Oklahoma Department of Environmental Quality
Air Quality Division
2018
Air Monitoring Network Plan

Oklahoma Department of Environmental Quality
707 N. Robinson
P.O. Box 1677
Oklahoma City, OK 73101-1677

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Introduction

This report documents the annual review of the air monitoring network operated by the Oklahoma Department of Environmental Quality's Air Quality Division (AQD). When finalized as the Annual Monitoring Network Plan, it will be submitted by July 1, 2018 to the U.S. Environmental Protection Agency (EPA) as required by 40 CFR 58.10 and provide the framework for establishing and maintaining Oklahoma's air quality surveillance system. AQD uses data collected by this network for comparison to the National Ambient Air Quality Standards (NAAQS). AQD maintains its ambient air monitoring network in accordance with the quality assurance requirements of 40 CFR Part 58, Appendix A; performs within specifications in accordance with 40 CFR Part 58, Appendix B; follows procedure outlined within 40 CFR Part 58, Appendix C; designs its network in accordance with 40 CFR Part 58, Appendix D; and locates its sites to meet all requirements of 40 CFR Part 58, Appendix E.

Below is a summary of changes that have been approved by Region 6 EPA, and implemented since the last Annual Network Plan:

- Relocation of 40-019-0297 Ozone to 40-085-0300.
    - Implemented on 2/24/2017
    - "The EPA acknowledges the relocation of the Healdton site 2 yr SPM (AQS ID 40-019-0297) to the Burneyville site (AQS ID 40-085-0300) by March 1, 2017." (EPA 2017 ANP response letter 10/3/2017; See Appendix D)
- Relocation of 40-147-0217 Ozone and PM 2.5 to 40-105-0207.
    - Implemented on 1/12/2018
    - "The EPA acknowledges the relocation of the Copan site (AQS ID 40-147-0217) to the South Coffeyville site (AQS ID 40-105-0207) by March 1, 2018." (EPA 2017 ANP response letter 10/3/2017; See Appendix D)
- Discontinuation of 40-017-0101 NO_2.
    - Implemented on 10/31/2017
    - "The EPA concurs with the discontinuation of the NO_2 SPM monitors at the Yukon site (AQS ID 40-017-0101) and at the Bradley site (AQS ID 40-051-0065). These NO_2 sites are not required under CFR Part 58, Appendix D Section 4.3" (EPA 2017 ANP response letter 10/3/2017; See Appendix D)
- Discontinuation of 40-051-0065 NO_2.
    - Implemented on 04/14/2017
    - "The EPA concurs with the discontinuation of the NO_2 SPM monitors at the Yukon site (AQS ID 40-017-0101) and at the Bradley site (AQS ID 40-051-0065). These NO_2 sites are not required under CFR Part 58, Appendix D Section 4.3"
    - (EPA 2017 ANP response letter 10/3/2017; See Appendix D)
- PM 2.5 method code changes from Sequential FRM/Micro-gravimetric filter weighing (145) to Broadband Spectroscopy (236) at 40-109-0097.
    - Implemented on 3/29/2018

- Discontinuation of 40-143-1110 PM 10.
    - Implemented on 3/31/2018
    - (See Appendix E)

Table 1 is a list of all currently existing ambient air monitoring sites that AQD operates and maintains as of May 1, 2018. Table 2 is a list of proposed changes. "Air Quality System (AQS) Site ID#" in column one is a unique identification number assigned to each monitoring site in the state network. AQS is a national air monitoring database maintained by the EPA.

AQD made the ANP available for public inspection and comment from April 11, 2018 through May 13, 2018 by posting the ANP on its website (40 CFR 58.10(a)(1)). An image of this posting is included in Appendix F of the document for reference.

Contact Information

East Region Manager
Name: Curt Goeller
Phone: (405)702-4126
Email: Curt.Goeller@deq.ok.gov

West Region Manager
Name: Kent Stafford
Phone: (405)702-4139
Email: Kent.Stafford@deq.ok.gov

Table 1. Air Monitoring Site Information:

AQS Site #	Address/ Location	Latitude	Longitude	Pollutants Measured	Sampling/ Analysis Method/ Method #	Station Type	Operating Schedule	Monitoring Objective	Spatial Scale	NAAQS Comparable	MSA/ CBSA[1]
40-027-0049	S.E. 19th St., Moore Water Tower, Moore	35.320105	-97.484099	Ozone	U.V. Absorption	SLAMS	Continuous	Population Exposure	Urban	Yes	OKC[2] MSA
				PM 2.5	Broadband Spectroscopy	SPM[3]	Continuous	Population Exposure	Urban	Yes	
				PM 10	Broadband Spectroscopy	SPM[3]	Continuous	Population Exposure	Urban	No	
40-019-0297	Memorial Dr., Healdton City Lake, Healdton	34.244189	-97.462931	PM 2.5	Beta Attenuation	SPM[3]	Continuous	Regional Transport	Regional	Yes	Ardmore CBSA
40-031-0651	2211 NW 25th, Lawton	34.632980	-98.428790	Ozone	U.V. Absorption	SLAMS	Continuous	Population Exposure	Urban	Yes	Lawton MSA
				PM 2.5	Beta Attenuation	SPM[3]	Continuous	Population Exposure	Urban	Yes	
40-043-0860	Seiling Municipal Airport, Seiling	36.158414	-98.931973	Ozone	U.V. Absorption	SLAMS	Continuous	General Background	Regional	Yes	Not in MSA/ CBSA
				PM 2.5	Broadband Spectroscopy	SPM[3]	Continuous	General Background	Regional	Yes	
				PM 10	Broadband Spectroscopy	SPM[3]	Continuous	General Background	Regional	No	
40-087-1073	310 E. Burr Oak Rd., Goldsby	35.159649	-97.473794	Ozone	U.V. Absorption	SLAMS	Continuous	Upwind Background/ General Background	Regional	Yes	OKC MSA
40-071-0604	306 E Otoe, Ponca City	36.697186	-97.081350	SO2[4]	U.V. Fluorescence	SLAMS	Continuous	Population Exposure/ Source Oriented	Neighborhood	Yes	Ponca City CBSA
				PM 2.5	Beta Attenuation	SLAMS	Continuous	Population Exposure	Neighborhood	Yes	

