

# ADEQ

ARKANSAS  
Department of Environmental Quality

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July 1, 2014

Mr. Mark Hansen  
Associate Director for Air Programs  
U.S. Environmental Protection Agency, Region VI  
1445 Ross Avenue, Suite 1200  
Dallas, Texas 75202-2733

Dear Mr. Hansen,

The 2014–2015 Annual Network Plan for the Ambient Air Monitoring Network for the state of Arkansas is enclosed, fulfilling the requirement set forth in 40 CFR 58.10. The plan underwent a 30-day public comment period from May 30, 2014 to June 30, 2014. There were no comments received by our agency.

Please contact us with comments or questions.

Sincerely,



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Enclosure

**ARKANSAS'S AMBIENT AIR MONITORING NETWORK  
ANNUAL NETWORK REVIEW 2014–2015**

Prepared By

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## I. Introduction

In accordance with 40 CFR Part 58 Subpart B § 58.10, the State of Arkansas is required to submit an annual air monitoring network plan to the United States Environmental Protection Agency (USEPA) by July 1, 2014. The State of Arkansas's 2014–15 Annual Network Plan will be submitted to USEPA Region 6 in Dallas, Texas. In addition, federal regulations require that the plan be made available for public inspection for 30 days prior to submission to USEPA Region 6.

This network plan provides the framework for the establishment and maintenance of an air quality surveillance system. This plan represents the Arkansas Department of Environmental Quality's (ADEQ's) commitment to effectively protect the health of the citizens of Arkansas through ambient air monitoring using the latest and best technology that is commercially available, and to communicate the data collected as quickly and accurately as possible. The following document represents proposed changes to the Arkansas air monitoring network for Fiscal Year 2014–15.

## II. Population Statistics

Minimum monitoring requirements vary for each pollutant and are based on a combination of factors such as population data, previous year's concentration levels, and metropolitan area boundaries. Table 1 contains the population statistics for the Metropolitan Statistical Areas (MSAs) located fully or partially in Arkansas.

**TABLE 1. Population Statistics for Metropolitan Statistical Areas (MSAs) in Arkansas**

<b>Metropolitan Statistical Area (MSA)</b>	<b>2010 Census</b>	<b>2013 Estimates</b>
Fayetteville-Springdale-Rogers, AR-MO	463,204	491,966
Fort Smith, AR-OK	280,467	279,974
Hot Springs, AR	96,024	97,179
Jonesboro, AR	121,026	125,633
Little Rock-North Little Rock-Conway, AR	699,757	724,385
Memphis, TN-MS-AR	1,324,829	1,341,746
Pine Bluff, AR	100,258	95,815
Texarkana, TX-AR	149,198	149,619

## III. SLAMS Operated by ADEQ

ADEQ operates numerous air monitors at various monitoring sites throughout the State of Arkansas. Site information, as well as information on ADEQ operated monitors, is detailed in Table 2A and Table 2B. Monitors operated by ADEQ are currently maintained by the Air Laboratory Division of the Technical Services Division. Data from these monitoring sites are entered into the national Air Quality Systems (AQS) database and made available to the public within 90 days following the end of each calendar quarter. The reference to "AQS ID #" in column 1 represents a unique site identification number that is assigned to each and every monitoring site in the network. All ADEQ sites and monitors conform to 40 CFR Part 58.



