\_) No ☐

\*3) Change scale of representativeness? Yes ☐ (enter new scale: \_\_\_\_\_) No ☐

\*4) Relocate site? Yes ☐ No ☐

Comments: \_\_\_\_\_

Date of Last Site Pictures: November 21, 2019 New Pictures Submitted? Yes ☐ No ☒

Reviewer Terri Davis Date: November 1, 2020

Ambient Monitoring Coordinator Steve Ensley Date: December 16, 2020



## Appendix A-2. Scale of Representativeness

Each station in the monitoring network must be described in terms of the physical dimensions of the air parcel nearest the monitoring station throughout which actual pollutant concentrations are reasonably similar. Area dimensions or scales of representativeness used in the network description are:

- a) Microscale - defines the concentration in air volumes associated with area dimensions ranging from several meters up to about 100 meters.
- b) Middle scale - defines the concentration typical of areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 kilometers.
- c) Neighborhood scale – defines concentrations within an extended area of a city that has relatively uniform land use with dimensions ranging from about 0.5 to 4.0 kilometers.
- d) Urban scale - defines an overall citywide condition with dimensions on the order of 4 to 50 kilometers.
- e) Regional Scale - defines air quality levels over areas having dimensions of 50 to hundreds of kilometers.

Closely associated with the area around the monitoring station where pollutant concentrations are reasonably similar are the basic monitoring exposures of the station.

There are six basic exposures:

- a) Sites located to determine the highest concentrations expected to occur in the area covered by the network.
- b) Sites located to determine representative concentrations in areas of high population density.
- c) Sites located to determine the impact on ambient pollution levels of significant sources or source categories.
- d) Sites located to determine general background concentration levels.
- e) Sites located to determine the extent of regional pollutant transport among populated areas.
- f) Sites located to measure air pollution impacts on visibility, vegetation damage or other welfare-based impacts and in support of secondary standards.

The design intent in siting stations is to correctly match the area dimensions represented by the sample of monitored air with the area dimensions most appropriate for the monitoring objective of the station. The following relationship of the six basic objectives and the scales of representativeness are appropriate when siting monitoring stations:

**Table A6. Site Type Appropriate Siting Scales**

1. Highest concentration	Micro, middle, neighborhood (sometimes urban or regional for secondarily formed pollutants)
2. Population oriented	Neighborhood, urban
3. Source impact	Micro, middle, neighborhood
4. General/background & regional transport	Urban, regional
5. Welfare-related impacts	Urban, regional