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

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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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. 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.

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

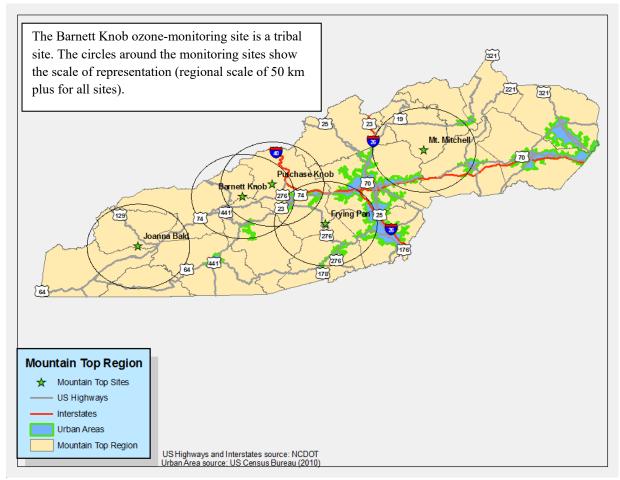


Figure A-2. Location of mountain top monitoring sites

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-5. Looking northwest from the Joanna Bald site



Figure A-6. The Joanna Bald site looking west



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



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



Figure A-9. The Joanna Bald site looking east



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



Figure A-11. The Joanna Bald site looking south

Table A1. Site Information Table for Joanna Bald

Site Name:				AQS Site Identification									
	Joan	na Bald					Number: 37					-075-0001	
Location:	Natio	onal Forest	Road 423	Spur, Ro	bbinsvill	e, No	rth Carol	lina					
CBSA:	None	2						CBSA	#:			00000)
Latitude	35.257930 Longitude -83.7						5620	Datum	:			WGS	84
Elevation	1436	meters	-										
Parameter							Metho	od		Sampl	le	Samp	oling
Name	Metl	hod					Refer	ence ID		Durat	ion	Sche	dule
Ozone	Instr	umental wi	th ultra vio	let photo	metry (0	47)	EQOA	\-0880-0	47	1-Hou	r	April	1 to Oct. 31
Date Monito	tor Established: Ozone April 3, 2003												
Nearest Roa	ad: National Forest Road Traffic Count:						< 10 Year of Co					: 20	18 Estimate
Parameter N	lame	Distance	to Road	Directi	on to Ro	ad	Monitor Type Statement of Purpose						
						Special			Real-time AQI reporting and				g and
Ozone		3 m	eters	Sc	utheast		purpose forecasting			. Compliance w/NAAQS.			
						Sui	table for	r Compa	risoı	ı to	Proj	posal t	o Move or
Parameter N	lame	Monitor	ing Object	ive Sc	ale	NA	AQS				Cha	nge	
Ozone		General b	ackground	l Re	gional			Yes				None	
						Meet	s Part 5	8 Requir	eme	nts for:			
Parameter Name Ap			Appen	dix A	App	endi	x C	A	ppen	dix D		A	ppendix E
Ozone			Yes Yes					Yes				Yes	
Parameter N	lame	Pr	obe Heigh	e Height (m) Distance to				Support Distance to Tr			ees	es Obstacles	
Ozone		<u> </u>					meters 10.97 meters to northwest				None		

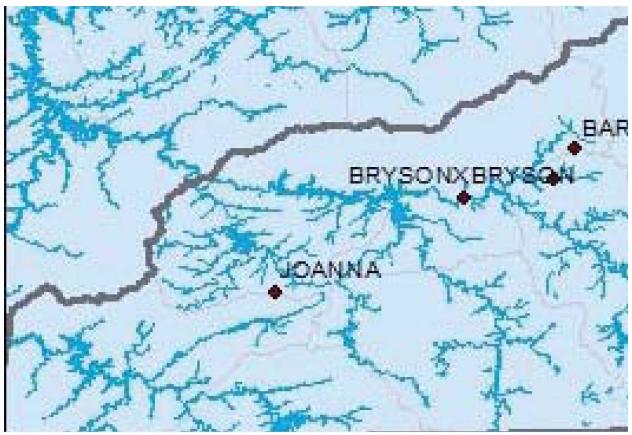


Figure A-12. Location of Joanna Bald relative to the flood plain

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 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

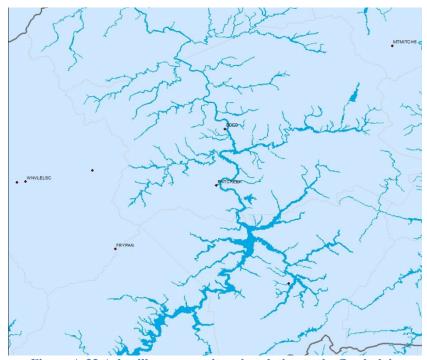


Figure A-22 Asheville area monitors in relation to the flood plain

Table A2. Site Information Table for Frying Pan Mountain

Site Name:	Frying	g Pan M	Iountain			AQS Site Identification Number:						37-087-0035		
Location:	Tower	r Blue I	Ridge Pkwy	Mile N	Iarker 41	0, Canto	n, N	Iorth	Carolir	a				
CBSA:		None				CBSA #:					00000			
Latitude 35.393719			3719	Longi	tude	-82.77	4386	6	Datui	n:		WGS84		
Elevation 1617.88 meters														
Parameter N	Meth	od		Metl	nod Refe	eren	ce ID	Sa	mple D	uration	Sar	npling Schedule		
			mental with											
Ozone	Ozone violet photometry, 047 EQOA-0880-047					1-1	Iour		Apı	ril 1 to Oct. 31				
Date Monito	Date Monitor Established: Ozone								May 8, 1990					
Nearest Road: Blue Ridge Pa			Ridge Parkv	vay	Traffi	c Count	Count: 300)	Year of Co		ount: Estimated		
Parameter N	ame	Dista	nce to Road	l Dir	ection to	Road	Monitor Ty			Stat	ement o	f Purp	oose	
Ozone		31	5 meters		Southe	east Special purpose					w/NAAQS. Real-time ng & forecasting.			
		Moni	Monitoring			Suitable for Con				•				
Parameter N	ame	Obje	ctive		Scale				AQS				sal to Move or Change	
Ozone		Gener	ral backgrou	ınd	Regiona	ıl		Y	es		None			
Parameter				N	1eets 40	CFR Pa	rt 58	8 Rec	quirem	ents fo	r :			
Name		Ap	pendix A		Apj	pendix (7		A	ppendi	x D		Appendix E	
Ozone		Yes				Yes				Yes			Yes	
Parameter N	ame		Probe Heig	ht (m)	Di	Distance to Support			t D	Distance to Tree			Obstacles	
Ozone 4.5					1.1 meter			> 20 meters			3	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-26. Purchase Knob site looking northwest



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



Figure A-28. Purchase Knob site looking southwest



Figure A-29. Purchase Knob site looking northeast



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



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



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-34. Looking north from the Mount Mitchell site



Figure A-35. Mount Mitchell site looking northwest



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



Figure A-33. The Mount Mitchell ozone monitoring site



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



Figure A-38. Mount Mitchell site looking east



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

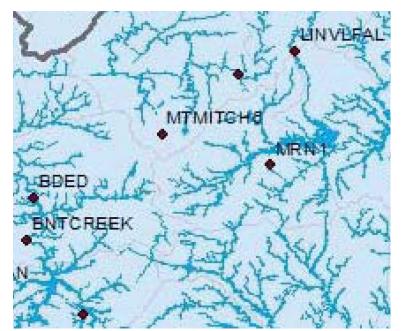


Figure A-42. Location of the Mount Mitchell site relative to the flood plain

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.

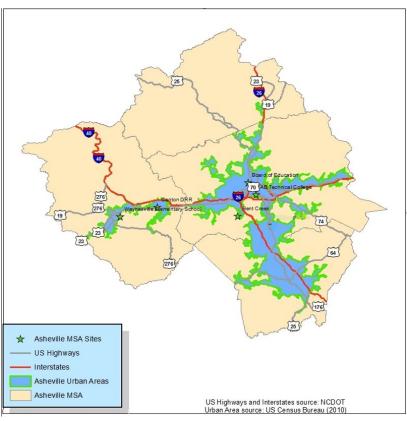


Figure A-43. Locations of Monitoring Sites in the Asheville MSA

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-46. Board of Education site looking northwest



Figure A-47. Board of Education site looking west



Figure A-48. Board of Education site looking northeast



Figure A-49. Board of Education site looking east



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-55. Looking northwest from the Bent Creek site



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



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



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



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



Figure A-60. Looking southeast 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.² 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.³ 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

² 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.

