

**ARKANSAS'S AMBIENT AIR MONITORING NETWORK
ANNUAL NETWORK PLAN 2018-2019**

Prepared By

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1. Introduction

The United States Environmental Protection Agency (EPA) is responsible for establishing and updating the National Ambient Air Quality Standard (NAAQS) under the Federal Clean Air Act. 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 EPA's Region 6 office in Dallas, Texas (EPA Region 6). Specifically,:

... the State, or where applicable local, agency shall adopt and submit to the Regional Administrator an annual monitoring network plan which shall provide for the establishment and maintenance of an air quality surveillance system that consists of a network of SLAMS monitoring stations including FRM, FEM, and ARM monitors that are part of SLAMS, NCore stations, STN stations, State speciation stations, SPM stations, and/or, in serious, severe and extreme ozone nonattainment areas, PAMS stations, and SPM monitoring stations...

The State of Arkansas's 2018–2019 Annual Network Plan will be submitted to EPA Region 6 by July 1, 2018. Federal regulations also require that the plan be made available for public inspection for 30 days prior to submission to EPA Region 6.

This network plan provides the framework for the establishment and maintenance of the statewide air quality surveillance system. This plan represents the Arkansas Department of Environmental Quality's (ADEQ's) commitment to 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 to the public as quickly and accurately as possible. Any proposed modifications to the network, as determined by the annual network review process each year, will be stated in the document.

2. Population Statistics

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

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

Metropolitan Statistical Area (MSA)	2010 Census	2017 Estimates
Fayetteville-Springdale-Rogers, AR-MO	463,204	537,463
Fort Smith, AR-OK	280,467	282,086
Hot Springs, AR	96,024	98,658
Jonesboro, AR	121,026	131,269
Little Rock-North Little Rock-Conway, AR	699,757	738,344
Memphis, TN-MS-AR	1,324,829	1,348,260
Pine Bluff, AR	100,258	90,963
Texarkana, TX-AR	149,198	150,355

3. ADEQ Monitoring Network

ADEQ maintains its ambient air monitoring network in accordance with the quality assurance requirements of 40 CFR Part 58, App. A, designs its network in accordance with App. D, and locates its sites to meet all requirements of App. A, D and E. The operation of each monitor meets the requirements of 40 CFR Part 58, App. B and C, where applicable. ADEQ operates numerous air monitors at various monitoring sites throughout the State of Arkansas as shown in Figure 1. Monitors operated by ADEQ are currently maintained by the Air Lab Section of the Laboratory and Monitoring Services in the Office of Operations. 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. A brief site summary for ADEQ operated monitors is detailed in Table 2. The AQS identification number in column one of Table 2 is a unique site identification number that is assigned to each monitoring site in the network.