40-101-0167	3500 Port Place, Muskogee	35.793134	-95.302235	PM 10	TEOM Gravimetric	SLAMS	Continuous	Source Oriented	Middle	Yes	Muskogee CBSA
40-017-0101	12575 NW 10th, Water Tower, Yukon	35.479215	-97.751503	Ozone	U.V. Absorption	SLAMS	Continuous	Population Exposure	Urban	Yes	OKC MSA
40-109-0096	12880A N.E. 10th, Choctaw	35.477801	-97.303044	Ozone	U.V. Absorption	SLAMS	Continuous	Population Exposure	Urban	Yes	OKC MSA
40-109-0033	N.E. 10th and Stonewall, OKC	35.477036	-97.494309	Ozone	U.V. Absorption	SLAMS	Continuous	Population Exposure	Urban	Yes	OKC MSA
				NO2	Gas Phase Chemiluminescence	SLAMS	Continuous	Population Exposure/ Area-wide/ Vulnerable and Susceptible Population	Urban	Yes	
40-109-0035	N.W. 5th and Shartel, OKC	35.472920	-97.527090	PM 2.5	Sequential FRM/ Micro-gravimetric filter weighing	SLAMS	(1 in 3)	Population Exposure	Neighborhood	Yes	OKC MSA
				PM 10	Sequential FRM/ Micro-gravimetric filter weighing	SLAMS	(1 in 6)	Population Exposure	Neighborhood	Yes	
				PM 10	Sequential FRM/ Micro-gravimetric filter weighing	SLAMS	(1 in 6) Collocated	Quality Assurance	Neighborhood	Yes	
				PM 10-PM 2.5	Paired Gravimetric	SPM	(1 in 6)	Population Exposure	Neighborhood	No	

40-109-1037	2501 E. Memorial Rd., Oklahoma Christian University, OKC	35.614131	-97.475083	SO2[4]	U.V. Fluorescence	SLAMS	Continuous	Population Exposure	Urban	Yes	OKC MSA
				Chemical Speciation	Low Volume Gravimetric/ Micro-gravimetric filter weighing	SLAMS	(1 in 6)	Population Exposure	Urban	No	
				PM 10	Sequential FRM/ Micro-gravimetric filter weighing	SLAMS	(1 in 6)	Population Exposure	Urban	Yes	
				PM 10	TEOM Gravimetric	SPM	Continuous	Population Exposure	Urban	Yes	
				PM 2.5	Sequential FRM/ Micro-gravimetric filter weighing	SLAMS	(1 in 3) Collocated	Population Exposure	Urban	Yes	
				PM 2.5	Broadband Spectroscopy	SLAMS	Continuous Primary	Population Exposure	Urban	Yes	
				PM 10	Broadband Spectroscopy	SPM[3]	Continuous	Population Exposure	Urban	No	
				PM 10-PM 2.5	Paired Gravimetric – “calculated”	SPM	(1 in 6)	Population Exposure	Urban	No	
				CO	Gas Filter Correlation	SLAMS	Continuous	Population Exposure	Urban	Yes	
				Ozone	U.V. Absorption	SLAMS	Continuous	Highest Concentration	Urban	Yes	
40-121-0415	104 Airport Rd., McAlester Municipal Airport, McAlester	34.885608	-95.784410	Ozone	U.V. Absorption	SLAMS	Continuous	Regional Transport	Regional	Yes	McAlester CBSA
				PM 2.5	Beta Attenuation	SLAMS	Continuous Primary	General Background	Regional	Yes	
				PM 2.5	Sequential FRM/ Micro-gravimetric Filter Weighing	SLAMS	(1 in 6) Collocated	Quality Assurance	Regional	Yes	

40-039-0856	Rader Park, Weatherford	35.560280	-98.683490	PM 10	TEOM Gravimetric	SPM	Continuous	Population Exposure	Regional	Yes	Weatherford CBSA
40-121-0416	108 N Main St., Savanna	34.829396	-95.843642	Lead	Hi-Volume	SLAMS	(1 in 6)	Source Oriented	Neighborhood	Yes	McAlester CBSA
40-143-1127	3520 1/2 N. Peoria, North Tulsa-Fire Station #24, Tulsa	36.204902	-95.976537	Ozone	U.V. Absorption	NCore/ SLAMS	Continuous	Maximum Precursor Emissions Impact	Urban	Yes	Tulsa MSA
				NO2	Chemiluminescence	NCore/ SLAMS	Continuous	Maximum Precursor Emissions Impact/ Vulnerable and Susceptible Population	Urban	Yes	
				Trace level NOy	Chemiluminescence	NCore/ SLAMS	Continuous	Maximum Precursor Emissions Impact	Urban	No	
				Trace level CO	Gas Filter Correlation	NCore/ SLAMS	Continuous	Population Exposure	Urban	Yes	
				Trace level $SO2^4$	U.V. Fluorescence	NCore/ SLAMS	Continuous	Population Exposure	Urban	Yes	
				PM 2.5	Sequential FRM/ Micro-gravimetric filter weighing	NCore/ SLAMS	(1 in 3)	Population Exposure	Urban	Yes	
				PM 2.5	Sequential FRM/ Micro-gravimetric filter weighing	NCore/ SLAMS	(1 in 6) Collocated	Quality Assurance	Urban	Yes	
				PM 2.5	Broadband Spectroscopy	NCore/ SPM^3	Continuous	Population Exposure	Urban	Yes	