³ 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.

the site.⁴ 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

Table A3. 8	one m	HOLIHA	mon rabie	IOI VI	vaynes	ville Li	emei	Itar	y Sci	11001				
Site Name:	Wayr	nesville	Elementary Sc	hool		AQS Site	te Identification Number: 3					37-087-0008		
Location:	2236	Ashevil	le Road, Wayı	nesville	e, North	Carolina	,	CB	SA:	Ashev	ille, NC		MSA #: 11700	
Latitude	35.50	7224	Longitude	-82.96	63625	Datum:	WGS	884	Elev	ation	793 m	eters		
Parameter								Method Sample						
Name	Meth	Method						renc	e ID	Du	ration	San	pling Schedule	
Ozone	Instru	ımental	with ultra viol	et phot	tometry	(047)	EQO	A-08	880-0	47 1-H	lour	Mar	ch 1 to Oct. 31	
Date Monitor Established: Ozone												Apr	il 1, 2011	
Nearest Roa	Nearest Road: Asheville Road Traffic Count				Count:	11,000 Year of C			of Cou	ınt:	2018			
Parameter N	lame	Dista	nce to Road	Dire	Direction to Road			Monitor Type Stat			atement of Purpose			
						Compliance				pliance	e w/NAAQS. Real-time			
Ozone		1	51 meters	I	East nort	theast	SLA	MS		AQI	reportii	ing & forecasting.		
												Pro	posal to Move	
Parameter N	lame	Monit	oring Objectiv	ve So	cale	Suitabl	le for Comparison to NAAQS				or (or Change		
Ozone		Popula	tion exposure	R	egional			7	Yes			Nor	ne	
Parameter N	lame					Meets P	art 58	Rec	quire	ments f	or:			
			Appendix A		Appe	ndix C	A	ppei	ndix I)		A	Appendix E	
Ozone Yes				Yes				Yes	Yes		Yes			
Parameter N	lame		Probe Height	(m)	Dista	nce to Su	pport	D	Distance to Trees				Obstacles	
Ozone			3.8		1	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

⁴ 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 (SO₂) Monitors, available on the worldwide web at http://xapps.ncdenr.org/aq/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.

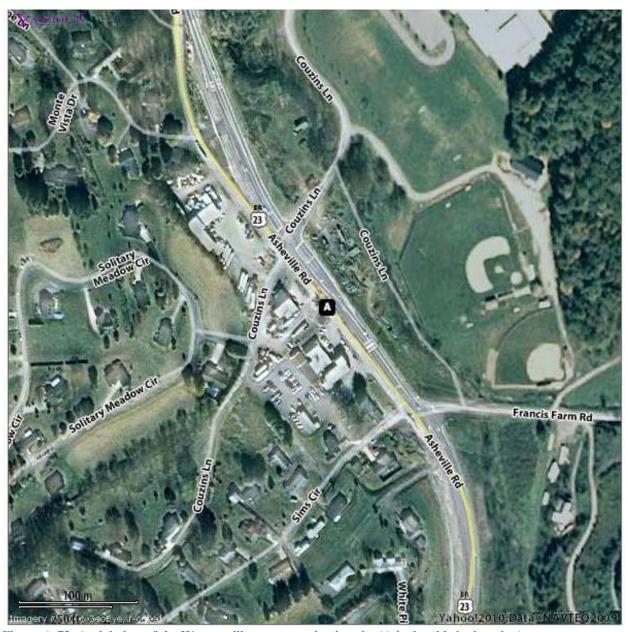


Figure A-72. Aerial view of the Waynesville ozone monitoring site (A is the old site location)



Figure A-73. Looking north from Waynesville ozone site



Figure A-74. Waynesville ozone site looking northwest



Figure A-75. Waynesville ozone site looking west



Figure A-76. Waynesville ozone site looking northeast



Figure A-77. Waynesville ozone site looking east



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-86. The Canton DRR site looking west



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



Figure A-88. Looking east from Canton DRR site



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



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

The December 2010 changes to the **lead monitoring** regulations⁵ 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 2010.⁶ In 2011, the division requested and received a waiver for lead monitoring at Blue Ridge Paper based on results of modeling.⁷ 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. ⁸

The 2015 sulfur dioxide monitoring requirements required additional sulfur dioxide monitoring in this MSA. 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 and Appendix E. Evergreen Packaging Canton Siting Analysis and Additional Site Information. 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. ¹² 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

⁵ 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.

⁶ 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&countycode=087.

⁷ 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.

⁸ 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&countycode=087, accessed on May 12, 2017

⁹ 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.

¹⁰ 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.

¹¹ 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.

¹² 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.

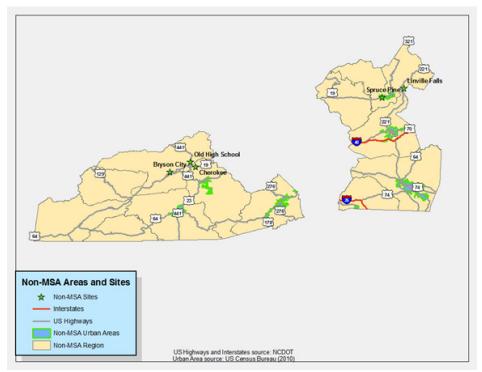


Figure A-91. Monitoring sites in the non-MSA valley areas of the Asheville monitoring region

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

Site Name:	Bryson City				atio	n Nu	mber	37-173-0002					
Location:	30 Recreation	Park Drive, Bry		orth (Caroli	na							
CBSA:		Not in a CBSA						BSA #		00000			
Latitude		35.434767	Longitude	-83.4	142133	Da	tum:	m: WG		GS84			
Elevation		560 meters											
	_					Method			Sample		Sampling		
Parameter N	ame	Method				Reference	ce II)	Durati	on	Schedule		
_		Instrumental w		et									
Ozone		photometry (04				EQOA-0	880-	047	1-Hour	:	March 1 to Oct. 31		
		Met One BAM			itor								
PM 2.5 local		w/VSCC - beta				EQPM-0			1-Hour	<u>. </u>	Year round		
Outdoor temp		Instrumental - 6	electronic or	macl	hine	Not a ref	eren	ce	1 77		37 1		
temperature d	lifterence	avg. (041)	1			method			1-Hour	<u>. </u>	Year round		
D 1.4' 1	. 1.4	Instrumental - l		grapi	h	Not a ref	eren	ce	1 11		37		
Relative hum	iaity	elec or mach av	method 1-He Not a reference			1-Hour	:	Year round					
Wind direction	un/anaad		electronic or	macı	nine	method	eren	ce	1-Hour		Year round		
willd diffection	ni/speed	avg. (050) Ozone	memod			1-Hour							
		Ozone April 1, 1995 PM 2.5 local conditions June 17, 2009											
Date Monito		,									April 25, 2001		
Established:	ľ	Relative humidity									April 25, 2001 April 25, 2001		
Establisheu.		Solar radiation									April 25, 2001 April 25, 2001		
			Wind direction/speed										
Nearest Road	d.	Recreation Parl							Vo	April 25, 2001 of Count: 2018			
Nearest Road	u.	Distance to	Direction		ine (ount:	20		16	ar u	of Count: 2016		
Parameter N	ama	Road	to Road	-	Mon	itor Type		State	ement of	· Du	rnoso		
1 at affected 1	anic	Roau	to Road		MIUI	пот турс	,				AAQS. Real-time		
Ozono		10 at	Noutle -	o a t	CT A	MC					forecasting.		
Ozone		18 meters	Northe	ast	SLA	IVIS					AAQS. Real-time		
PM 2.5 local	conditions	25 meters	Northa	Northeast SLA									
		23 meters	Northe	ası	SLA	IMP		AŲI	AQI reporting & forecasting.				
Outdoor temperature & temperature difference 25 meters Northeast Non-regulatory Real-time informati							ation & modeling						
Relative hum		25 meters	Northe			regulatory	_				<u> </u>		
Wind direction		25 meters	Northe			regulatory	Real-time information & modeling Real-time information & modeling						
** IIId directic	ли вресси	23 11101018	North	usi	TAOIL	regulatory	y	rcal-	time mi	OHIII	anon & modering		

Table A4. Site Information Table for Bryson City

Parameter Name	Name Monitoring Objective Scale		Suitabl Compa	le for NAAQS rrison	Proposa or Chan	l to Move ge	
Ozone	General background	Neighborhood		Yes	N	Vone	
PM 2.5 local conditions	Regional transport	Regional		Yes	N	lone	
Outdoor temperature & temperature difference	Not applicable	Not applicable	No	t applicable	N	Vone	
Relative humidity	Not applicable	Not applicable	No	t applicable	N	lone	
Wind direction/speed	Not applicable	Not applicable	No	t applicable	N	Vone	
		Meets Part 58	Require	ments for:	•		
Parameter Name	Appendix A	Appendix C Appendix D				ndix E	
Ozone	Yes	Yes		Yes		Yes	
PM 2.5 local conditions	Yes	Yes		Yes		Yes	
Outdoor temperature & temperature difference	Not applicable	Not applicable	No	t applicable	Not a	pplicable	
Relative humidity	Not applicable	Not applicable	No	t applicable	Not applicable		
Wind direction/speed	Not applicable	Not applicable	No	t applicable	Not a	pplicable	
Parameter Name	Probe Height (m)	Distance to Sup	port	Distance to Tr	ees	Obstacles	
Ozone	4.57	1.82 mete	rs	15.54 meters s	outhwest	None	
PM 2.5 local conditions	2.286	2.0574 met	ers	10.97 me	ters	None	
Outdoor temperature & temperature difference	2 & 10	> 1 meter	rs.	>20 met	ers	None	
Relative humidity	2	> 1 meter	rs .	>20 met	>20 meters		
Wind direction/speed	10	> 1 meter	`S	>20 met	ers	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-103. The Linville site looking northwest



Figure A-104. The Linville site looking northeast



Figure A-105. Looking east from the Linville site



Figure A-106. Looking west from the Linville site



Figure A-107. The Linville site looking southwest



Figure A-108. The Linville site looking southeast



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 Lin	ville Fall	ls Road, Lin	ville Fal	ls						_	
CBSA:	None					CBSA			A #: 000		000	
Latitude	35.972	2347	Lo	ongitude	-8	1.9330	72	Datum	:	WC	3 S84	
Elevation	987 m	eters									_	
Parameter									Sample		_	
Name	Metho	od			Me	ethod I	Refere	nce ID	Duration	Sa	mpling Schedule	
	Instru	mental w	ith ultra vio	let							_	
Ozone	photo	metry (04	17)		EQ	OA-08	880-04	7	1-Hour	Ma	rch 1 to Oct. 31	
Date Monito	r Establi	Ozone						Au	g. 1, 1999			
Nearest Road	est Road: Linville Falls Road Traffic C				Count	ount: 500 Year of C			Count	: 2018 Estimate		
Parameter N	ame	Distanc	e to Road	Directi	ion to Road Monitor T			tor Type	ype Statement of Purpose			
Ozone		86	meters		East	st SLAMS		1S	-		NAAQS. Real-time and forecasting.	
							Suita	ble for			oosal to Move or	
Parameter N	ame	Monito	ring Objec	etive S	e Scale				o NAAQS	_	ange	
Ozone		General	l backgroun	d U	Jrban			Yes	s None			
					N	Meets 1	Part 5	3 Requir	ements for:			
Parameter N	ame		Append	lix A	App	endix (С	Aj	pendix D		Appendix E	
Ozone	Ozone Yes			7	Yes			Yes		Yes		
Parameter N	Parameter Name Probe Height (m) Di			Distanc	stance to Support			stance to Tr	ees	s Obstacles		
Ozone					1.295 meters				16 meters ea	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__

SEP 2 3 2013

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

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

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



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.