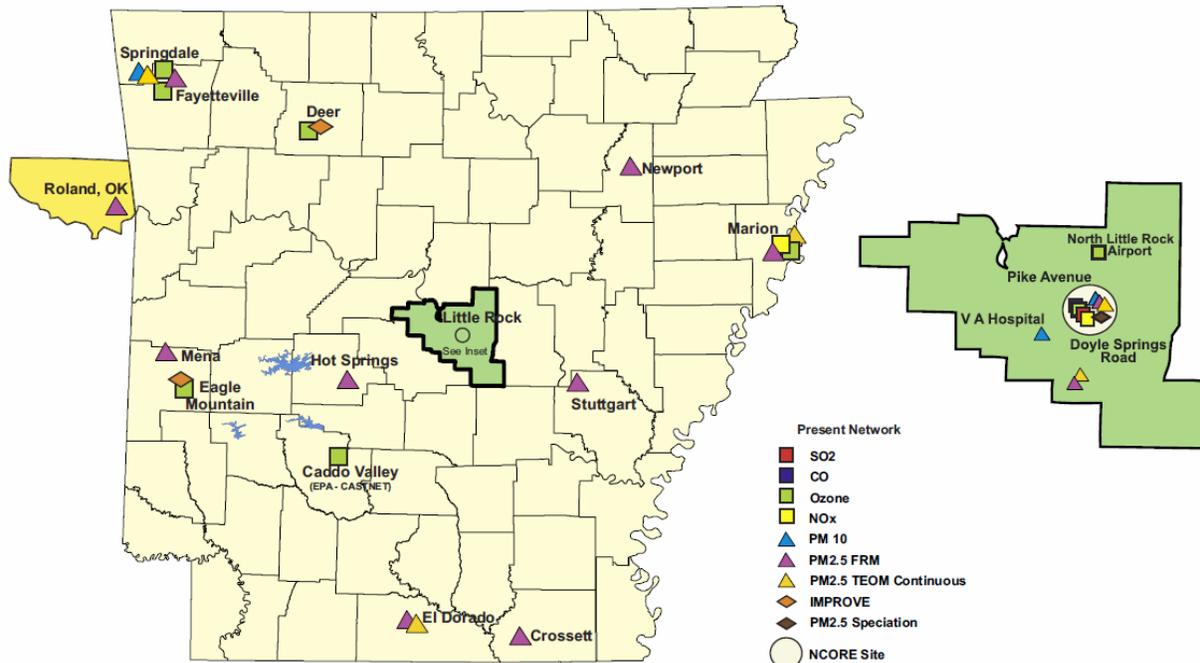


Figure 1. Map of ADEQ Air Monitoring Network

Table 2. ADEQ Operated SLAMS Monitor Information

AQS ID #	Site Name	Address/Location	Latitude, Longitude	Station Type	Pollutants Measured	Method Code	Sampling Method
05-001-0011	Stuttgart	1703 N. Beurkle	34.518392, -91.558822	SLAMS	PM _{2.5}	143	R&P 2000 FRM
05-003-0005	Crossett	201 Unity Rd.	33.136708, -91.950233	SLAMS	PM _{2.5}	143	R&P 2000 FRM
05-035-0005	Marion	Polk & Colonial Dr.	35.197178, -90.193047	SLAMS SLAMS SLAMS SLAMS	PM _{2.5} PM _{2.5} Ozone NO ₂	143 701 019 035	R&P 2000 FRM R&P TEOM UV Photometric Chemiluminescence
05-051-0003	Hot Springs	300 Werner	34.469309, -93.000000	SLAMS	PM _{2.5} *	143	R&P 2000 FRM
05-067-0001	Newport	7648 Victory Blvd.	35.638069, -91.189381	SLAMS	PM _{2.5}	143	R&P 2000 FRM
05-101-0002	Deer	Hwy 16	35.832633, -93.208072	SLAMS	Ozone	019	UV Photometric
05-113-0002	Mena	Hornbeck Rd	34.583581, -94.226019	SLAMS	PM _{2.5}	143	R&P 2000 FRM
05-113-0003	Eagle Mtn	463 Polk 631	34.454428, -94.143317	SLAMS	Ozone	019	UV Photometric
05-119-0007	PARR (NCore)	Pike Ave at River Road	34.756072, -92.281139	SLAMS SLAMS SLAMS SLAMS SLAMS SLAMS SLAMS SLAMS SLAMS SLAMS	PM _{2.5} * PM _{2.5} PM ₁₀ * PM _{10-2.5} * Ozone NO _x Speciation NO _y Trace SO ₂ Trace CO	145 701 127 176 019 810	R & P 2025 FRM R&P TEOM Gravimetric Gravimetric/FRM UV Photometric Chemiluminescence Low Volume Chemiluminescence Infrared
05-119-1002	NLRAP	Remount Rd	34.835606, -92.260425	SLAMS	Ozone		UV Photometric
05-119-1007	VA	4300 Block of West 7 th	34.744814, -92.319906	SLAMS	PM ₁₀	127	Gravimetric
05-119-1008	DSR	Doyle Springs Rd	34.681225, -92.328539	SLAMS SLAMS	PM _{2.5} PM _{2.5}	143 701	R&P 2025 FRM R&P TEOM
05-139-0006	El Dorado	Union Memorial Hospital	33.220122, -92.669453	SLAMS SLAMS	PM _{2.5} PM _{2.5}	143 701	R&P 2000 FRM R&P TEOM
05-143-0005	Springdale	600 S. Old Missouri Rd	36.179617, -94.116611	SLAMS SLAMS SLAMS SLAMS	PM _{2.5} PM _{2.5} PM ₁₀ Ozone	145 701 127 019	R&P 2025 FRM R&P TEOM Gravimetric UV Photometric
05-143-0006	Fayetteville	429 Ernest Lancaster Dr.	36.011703, -94.167436	SLAMS	Ozone	019	UV Photometric
40-135-9021	Roland, OK	207 Cherokee Blvd	35.40814, -94.524413	SLAMS	PM _{2.5}	145	R&P 2025 FRM

* Collocated Monitors

Table 2. ADEQ Operated SLAMS Monitor Information (continued)

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

* Collocated Monitors

3.1 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)	2017 Estimates	Monitors Required
Fayetteville-Springdale-Rogers, AR-MO	537,463	2
Fort Smith, AR-OK	282,086	1
Hot Springs, AR	98,658	0
Jonesboro, AR	131,269	0
Little Rock-North Little Rock-Conway, AR	738,344	2
Memphis, TN-MS-AR	1,348,260	2
Pine Bluff, AR	90,963	0
Texarkana, TX-AR	150,355	0

Arkansas has met or exceeded the minimum SLAMS ozone requirement for each MSA. The Little Rock MSA meets the required number and the Memphis MSA exceeds the minimum number of SLAMS with five monitors. ADEQ operates one of the five SLAMS ozone monitors in the Memphis MSA, with the other four operated by either Shelby County Health Department (SCHD) or Mississippi Department of Environmental Quality (MDEQ). The Fayetteville MSA has two monitors, which meets the minimum requirement for the MSA. The required monitor in the Fort 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.

Table 4. Proposed Schedule and 2015–17 Design Value for ADEQ Ozone Sites

AQS ID #	Sampling Schedule		8-Hour Ozone (ppm)				
	Current	Proposed	2015	2016	2017	DV	DV % NAAQS
05-035-0005	Continuous	Continuous	0.066	0.070	0.064	0.066	94%
05-101-0002	Continuous	Continuous	0.061	0.056	0.056	0.057	81%
05-113-0003	Continuous	Continuous	0.065	0.060	0.061	0.062	89%
05-119-0007	Continuous	Continuous	0.061	0.065	0.058	0.061	87%
05-119-1002	Continuous	Continuous	0.065	0.063	0.062	0.063	90%
05-143-0005	Continuous	Continuous	0.064	0.056	0.061	0.060	86%
05-143-0006	Continuous	Continuous	0.061	0.058	0.058	0.059	84%

ADEQ is not proposing any changes to the ozone network. Information regarding the SLAMS ozone monitoring sites operated by ADEQ is listed in Table 4.

In addition to the SLAMS network, 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. The 2015-2017 DV for this site is 0.057.

3.2 Particulate Matter Network

3.2.1 Fine Particulate Matter (PM_{2.5})

The minimum number of SLAMS PM_{2.5} 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_{2.5} monitors is determined by the MSA population and the previous year’s design value for the area.

Table 5. Required Minimum Number of PM_{2.5} SLAMS for MSAs in Arkansas

Metropolitan Statistical Area (MSA)	2017 Estimates	Monitors Required
Fayetteville-Springdale-Rogers, AR-MO	537,463	1
Fort Smith, AR-OK	282,086	0
Hot Springs, AR	98,658	0
Jonesboro, AR	131,269	0
Little Rock-North Little Rock-Conway, AR	738,344	1
Memphis, TN-MS-AR	1,348,260	2
Pine Bluff, AR	90,963	0
Texarkana, TX-AR	150,355	0

Arkansas has met the SLAMS requirement for each MSA. ADEQ operates two monitors that report NAAQS-comparable data and one QA monitor in the Little Rock MSA. There are three/two (3/2) additional monitors in the Little Rocks MSA that report non-NAAQS-comparable data. In addition to the one monitor operated by ADEQ in the Memphis MSA, there are three additional SLAMS monitors operated by either SCHD or MDEQ. This brings a total of four monitors in the Memphis MSA, exceeding the requirement for the MSA. The Memphis MSA PM_{2.5} Near-Road requirement is being met by the SCHD at site 47-157-0100 (See MOA in Appendix B). The Fayetteville MSA, Fort 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_{2.5} SLAMS monitor operated by the Texas Commission on Environmental Quality (TCEQ).

ADEQ also operates five additional PM_{2.5} monitoring sites not located in MSAs. Additional information regarding the PM_{2.5} monitoring sites operated by ADEQ is listed in Table 7. The collocated FRM monitors for Hot Springs (05-051-0003) and PARR (05-119-0007) are operating on a 1:12 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 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. Two of these sites (Springdale and PARR) are used by AIRNOW for real-time-air-quality particulate mapping.

Table 6. Continuous PM_{2.5} AQI Monitoring Site Information

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

No changes are being requested in the particulate network.

In addition to the monitors described above, ADEQ commenced the operation of a PM_{2.5} monitor in the Jonesboro area on April 1, 2018, as part of a comparison study to the PM_{2.5} monitor near Newport. The duration of the study will be approximately one year. This monitor should not be considered part of the regulatory SLAMS network.