**TABLE 2B. Additional ADEQ Operated SLAMS Monitor Information**

AQS ID #	Site Name	Pollutants Measured	Operating Schedule	Monitoring Objective	Spatial Scale	NAAQS Comp.	MSA
05-001-0011	Stuttgart	PM <sub>2.5</sub>	Daily 1 in 3	Population Exposure	Neighborhood	Yes	Not in a MSA
05-003-0005	Crossett	PM <sub>2.5</sub>	Daily 1 in 3	Population Exposure	Neighborhood	Yes	Not in a MSA
05-035-0005	Marion	PM <sub>2.5</sub> PM <sub>2.5</sub> Ozone NO <sub>2</sub>	Daily 1 in 3 Continuous Continuous Continuous	Regional Transport	Neighborhood Neighborhood Neighborhood Neighborhood Area Wide	Yes No Yes Yes	Memphis
05-051-0003	Hot Springs	PM <sub>2.5</sub> *	Daily 1 in 3	Population Exposure	Neighborhood	Yes	Hot Springs
05-067-0001	Newport	PM <sub>2.5</sub>	Daily 1 in 3	Population Exposure	Neighborhood	Yes	Not in a MSA
05-101-0002	Deer	Ozone	Continuous	Background	Neighborhood	Yes	Not in a MSA
05-113-0002	Mena	PM <sub>2.5</sub>	Daily 1 in 3	Regional Background	Neighborhood	Yes	Not in a MSA
05-113-0003	Eagle Mtn	Ozone	Continuous	Regional Transport	Neighborhood	Yes	Not in a MSA
05-119-0007	PARR (NCore)	PM <sub>2.5</sub> * PM <sub>2.5</sub> PM <sub>10</sub> * Ozone NO <sub>x</sub> SO <sub>2</sub> Speciation CO NO <sub>y</sub> Trace SO <sub>2</sub> Trace CO Pb*	Daily 1 in 1 Continuous Daily 1 in 3 Continuous Continuous Continuous Daily 1 in 3 Continuous Continuous Continuous Continuous Continuous Continuous Daily 1 in 6	Population Exposure Population Exposure Population Exposure Population Exposure Susceptible and Vulnerable Population Exposure Population Exposure Population Exposure Population Exposure Population Exposure Population Exposure Population Exposure Population Exposure Population Exposure	Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood	Yes No Yes Yes Yes Yes No Yes No No No No No	Little Rock
05-119-1002	NLRAP	Ozone	Continuous	Population Exposure	Neighborhood	Yes	Little Rock
05-119-1004	Adams Field	PM <sub>2.5</sub>	Daily 1 in 3	Population Exposure	Neighborhood	Yes	Little Rock
05-119-1007	VA	PM <sub>10</sub>	Daily 1 in 6	Population Exposure	Neighborhood	Yes	Little Rock
05-119-1008	DSR	PM <sub>2.5</sub> PM <sub>2.5</sub> Ozone	Daily 1 in 3 Continuous Continuous	Population Exposure	Neighborhood Neighborhood Neighborhood	Yes No Yes	Little Rock
40-135-9021	Roland, OK	PM <sub>2.5</sub>	Daily 1 in 3	Population Exposure	Neighborhood	Yes	Ft. Smith
05-139-0006	El Dorado	PM <sub>2.5</sub> PM <sub>2.5</sub> SO <sub>2</sub>	Daily 1 in 3 Continuous Continuous	Population Exposure Population Exposure Population Exposure	Neighborhood Neighborhood Neighborhood	Yes No Yes	Not in a MSA
05-143-0005	Springdale	PM <sub>2.5</sub> PM <sub>2.5</sub> Ozone	Continuous Daily 1 in 3	Population Exposure Population Exposure AQI	Neighborhood Neighborhood	No Yes	Fayetteville
05-143-0006	Fayetteville	Ozone	Continuous	Population Exposure	Neighborhood	Yes	Fayetteville

\* Collocated Monitors

#### IV. Air Monitoring Network Overview

##### A. Ozone Network

The required minimum number of ozone monitors for MSAs in Arkansas is listed in Table 3. The minimum number of ozone monitors is determined by the MSA population and the previous year's design value for the area according to Table D-2 of 40 CFR Part 58 App. D.

**TABLE 3. Required Minimum Number of Ozone SLAMS for MSAs in Arkansas**

Metropolitan Statistical Area (MSA)	2013 Estimates	Monitors Required
Fayetteville-Springdale-Rogers, AR-MO	491,966	2
Fort Smith, AR-OK	279,974	1
Hot Springs, AR	97,179	0
Jonesboro, AR	125,633	0
Little Rock-North Little Rock-Conway, AR	724,385	2
Memphis, TN-MS-AR	1,341,746	2
Pine Bluff, AR	95,815	0
Texarkana, TX-AR	149,619	0

Arkansas has met or exceeded the minimum SLAMS ozone requirement for each MSA. The Little Rock MSA and the Memphis MSA exceeds the minimum number of SLAMS with three and five monitors respectively. ADEQ only operates one of the five SLAMS ozone monitors in the Memphis MSA, with the other four operated by either Memphis/Shelby County Health Department (MSCHD) or Mississippi Department of Environmental Quality (MDEQ). The Fayetteville MSA has two monitors, meeting the minimum requirement for the MSA. The required monitor in the Ft. Smith MSA is covered by the ozone monitor in Roland, OK, which is operated by Cherokee Nation.