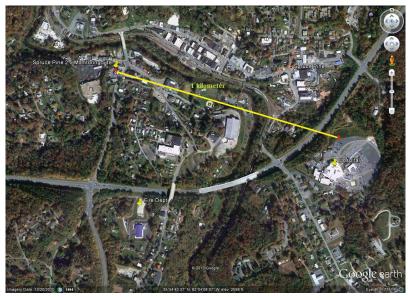


Figure A-111. Arial view of city hall and hospital monitoring sites



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



Figure A-113. Spruce Pine hospital site looking north



Figure A-114. Spruce Pine hospital site looking northwest



Figure A-115. Spruce Pine hospital site looking west



Figure A-116. Spruce Pine hospital site looking northeast



Figure A-117. Spruce Pine hospital site looking east



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 Information

Region_ARO		ne <u>Joanna Baid</u>	AQS Site # 37- <u>075</u> - <u>0001</u>				
Street Address-Nat	ional Forest R	City Robbin	<u>ısville</u>				
Urban Area Not	in an Urban Ar	rea Core	-based Statis	stical Area	None		
	Enter Ex	ract					
Latitude <u>-8</u>	3.79 <u>55</u>	Longitude	35.2577	l N	Method of Measuring		
In Decimal Degrees	·	In Decimal Degre	ees	Exp	lanation: Googel Earth Pro		
Elevation Above/below Mean Sea Level (in meters) 1436.00							
Name of nearest road to inlet probe National Forest Road ADT 10 Year estimated 2020							
Distance of ozone p	robe to nearest t	traffic lane (m) $\underline{3}$ Γ	irection from	n ozone probe	to nearest traffic lane \underline{SE}		
Comments: No cou	nt available. Es	stimate less than 10	cars per day	<u>'</u>			
Name of nearest ma	jor road <u>US 12</u>	29 ADT 3400 Yea	ır latest avail	lable <u>2019</u>			
Distance of site to no	earest major roa	nd (m) 3717.00 D	irection from	site to nearest	major road NNE		
Comments:							
Site located near ele			ver lines?		Yes No No		
Distance of site to n				(m)	Direction to RR NA		
OPTIONAL D					(m) Direction		
Distance between sin					to water towerNA		
	•			se bulk storage	, stacks, vents, railroad tracks,		
construction activities	es, fast food res	taurants, and swim	ming pools.				
. 							
ANGENER ATT ARE	TICABLE OUT	CELONIC					
ANSWER ALL APP			1	C1 -	C'4. T		
Parameters	Monitori	ng Objective		Scale	Site Type		
	Monitori	ng Objective ackground	Micro	Scale	Site Type		
Parameters	Monitori	ng Objective ackground oncentration			□SLAMS		
Parameters	Monitori ⊠General/Ba □Highest Ca □Max O3 C	ackground oncentration	☐Micro				
Parameters	Monitori	ng Objective ackground oncentration oncentration Exposure	☐Micro ☐Middle ☐Neighb		□SLAMS		
Parameters	Monitori General/Ba Highest Ca Max O3 C Population Source Ori Transport	ng Objective ackground oncentration oncentration Exposure	☐Micro ☐Middle ☐Neighb ☐Urban	orhood	□SLAMS		
Parameters	Monitori General/Ba Highest Co Max O3 C Population Source Ori Transport Upwind B	ng Objective ackground oncentration oncentration Exposure iented ackground	☐Micro ☐Middle ☐Neighb	orhood	□SLAMS		
Parameters O ₃	Monitori General/Ba Highest Co Max O3 C Population Source Ori Transport Upwind B Welfare R	ackground oncentration oncentration in Exposure iented ackground elated Impacts	☐Micro ☐Middle ☐Neighb ☐Urban ☐Region	orhood	□SLAMS		
Parameters O3 Probe inlet height	Monitori General/Ba Highest Co Max O3 C Population Source Ori Transport Upwind B Welfare R (from ground)	ackground oncentration oncentration Exposure iented ackground elated Impacts 2-15 m? Yes [2]	☐Micro ☐Middle ☐Neighb ☐Urban ☐Region ☑No ☐	orhood	□SLAMS		
Probe inlet height Give actual measu	Monitori General/Ba General/Ba Highest Ca Max O3 C Population Source Ori Transport Upwind B Welfare Ra (from ground) red height from	ng Objective ackground oncentration oncentration Exposure iented ackground elated Impacts 2-15 m? Yes [n ground (meters	☐Micro ☐Middle ☐Neighb ☐Urban ☐Region ✓ No ☐ 4.40	orhood al	□SLAMS ⊠SPM		
Probe inlet height Give actual measu Distance of outer 6	Monitori General/Ba Highest Co Max O3 C Population Source Ori Transport Upwind B Welfare R (from ground) red height from	ng Objective ackground oncentration oncentration Exposure iented ackground elated Impacts 2-15 m? Yes [n ground (meters	☐Micro ☐Middle ☐Neighb ☐Urban ☐Region ✓ No ☐ 4.40	orhood al	□SLAMS ⊠SPM		
Probe inlet height Give actual measu Distance of outer e structure > 1 m? Y	Monitori General/Ba Highest Co Max O3 C Population Source Ori Transport Upwind Ba Welfare Re (from ground) red height from	ackground oncentration oncentration Exposure iented ackground elated Impacts 2-15 m? Yes a ground (meters nlet from horizon	☐Micro ☐Middle ☐Neighb ☐Urban ☐Region ☐ No ☐ ○ 4.40 ntal (wall) an	orhood al nd/or vertical	□SLAMS □SPM (roof) supporting		
Probe inlet height Give actual measu Distance of outer e structure > 1 m? Y Actual measured d	Monitori General/Ba General/Ba Highest Co Max O3 C Population Source Ori Transport Upwind Ba Welfare Ra (from ground) red height from edge of probe in tes No interpretation	ackground oncentration oncentra	☐Micro ☐Middle ☐Neighb ☐Urban ☐Region ☐ No ☐ 0 4.40 antal (wall) and the to support	orhood al nd/or vertical ting structure	□SLAMS □SPM (roof) supporting (meters) 1.80		
Probe inlet height Give actual measu Distance of outer e structure > 1 m? Y Actual measured d Is probe > 20 m free	Monitori General/Ba Highest Co Max O3 C Population Source Ori Transport Upwind B Welfare R (from ground) red height from edge of probe in tes No in istance from co tom the nearest	ackground oncentration oncentra	☐Micro ☐Middle ☐Neighb ☐Urban ☐Region ✓ No ☐ ○) 4.40 ntal (wall) and the to support	orhood al nd/or vertical ting structure No [] (answ	□SLAMS □SPM (roof) supporting (meters) 1.80 er *'d questions)		
Probe inlet height Give actual measu Distance of outer e structure > 1 m? Y Actual measured d Is probe > 20 m from *Is probe > 10 m from	Monitori General/Ba Highest Co Max O3 C Population Source Ori Transport Upwind B Welfare R (from ground) red height from edge of probe in tes No interpretation the nearest	ackground oncentration oncentra	Micro Middle Neighb Urban Region No □ 4.40 ntal (wall) and the to support Yes □ *No □ *	al al orhood al ing structure No (answ	□SLAMS □SPM (roof) supporting (meters) 1.80 ver *'d questions) ithin 10 meters		
Probe inlet height Give actual measu Distance of outer e structure > 1 m? Y Actual measured d Is probe > 20 m from *Is probe > 10 m from *Distance from probe	Monitori General/Ba Highest Co Max O3 C Population Source Ori Transport Upwind Ba Welfare Re (from ground) red height from edge of probe in the nearest tree of the closest tree (monitorial)	ackground oncentration oncentra	Micro Middle Neighb Urban Region 4.40 ntal (wall) and the to support Yes *No □ *Nu from probe to	al al orhood al ind/or vertical ting structure No [] (answ imber of trees w tree*Hei	SLAMS SPM SPM (roof) supporting (meters) 1.80 yer *'d questions) ithin 10 meters ght of tree above probe (m)		
Probe inlet height Give actual measu Distance of outer e structure > 1 m? Y Actual measured d Is probe > 20 m from *Is probe > 10 m from	Monitori General/Ba Highest Co Max O3 C Population Source Ori Transport Upwind Ba Welfare Re (from ground) red height from edge of probe in the nearest tree of the closest tree (monitorial)	ackground oncentration oncentra	Micro Middle Neighb Urban Region 4.40 ntal (wall) and the to support Yes *No □ *Nu from probe to	al al orhood al ind/or vertical ting structure No [] (answ imber of trees w tree*Hei	SLAMS SPM SPM (roof) supporting (meters) 1.80 yer *'d questions) ithin 10 meters ght of tree above probe (m)		