Older equipment will be replaced as the software is no longer supported by the vendor. The request for the funding was made during the current grant application process.

Table 7. Proposed Schedule and 2015–17 Design Value for ADEQ PM_{2.5} Sites

AQS ID #	Sampling Schedule		24-Hour PM _{2.5} (µg/m ³)					Annual PM _{2.5} (µg/m ³)					Collocated with TEOM
	Current	Proposed	2015	2016	2017	DV	DV % NAAQS	2015	2016	2017	DV	DV % NAAQS	
05-001-0011	1:3	1:3	20	18	16	18	51%	8.9	8.4	7.7	8.3	69%	No
05-003-0005	1:3	1:3	17	18	14	16	47%	8.2	8.3	8.2	8.2	69%	No
05-035-0005	1:3	1:3	18	17	14	16	47%	8.7	8.4	8.0	8.4	70%	Yes
05-051-0003	1:3	1:3	19	16	17	17	50%	8.5	8.6	8.4	8.5	71%	No
05-067-0001	1:3	1:3	18	23	18	20	56%	8.2	8.3	8.1	8.2	68%	No
05-113-0002	1:3	1:3	18	20	17	18	52%	8.2	8.3	8.1	8.2	68%	No
05-119-0007	1:1	1:1	20	19	18	19	54%	9.7	9.4	9.2	9.4	79%	Yes
05-119-1008	1:3	1:3	21	21	21	21	60%	10.2	9.8	9.6	9.9	82%	Yes
05-139-0006	1:3	1:3	20	16	18	18	51%	8.7	9.0	8.9	8.9	74%	Yes
05-143-0005	1:3	1:3	17	18	15	17	48%	7.8	8.1	7.8	7.9	66%	Yes
40-135-9021	1:3	1:3	16	19	16	17	49%	7.8	8.3	8.2	8.1	68%	No

3.2.2 Particulate Matter (PM₁₀)

The SLAMS PM₁₀ monitors for Arkansas MSAs are listed in Table 8 and were based on requirements in Table D-4 of 40 CFR Part 58 App. D. The requirement for PM₁₀ monitors is determined by the population size of the MSA and the previous year's design value for the area.

Table 8. Required Minimum Number of PM₁₀ SLAMS for MSAs in Arkansas

Metropolitan Statistical Area (MSA)	2017 Estimates	Monitors Required
Fayetteville-Springdale-Rogers, AR-MO	537,463	1–2
Fort Smith, AR-OK	282,086	0–1
Hot Springs, AR	98,658	0
Jonesboro, AR	131,269	0
Little Rock-North Little Rock-Conway, AR	738,344	1–2
Memphis, TN-MS-AR	1,348,260	2–4
Pine Bluff, AR	90,963	0
Texarkana, TX-AR	150,355	0

ADEQ is operating three PM₁₀ monitoring sites, two operating in the Little Rock MSA and one in the Fayetteville MSA which commenced operation on 1/1/2017. The PARR site (05-119-0007) also has a collocated PM₁₀ monitor operating on a 1:12 sampling schedule. The two PM₁₀ sites in the Memphis MSA are operated by SCHD.

Information regarding the two existing PM₁₀ sites operated by ADEQ in the Little Rock MSA is located in Table 9.

Table 9. Proposed Schedule and 2015–17 Three-Year Average for ADEQ PM₁₀ Sites

AQS ID #	Sampling Schedule		24-Hour PM ₁₀ (µg/m ³)				
	Current	Proposed	2015	2016	2017	3-Yr Avg.	3-Yr Avg. % NAAQS
05-119-0007	1:3	1:3	59	50	37	49	33%
05-119-1007	1:6	1:6	68	53	36	52	35%

There are no planned changes to the network.

Older equipment will be replaced as the software is no longer supported by the vendor. The request for the funding was made during the current grant application process.

3.2.3 Coarse Particulate Matter (PM_{10-2.5})

The PM_{10-2.5} 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 and the QC sampler runs on a 1:12 schedule, as required. No changes are being requested for this monitor.

3.2.4 Chemical Speciation

PM_{2.5} speciation sampling is performed at the PARR (05-119-0007) as part of the NCore requirement. No changes are being requested for this monitor.

3.3 Sulfur Dioxide Network

The minimum number of SLAMS SO₂ monitors for Arkansas core based statistical areas (CBSAs) by the Population Weighted Emissions Index (PWEI) is listed in Table 10, as determined by 40 CFR Part 58 App. D § 4.4.2. The minimum number of SO₂ monitors is determined by CBSA population and the total SO₂ emitted within the CBSA using data available from the most recent National Emissions Inventory (NEI).

Table 10. Required Minimum Number of SO₂ SLAMS for MSAs in Arkansas

Core Based Statistical Area (CBSA)	2017 Estimate	2014 NEI SO ₂ Emissions (tpy)	PWEI	Monitors Required
Metropolitan Statistical Area				
Fayetteville-Springdale-Rogers, AR-MO	537,463	8,308	4,465	0
Fort Smith, AR-OK	282,086	4,652	1,312	0
Hot Springs, AR	98,658	169	16	0
Jonesboro, AR	131,269	192	25	0
Little Rock-North Little Rock-Conway, AR	738,344	796	588	0
Memphis, TN-MS-AR	1,348,260	14,761	19,902	1
Pine Bluff, AR	90,963	35,463	3,226	0
Texarkana, TX-AR	150,355	2,081	312	0
Micropolitan Statistical Area				
Arkadelphia, AR	22,293	84	2	0
Batesville, AR	37,504	33,336	1,250	0
Blytheville, AR	42,159	3,180	134	0
Camden, AR	29,115	62	2	0
El Dorado, AR	39,449	390	15	0
Forrest City, AR	25,930	33	1	0
Harrison, AR	45,209	278	13	0
Helena-West Helena, AR	18,572	44	1	0
Magnolia, AR	23,627	1,567	37	0
Malvern, AR	33,574	106	4	0
Mountain Home, AR	41,355	57	2	0
Paragould, AR	45,053	41	3	0
Russellville, AR	85,358	328	28	0
Searcy, AR	79,016	74	6	0

PWEI > 10⁶ – 3 monitors required

PWEI > 10⁵ – 2 monitors required

PWEI > 5000 – 1 monitor required

In addition to the population-based requirements for SO₂ monitoring, in accordance with the SO₂ Data Requirement Rule, EPA required each state to produce a list of facilities that emit greater than 2000 tpy of SO₂ and to characterize air quality, either by monitoring or modeling. The current list of such facilities in Arkansas is given in Table 11. As seen in the map below, none of these facilities are covered by current SO₂ monitors and have, therefore, been modeled. The modelling results have been submitted to EPA for all listed counties. Currently, Independence County is designated as “Unclassifiable” for the SO₂ NAAQS. On April 26, 2018, ADEQ submitted to the EPA a refined modeling simulation and an “Unclassifiable” to “Attainment/ Unclassifiable” redesignation request for Independence County. In addition, a copy of the Entergy – White Bluff Ongoing Data Requirements (§ 51.1205) Annual Emissions Update Information is attached as Appendix A.