There are two additional SLAMS ozone monitors in the rural areas of Deer and Eagle Mountain which are used to enhance EPA's AIRNOW ozone mapping program and to determine background and transport ozone. Additional information regarding the SLAMS ozone monitoring sites operated by ADEQ are listed in Table 4.

**TABLE 4. Operated Ozone Monitoring Sites – Proposed Sampling Schedule and Design Value Calculations**

AQS ID #	Sampling Schedule		8-Hour Ozone (ppm)				
	Current	Proposed	2011	2012	2013	DV	DV % NAAQS
05-035-0005	Continuous	Continuous	0.082	0.079	0.067	0.076	101%
05-101-0002	Continuous	Continuous	0.069	0.068	0.064	0.067	89%
05-113-0003	Continuous	Continuous	0.077	0.071	0.065	0.071	95%
05-119-0007	Continuous	Continuous	0.075	0.076	0.064	0.071	95%
05-119-1002	Continuous	Continuous	0.080	0.079	0.070	0.076	101%
05-119-1008	Continuous	Continuous	0.074	0.080	0.068	0.074	99%
05-143-0005	Continuous	Continuous	0.076	0.076	0.065	0.072	96%
05-143-0006	Continuous	Continuous	-	0.079	0.066	*	*

\* Does not have three complete years of data for design value calculations

In addition to the SLAMS monitor, EPA operates one ozone monitor (05-019-9991) as part of the Clean Air Status and Trends Network (CASTNET). This ozone monitor is compliant with the regulatory requirements in 40 CFR Parts 50, 53 and 58; therefore, ozone measurements from this site will also be used to determine if an area meets, or exceeds, the NAAQS.

## B. Particulate Matter (PM) Network

### 1. Fine Particulate Matter (PM<sub>2.5</sub>)

The minimum number of SLAMS PM<sub>2.5</sub> monitors for MSAs in Arkansas is listed in Table 5. According to the criteria listed in Table D-5 of 40 CFR Part 58 App. D, the number of PM<sub>2.5</sub> monitors is determined by the MSA population and the previous year's design value for the area.

**TABLE 5. Required Minimum Number of PM<sub>2.5</sub> SLAMS for MSAs in Arkansas**

Metropolitan Statistical Area (MSA)	2013 Estimates	Monitors Required
Fayetteville-Springdale-Rogers, AR-MO	491,966	1
Fort Smith, AR-OK	279,974	1
Hot Springs, AR	97,179	1
Jonesboro, AR	125,633	0
Little Rock-North Little Rock-Conway, AR	724,385	2
Memphis, TN-MS-AR	1,341,746	3
Pine Bluff, AR	95,815	0
Texarkana, TX-AR	149,619	1

Arkansas has met or exceeded the minimum SLAMS requirement for each MSA. ADEQ operates three monitors in the Little Rock MSA, exceeding the requirement of two monitors. In addition to the one monitor operated by ADEQ in the Memphis MSA, there are three additional SLAMS monitors operated by either MSCHD or MDEQ. This brings a total of four monitors in the Memphis MSA, exceeding the requirement for the MSA. The Fayetteville MSA, Ft. Smith MSA, and Hot Springs MSA each have one monitor to fulfill the minimum requirement. The Texarkana MSA monitor requirement is covered by a PM<sub>2.5</sub> SLAMS monitor operated by the Texas Commission on Environmental Quality (TCEQ).

ADEQ also operates an additional five PM<sub>2.5</sub> monitoring sites not located in MSAs. Additional information regarding the PM<sub>2.5</sub> monitoring sites operated by ADEQ is listed in Table 6.