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 \(\square\) No \(\square\)
Comments:
Date of Last Site Pictures: November 4, 2019 New Pictures Submitted? Yes No
Reviewer Terri DavisDate: 11/9/2020
Ambient Monitoring Coordinator Steve Ensley Date: December 16, 2020

Instructions:

DECOMO CENTO ATTONIC

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 Information

Region_ARO Site Name Frying Pan				AQS Site # 37- <u>097</u> - <u>0035</u>			
Street Address-Tox	treet Address-Tower Blue Ridge Pkwy Mile Marker 410			City Not in a City			
Urban Area Not	in an Urban Ar	stical Area No	ne				
	Enter Ex	kact					
Latitude <u>-8</u>	32.774 <u>5</u>	Longitude	35.3940	Met	hod of Measuring		
In Decimal Degrees		In Decimal Degre	ees	Explan	ation: Google map plus		
Elevation Above/be	<u>1617.88</u>						
Name of nearest road to inlet probe Blue Ridge Parkway ADT 668 Year latest available 2019							
Distance of ozone p	robe to nearest	traffic lane (m) 315	Direction fr	om ozone probe to	o nearest traffic lane \underline{SE}		
Comments:							
Name of nearest ma	jor road Blue	Ridge Parkway AI	OT <u>668</u> Year	201	.9		
Distance of site to n	earest major roa	nd (m) 315.00 Dir	rection from s	site to nearest majo	or road <u>SE</u>		
Comments:							
Site located near ele			wer lines?		Yes No 🛛		
Distance of site to n					Direction to RR NA		
OPTIONAL D					(m) Direction		
Distance between si				tion from site to v			
				se bulk storage, sta	acks, vents, railroad tracks,		
construction activities	es, fast food res	taurants, and swim	iming pools.				
ANSWER ALL APP	PLICABLE OUI	STIONS:					
Parameters		ing Objective		Scale	Site Type		
⊠ O ₃	General/B		Micro	20002			
		oncentration			□SLAMS		
		oncentration	Middle		⊠SPM		
	Population Source Or		☐ Neighb	orhood			
	Transport	icitica	Urban				
	Upwind B	ackground	Region	ลโ			
		elated Impacts					
Probe inlet height							
Give actual measu	red height from	n ground (meters	s) <u>4.49</u>				
Distance of outer 6		nlet from horizon	ntal (wall) a	nd/or vertical (ro	of) supporting		
structure > 1 m? Y	es 🛛 No 🗌						
Actual measured d	listance from o	outer edge of prob	e to suppor	ting structure (m	eters) <u>1.27</u>		
Is probe > 20 m fro	om the nearest	tree drip line?	Yes X	No (answer	*'d questions)		
*Is probe > 10 m from				imber of trees within			
*Distance from probe			from probe to		of tree above probe (m)		
Are there any obst	acles to air flo	w? *Yes ∐ (ans	wer *'d que	stions) No 🔀			
Are there any obstacles to air flow? *Yes \(\) (answer *'d questions) No \(\) *Identify obstacle \(\) Distance from probe inlet (m) \(\) Direction from probe inlet to obstacle \(\)							

<u>RECOMMENDATIONS:</u>						
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 \(\square\) No \(\square\)						
Comments:						
Date of Last Site Pictures: October 31, 2019 New Pictures Submitted? Yes	No 🛛					
	No 🛮 vember 19, 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.

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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 Information

Region_ARO Site Name Purchase Knob				AQS Site # 37- <u>087-0036</u>								
Street Address-690	4 Purchase	Road	City Waynesville									
Urban Area Not	in an Urban	Area	itistical Area A	sheville, NC								
	Enter E	xact										
	<u>5871</u>	Longitude			lethod of Measuring							
In Decimal Degrees In Decimal Degrees				Other (explain)		e Earth						
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 p	Distance of ozone probe to nearest traffic lane (m) $\underline{103}$ Direction from ozone probe to nearest traffic lane \underline{SE}											
Comments:												
Name of nearest ma												
Distance of site to n	earest major	road (m) <u>5</u>	418.00 Direction	from site to neare:	st major road <u>SE</u>							
Comments:												
Site located near ele			oltage power line	s?	Yes 🗌	No 🛛						
Distance of site to n				(m)	Direction to RR	NA						
OPTIONAL D						ection						
Distance between si				Direction from site		_ ⊠NA						
					ge, stacks, vents, railroad	tracks,						
construction activitie	es, 1ast 100u	restaurants,	and swimming p	oois.								
<u> </u>		<u> </u>										
ANSWER ALL APP	LICARLE (DUESTIONS				ANSWER ALL APPLICABLE QUESTIONS:						
				Scale	Site Typ	e						
Parameters O ₃	Monit	oring Obje	ective	Scale icro	Site Typ	e						
Parameters	Monit ☐Genera ☐Highes	t oring Obje l/Backgrount t Concentra	ective nd	icro	⊠SLAMS	e						
Parameters	Monit Genera Highes Max O	toring Objet l/Background t Concentra 3 Concentra	ective nd	icro iddle		e						
Parameters	Monit Genera Highes Max O	t oring Obje l/Backgrount t Concentra	ective nd	icro iddle eighborhood	⊠SLAMS	e						
Parameters	Monit ☐ Genera ☐ Highes ☐ Max O. ☐ Popular ☐ Source ☐ Transpo	toring Objetal/Background to Concentral Concentral Concentral Concentral Concentral Coriented Oriented	ective nd	icro iddle	⊠SLAMS	e						
Parameters	Monit Genera Highes Max O Populat Source Transpo	toring Objetal/Background t Concentral Conce	ective nd	icro iddle eighborhood	⊠SLAMS	e						
Parameters O ₃	Monit ☐ Genera ☐ Highes ☐ Max O: ☐ Popular ☐ Source ☐ Transpo ☐ Upwind ☐ Welfard	loring Objetal/Background Concentral Concent	ective Ind Ind Ind Ind Ind Ind Ind Ind Ind In	icro iddle eighborhood rban egional	⊠SLAMS	e						
Parameters	Monit Genera Highes Max O Popular Source Transpe Upwind Welfard	toring Objetal/Background t Concentral Conce	ective nd .tion ation ITHE ITHE ITHE ITHE ITHE ITHE ITHE ITHE	icro iddle eighborhood rban egional	⊠SLAMS	e						
Probe inlet height Give actual measu	Monit Genera Highes Max O Popular Source Transpe Upwind Welfard	toring Objetal/Background to Concentral Conc	ective Ind Ind Ind Ind Ind Ind Ind Inpacts Press No Id (meters) 3.93	icro iddle eighborhood rban egional	⊠SLAMS	e						
Probe inlet height Give actual measu	Monit Genera Genera Highes Max O Popular Source Transpo Upwind Welfard (from grounded height bedge of problems)	toring Objetal/Background t Concentral Concentral Concentral Corrected Cortented Corte	ective Ind Ind Ind Ind Ind Ind Ind Inpacts Press No Id (meters) 3.93	icro iddle eighborhood rban egional	⊠SLAMS □SPM	e						
Probe inlet height Give actual measu Distance of outer e structure > 1 m? Y	Monit Genera Highes Max O Popular Source Transpo Upwind Welfard (from grounded height) edge of profes No	toring Objetal/Background t Concentral Conce	ective Ind Ind Ind Ind Ind Ind Ind Ind Ind In	icro iddle eighborhood rban egional 7 all) and/or vertica	SLAMS SPM	e						
Probe inlet height Give actual measu Distance of outer 6	Monit Genera Highes Max O Popular Source Transpe Upwind Welfard (from grounded height the	toring Objetal/Background to Concentral Conc	ective Ind Ind Ind Ind Ind Ind Inpacts Performance Ind Ind Ind Ind Ind Ind Ind Ind Ind In	icro iddle eighborhood rban egional 7 all) and/or vertica	SLAMS SPM	e						
Probe inlet height Give actual measu Distance of outer e structure > 1 m? Y Actual measured d	Monit Genera Genera Highes Max O Popular Source Transpo Upwind Welfard (from grounded height the	toring Objetal/Background t Concentral Conce	nd Market Market	icro iddle eighborhood rban egional 7 all) and/or vertica	SLAMS SPM Il (roof) supporting e (meters) 1.09 wer *'d questions)	e						
Probe inlet height Give actual measu Distance of outer e structure > 1 m? Y Actual measured d Is probe > 20 m from *Is probe > 10 m from *Distance from probe	Monit Genera Highes Max Of Popular Source Transpo Upwind Welfard (from grounded height the dege of problems) Test No [listance from the nearest to closest tree.]	toring Objetal/Background t Concentral Conce	nd M Ition M Iti	icro iddle eighborhood rban egional 7 all) and/or vertica pporting structur *No 🔀 (ans *Number of trees be to tree SSE *He	SLAMS SPM SPM							
Probe inlet height Give actual measu Distance of outer e structure > 1 m? Y Actual measured d Is probe > 20 m from *Is probe > 10 m from	Monit Genera Highes Max Of Popular Source Transpo Upwind Welfard (from grounded height the dege of problems) Test No [listance from the nearest to closest tree.]	toring Objetal/Background t Concentral Conce	nd M Ition M Iti	icro iddle eighborhood rban egional 7 all) and/or vertica pporting structur *No 🔀 (ans *Number of trees be to tree SSE *He	SLAMS SPM SPM							

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 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:

DECOLO CENTO ACTONIC

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.