Table 11. Facilities Emitting Greater Than 2000 tpy SO₂ (2014 NEI)

FIPS Code	County	Facility Name	SO2 (tpy)	Latitude	Longitude
0500700107	Benton	Flint Creek	7,968.1	36.2557	-94.5237
0506300036	Independence	Futurefuel	3,174.3	35.7181	-91.5242
0506300042	Independence	Entergy – Independence	30,028.9	35.6739	-91.4065
0506900110	Jefferson	Entergy – White Bluff	34,222.6	34.4236	-92.1392
0509300461	Mississippi	Plum Point	2,549.5	35.6581	-89.9422

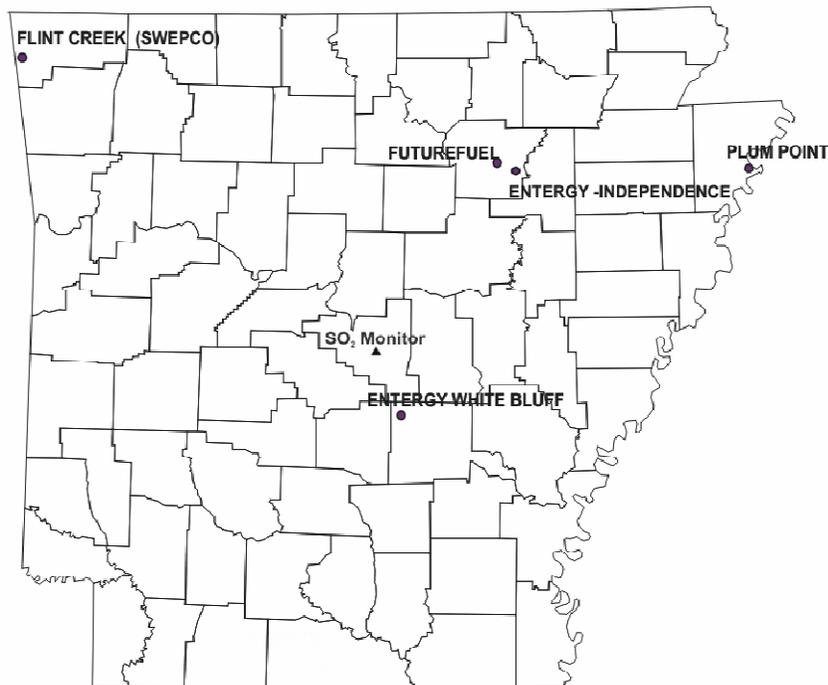


Figure 2. Facilities Emitting > 2000 tpy SO₂

The Memphis area is the only CBSA that requires an SO₂ monitor. The required SO₂ monitor in the Memphis CBSA is operated by SCHED. ADEQ will continue to monitor the PWEI value for the Fayetteville CBSA. ADEQ also operates one SO₂ monitoring sites in the state: PARR (05-119-0007). The trace SO₂ monitor remains in operation as part of the NCore requirement.

3.4 Nitrogen Dioxide Network

There are two NO₂ 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. The area-wide requirement is determined by population size of the CBSA. Memphis MSA is required to have one area-wide NO₂ 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 Part 58, App. D § 4.3.4. There are no proposed changes to ADEQ's NO₂ network at this time.

NO/NO_y measurements are monitored at the PARR site as part of the NCore requirement. This monitor produces conservative estimates for NO₂ as indicated in 40 CFR Part 58, App. D § 4.3.6.

EPA's previous regulatory requirements included the establishment of an NO₂ near-road site in CBSA's of populations between 500K and 1M by January 1, 2017. The Little Rock CBSA falls into this population range as of the Census Bureau's 2014 estimates. However, based on the latest information and guidance provided by the EPA, we had placed a hold on the planning activities for this site (with the concurrence of EPA Region 6), pending the final approval of a modification to remove this requirement. This change was approved on December 22, 2017 (81 FR 96381).

As a result, there are no proposed modifications to the NO₂ network at this time.

3.5 Carbon Monoxide Network

ADEQ currently operates one Trace CO monitor at site PARR (05-119-0007). There are no proposed changes to the CO network at this time.

The requirement for collocation of a CO monitor at the near-road NO₂ site for the Memphis MSA was addressed by SCHED.

3.6 Lead Network

ADEQ had operated a lead sampler as part of the NCore monitoring requirement. However, per the EPA proposal in 40 CFR Part 58, *Revisions to the Ambient Monitoring Quality Assurance and Other Requirements; Final Rule*, dated March 28, 2016, ADEQ, having met the three-year data collection requirement, requested discontinuance of all lead monitoring at this site. EPA approved this request and lead monitoring was discontinued as of December 31, 2016.

ADEQ currently does not have any source-oriented monitors for lead. Source-oriented monitoring is not necessary if Arkansas facilities are either below half-a-ton per year or have active lead waivers. Lead emissions are to be determined based on either the most recent NEI or other scientifically justifiable methods and data, such as the State Emission Inventory (State EI). Waivers are also to be renewed every five years with the Five-Year Network Assessment in accordance with 40 CFR Part 58.10(d).

Seven facilities in Arkansas have active waivers:

1. Arkansas Steel Associates, LLC
2. Entergy Arkansas, Inc. (Independence Plant)
3. Entergy Arkansas, Inc. (White Bluff Plant)
4. Georgia Pacific, LLC (Crossett Paper Operations)
5. Gerdau MacSteel (formerly Quanax Corp. - MacSteel Division)
6. Nucor Corporation (Nucor Steel, Arkansas)
7. Nucor-Yamato Steel Company

ADEQ is only requesting waiver renewals for two facilities: Entergy Arkansas, Inc. (Independence Plant) and Entergy Arkansas, Inc. (White Bluff Plant). In addition, no new waivers are being requested. Waiver renewal status for each facility can be found in Table 12 and in the next two subsections.