				PM 10	Broadband Spectroscopy	NCore/ SPM[3]	Continuous	Population Exposure	Urban	No	Tulsa MSA
				PM 10	Sequential FRM/ Micro-gravimetric filter weighing	NCore/ SLAMS	(1 in 3)	Population Exposure	Urban	Yes	
				PM 10 - PM 2.5	Paired Gravimetric – "calculated"	NCore/ SPM	(1 in 3)	Population Exposure	Urban	No	
				Chemical Speciation	Low Volume Gravimetric/ Micro-gravimetric filter weighing	NCore/ SLAMS	(1 in 3)	Population Exposure	Urban	No	
40-113-0226	1521 S. Lombard, Skiatook	36.355860	-96.012430	Ozone	U.V. Absorption	SLAMS	Continuous	Population Exposure	Urban	Yes	Tulsa MSA
40-037-0144	City Water Plant, Mannford	36.105481	-96.361196	Ozone	U.V. Absorption	SLAMS	Continuous	Population Exposure	Urban	Yes	Tulsa MSA
40-143-0174	502 E. 144th Pl., Tulsa South, Tulsa	35.953708	-96.004975	Ozone	U.V. Absorption	SLAMS	Continuous	Upwind Background	Urban	Yes	Tulsa MSA
				PM 2.5	Beta Attenuation	SPM[3]	Continuous	Population Exposure	Urban	Yes	Tulsa MSA
40-143-0178	18707 E. 21st St., Tulsa East, Tulsa	36.133802	-95.764537	Ozone	U.V. Absorption	SLAMS	Continuous	Population Exposure	Urban	Yes	Tulsa MSA
40-143-0175	1710 W. Charles Page Blvd. Tulsa	36.149877	-96.011664	SO2[4]	U.V. Fluorescence	SLAMS	Continuous	Source Oriented	Neighborhood	Yes	Tulsa MSA
40-037-0146	10375 N. Frankoma Rd., Sapulpa	36.013567	-96.099144	Lead	Hi-Volume	SLAMS	(1 in 6)	Source Oriented	Neighborhood	Yes	Tulsa MSA
				Lead	Hi-Volume	SLAMS	(1 in 12) Collocated	Quality Assurance	Neighborhood	Yes	

40-109-0097	3112 N. Grand BLVD, OKC	35.503070	-97.577981	NO2	Chemiluminescence	SLAMS	Continuous	Highest Concentration/ Near Road	Micro	Yes	OKC MSA
				PM 2.5	Broadband Spectroscopy	SLAMS	Continuous	Population Exposure	Micro	Yes	
				PM 10	Broadband Spectroscopy	SLAMS	Continuous	Population Exposure	Micro	No	
				CO	Gas Filter Correlation	SLAMS	Continuous	Population Exposure	Micro	Yes	
				Black Carbon	McGee Scientific TAPI M633 Aethalometer	SLAMS	Continuous	Population Exposure	Micro	No	
40-143-0179	124 N. Riverside Dr. West, Tulsa	36.154830	-96.015845	SO2[4]	U.V. Fluorescence	SLAMS	Continuous	Source Oriented	Neighborhood	Yes	Tulsa MSA
				H2S	U.V. Fluorescence	SPM[5]	Continuous	Source Oriented	Neighborhood	No	Tulsa MSA
40-143-0235	2443 S. Jackson Ave., Tulsa	36.126945	-95.998941	SO2[4]	U.V. Fluorescence	SLAMS	Continuous	Source Oriented	Middle	Yes	Tulsa MSA
				H2S	U.V. Fluorescence	SPM	Continuous	Source Oriented	Middle	No	
40-105-0207	OK 10 and US 169, Oklahoma Union, Lenapah	36.918242	-95.632127	Ozone	U.V. Absorption	SPM	Continuous	Regional Transport	Regional	No	Bartlesville CBSA
				PM 2.5	Beta Attenuation	SPM[3]	Continuous	Regional Transport	Regional	No	
40-013-0380	814 Waldron Rd., Durant	33.945379	-96.405726	Ozone	U.V. Absorption	SPM	Continuous	Regional Transport	Regional	No	Durant CBSA
40-047-0555	11826 N 30th St, Kremlin	36.512363	-97.845959	SO2[4]	U.V. Fluorescence	SLAMS	Continuous	Source Oriented	Neighborhood	Yes	Enid CBSA

40-097-0188	470 13th St., MAIP, Pryor	36.228993	-95.269196	SO2[4]	U.V. Fluorescence	SLAMS	Continuous	Source Oriented	Neighborhood	Yes	Not in MSA/ CBSA
40-067-0671	Lake Waurika Corp. of Eng. Office, Waurika	34.226639	-98.035440	Ozone	U.V. Absorption	SPM	Continuous	Regional Transport	Regional	No	Not in MSA/ CBSA
40-101-0170	108 North 55th St. East, Fort Gibson	35.775813	-95.287067	SO2[4]	U.V. Fluorescence	SLAMS	Continuous	Source Oriented	Neighborhood	Yes	Muskogee CBSA
40-085-0300	Noble Foundation-Red River Research Farm, Burneyville	33.880812	-97.275896	Ozone	U.V. Absorption	SPM	Continuous	Regional Transport	Regional	No	Ardmore CBSA

[1] Both Metropolitan Statistical Area and Core-Based Statistical Area have been abbreviated to MSA and CBSA respectively for all tables.
[2] Oklahoma City has been abbreviated to OKC for all tables.
[3] $PM_{2.5}$ SPM monitors are used to support the state Health Advisory Program and will remain SPMs.
[4] AQS shows two SO_2 monitors due to reports being entered for both hourly and 5-minute data.
[5] H_2S SPMs are used to monitor major sources in the Tulsa area in response to the state implemented H_2S ambient standard and will remain SPMs.
All AQD sites and monitors conform to 40 CFR, Subchapter C, Part 58 Appendix A, Appendix C (see methods in column 6 of table 2), and Appendices D & E (see photos located at http://www.deq.state.ok.us/AQDnew/monitoring/cpdata.htm by clicking on desired location of the site map).

Note – All PM2.5/10 (2 parameters/1 monitor) listed as "broadband spectroscopy" are API Model T640 instruments which are designated NAAQS comparable for PM2.5 and non-NAAQS comparable for PM10.

Table 2. AQD Network Proposed Changes
Monitors Recommended to be Removed and Discontinued:

AQS Site #	Address/ Location	Latitude	Longitude	Pollutants Measured	Sampling/ Analysis Method/ Method #	Station Type	Operating Schedule	Monitoring Objective	Spatial Scale	NAAQS Comparable	MSA
40-109-1037	2501 E. Memorial Rd., Oklahoma Christian University, OKC	35.614131	-97.475083	PM 10-PM 2.5	Paired Gravimetric – "calculated"[1]	SPM	(1 in 6)	Population Exposure	Urban	No	OKC MSA
40-109-1037	2501 E. Memorial Rd., Oklahoma Christian University	35.614131	-97.475083	PM10	Sequential FRM/ Micro-gravimetric filter weighing	SLAMS	(1 in 6)	Population Exposure	Urban	Yes	OKC MSA

[1]These monitors are not required to meet CFR requirements, and after review of the data they do not add value to the Oklahoma DEQ monitoring network.