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Site Information

Region_ARO Site Name Mt. Mitchell					AQS Site # 37- <u>199</u> - <u>0004</u>			
Street Address-2388 State Hwy 128					City			
Urban Area Not in an Urban Area Core-based Statistical Area None								
Enter Exact								
Latitude <u>-82</u>	.2649	Longitude		765 <u>4</u>		Meth	od of Measuring	
In Decimal Degrees		In Decima	1 Degrees		Other (expla	<u>in)</u> I	Explanation: Google earth	
						I	<u>oro</u>	
Elevation Above/below Mean Sea Level (in meters)							<u>2022.00</u>	
Name of nearest roa	_		_		450 Year lat			
_	robe to near	est traffic lai	ne (m) <u>131</u>	Directi	on from ozone	probe	to nearest traffic lane \underline{W}	
Comments:	· 1 . C.	. II 120	ADT 450	37	2.	010		
Name of nearest ma	-			_		019	. 1 337	
Distance of site to n	earest major	road (m)	151.00 Dire	ction fr	om site to near	est ma	yor road <u>W</u>	
Comments:								
Site located near ele			oltage pow	er lines	?		Yes No No	
Distance of site to n					(m)		Direction to RR NA	
OPTIONAL D							(m) Direction	
Distance between si					Direction from			
						rage, s	stacks, vents, railroad tracks,	
construction activiti	es, fast food	restaurants,	and swimn	ning po	OIS.			
		-						
ANSWER ALL APP	LICABLE (DUESTIONS	s :					
Parameters		oring Obje			Scale		Site Type	
◯ O ₃		l/Backgrou		□Mi	cro			
_		t Concentra					SLAMS	
		3 Concentra		∐Mi	ddle		⊠SPM	
		tion Exposu	ıre	□Ne	ighborhood			
		Oriented		Url	han			
	Transp	ort d Backgrou	nd					
		e Related In		⊠ Ke	gional			
Probe inlet height				No				
Give actual measu								
Distance of outer of	edge of pro	be inlet froi	m horizont	tal (wa	ll) and/or vert	ical (r	oof) supporting	
structure > 1 m? Y	es No [
Actual measured d			ge of probe	e to sup	porting struct	ture (r	neters)	
Is probe > 20 m fr	om the near	rest tree dri	p line?	Yes 🛚	*No 🗌 (a	nswei	r *'d questions)	
*Is probe > 10 m from					*Number of tre	es with	nin 10 meters	
*Distance from probe			Direction for				at of tree above probe (m)	
Are there any obst	acles to air	flow? *Ye	s ∐ (answ	ver * 'd	questions) No			
*Identify obstacle _ *Is distance from inle							be inlet to obstacle above the probe? Yes \(\sime\) No \(\sime\)	

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 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 <u>Steve Ensley</u> Date: <u>December 16, 2020</u>

Instructions:

DECOMMENDATIONS.

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Site Information

Region_WNC Site Name Bent Creek				AQS Site # 37- <u>021</u> - <u>0030</u>			
Street Address-125	Idlwood Drive	2		City Asheville			
Urban Area ASI	HEVILLE	Core	e-based Stati	stical Area A	Asheville, NC		
	Enter Ex	ract					
Latitude <u>-8</u>	2.6133	Longitude	<u>35.5083</u>	N.	lethod of Measuring		
In Decimal Degrees		In Decimal Degr	ees	Expl	anation: Google Earth		
Elevation Above/below Mean Sea Level (in meters) 669.03							
Name of nearest road to inlet probe Bentcreekranch Rd. ADT 880 Year							
Distance of ozone probe to nearest traffic lane (m) $\underline{337}$ Direction from ozone probe to nearest traffic lane \underline{NE}							
Comments:							
Name of nearest ma	jor road	ADTYes	ar				
Distance of site to n	earest major roa	nd (m) Dir	ection from s	ite to nearest ma	ajor road		
Comments:							
Site located near ele	ctrical substatio	n/high voltage po	wer lines?		Yes ☐ No 🛛		
Distance of site to n				(m) <u>5371</u>	Direction to RR NA		
OPTIONAL D					(m) Direction		
Distance between si				ction from site t			
				se bulk storage,	stacks, vents, railroad tracks,		
construction activitie	es, fast food res	taurants, and swin	nming pools.				
		2					
ANSWER ALL APP			1	C 1	Ct. Th		
Parameters		ng Objective		Scale	Site Type		
\square O ₃	General/B	_	Micro				
		oncentration oncentration	Middle				
	Population				□SPM		
	Source Or		☐Neighb	ornood			
	Transport		Urban				
	Upwind B		Region	al			
		elated Impacts					
Probe inlet height							
Give actual measu	red height fron	n ground (meters	s) <u>5.00</u>				
Distance of outer 6	edge of probe i	nlet from horizo	ntal (wall) a	nd/or vertical ((roof) supporting		
structure > 1 m? Y							
Actual measured d							
Is probe > 20 m from	om the nearest	tree drip line?	Yes 🛛 🔻	'No 🔲 (answ	er *'d questions)		
*Is probe > 10 m from	the nearest tree	drip line? Yes 🗌	*No 🔲 *Nu	imber of trees wi	thin 10 meters		
*Distance from probe			from probe to		tht of tree above probe (m)		
Are there any obst	acles to air flo	w? *Yes ∐ (ans	swer *'d que	stions) No 🔀			
*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 \(\subseteq \) No \(\subseteq \)							

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Ozone 2020 Revised 2021-05-07

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 No	
Comments:	
Date of Last Site Pictures: October 1, 2016 New Pictures Submitted? Yes	No 🛛
Reviewer	Date:
Ambient Monitoring Coordinator Kevin Lance D	ate: 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.

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 Information

Region_WNC	Site Name Board	l of Education	AQS Site # 37- <u>021</u> - <u>0034</u>				
Street Address 175 B	Singham Road	City Asheville					
Urban Area ASHEVII	LLE	atistical Are	ea Asheville, NC				
E	Inter Exact						
Latitude <u>-82.584400</u>	2.584400 Longitude 35.606200			nod of Measuring: Google Earth			
In Decimal Degrees	In Decimal Degrees	1	Mato	ches Web Map: Yes No No			
Elevation Above/below M	lean Sea Level (in me	eters) <u>665.6</u>	<u>68</u> Met l	nod of Measuring: GoogleEarth			
Name of nearest road to in	nlet probe Bingham	ADT Choose	an Item	_Year			
Distance of PM inlet to ne	arest traffic lane (m)	Direction	from inlet to	nearest traffic lane			
Comments:							
Name of nearest major roa	ad <u>Bingham</u> AD	Γ <u>2200</u> Year Ch	noose an iten	n <u>2012</u>			
Distance of site to nearest	major road (m)	Direction from	n site to nea	rest major road			
Comments:							
Site located near electrical	substation/high volta	age power lines?		Yes No No			
Distance of site to nearest	railroad track	(n	n) <u>138</u> Direct	ion to RR W NA			
OPTIONAL Distance				n) Direction			
Distance between site and	Distance between site and drip line of water tower (m)Direction from site to water towerNA						
Explain any sources of po-	tential bias; include c	ultivated fields, l	loose bulk st	orage, stacks, vents, railroad tracks,			
construction activities, fas	t food restaurants, an	d swimming poo	ls.				

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/DDDMMSS-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

 $\frac{http://www.ncdot.gov/travel/statemapping/trafficvolumemaps/default.html}{http://www.ncdot.gov/travel/statemapping/trafficvolumemaps/default.html}. For AADT values for local roadways contact the appropriate local governments.}$

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.

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BdofEd2020

Parameters	Monitoring Objective	Scale	Monitor Type
Air flow < 200 L/min ☑ PM2.5 FRM	General/Background	☐Micro	SLAMS
PM10 Cont. (BAM)	Highest Concentration	☐Middle	□SPM
☐ PM10-2.5 FRM ☑ PM10-2.5 BAM	☑Population Exposure	⊠Neighborhood	☐ Nonregulatory
PM10-2.5 BAM PM2.5 Cont. (BAM1020)	Source Oriented		
PM2.5 Cont. (BAM1022)	Transport	Urban	
☐ PM2.5 Cont. (T640X)	Welfare Related Impacts	Regional	
Probe inlet height (from g	ground) $\square < 2 \text{ m} \underline{\qquad} \square 2-71$	n 🔀 7-15 m _	> 15 m
	from probe inlet to ground (me	, 	
	probe inlet from horizontal (wa	ll) and/or vertical (pla	tform or roof)
supporting structure > 2 n		o aumonatino atmostus	(matara)
	from outer edge of probe inlet ter edge of probe inlets of any lo		(meters)
1 2	e monitor at the site $= 1 \text{ m or green}$	and the second	Yes 🛛 No 🗌 NA 🗌
•	onitors (Two FRMs, FRM & BA		(answer *'d questions)
& BAM) Located at Site?			No NA NA
* Entire inlet opening of o	collocated PM 2.5 samplers (X)		No 🗌
4 m of each other?			ctual (meters):
	impler inlets within 1 m vertical	(1) - (2)	
other?			ctual (meters):
at the site to measure PM	onitor collocated with a PM2.5		(answer *'d questions) o □ NA ⊠
	collocated PM10 and PM2.5sam		7)
within 2 to 4 m of each ot		, p (-	Yes No
*Are collocated PM10 an	d PM2.5 sampler inlets within 1	m vertically of each	Yes 🗌 No 🗌
other?	K		
Is probe > 20 m from the	nearest tree drip line? Yes 🔀	*No ∐ (answer *	'd questions)
	rest tree drip line? Yes : *No :		
	st tree (m) Direction from prolo o air flow? *Yes (answer *'d		tree above probe (m)
	istance from probe inlet (m)	• / -	alat ta abataala
	o obstacle at least twice the height that		
	degrees blocked (see instructions)	1	
RECOMMENDATIO			
 Maintain current sit 	e status? Yes 🛛 *No 🗌 (a	nswer *'d questions)	
	objective? Yes 🗌 (enter new		No 🗌
	presentativeness? Yes [(ente	r new scale:) N	[o <u></u>
*4) Relocate site? Ye	es 🔲 No 🔲		
Comments:			
Date of Last Site Pictur	res: October 1, 2015 New Pictu	res Submitted? Yes	No 🛛
Reviewer			Date:
Ambient Monitoring C	oordinator Kevin Lance		Date: May 4, 2021