Table 12. Source-Oriented Lead Waiver Status by Facility

EIS #	Facility Name	2014 NEI	2016 State EI	Renewal Requested
1083611	Arkansas Steel Associates, LLC	0.10	n/a*	No
1083411	Entergy Arkansas, Inc. (Independence Plant)	1.38	1.01	Yes
893911	Entergy Arkansas, Inc. (White Bluff Plant)	1.32	0.75	Yes
1091211	Georgia Pacific, LLC (Crossett Paper Operations)	0.09	0.06	No
976111	Gerdau MacSteel	0.20	n/a*	No
1084511	Nucor Corporation (Nucor Steel, Arkansas)	0.26	<0.01	No
1008911	Nucor-Yamato Steel Company	0.09	0.35	No
*Facility only required to report triennially				

3.6.1 Waivers Renewal Requested

Entergy Arkansas, Inc. (Independence Plant)

A lead waiver for Entergy Arkansas, Inc. (Independence Plant) was approved by EPA on January 20, 2011, based on AERMOD modeling results that indicated a maximum three-month average concentration level of 0.03 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). A waiver was requested as lead emissions for the facility were at 1.42 tpy based on the 2008 State EI. ADEQ is requesting to renew the lead waiver for the Entergy Arkansas, Inc. (Independence Plant) due to lead emissions level of 1.01 tpy according to the 2016 State EI (Table 12 & Figure 3). There have been no significant changes to the facility, and its lead emission level since the initial waiver request has been reduced; therefore no new modeling was conducted.

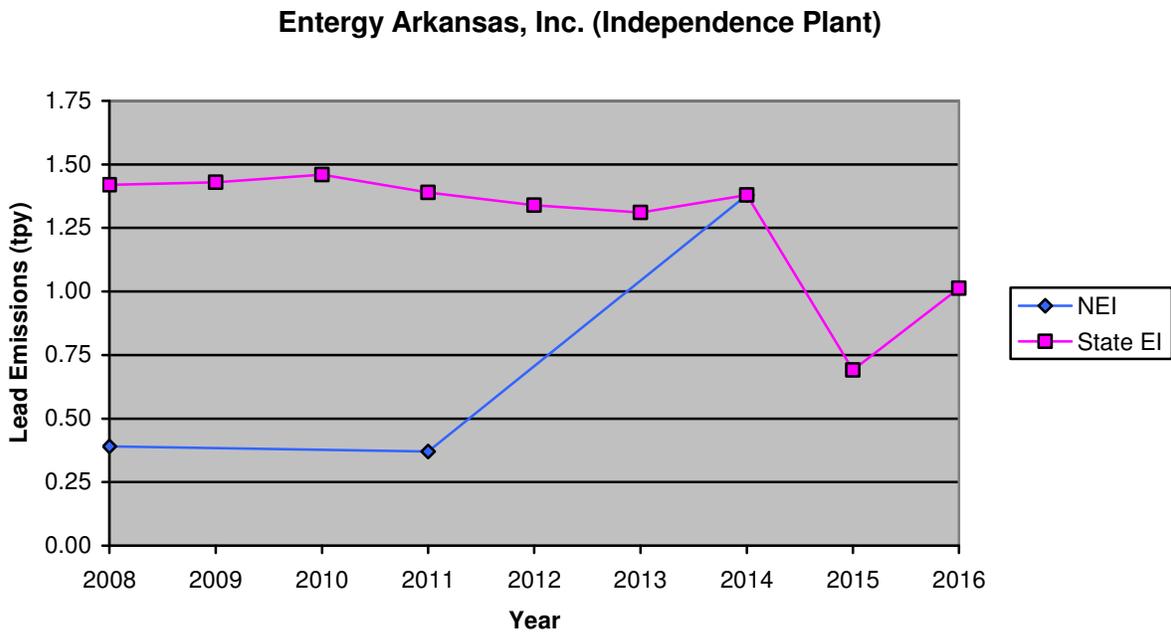


Figure 3. Lead emissions for Entergy Arkansas, Inc. (Independence Plant)

Entergy Arkansas, Inc. (White Bluff Plant)

A lead waiver was also requested for Entergy Arkansas, Inc. (White Bluff Plant) based on the 2008 State EI level of 1.43 tpy and was subsequently approved by EPA on January 20, 2011. The approval was also based on AERMOD results, which indicated a maximum three-month average concentration level of $<0.01 \mu\text{g}/\text{m}^3$. ADEQ is requesting to renew the lead waiver for Entergy Arkansas, Inc. (White Bluff Plant) due to lead emissions level of 0.75 tpy according to the 2016 State EI (Table 12 & Figure 4). There have been no significant changes to the facility or its lead emission level since the initial waiver request has been reduced; therefore no new modeling was conducted.

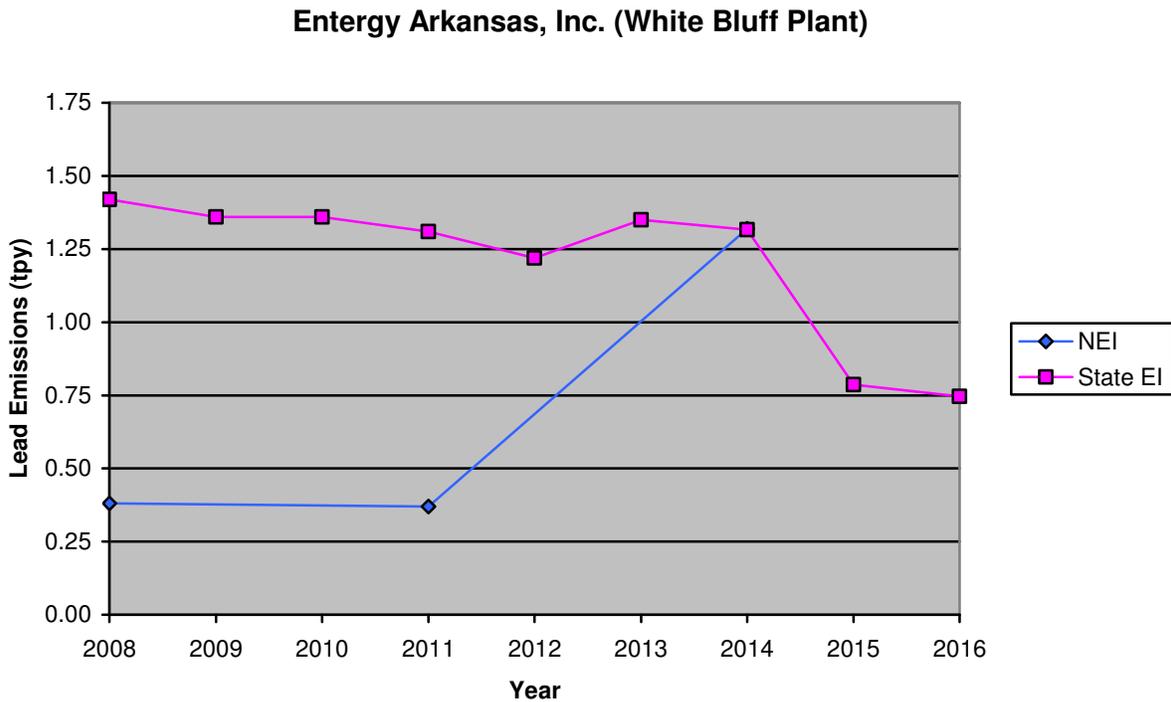


Figure 4. Lead emissions for Entergy Arkansas, Inc. (White Bluff Plant)