Monitor Operating Schedule Recommended to be Changed:

AQS Site #	Address/ Location	Latitude	Longitude	Pollutants Measured	Sampling/ Analysis Method/ Method #	Station Type	Operating Schedule	Monitoring Objective	Spatial Scale	NAAQS Comparable	MSA
40-109-0035	N.W. 5th and Shartel, OKC	35.472920	-97.527090	PM 2.5	Sequential FRM/ Micro-gravimetric filter weighing	SLAMS	(1 in 3)[1]	Population Exposure	Neighborhood	Yes	OKC MSA
40-109-0035	N.W. 5th and Shartel, OKC	35.472920	-97.527090	PM 10	Sequential FRM/ Micro-gravimetric filter weighing	SLAMS	(1 in 6)[2] Collocated	Quality Assurance	Neighborhood	Yes	OKC MSA

[1]Recommended to be changed to a (1 in 6) operation schedule. This change does not compromise data needed for NAAQS implementation. This monitor does not determine Design Value for Oklahoma City. This monitor was not within 10% of the annual limit for the last 3 years nor has it exceeded the 24-hour NAAQS limit over the last 3 years. See values for 40-109-0035 PM 2.5 along with other sites for comparison below.
[2]Recommended to be changed to a (1 in 12) operating schedule.

2015			
Site	First Max	98th percentile	Weighted Annual Mean
0035	15.4	15	6.5*
0097	29.6	18	9.1*
1037	27	17	7.7*
1037-3	27.9	18	8.1

2016			
Site	First Max	98th percentile	Weighted Annual Mean
0035	28.2	17	7.6
0097	28	19	8.3*
1037	18	15	6.9*
1037-3	21.7	19	8.4*

2017			
Site	First Max	98th percentile	Weighted Annual Mean
0035	16.2	13	7.4*
0097	14.3	14	8.4*
1037	13.6	12	6.6*
1037-3	22.3	18	8.7*

*Does not satisfy minimum data completeness criteria

Appendix A: Network Requirements

Parameter	Number of Sites Required in Part 58 App D	Reason(s) for Requirement Part 58 App D	Number of Other Non-Required SLAMS/SPM Sites Currently in Operation	Reason(s) for Optional Site	Total Sites Operated	Total Monitors Operated including Collocated
Ozone	2	OKC MSA/Population	4		6	6
	2	Tulsa CBSA/Population	2		4	4
	1	Lawton CBSA			1	1
	1	NCore			1	1
			3	Red River/SPM	3	3
			1	Flint Hills /SPM	1	1
			2	AQI/Advisories	2	2
Total	6		12		18	18
Carbon Monoxide	1	Near-road			1	1
	1	NCore			1	1
			1	Background	1	1
Total	2		1		3	3
Nitrogen Dioxide	1	Near-road			1	1
	1	NCore			1	1
	1	Area-wide			1	1
Total	3				3	3
NOy	1	NCore			1	1
Total	1				1	1
Sulfur Dioxide	1	NCore			1	1
	1	Tulsa CBSA/PWEI			1	1
	3	SO2 DRR			3	3
			3	Major Source	3	3
			1	OKC Area Background	1	1
Total	5		4		9	9

Parameter	Number of Sites Required in Part 58 App D	Reason for Requirement Part 58 App D	Number of Other Non-Required SLAMS/SPM Sites Currently in Operation	Reason for Optional Site	Total of All Sites Operated	Total Monitors Operated including Collocated
Lead	2	Sources > .5 tons/year			2	3
Total	2				2	3
PM2.5	2	OKC CBSA/Population/ Low Conc.	1	AQI/Advisories	3	4
	1	Tulsa CBSA - Population/Low Conc.	1	AQI/Advisories - NCore	2	3
			3	AQI/Advisories	3	3
			1	Flint Hills SPM	1	1
	1	Background	1		1	2
	1	Transport	1		1	2
	1	Near-road	1		1	1
Total	6		9		12	16
PM10[1]			1	Source	1	1
			1	AQI/Advisories	1	1
	2	OKC CBSA/Population/ Low Conc.	1	AQI/Advisories	3	4
	1	Tulsa CBSA/Population/ Low Conc.			1	1
Total	3		3		6	7
PM10 - 2.5 (Coarse)	1	NCore			1	1
			1	Supplemental	1	1
Total	1		1		2	2

[1]API T640 PM 10 is not included in this chart due to the monitoring method not being acceptable by EPA standards.

Appendix B: PWEI[1] Numbers for Determination of Minimum SO_2 Sites

CBSA	Counties	SO2 Emissions[2] (tons)	Total Emissions[2] (tons)	Population[3] (people)	PWEI[2] (tons/million people)
Oklahoma City	Oklahoma County	433	879	138,3737	1,217
	Cleveland County	102			
	Canadian County	77			
	Grady County	74			
	Logan County	91			
	McClain County	24			
	Lincoln County	75			
Tulsa	Tulsa County	626	18,486	990,706	18,314
	Rogers County	17,166			
	Wagoner County	61			
	Creek County	351			
	Osage County	28			
	Okmulgee County	150			
	Pawnee County	102			
Lawton	Comanche County	104	108	127,349	13
	Cotton County	4			
Stillwater	Payne County	86	86	81,575	7
Shawnee	Pottawatomie County	58	58	72,226	4
Muskogee	Muskogee County	23,109	23,109	69,086	1,596
Enid	Garfield County	9,952	9,952	62,603	623
Bartlesville	Washington County	62	62	51,932	3
Tahlequah	Cherokee County	152	152	48,888	7
Ardmore	Carter County	369	400	48,190	19
	Love County	30			
Ponca City	Kay County	6,063	6,063	44,544	270
McAlester	Pittsburg County	269	269	44,184	11
Duncan	Stephens County	45	45	43,332	1
Durant	Bryan County	311	311	46,319	14
Ada	Pontotoc County	3,931	3,931	38,224	150
Miami	Ottawa County	28	28	31,312	0
Weatherford	Custer County	28	28	28,800	0
Altus	Jackson County	58	58	25,125	1
Elk City	Beckham County	180	180	21,793	3
Guymon	Texas County	48	48	20,900	1
Woodward	Woodward County	80	80	20,459	1