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BdofEd2020 Revised 2021-05-07

Site Information

Street Address-AB Technical Community Colego (Core-based Statistical Area (Choose an item.) Core-based Statistical Area (Choose an item.)	AQS Site # 37- <u>021</u> - <u>0035</u>		
Latitude			
In Decimal Degrees In Degrees In Decimal Degrees In Degr			
In Decimal Degrees			
Elevation Above/below Mean Sea Level (in meters) Name of nearest road to inlet probe Victoria Rd. ADT 2200 Year Choose an item 2010 Comments: Distance of site to nearest major road (m) 359.00 Direction from site to nearest major road E Name of nearest major road Victoria Rd. ADT 2200 Year 2010 Comments: Site located near electrical substation/high voltage power lines? Distance of site to nearest railroad track (m) 341Direction to RR WS* **OPTIONAL** Distance of site to nearest power pole w/transformer (m) Direction from site to water tower Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad to construction activities, fast food restaurants, and swimming pools.			
Name of nearest road to inlet probe Victoria Rd. ADT 2200 Year Choose an item 2010 Comments: Distance of site to nearest major road (m) 359.00 Direction from site to nearest major road E Name of nearest major road Victoria Rd. ADT 2200 Year 2010 Comments: Site located near electrical substation/high voltage power lines? Yes Distance of site to nearest railroad track (m) 341 Direction to RR WS **OPTIONAL** Distance of site to nearest power pole w/transformer (m) Distance between site and drip line of water tower (m) Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad to construction activities, fast food restaurants, and swimming pools.	Earth Earth		
Comments: Distance of site to nearest major road (m) 359.00 Direction from site to nearest major road E Name of nearest major road Victoria Rd. ADT 2200 Year 2010 Comments: Site located near electrical substation/high voltage power lines? Yes Distance of site to nearest railroad track (m) 341 Direction to RR WS **OPTIONAL** Distance of site to nearest power pole w/transformer (m) Direction from site to water tower Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad to construction activities, fast food restaurants, and swimming pools.			
Distance of site to nearest major road (m) 359.00 Direction from site to nearest major road E Name of nearest major road Victoria Rd. ADT 2200 Year 2010 Comments: Site located near electrical substation/high voltage power lines? Distance of site to nearest railroad track **OPTIONAL** Distance of site to nearest power pole w/transformer Distance between site and drip line of water tower (m) Direction from site to water tower Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad to construction activities, fast food restaurants, and swimming pools.			
Name of nearest major road Victoria Rd. ADT 2200 Year 2010 Comments: Site located near electrical substation/high voltage power lines? Yes Distance of site to nearest railroad track (m) 341 Direction to RR WS **OPTIONAL** Distance of site to nearest power pole w/transformer (m) Direction from site to water tower Distance between site and drip line of water tower (m) Direction from site to water tower Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad to construction activities, fast food restaurants, and swimming pools.			
Site located near electrical substation/high voltage power lines? Distance of site to nearest railroad track **OPTIONAL** Distance of site to nearest power pole w/transformer Distance between site and drip line of water tower (m) Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad to construction activities, fast food restaurants, and swimming pools.			
Site located near electrical substation/high voltage power lines? Distance of site to nearest railroad track **OPTIONAL** Distance of site to nearest power pole w/transformer Distance between site and drip line of water tower (m) Direction from site to water tower Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad to construction activities, fast food restaurants, and swimming pools.			
Distance of site to nearest railroad track **OPTIONAL** Distance of site to nearest power pole w/transformer Distance between site and drip line of water tower (m)Direction from site to water tower Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad to construction activities, fast food restaurants, and swimming pools.			
OPTIONAL Distance of site to nearest power pole w/transformer (m) Direction from site to water tower Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad to construction activities, fast food restaurants, and swimming pools.	No 🛛		
Distance between site and drip line of water tower (m)Direction from site to water tower	$\underline{\mathbf{W}}$ \square NA		
Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad to construction activities, fast food restaurants, and swimming pools.	ection		
construction activities, fast food restaurants, and swimming pools.	_⊠NA		
	racks,		
ANSWER ALL APPLICABLE QUESTIONS:			
ANSWER ALL APPLICABLE QUESTIONS:			
THIS WER THE THIT EICHDLE QUESTIONS.			
Parameters Monitoring Objective Scale Monitor Typ	e		
□ NA □ SO ₂ (NAAQS) □ Highest Concentration □ Micro □ SLAMS □ NO ₂ (NAAQS) □ Highest Concentration □ Middle □ SPM □ HSNO ₂ (NAAQS) □ Max O3 Concentration □ Middle □ Monitor Network Affiliation □ NH ₃ □ Hydrocarbon □ Air Toxics □ CO (trace-level) □ Transport □ Urban □ NCORE □ Upwind Background □ Regional □ Unofficial PAMS			
Probe inlet height (from ground) 2-15 m? Yes No 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 Actual measured distance from outer edge of probe to supporting structure (meters) 1.00 Distance of outer edge of probe inlet from other monitoring probe inlets > 1 m? Yes No Is probe > 20 m from the nearest tree drip line? Yes No (answer *'d questions) *Is probe > 10 m from the nearest tree drip line? Yes No *No Number of trees within 10 meters *Distance from probe to closest tree (m) Direction from probe to tree *Height of tree above probe (rate there any obstacles to air flow? *Yes (answer *'d questions) No *Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes Distance of probe to nearest traffic lane (m) 359 Direction from probe to nearest traffic lane E	No NA		

2020-Toxics Revised 01/02/2020 1

Parameters	Monitoring Objective	Scale	Si	te Type	
⊠ NA	Conoral/Background	□Miono	□SLAMS		
Air flow < 200 L/min	General/Background	Micro		_	
☐ PM2.5 FRM ☐ PM10 FRM	Highest Concentration	Middle		(
PM10 Cont. (BAM)	Population Exposure	Neighborhood			
☐ PM10-2.5 FRM	Source Oriented	Urban	Monitor NAA	QS Exclusion	
☐ PM10-2.5 BAM	Transport	Regional	NONREGU	JLATORY	
PM2.5 Cont. (BAM)	☐Welfare Related Impacts				
Probe inlet height (from §		n 🔲 7-15 m	_	15 m	
	e from probe inlet to ground (meters)				
	probe inlet from horizontal (wall) ar				
Actual measured distance	e from outer edge of probe inlet to su	pporting structure (meters))	Yes ∐ No	
Distance (V) between our	ter edge of probe inlets of any low vo	alume monitor and any oth	er _		
low volume monitor at th		name moment and any our	Yes _	No NA	
	onitors (Two FRMs, FRM & BAM, I	BAM & *Vac 🗖 (a	narran *'d arrast	ions) No 🗆 NA	
BAM) Located at Site?		r r es □ (a	nswer * a quest	ions) No 🗌 NA	
* Entire inlet opening of	collocated PM 2.5 samplers (X) with	uin 2 to 4 m of			
each other?	P ()		No ☐ Give a	ctual (meters)	
*Are collocated PM2.5 sa	ampler inlets within 1 m vertically of		_		
		Yes	No ☐ Give a	ctual (meters)	
Is a love volume DM10 m	nonitor collocated with a PM2.5 mon	itor at the			
site to measure PM10-2.5		*Yes [] (answer *'d ques	tions) No 🔲 NA	
		- for DM10 2.5 (V)	1		
within 2 to 4 m of each o	collocated PM10 and PM2.5sampler ther?	8 101 PW110-2.5 (A)	Yes 🗌	No 🗌	
	nd PM2.5 sampler inlets within 1 m v	vertically of each other?	Yes 🗍	No 🔲	
		'No (answer *'d question			
*Is probe > 10 m from th	e nearest tree drip line? Yes 🗌 *	No *Number of trees	within 10 meter	2	
*Direction from probe to tree (m) *Height of tree above probe (m)					
•	o air flow? *Yes 🔲 (answer *'d que	30 (0.07 (A CO) (1.07 (A CO) (A CO) (A CO) (
	Distance from probe inlet (m)				
*Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes \Boxedown No					
Distance of probe to nearest traffic lane (m) Direction from probe to nearest traffic lane					
		on from proof to hearest tr	arrie iane		
RECOMMENDATIONS:		21			
	tatus? Yes *No (answer *				
*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 Sub	omitted? Yes 🔲 No 🛛		-	
Reviewer				Date	
Ambient Monitoring Coor	rdinator Kevin Lance		DateM	av 4, 2021	