The collocated FRM monitors for Hot Springs (05-051-0003) and PARR (05-119-0007) are operating on a 1:6 sampling schedule. In addition, the following sites are collocated with TEOM continuous monitor: Marion (05-035-0005), PARR (05-119-0007), DSR (05-119-1008), El Dorado (05-139-0006), and Springdale (05-143-0005).

TABLE 6. ADEQ Operated PM<sub>2.5</sub> Monitoring Sites – Proposed Sampling Schedule and Design Value Calculations

AQS ID #	Sampling Schedule		24-Hour PM <sub>2.5</sub> (µg/m <sup>3</sup> )					Annual PM <sub>2.5</sub> (µg/m <sup>3</sup> )					Collocated with TEOM
	Current	Proposed	2011	2012	2013	DV	DV % NAAQS	2011	2012	2013	DV	DV % NAAQS	
05-001-0011	1:3	1:3	22.2	18.5	22.1	21	60%	10.9	10.0	9.5	10.1	84%	No
05-003-0005	1:3	1:3	26.9	21.0	20.6	23	66%	11.2	10.0	9.1	10.1	84%	No
05-035-0005	1:3	1:3	22.1	24.7	21.9	23	66%	11.7	10.0	10.0	10.6	88%	Yes
05-051-0003	1:3	1:3	22.1	22.0	20.3	21	60%	11.4	10.5	9.4	10.5	88%	No
05-067-0001	1:3	1:3	23.2	18.6	20.9	21	60%	10.3	9.4	9.1	9.6	80%	No
05-113-0002	1:3	1:3	22.2	22.6	22.6	22	63%	11.5	10.0	9.9	10.5	88%	No
05-119-0007	1:1	1:1	24.9	22.6	20.7	23	66%	12.0	11.3	10.4	11.2	93%	Yes
05-119-1004	1:3	1:3	25.8	25.8	28.6	27	77%	11.4	11.1	10.6	11.1	93%	No
05-119-1008	1:3	1:3	26.3	27.1	22.6	25	71%	12.5	11.6	11.0	11.7	98%	Yes
05-139-0006	1:3	1:3	23.7	24.5	20.4	23	66%	11.7	10.9	9.6	10.7	89%	Yes
05-143-0005	1:3	1:3	24.2	20.0	19.6	21	60%	11.7	9.6	9.3	10.2	85%	Yes
40-135-9021	1:3	1:3	22.7	22.2	21.8	22	63%	11.6	10.2	9.7	10.5	88%	No

Table 7 lists the monitoring sites that are used for daily Air Quality Index (AQI) reporting. The monitors at these locations also report hourly data to the AIRNOW web page to be used for real-time air quality particulate mapping. No changes are requested for the two sites.

**TABLE 7. Continuous PM<sub>2.5</sub> AQI Monitoring Site Information**

AQS ID #	Site Name	Sampling Frequency
05-143-0005	Springdale	Hourly
05-119-0007	PARR	Hourly

**2. Particulate Matter (PM<sub>10</sub>)**

The range of number of SLAMS PM<sub>10</sub> monitors for Arkansas MSA is listed in Table 8, as determined by Table D-4 of 40 CFR Part 58 App. D. The range of PM<sub>10</sub> monitors are determined by the population size of the MSA and the previous year's design value for the area.

**TABLE 8. Required Minimum Number of PM<sub>10</sub> SLAMS for MSAs in Arkansas**

Metropolitan Statistical Area (MSA)	2013 Estimates	Monitors Required
Fayetteville-Springdale-Rogers, AR-MO	491,966	0-1
Fort Smith, AR-OK	279,974	0-1
Hot Springs, AR	97,179	0
Jonesboro, AR	125,633	0
Little Rock-North Little Rock-Conway, AR	724,385	1-2
Memphis, TN-MS-AR	1,341,746	2-4
Pine Bluff, AR	95,815	0
Texarkana, TX-AR	149,619	0

ADEQ is operating two PM<sub>10</sub> monitoring sites, both operating in the Little Rock MSA. The PARR site (05-119-0007) also has a collocated PM<sub>10</sub> monitor operating on a 1:6 sampling schedule. Information regarding the two sites is located in Table 9. The two PM<sub>10</sub> sites in the Memphis MSA are operated by MSCHD. There are no proposed changes to ADEQ's PM<sub>10</sub> SLAMS monitors.