[1]40 CFR Appendix D to Part 58 §4.4.2 *Requirement for Monitoring by the Population Weighted Emissions Index.* (a) The population weighted emissions index (PWEI) shall be calculated by States for each core based statistical area (CBSA) they contain or share with another State or States for use in the implementation of or adjustment to the SO2 monitoring network. The PWEI shall be calculated by multiplying the population of each CBSA, using the most current census data or estimates, and the total amount of SO2 in tons per year emitted within the CBSA area, using an aggregate of the most recent county level emissions data available in the National Emissions Inventory for each county in each CBSA. The resulting product shall be divided by one million, providing a PWEI value, the units of which are million persons-tons per year. For any CBSA with a calculated PWEI value equal to or greater than 1,000,000, a minimum of three SO2 monitors are required within that CBSA. For any CBSA with a calculated PWEI value equal to or greater than 100,000, but less than 1,000,000, a minimum of two SO2 monitors are required within that CBSA. For any CBSA with a calculated PWEI value equal to or greater than 5,000, but less than 100,000, a minimum of one SO2 monitor is required within that CBSA.

[2]Values truncated to whole tons or whole tons/million people.

[3]All population estimates based off of 2017 Census estimations found at the following link: https://www.census.gov/data/tables/2017/demo/popest/total-metro-and-micro-statistical-areas.html

Appendix C: Further Comments

Near Road Addition to Tulsa:

EPA's current regulatory requirements from 40 CFR Appendix D to Part 58 § 4.3.2(a) states as follows:

Within the NO_2 network, there must be one microscale near-road NO_2 monitoring station in each CBSA with a population of 1,000,000 or more persons to monitor a location of expected maximum hourly concentrations sited near a major road with high AADT counts as specified in paragraph 4.3.2(a)(1) of this appendix. An additional near-road NO_2monitoring station is required for any CBSA with a population of 2,500,000 persons or more, or in any CBSA with a population of 1,000,000 or more persons that has one or more roadway segments with 250,000 or greater AADT counts to monitor a second location of expected maximum hourly concentrations. CBSA populations shall be based on the latest available census figures.

The Tulsa MSA has the second largest population in Oklahoma behind the Oklahoma City MSA with an estimated population of 990,706 based on the latest Census Data Estimates found on the US Census Bureau website:

- https://www.census.gov/data/tables/2017/demo/popest/total-metro-and-micro-statistical-areas.html.

As per 40 CFR Appendix D to Part 58 § 4.3.2(a), the Tulsa MSA will not require a near-road NO2 monitoring site at this time due to the population remaining under 1,000,000 persons.

Prevention of Significant Deterioration Air Monitoring:

The Oklahoma DEQ monitoring network meets all requirements found in 40 CFR Part 58, Appendix B. PSD monitoring is currently not necessary for the Oklahoma DEQ.

Maintenance Plans for Discontinuation of SLAMS Monitors:

Oklahoma currently is in attainment with all NAAQS and is not under a SIP Maintenance Plan.

Review of Site Conditions

40-109-0033

Oklahoma Department of Environmental Quality (ODEQ) has a standing waiver for probe siting for the O_3 and NO_2 samplers at 40-109-0033 due to the probe sitting at a height of 16.46 meters above ground, less than 2 meters in excess of the allowed 15 meters for probe height.

40-143-1110

ODEQ has removed 40-143-1110 due to an overgrowth in trees located around the site creating conditions so the monitor no longer meets the site requirements specified in 40 CFR Part 58, Appendix D. Removal of the trees was not a viable option. ODEQ requested approval of this change via letter on February 20, 2018, EPA Region 6 approved it in a letter dated February 27, 2018, and the instrument was shut down on March 31, 2018 (See Appendix E).

Other sites

No other site conditions have changed or need to be addressed by ODEQ at this time.

Appendix D: EPA Response to ODEQ 2017 ANP

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS TX 75202-2733

OCT 0 3 2017

Ms. Cheryl E. Bradley
Environmental Programs Manager
Data and Planning Section
Oklahoma Department of
Environmental Quality
Post Office Box 1677
Oklahoma City, Oklahoma 73101-1677

Dear Ms. Bradley:

Thank you for your correspondence submitting the Oklahoma Department of Environmental Quality's (ODEQ) Fiscal Year 2018 Annual Monitoring Network Plan (2017 Plan). The U.S. Environmental Protection Agency (EPA) has completed its review of the 2017 Plan to ensure it meets the requirements of 40 Code of Federal Regulations (CFR) Part 58 and its appendices.

We appreciate your cooperation and work to submit your 2017 Plan, which we received on July 3, 2017. We applaud the efforts of the ODEQ to manage and maintain the ambient air monitoring network in Oklahoma.

The network review process presents an opportunity for the EPA and the ODEQ to collaborate on air monitoring network design. *See* 40 CFR Part 58 Appendix D, Section 1.1.2. The EPA has conducted its review of the 2017-18 Plan and proposed network modifications to ensure the air quality surveillance system continues to meet applicable requirements.

I am pleased to inform you that the 2017 Plan is approved with comments in accordance with 40 CFR §58.10. Details of our review are provided in the enclosure. We intend to set up a telephone conference to discuss our comments with you.

We look forward to continued partnership with the ODEQ on our common goals to establish and maintain a successful monitoring network in the state of Oklahoma. If you have any questions, please contact me at (214) 665-7242, or your staff may contact Ms. Frances Verhalen, Air Monitoring and Grants Section Chief, at (214) 665-2172.

Sincerely yours,

Guy Donaldson
Associate Director for
Air, Multimedia Division

Enclosure

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Oklahoma Department of Environmental Quality
Air Quality Division (AQD)
FY2018 (2017) Annual Ambient Air Monitoring Network Plan Technical Comments

The FY2018 Oklahoma Annual Monitoring Network Plan (ANP), dated June 30, 2017, was received on July 3, 2017. Because this ANP addresses requirements for July 1 of 2017, this plan will be referred to as the "2017 Plan" throughout the remainder of this document. In accordance with the requirements of 40 Code of Federal Regulations (CFR) Part 58 and its appendices, the U.S. Environmental Protection Agency (EPA) has reviewed the 2017 Plan and our comments are provided below. The comments below reflect the EPA's efforts in collaboration with the Oklahoma Department of Environmental Quality (ODEQ) to maintain an accurate and efficient ambient air monitoring network.