2020-Toxics 3

Site Information

Region_ARO	Site Name Waynesville School			AQS Site # 37- <u>087</u> - <u>0008</u>		
Street Address-223			City Waynesville			
Urban Area Not in an Urban Area Core-based Statistical Area Asheville, NC						
	Enter E	xact				
	<u>5072</u>	Longitude	<u>-82,9636</u>		d of Measuring	
In Decimal Degrees		In Decimal D		Other (explain) Ex	xplanation: Google Earth	
Elevation Above/bel					<u>792.00</u>	
Name of nearest roa	d to inlet pro	be Asheville	Road ADT	11000 Year latest av	railable 2018	
Distance of ozone pr	robe to near	est traffic lane	(m) <u>151</u> Directi	on from ozone probe to	nearest traffic lane <u>SW</u>	
Comments:						
Name of nearest maj	jor road H	WY 74 (Great S	Smoky Mounta	ins Expressway) ADT	35000 Year latest available	
<u>2018</u>						
Distance of site to no	earest major	road (m) 105	6.00 Direction	from site to nearest ma	jor road NW	
Comments:	J				<u> </u>	
Site located near ele	ctrical subst	ation/high volt	age power lines	3?	Yes No 🛛	
Distance of site to no					Direction to RR NW NA	
OPTIONAL Di			wer pole w/trai		(m) Direction	
				Direction from site to v		
					icks, vents, railroad tracks,	
construction activities						
						
ANSWER ALL APP		100	1	<u> </u>	Ct. T	
Parameters ST 0		oring Object		Scale	Site Type	
\bigcirc O ₃		l/Background		cro	⊠SLAMS	
		Concentration	1 3 4	ddle		
		3 Concentration			□SPM	
		ion Exposure Oriented	['] ⊠N€	eighborhood		
	Transp		Ur	ban		
		d Background		gional		
		e Related Imp		gionai		
Probe inlet height						
Give actual measu				_		
Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (roof) supporting						
structure > 1 m? Yes No						
Actual measured distance from outer edge of probe to supporting structure (meters) 1.01						
Is probe ≥ 20 m from the nearest tree drip line? Yes \boxtimes *No \square (answer *'d questions)						
*Is probe > 10 m from the nearest tree drip line? Yes \Box *No \Box *Number of trees within 10 meters						
*Distance from probe			irection from pro		of tree above probe (m)	
Are there any obsta			(answer *'c	questions) No 🛛		
				Direction from probe the obstacle protrudes at	e inlet to obstacle No	

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 \(\square\) No \(\square\)
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 Information

Region_ARO		Site Nar	ne <u>Canton</u>]	<u>DRR</u>	A	QS Site #	# 37- <u>087</u> - <u>001:</u>	<u>3</u>
Street Address-104	Pace Street			City Canton	Ĺ			
Urban Area CANT	ON		Core-base	d Statistical	Area Ashe	eville, N	С	
]	Enter Exact				Method	of Meas	uring	
Latitude <u>35.535</u>	044 Longi	tude <u>-8</u>	<u>82.848689</u>					
In Decimal Degrees	In Dec	imal Degr	ees	Other (expla	in) Exp	lanation	: Google Ear	<u>th</u>
Elevation Above/belo	ow Mean Sea	a Level (in	meters)			<u>813</u>	900	
Name of nearest road	to inlet prol	e <u>Blackw</u>	ell Drive (I	Hwy 215) AD	T <u>9900</u> Y	ear late	st available <u>2</u>	<u>018</u>
Comments:								
Distance of site to ne	arest major i	road (m)	331.00 Dire	ection from sit	e to neares	st major 1	road <u>SSW</u>	
Name of nearest major	or road Nev	v Clyde Hi	ghway (Hv	vy 19/23) AD	Γ <u>20500</u>	Year late	est available 2	<u> 2018</u>
Comments:								
Site located near elec			oltage pow	er lines?			Yes 🛛 N	
Distance of site to ne				(m) <u>3</u>		Direction	to RR <u>SSW</u>	□NA
OPTIONAL Dis	stance of site	to nearest	power pole	w/transforme	er (1	m)	_ Directio	
Distance between site a	ınd drip line o	f water tow	er (m)	Direction fr	om site to	water tow	ver <u></u> ⊠ľ	NA
Explain any sources	of potential l	oias; includ	le cultivated	d fields, loose	bulk stora	ge, stack	s, vents, railr	oad
tracks, construction a	ctivities, fas	t food resta	aurants, and	l swimming po	ools.			
ANSWER ALL API	PLICABLE Q						3.5 % 75	
Parameters		Monitorir	ng Objective		Sca	le	Monitor Ty	pe
SO ₂ (DRR)	General/Ba	ackground			Micro		⊠INDUSTRI	AL
SO ₂ (NAAQS)		oncentration			Middle		SLAMS	
SO ₂ (trace-level)	Population				Neighbo	orhood	SPM	
	Source Or	-			Urban	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
	Transport	cinca			Regiona	.1 I		
	Upwind B	ackaround			Litegione	.		
	_ ^	elated Impac	to					
Probe inlet height (from g				Give actual meas	urad haight	from grou	nd (meters) 16	7
Distance of outer edge of					_			
Actual measured distance						lucture / 1	III. TES MINO	ᄓ
Distance of outer edge of	probe inlet fro	m other gas i				Yes] No ☐ NA [\overline{A}
Is probe > 20 m from the nearest tree drip line? Yes ☑ *No ☐ (answer *'d questions)								
*Is probe > 10 m from the nearest tree drip line? Yes \(\text{Yes} \) *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? *Ye	s ∐ (answe	r * 'd question	s) No 🔀				
*Identify obstacle							<u> </u>	
*Is distance from inlet pr							be? Yes 🗌 No	
Distance of probe to nearest traffic lane (m) 10 Direction from probe to nearest traffic lane NW								

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: | No | | 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 Information

Region_ARO Site Name Bryson City			AQ	S Site # 37- <u>17</u>	73- <u>0002</u>	
Street Address-30 Recreation Park Drive			City Bryson Ci	<u>ty</u>		
Urban Area Not in an Urban Area Core-based Sta			tistical Area No	one		
January 1 and	Enter Exact					
Latitude <u>35.438</u>				thod of Meas		
In Decimal Degrees	In Decimal		Other (explain)	Explanation	ı: Google	<u>Earth</u>
Elevation Above/below				<u>559</u>		
Name of nearest road to in		ark Drive ADT 20	Year estimated 20	018		
Comments: Park Supervis		. D				
Distance of site to nearest				ad <u>SSE</u>		
Name of nearest major roa	id <u>US 19</u> ADT <u>7200</u>	Year latest available	e <u>2018</u>			
Comments:						. 🗖
Site located near electrical		e power lines?				√o ⊠
Distance of site to neare		1 //		240 Direction to		NA
OPTIONAL Distar Distance between site and			stormer tion from site to wat	(m)	Direct	ION
Explain any sources of p						
construction activities, f				, sateris, vents,	ramoua tra	ono,
ANSWER ALL APPLIC						
Parameters	Monitoring O	bjective	Scale	Mo	nitor Type	
□NA	General/Backgrou	ınd [Micro	SLAMS	S	
SO ₂ (NAAQS) SO ₂ (trace-level)	Highest Concentr		Middle			
\square SO ₂ (Hace-level) \square NO ₂ (NAAQS)	Max O3 Concenti			_	_	
□HSNO _y	Population Expos]	Monitor N Affiliation		
\bigcirc O ₃	Source Oriented_	N.T.	eighborhood	NCORE		
☐ NH ₃ ☐ Hydrocarbon	Transport		Urban		· · · · · · · · · · · · · · · · · · ·	
Air Toxics	Upwind Backgrou	and	Regional	Unoffic	ial PAMS	— I
CO (trace-level)	Welfare Related I		regional			
		1				
Probe inlet height (from g	ground) 2-15 m? Yes	⊠ No □ Giv	e actual measured h	eight from groui	nd (meters)	1.5 <u>8</u>
Distance of outer edge of	probe inlet from horizo	ontal (wall) and/or ve	ertical (roof) support	ting structure > 1	l m? Yes 🛛	No
Actual measured distance	from outer adge of pro	ha to supporting str	uctura (matars) 1 82			
800000 to 500 To					Z No \square N	, _ l
Distance of outer edge of probe inlet from other monitoring probe inlets > 1 m? Is probe > 20 m from the nearest tree drip line? Yes X *No X (answer *'d questions)						
*Is probe > 10 m from the nearest tree drip line? Yes \(\text{ *No } \text{ *Number of trees within 10 meters } \)						
*Distance from probe to closest tree (m) 19.10 Direction from probe to tree *Height of tree above probe (m) 4.52 Are there any obstacles to air flow? *Yes (answer *'d questions) No \bigsilon						
	*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 \square No						
	obe to obstacle at least t		the obstacle protrud	les above the pro	be? Yes 🗌	No