3.6.2 Waivers No Longer Needed

Arkansas Steel Associates, LLC

The 2008 NEI lead emissions for Arkansas Steel Associates, LLC was at 0.91 tpy, which prompted ADEQ to request a waiver for source-oriented lead monitoring in 2011. ADEQ modeled to determine the impact the facility had on ambient lead NAAQS. The AERMOD results indicated that the facility contributed to 30.6 percent of the NAAQS with a maximum three-month average concentration level of $0.046 \mu\text{g}/\text{m}^3$. The waiver request for the facility was approved on July 13, 2012. ADEQ is not requesting to renew the lead waiver for Arkansas Steel Associates, LLC as it is no longer needed as actual emissions have decreased since the 2008 NEI and emissions have remained below the 0.5 tpy threshold since 2009 (Table 12 & Figure 5). Actual lead emissions used for renewal determination included the 2011 and 2014 NEI and the 2011 and 2014 State EI.

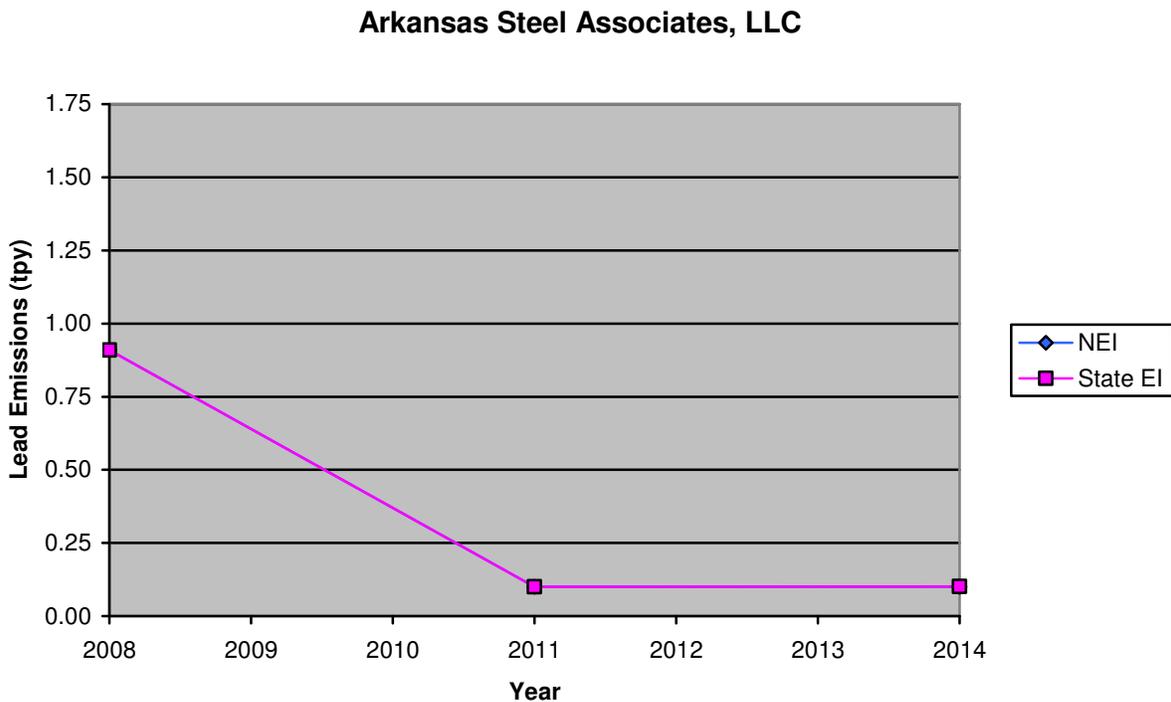


Figure 5. Lead emissions for Arkansas Steel Associates, LLC

Georgia Pacific, LLC (Crossett Paper Operations)

ADEQ requested a waiver for Georgia Pacific, LLC (Crossett Paper Operations) based on the facility's permitted emission of 23.7 tpy, even though a waiver was not required as the facility had a 2008 NEI lead emission of 0.22 tpy. The waiver request for the facility was approved by EPA on January 20, 2011. ADEQ is not requesting to renew the lead waiver for Georgia Pacific, LLC (Crossett Paper Operations) as it is no longer needed as actual emissions have decreased and emissions have remained below the 0.5 tpy threshold (Table 12 & Figure 6). In addition, the facility permitted emission was reduced to 0.53 tpy. Actual lead emissions used for renewal determination included the 2011 and 2014 NEI and the 2013-2016 State EI.