General Comments

We appreciate the ODEQ's submittal of the FY2018 (2017) Plan in accordance with 40 CFR §58.10.

Operation of monitoring network in accordance with 40 CFR Part 58 and Appendices A, B, C, D and E
We appreciate the ODEQ's operation of the ambient air monitoring network in accordance with federal requirements defined in 40 CFR Part 58 Appendices A, B, C, D, and E (2017 Plan, p. 3).

Thank you for your efforts to ensure that the information in the ANP and the Air Quality System (AQS) database is complete and consistent.

Ozone (O_3) Monitoring (40 CFR Part 58, Appendix D Section 4.1)

The EPA approves the new South Coffeyville Special Purpose Monitor (SPM) for ozone (AQS ID 40-105-0207) in northeast Oklahoma after review of the information provided in this ANP, and in accordance with 40 CFR 58.14 and 40 CFR 58 Appendix E. The EPA acknowledges the relocation of the Copan site (AQS ID 40-147-0217) to the South Coffeyville site (AQS ID 40-105-0207) by March 1, 2018.

The EPA acknowledges the relocation of the Healdton site 2-yr SPM (AQS ID 40-019-0297) to the Burneyville site (AQS ID 40-085-0300) by March 1, 2017.

The EPA acknowledges the relocation of the Murray State College Tishomingo site 2-yr SPM (AQS ID 40-069-0324) to the Kiamichi Technology Center Durant site (AQS ID 40-013-0380) by March 1, 2017.

The EPA acknowledges the relocation of the E. South Boundary St. & S. 3rd St., Walters site 2-yr SPM (AQS ID 40-033-0680) to the Waurika Lake Office site (AQS ID 40-067-0671) by March 1, 2017.

Carbon Monoxide (CO) Monitoring (40 CFR Part 58, Appendix D Section 4.2)

The ODEQ is meeting the minimum requirements for its CO monitoring network design. See 40 CFR 58 Appendix D Section 4.2. The EPA acknowledges that no changes were made to the Oklahoma CO network in the ODEQ FY2018 Air Monitoring Network Plan.

Nitrogen Dioxide (NO_2) Monitoring (40 CFR Part 58, Appendix D Section 4.3)

The EPA concurs with the discontinuation of the NO_2 SPM monitors at the Yukon site (AQS ID 40-017-0101) and at the Bradley site (AQS ID 40-051-0065). These NO_2 sites are not required under 40 CFR Part 58, Appendix D Section 4.3.

The EPA approves a waiver for probe siting for the NO_2 sampler at the N.E. 10th and Stonewall OKC site (AQS ID 40-109-0033) based on a current valid waiver for the Ozone sampler at the same site. The NO_2 sampler uses the same manifold as the Ozone sampler. Both the NO_2 and the ozone samplers have been sampling at the N.E. 10th and Stonewall OKC site for the same period of time (1980 to the present), using the exact same 4-inch glass (inert) sampling manifold, at the same height (16.46 meters above ground, less than 2 meters in excess of the allowed 15 meters for probe height).

For future plans, please identify required NO_2 monitors as near-road, area-wide, or vulnerable and susceptible population monitors in accordance with 40 CFR Part 58 Appendix D, section 4.3.

Near-Road Monitoring Sites

The EPA agrees that the Tulsa Metropolitan Statistical Area (MSA) does not require a near-road NO_2 monitoring site at this time due to the current population estimate for the area remaining under 1,000,000 persons.

Sulfur Dioxide (SO_2) Monitoring (40 CFR Part 58, Appendix D Section 4.4)

The ODEQ is currently meeting and exceeding the network design requirements for ambient air quality monitoring for SO_2. See 40 CFR Part 58, Appendix D Section 4.4. We appreciate the work ODEQ did in 2016 to site new monitors required by the Data Requirements Rule that were approved by EPA, and we acknowledge there were no proposed changes to the SO_2 network in the 2017 Plan.

Lead (Pb) Monitoring (40 CFR Part 58, Appendix D Section 4.5)

The ODEQ is meeting the network design requirements for ambient air quality monitoring for Pb. See 40 CFR Part 58, Appendix D Section 4.5.

With the final Revisions to Ambient Monitoring Quality Assurance and Other Requirements (81 FR 17247, March 28, 2016), lead monitoring at National Core (NCore) Multi-pollutant Monitoring sites is no longer required. The ODEQ requested permission to discontinue Pb monitoring at the NCore Tulsa site in a letter dated November 28, 2016, and the EPA granted the ODEQ permission to discontinue monitoring at this location in a letter dated January 20, 2017. This change in the monitoring network is not mentioned in the 2017 Plan, and the Pb monitor is not on the monitoring site spreadsheet under the NCore site. Within 60 days of receipt of this letter, please confirm whether this monitor has been discontinued, and if so, provide the date of discontinuation. Also, please update the AQS database if appropriate.

Particulate Matter (PM) Monitoring

Particulate Matter of 10 Microns or More (PM_{10}) (40 CFR Part 58, Appendix D Section 4.6)

The ODEQ is meeting the minimum requirements for its PM_{10} monitoring network design (see 40 CFR 58 Appendix D Section 4.6.) The ODEQ request to change the sampling frequency from once every three days to once every six days at the PM_{10} monitor located at the Turner Park site (AQS ID 40-143-1110-81102-1) is approved.

Particulate Matter of 2.5 Microns or Less ($PM_{2.5}$) (40 CFR Part 58, Appendix D Section 4.7)

The ODEQ is meeting the minimum requirements for its $PM_{2.5}$ monitoring network design (see 40 CFR 58 Appendix D Section 4.7). The EPA acknowledges the discontinuation of the $PM_{2.5}$ SPM monitor (AQS ID 40-147-0217-88101-3) at the Copan site. The EPA acknowledges the addition of the $PM_{2.5}$ SPM monitor at the South Coffeyville site (AQS ID 40-105-0207).

The EPA appreciates the updates about the installation of the new 'T640' $PM_{2.5}$ SPM monitors at the OCUSA site (AQS ID 40-109-1037-88101-3) and the N. Tulsa site (AQS ID 40-143-1127-88101-3).