Bryson City site review 2020

Revised 01/02/2020

Parameters	Monitoring Objective	Scale		Site Type	
□ NA	General/Background	Micro	⊠SLA	MS	
Air flow < 200 L/min ☐ PM2.5 FRM	Highest Concentration	Middle			
PM10 FRM	Population Exposure	Neighborhood			
PM10 Cont. (BAM)	Source Oriented	Urban	Monito	or NAAQS Exclusion	
☐ PM10-2.5 FRM ☐ PM10-2.5 BAM	☐ Source Oriented	Regional			
☐ PM10-2.5 BAW ☐ PM2.5 Cont. (BAM)	☐Welfare Related Impacts			NREGULATORY	
Probe inlet height (from g		n		> 15 m	
	e from probe inlet to ground (meters)				
Distance of outer edge of	probe inlet from horizontal (wall) ar	nd/or vertical (platform or	roof) su	pporting structure > 2 m?	
Actual measured distance	e from outer edge of probe inlet to su	pporting structure (meters)	2.0574	Yes ⊠ No	
Distance (V) hetween out	ter edge of probe inlets of any low vo	aluma manitar and any oth	or	2 2 2 2 2 2 2 2 -	
low volume monitor at th		of the filolition and any oth	CI	Yes No NA	
Are collocated PM2.5 Me	onitors (Two FRMs, FRM & BAM,	BAM & *Ves □ (a	nswer*	'd questions) No 🛛 NA	
BAM) Located at Site?			1134461	u questions) No 🔼 NA	
	collocated PM 2.5 samplers (X) with		–	1	
each other?	ampler inlets within 1 m vertically of		J No ∟	Give actual (meters)	
Are conocated Fivi2.3 sa	ampler finets within 1 in vertically of		No□	Give actual (meters)	
				•	
Is a low-volume PM10 m site to measure PM10-2.5	nonitor collocated with a PM2.5 mon 5?	itor at the *Yes □ (answer	*'d questions) No 🛛 NA	
* Entire inlet opening of	collocated PM10 and PM2.5sampler	s for PM10-2 5 (X)	l		
within 2 to 4 m of each o		5101111110 2.5 (71)	Yes [□ No □	
	nd PM2.5 sampler inlets within 1 m v		Yes	No 🗌	
Is probe $> 20 \text{ m}$ from the	nearest tree drip line? Yes \(\square\)	'No 🏻 (answer *'d questi	ons)		
	e nearest tree drip line? Yes 🛛 *				
	closest tree (m) 10.97 Direction from air flow? *Yes \square (answer *'d que		eight of t	tree above probe (m) 3.36	
	Distance from probe inlet (m)		ot to obe	staola.	
	obe to obstacle at least twice the heig				
District Control of the Control of t					
Distance of probe to nearest traffic lane (m) Direction from probe to nearest traffic lane					
RECOMMENDATIONS:		:'.d			
	tatus? Yes *No (answer *				
*2) Change monitoring objective? Yes \(\subseteq (enter new objective \(\subseteq \) No \(\subseteq \) \(\subseteq \) No \(\subseteq \) \(\subseteq \)					
		v scale) No			
*4) Relocate site? Yes	□ No □				
Comments:					
Date of Last Site Pictures	November 19, 2019 New Pi	ctures Submitted? Yes	No 🛛		
Reviewer Steve Ensley				Date November 17, 2020	
Ambient Monitoring Coordinator Steve Ensley DateNovember 17, 2020					

Site Information

Region ARO Site Name Linville Falls				AQS Site # 37- <u>011</u> - <u>0002</u>
				nville Falls
Urban Area Not	in an Urban Area	Core-bas	sed Statistical Ar	rea None
	Enter Exact			
			9723	Method of Measuring
In Decimal Degrees		Decimal Degrees	Other (e	explain) Explanation: Google Earth
Elevation Above/below Mean Sea Level (in meters) 988.16 Name of nearest road to inlet probe Linville Falls Road ADT 500 Year estimated 2018				
	_			to the control of the
	robe to nearest tra	iffic lane (m) <u>93</u> 1	Direction from ozo	one probe to nearest traffic lane \underline{E}
Comments:	ion mond. IJC 221	Harri ADT 2200	Voor letest eveil	lable 2019
Name of nearest ma				
_	earest major road	(III) 1000.00 DII	rection from site t	to nearest major road <u>SW</u>
Comments:	-4-:11-4-4:	/l.:-114	1: 9	V N. M.
Site located near ele Distance of site to n				
OPTIONAL D			(m)	Direction to RRNN
				from site to water towerNA
Explain any sources	of potential bias:	include cultivated	d fields loose bul	k storage, stacks, vents, railroad tracks,
construction activiti				in storage, sateris, vents, ramour tracks,
	,	,	ST	
ANSWER ALL API	PLICABLE QUES	TIONS:		
Parameters	Monitoring	g Objective	Scale	e Site Type
\bigcirc O ₃	⊠General/Bac		Micro	SLAMS
	Highest Con		Middle	
	Max O3 Co			SPM
	Population I Source Orie		☐ Neighborho	od
	Transport	iiica	□Urban	
	Upwind Bac	kground	Regional	
	Welfare Rel			
Probe inlet height				
Give actual measu	_	_ , ,		
Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (roof) supporting				
structure > 1 m? Yes No				
Actual measured distance from outer edge of probe to supporting structure (meters) 1.10				
Is probe > 20 m from the nearest tree drip line? Yes \square *No \boxtimes (answer *'d questions)				
*Is probe > 10 m from the nearest tree drip line? Yes *No *Number of trees within 10 meters 0.00				
*Distance from probe to closest tree (m) 16.00 Direction from probe to tree SE *Height of tree above probe (m) 3.00 Are there any obstacles to air flow? *Yes (answer *'d questions) No				
	to closest tree (m)			
	to closest tree (m) acles to air flow	? *Yes 🗌 (ansv	ver *'d question	

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 \(\square\) No \(\square\)
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:

RECOMMENDATIONS:

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 Information

Region_ARO	Site Name Spruce	_	AQS Sit	te # 37- <u>12</u>	<u>1 -0004</u>	
Street Address- 272 Hos	spital Drive	-11	City S	pruce Pine		
Urban Area SPRUCE	PINE	Core-based St	atistical Aı	ea None		
E	Inter Exact					
Latitude <u>-82.062209</u>	Longitude	<u>35.912505</u>	Met	thod of Measur	ing: Goog	le Earth
In Decimal Degrees	In Decimal Degrees		Mat	ches Web Map	: Yes 🛛	No 🗌
Elevation Above/below M	lean Sea Level (in me	ters) <u>787.0</u>	00 Me	thod of Measur	ing:	<u>th</u>
Name of nearest road to in	nlet probe Hospital D	rive ADT	Latest avail	able <u>500</u> Year	<u>2018</u>	
Distance of PM inlet to ne	earest traffic lane (m)	90 Direction from	n inlet to n	earest traffic lan	ie <u>NW</u>	
Comments:						
Name of nearest major roa	ad <u>US 19</u> ADT	9900 Year late	st available	2019		
Distance of site to nearest	major road (m) 90.0	00 Direction from	site to nea	rest major road	<u>NW</u>	
Comments:						
Site located near electrical	l substation/high volta	age power lines?			Yes] No ⊠
Distance of site to nearest railroad track (m) 327 Direction to RR W 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 NA						
Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad tracks,						
construction activities, fas	t food restaurants, an	d swimming poo	ls.			
	-					

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/DDDMMSS-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.

Parameters	Monitoring Objective	Scale	Monitor Type		
Air flow < 200 L/min		Micro	SLAMS		
☐ PM2.5 FRM ☐ PM10 Cont. (BAM)	General/Background Highest Concentration	Middle			
PM10-2.5 FRM		Neighborhood			
☐ PM10-2.5 BAM ☐ PM2.5 Cont. (BAM1020)	Source Oriented		Nonregulatory		
M2.5 Cont. (BAM1020) PM2.5 Cont. (BAM1022)	Transport	 □Urban			
PM2.5 Cont. (T640X)	☐Welfare Related Impacts	Regional			
Probe inlet height (from g	ground)	n	> 15 m		
Actual measured distance	from probe inlet to ground (me	ters) <u>2.3876</u>			
	probe inlet from horizontal (wal	ll) and/or vertical (pla	tform or roof)		
supporting structure > 2 n			() 0.15 0		
	from outer edge of probe inlet t		(meters) 2.159		
` '	er edge of probe inlets of any lo e monitor at the site = 1 m or gre		Yes No NA		
	onitors (Two FRMs, FRM & BA		(answer *'d questions)		
& BAM) Located at Site?			No NA X		
,	collocated PM 2.5 samplers (X)] No 🔲		
4 m of each other?			ctual (meters):		
	ampler inlets within 1 m vertical		No 🗌		
other?	onitor collocated with a PM2.5		ctual (meters):		
at the site to measure PM			(answer *'d questions) o ⊠ NA □		
	collocated PM10 and PM2.5sam		(7)		
within 2 to 4 m of each of		,p. 6. 5 1 1 1 1 1 1 2 1 6 (1	1 es 🗌 No 📋		
*Are collocated PM10 an	d PM2.5 sampler inlets within 1	m vertically of each	Yes 🗌 No 🗌		
other?		_			
l -	nearest tree drip line? Yes 🛚		• '		
	rest tree drip line? Yes \(\big *No \(\big \)				
Are there any obstacles to	st tree (m) Direction from prolo or air flow? *Yes (answer *'d	guestions) No	tree above probe (m)		
	istance from probe inlet (m)		nlet to obstacle		
	o obstacle at least twice the height that				
*Width of obstacle in terms of degrees blocked (see instructions)					
RECOMMENDATIONS:					
	e status? Yes ∑_*No ☐ (a	. ,			
*2) Change monitoring objective? Yes (enter new objective:) No					
*3) Change scale of representativeness? Yes (enter new scale:) No (*4) Relocate site? Yes No (**) No (**)					
"4) Relocate site? Yo	es 🔲 No 🔲				
Comments:			_		
Date of Last Site Pictur	res: November 21, 2019 New P	cictures Submitted? Y	es 🗌 No 🔀		
Reviewer Terri I	Davis	Date	e: <u>November 1, 2020</u>		
Ambient Monitoring C	oordinator Steve Ensley	Date	: December 16, 2020		

3

Revised 2021-05-08

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

	e rippi oprime siming semies
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