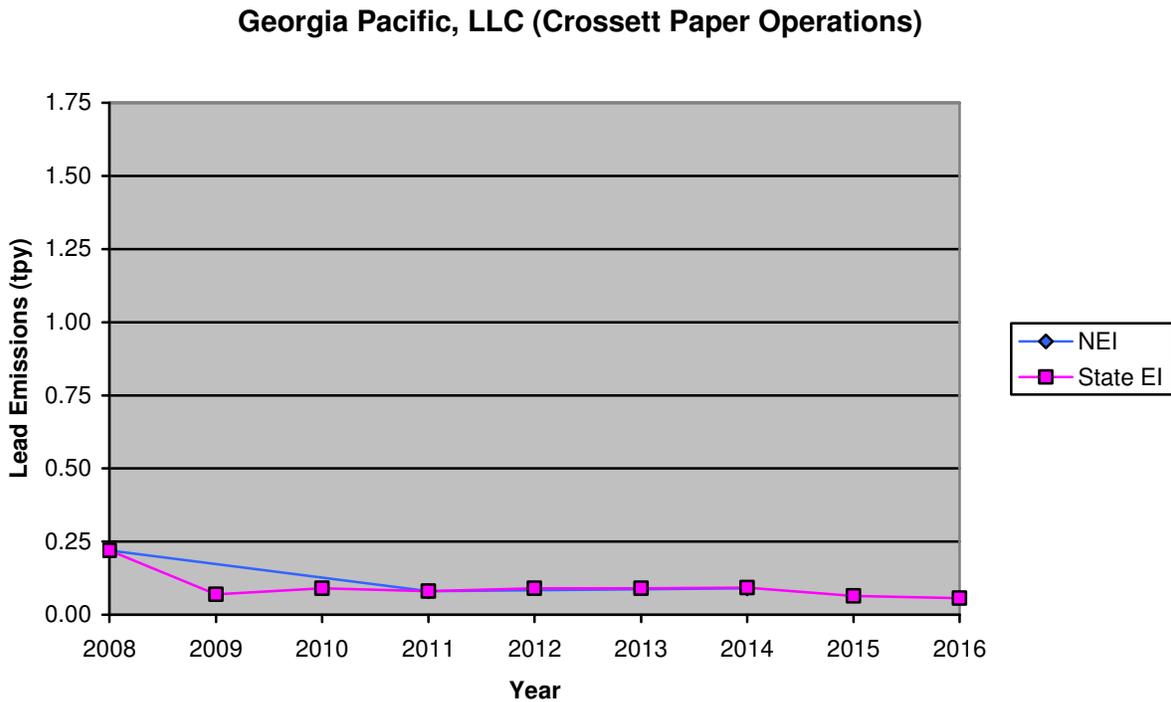


Figure 6. Lead emissions for Georgia Pacific, LLC (Crossett Paper Operations)

Gerdau MacSteel

Lead waiver was also requested for Gerdau MacSteel, previously Quanex Corp. - MacSteel Division in the initial waiver request, based on the facility's permitted emission of 1.0 tpy. The facility was not required to have an active waiver as lead emission was below the 0.5 tpy threshold at 0.10 tpy according to the 2008 NEI. EPA approved the waiver request for the facility on January 20, 2011. ADEQ is not requesting to renew the lead waiver for Gerdau MacSteel as it is no longer needed due to actual emissions remaining below the 0.5 tpy threshold (Table 12 & Figure 7). Actual lead emissions were determined using the 2011 and 2014 NEI and the 2011 and 2014 State EI.

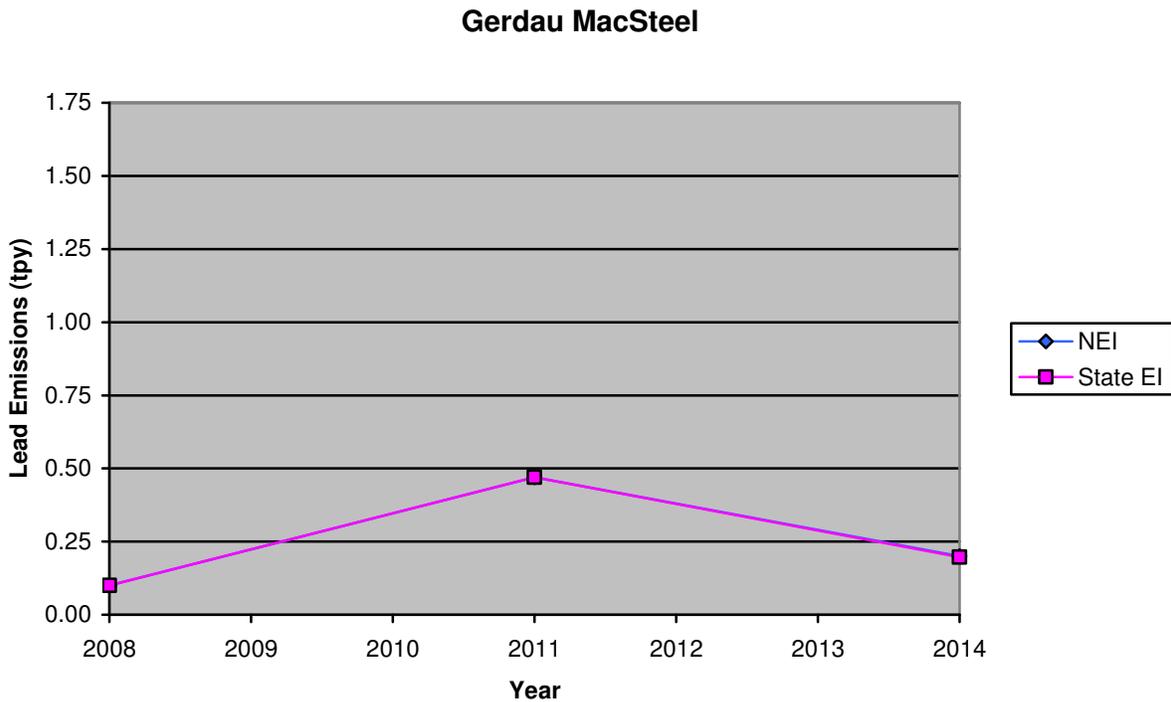


Figure 7. Lead emissions for Gerdau MacSteel

Nucor Corporation (Nucor Steel, Arkansas)

A lead waiver request for Nucor Corporation (Nucor Steel, Arkansas) was based on the facility's permitted lead emission of 3.59 tpy. The facility was not required to have a waiver as actual emission at the time of the initial waiver request was 0.02 tpy, below the 0.5 tpy threshold. The waiver was approved on January 20, 2011. ADEQ is not requesting to renew the lead waiver for Nucor Corporation (Nucor Steel, Arkansas) as it is no longer needed due to actual emissions remaining below the 0.5 tpy threshold (Table 12 & Figure 8). Lead emissions used for renewal determination included the 2011 and 2014 NEI and the 2013-2016 State EI.