$PM_{2.5}$ Quality Assurance Collocation

For the $PM_{2.5}$ monitors which ODEQ operates using Federal Reference Method (FRM) number 145, collocation is met at the N. Tulsa site (AQS ID 40-143-1127).

For the $PM_{2.5}$ monitors which ODEQ operates using Federal Equivalent Method (FEM) number 184, collocation is met at the McAlester site (AQS ID 40-121-0415).

Annual Monitoring Network Plan for Ambient Air
Tips for Developing Future Plans

We appreciate that the ODEQ has followed many or all of these tips in the development of its Plans throughout the years, including this year's Plan. This "Tips" page is intended as a handy reminder for future Plans.

Plan Development and Proposal - Schedule
It may be best to propose a Plan in May for public review, in order to respond to public comments and have a submittal sent to the EPA in time to be received by July 1.

Review of Site Conditions
For future plans, please review whether site conditions may have changed and, if so, consider impacts on the monitoring network. Proper siting and operation of monitors is necessary for determining compliance with air quality standards, and so that the public can be informed of air quality risks.

System Modifications
For future plans, please include

- All proposed system modifications,
- All pending system modifications (modifications previously approved which have yet to be implemented), and
- A summary of all network modifications that have occurred since the previous plan.

Review of Annual Network Plan (ANP) and Air Quality System (AQS)
In developing the ANP, please review information in the ANP in comparison with the AQS database, and coordinate between the two databases as appropriate.

Population Estimates and Metropolitan Statistical Areas (MSAs)
Please use current

- Population estimates from the U.S Census Bureau, and
- MSA definitions from the Office of Management and Budget.

Cross State Metropolitan Statistical Area (MSA) / Core-Based Statistical Area (CBSA) monitoring network responsibilities
The EPA recognizes that State or local agencies must consider MSA/CBSA boundaries and their own political boundaries and geographical characteristics in designing their air monitoring networks. There may be situations where there may be a need to augment or to divide the overall MSA/CBSA monitoring responsibilities and requirements among various agencies to achieve an effective network design. For future plans, for areas in which your agency is relying on another agency to fulfill a monitoring requirement, please provide the following:

a) a copy of the agreement between the affected agencies
b) an explanation of the division of responsibilities of the agencies with respect to ambient air monitoring requirements, as related to the ANP.

SO_2 Annual Report
If an SO_2 annual report is required under 40 CFR §51.1205, we encourage providing the SO_2 annual report together with the annual network plan.

Network changes involving possible discontinuations of State/Local Air Monitoring Station monitors: implications for State Implementation Plans
When considering the possible discontinuation of a monitoring site, please consider maintenance areas. We note that if a maintenance plan needs to be modified or relaxed in the future, it may be much easier to accomplish with up-to-date monitoring data.

Electronic versions of proposals, plans and tables
Please continue to provide an electronic version with future hardcopy submittals, including:

- sending a web link by email at the time the annual monitoring network plan proposal becomes available for public review,
- sending an electronic version of the Plan in addition to the hardcopy, and
- sending an editable electronic version of your ambient air monitoring network table.

Electronic versions may be sent to Ms. Verhalen at verhalen.frances@epa.gov and to Ms. Belk at belk.ellen@epa.gov.

Appendix E: Request and EPA Approval of 40-143-1110 Removal

SCOTT A. THOMPSON
Executive Director

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

MARY FALLIN
Governor

February 20, 2018

Mr. Guy Donaldson, Associate Director for Air
Multimedia Division
USEPA Region 6 (6-MM-AA)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Subject: Site 40-143-1110

Dear Mr. Donaldson:

The Department of Environmental Quality (DEQ) operates a PM-10 monitor located at Site 40-143-1110 in Turner Park, Tulsa, Oklahoma. As previously discussed during our telephone call and emails with Dorothy Crawford, EPA Region 6 Monitoring, DEQ is considering discontinuance of monitoring at Turner Park. The trees located around the site have grown so the monitor no longer meets the site requirements specified in 40 CFR Part 58, Appendix D. Removal of the trees is not a viable option. We appreciate your staff's assistance as we evaluated possible options for addressing this siting issue. After careful consideration, DEQ is requesting approval to discontinue the aforementioned SLAMS monitor as provided in 40 CFR Part 58, Appendix D (2)(d).

Ms. Crawford pointed out that the population of the Tulsa Metropolitan Statistical Area (MSA) is currently less than one million. Only one PM-10 monitor is required by 40 CFR 58 Appendix D in areas considered to be "low concentration". The DEQ-operated PM-10 monitor at Site 40-143-1127 will fulfill that network requirement. Site 40-143-1127, ALSO LOCATED IN Tulsa, recorded higher concentrations of PM-10 than Site 40-143-1110 during the 2014 through 2017 period. The highest concentration recorded at Site 40-143-1127 was 100 micrograms per cubic meter, which is less than 80 percent of the NAAQS (120 micrograms per cubic meter) so the Tulsa MSA falls into the "low concentration" category.

707 NORTH ROBINSON, P.O. BOX 1677, OKLAHOMA CITY, OKLAHOMA 73101-1677

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It is anticipated that the Tulsa MSA population will reach one million in the next few years so another PM-10 monitor will be required, as well as a Near-Road NO_2 monitoring site. DEQ is considering locating this PM-10 monitor at the Near-Road site.

We are currently working on our 2018 Annual Network Plan and plan to include the closing of Site 40-143-1110 in the plan. Again, thanks for your assistance in this matter. If you have any questions or require additional information, please contact Curt Goeller, Manager of Monitoring Section-East, at 405-702-4126.

Sincerely,

Cheryl E. Bradley, Environmental Programs Manager

Data and Planning Section

ecc: Curt Goeller, DEQ

Fran Verhalen, EPA Region 6

Ellen Belk, EPA Region 6

Dorothy Crawford, EPA Region 6

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS TX 75202-2733

FEB 2 7 2018

Ms. Cheryl E. Bradley
Environmental Programs Manager
Data and Planning Section
Oklahoma Department of Environmental Quality
P.O. Box 1677
Oklahoma City, OK 73101-1677

Dear Ms. Bradley:

This letter responds to the Oklahoma Department of Environmental Quality (ODEQ) request of February 20, 2018. The ODEQ requests to discontinue a monitor measuring particulate matter 10 micrometers or less in diameter (PM_{10}) located at the Turner Park site (ID 40-143-1110).