**TABLE 9. ADEQ Operated PM<sub>10</sub> Monitoring Sites -- Proposed Sampling Schedule and Design Value Calculations**

AQS ID #	Sampling Schedule		24-Hour PM <sub>10</sub> (µg/m <sup>3</sup> )				
	Current	Proposed	2011	2012	2013	3-Yr Avg.	3-Yr Avg. % NAAQS
05-119-0007	1:3	1:3	45	40	63	49	33%
05-119-1007	1:6	1:6	49	42	64	51	34%

### 3. Coarse Particulate Matter (PM<sub>10-2.5</sub>)

The PM<sub>10-2.5</sub> monitoring is performed at the PARR (05-119-0007) as part of the NCore requirement. The monitor is also operating on a 1:3 sampling schedule as required. No changes are being requested for this monitor.

### 4. Chemical Speciation

PM<sub>2.5</sub> speciation sampling is performed at the PARR (05-119-0007) as part of the NCore requirement. No changes are being requested for this monitor.

### C. Sulfur Dioxide (SO<sub>2</sub>) Network

The minimum number of SLAMS SO<sub>2</sub> monitors for Arkansas core based statistical areas (CBSAs) is listed in Table 10, as determined by 40 CFR Part 58 App. D § 4.4.2. The minimum number of SO<sub>2</sub> monitors is determined by CBSA population and the total SO<sub>2</sub> emitted within the CBSA using data available from the most recent National Emissions Inventory (NEI).

TABLE 10. Required Minimum Number of SO<sub>2</sub> SLAMS for MSAs in Arkansas

Core Based Statistical Area (CBSA)	2013 Estimate	2011 NEI SO <sub>2</sub> Emissions (tpy)	PWEI	Monitors Required
<b>Metropolitan Statistical Area</b>				
Fayetteville-Springdale-Rogers, AR-MO	491,966	9,020	4,438	0
Fort Smith, AR-OK	279,974	4,269	1,195	0
Hot Springs, AR	97,173	85	8	0
Jonesboro, AR	125,633	302	38	0
Little Rock-North Little Rock-Conway, AR	724,385	648	470	0
Memphis, TN-MS-AR	1,341,746	21,205	28,452	1
Pine Bluff, AR	95,815	33,791	3,238	0
Texarkana, TX-AR	149,619	2,444	366	0
<b>Micropolitan Statistical Area</b>				
Arkadelphia, AR	22,743	215	5	0
Batesville, AR	36,997	34,008	1,258	0
Blytheville, AR	44,765	3,696	165	0
Camden, AR	30,243	166	5	0
El Dorado, AR	40,694	398	16	0
Forrest City, AR	27,260	100	3	0
Harrison, AR	45,460	182	8	0
Helena-West Helena, AR	20,399	189	4	0
Magnolia, AR	24,164	1,589	38	0
Malvern, AR	33,500	133	4	0
Mountain Home, AR	40,957	242	10	0
Paragould, AR	43,097	76	3	0
Russellville, AR	84,440	387	33	0
Searcy, AR	78,483	122	10	0

The Memphis area is the only CBSA that requires a SO<sub>2</sub> monitor. The required SO<sub>2</sub> monitor in the Memphis CBSA is operated by MSCHD. ADEQ will continue to monitor the Population

Weighted Emission Index (PWEI) value for the Fayetteville CBSA. ADEQ also operates two additional SO<sub>2</sub> monitoring sites in the state: PARR (05-119-0007) and El Dorado (05-139-0006). At site PARR, ADEQ is requesting to remove the routine SO<sub>2</sub> monitor (POC-1), while keeping the trace SO<sub>2</sub> monitor (POC-2) in operation as part of the NCore requirement. Discontinuance of the routine SO<sub>2</sub> monitor will not compromise the data collection needed for implementation of the SO<sub>2</sub> NAAQS. There are no proposed changes for the El Dorado site.