The U.S. Environmental Protection Agency (EPA) approves the request. We look forward to our continued collaborative work on Oklahoma's ambient air monitoring network. If you have any questions, please contact me at (214) 665-7242, or Dorothy Crawford of my staff at (214) 665-2771.

Sincerely yours,

Guy Donaldson
Associate Director for
Air, Multimedia Division

cc: Curt Goeller, ODEQ
Kent Stafford, ODEQ

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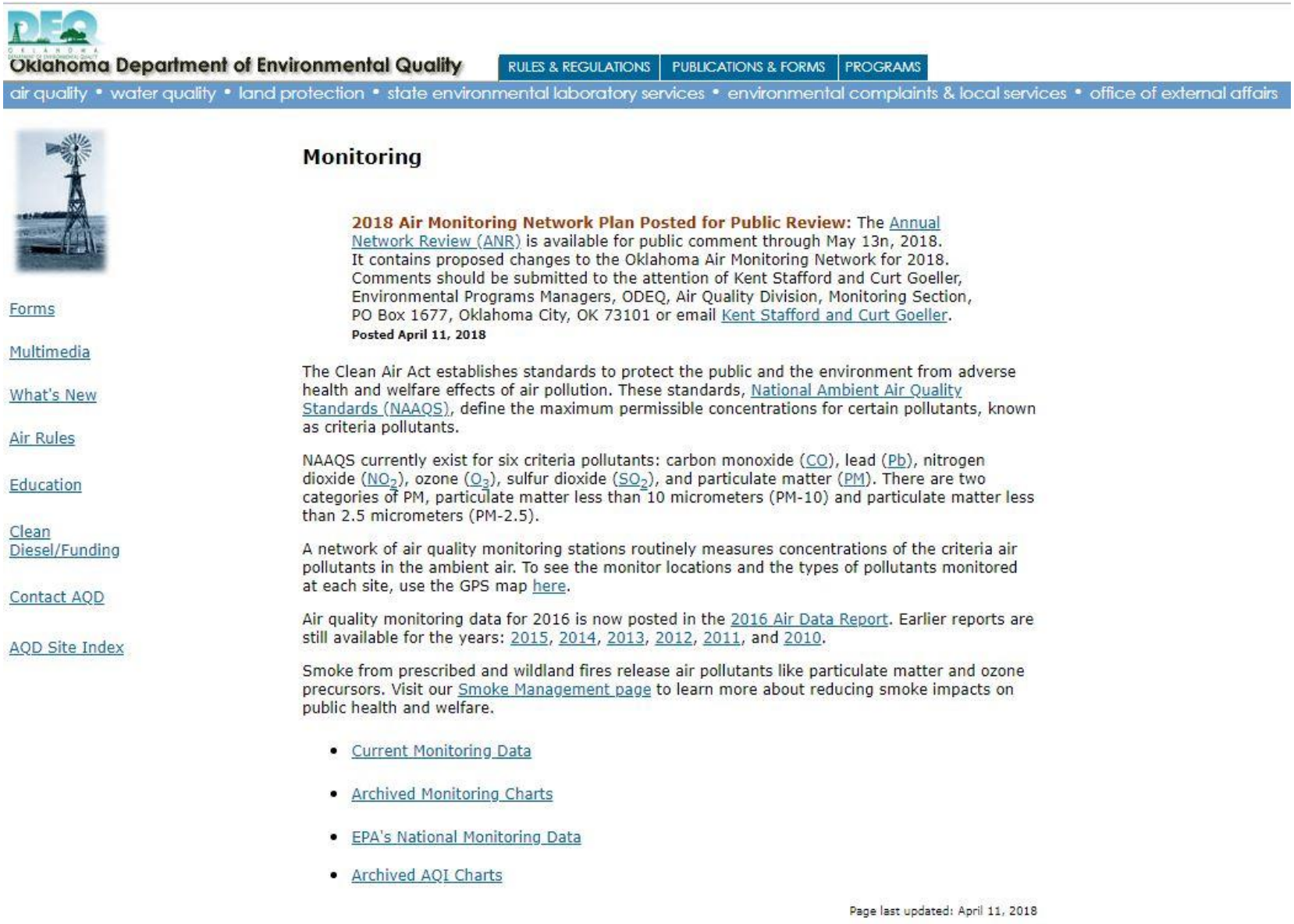
Appendix F: ANP Web Page Post Date



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Monitoring

2018 Air Monitoring Network Plan Posted for Public Review: The Annual Network Review (ANR) is available for public comment through May 13n, 2018. It contains proposed changes to the Oklahoma Air Monitoring Network for 2018. Comments should be submitted to the attention of Kent Stafford and Curt Goeller, Environmental Programs Managers, ODEQ, Air Quality Division, Monitoring Section, PO Box 1677, Oklahoma City, OK 73101 or email Kent Stafford and Curt Goeller.

Posted April 11, 2018

The Clean Air Act establishes standards to protect the public and the environment from adverse health and welfare effects of air pollution. These standards, National Ambient Air Quality Standards (NAAQS), define the maximum permissible concentrations for certain pollutants, known as criteria pollutants.

NAAQS currently exist for six criteria pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), and particulate matter (PM). There are two categories of PM, particulate matter less than 10 micrometers (PM-10) and particulate matter less than 2.5 micrometers (PM-2.5).

A network of air quality monitoring stations routinely measures concentrations of the criteria air pollutants in the ambient air. To see the monitor locations and the types of pollutants monitored at each site, use the GPS map here.

Air quality monitoring data for 2016 is now posted in the 2016 Air Data Report. Earlier reports are still available for the years: 2015, 2014, 2013, 2012, 2011, and 2010.

Smoke from prescribed and wildland fires release air pollutants like particulate matter and ozone precursors. Visit our Smoke Management page to learn more about reducing smoke impacts on public health and welfare.

- Current Monitoring Data
- Archived Monitoring Charts
- EPA's National Monitoring Data
- Archived AQI Charts

Page last updated: April 11, 2018

http://www.deq.state.ok.us/aqdnew/monitoring/index.htm