#### **D. Nitrogen Dioxide (NO<sub>2</sub>) Network**

There are two NO<sub>2</sub> sites in Arkansas operated by ADEQ: PARR (05-119-007) and Marion (05-035-0005). The Marion monitor operated by ADEQ was approved by EPA Region 6 to fulfill the area-wide requirement for the Memphis MSA. Area-wide requirement is determined by population size of the Core Based Statistical Area (CBSA). Memphis MSA is required to have one area-wide NO<sub>2</sub> monitor as the CBSA population exceeded 1,000,000. The PARR site meets the criteria for the RA-40 national requirement for susceptible and vulnerable populations as listed in 40 CFR 58 App. D § 4.3.4. There are no proposed changes to ADEQ's NO<sub>2</sub> SLAMS monitors.

The near-road NO<sub>2</sub> monitor for the Little Rock MSA will be address by ADEQ in a future annual network plan as the near-road NO<sub>2</sub> monitor is not required to be operational until January 1, 2017. The near-road NO<sub>2</sub> monitor requirement for the Memphis MSA is being addressed by MSCHD and the Tennessee Department of Environment and Conservation (TDEC).

NO/NO<sub>y</sub> measurements are monitored at the PARR site as part of the NCore requirement. This monitor produces conservative estimates for NO<sub>2</sub> as indicated in 40 CFR 58 App. D § 4.3.6.

#### **E. Carbon Monoxide (CO) Network**

ADEQ currently operates two CO monitors, a routine (POC-1) and trace level (POC-2), at site PARR (05-119-0007). The trace CO monitor is a requirement for NCore monitoring. ADEQ is requesting to remove the routine CO monitor and keep the trace CO monitor at the PARR site. Discontinuance of the routine CO monitor will not compromise the data collection needed for implementation of the CO NAAQS. There are no plans for any additional CO monitoring sites at this time.

#### **F. Lead Network**

ADEQ has a lead sampler as part of the NCore monitoring requirement. This site also has a collocated Pb-PM<sub>10</sub> monitor operating on a 1:6 sampling schedule.

Source-oriented monitoring is not necessary in Arkansas since lead emissions from Arkansas facilities are either below half-a-ton per year, given waivers, or have modeled out of the requirement. Facilities and waiver status for Arkansas facilities are listed in Table 11. Lead waiver renewals are expected in 2015 and will be addressed in the next annual network plan.

**TABLE 11. Facilities and Waiver Status**

<b>Current Permit</b>	<b>NEI Facility Name</b>	<b>Total Lead Permitted (tpy)</b>	<b>2008 NEI Lead Emissions (tpy)</b>	<b>Waiver Granted</b>
0449-AOP-R7	Entergy Arkansas - Independence	2.1	1.42	Yes
0263-AOP-R6	Entergy Arkansas - White Bluff	2.1	1.43	Yes
1113-AOP-R5	Pine Bluff Arsenal	1.54	0.13	N/A
597-AOP-R12	Georgia-Pacific LLC - Crossett Paper Operations	23.7	0.22	Yes
1139-AOP-R11	Nucor Steel - Arkansas	3.59	0.02	Yes
0883-AOP-R9	Nucor - Yamato Steel Co.	2.2	0.04	Yes
0035-AOP-R8	Arkansas Steel Associates, LLC	1.52	0.91	Yes
693-AOP-R8	Quanex Corp. - MacSteel Division	1.0	0.01	Yes
0039-AOP-R10	3M Industrial Mineral Products Division	0.09	0.04	N/A
1659-AOP-R4	JW Aluminum Company	0.85	0.23	N/A

**V. Contact Information**

Questions concerning lead emissions and waivers should be sent to:

Mark McCorkle  
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 5301 Northshore Dr.  
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 501-682-0736  
[mac@adeq.state.ar.us](mailto:mac@adeq.state.ar.us)

Any other comments or questions should be sent to:

Miriam Talbert - Air Lab Supervisor  
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