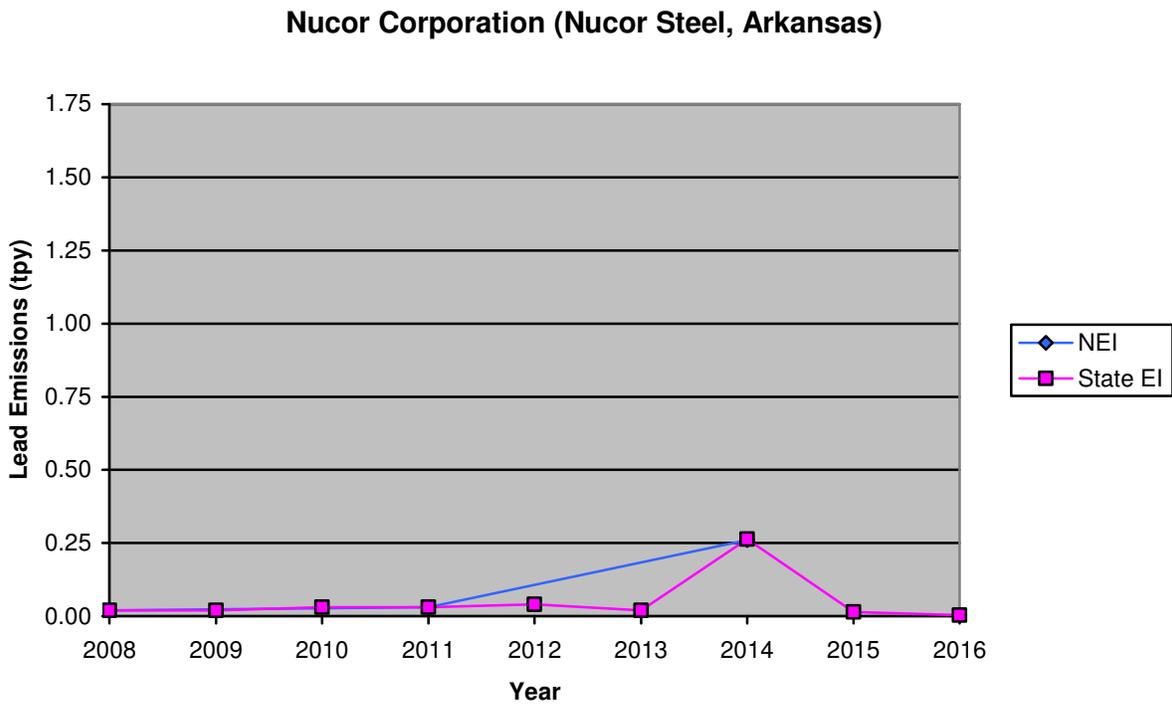


Figure 8. Lead emissions for Nucor Corporation (Nucor Steel, Arkansas)

Nucor-Yamato Steel Company

ADEQ is not requesting a waiver renewal for Nucor-Yamato Steel Company, as a waiver is no longer needed due to actual emissions remaining below the 0.5 tpy threshold (Table 12 & Figure 9). Lead emissions were determined from the 2011 and 2014 NEI and the 2013-2016 State EI. ADEQ submitted the initial waiver request for the facility based on the permitted emission level of 2.2 tpy and was subsequently approved on January 20, 2011; however, the facility was not required to have a waiver as actual emissions at the time of the waiver request were at 0.10 tpy according to the 2008 NEI and have remained below 0.5 tpy.

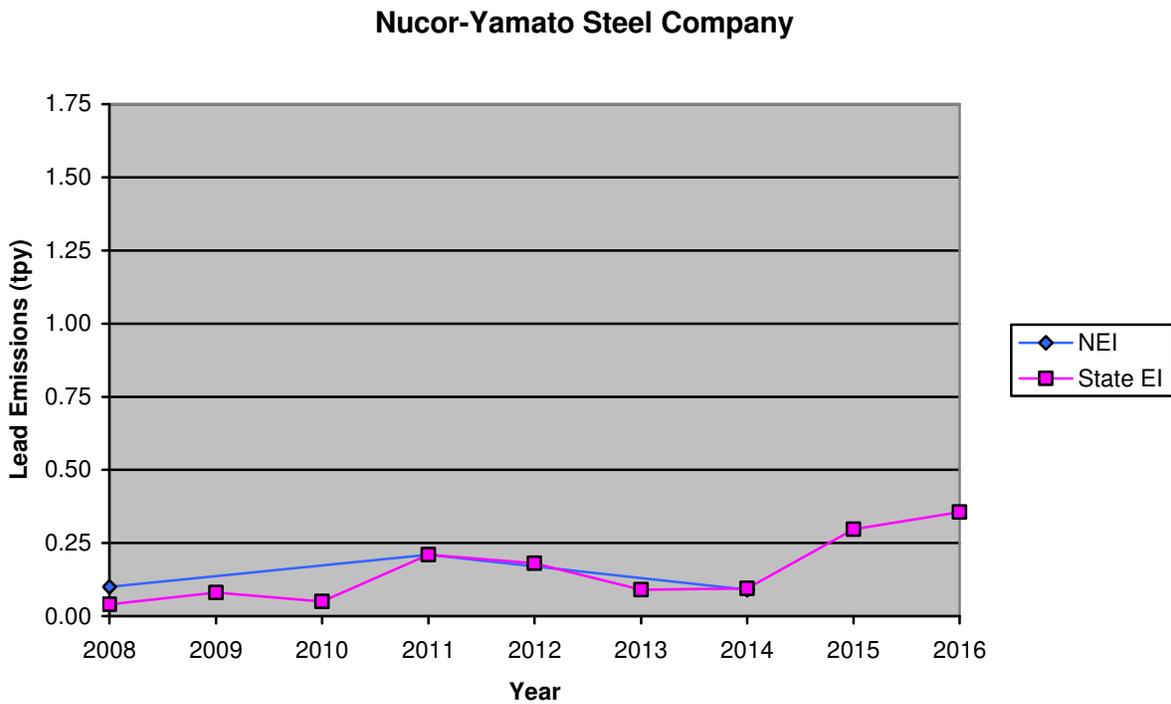


Figure 9. Lead emissions for Nucor-Yamato Steel Company

4. Contact Information

Questions concerning lead emissions and waivers should be sent to:

Scot Stinson
Arkansas Department of Environmental Quality
5301 Northshore Dr.
North Little Rock, AR 72118
501-682-0538
stinson@adeq.state.ar.us

Any other comments or questions should be sent to:

Miriam Talbert - Air Lab Supervisor
Arkansas Department of Environmental Quality
5301 Northshore Dr.
North Little Rock, AR 72118
501-682-0925
miriam@adeq.state.ar.us

**5. Appendix A – Entergy Arkansas, Inc. White Bluff - Ongoing Data Requirement
Annual Updated SO₂ Emissions Information**



A R K A N S A S
Department of Environmental Quality

June 1, 2017

Mr. Guy Donaldson
Chief, Air Planning Section
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Re: 2010 SO₂ NAAQS Ongoing Data Requirement Annual Updated Emissions Information and Further Modeling Recommendation - Entergy Arkansas, Inc. White Bluff Steam Electric Station

Dear Mr. Donaldson:

On June 3, 2010, the U.S. Environmental Protection Agency (U.S. EPA) revised the 2010 one-hour sulfur dioxide (SO₂) Primary National Ambient Air Quality Standard (NAAQS) by establishing a new one-hour standard at a level of 75 parts per billion (equivalent to 196.5 µg/m³). On August 21, 2015 the EPA issued its SO₂ Data Requirements Rule (SO₂ DRR), which required characterization of air quality based on modeling or actual monitoring for categories of sources based on annual SO₂ emission rates. For areas that were characterized using air quality modeling, the Ongoing Data Requirements (§51.1205(b)(1)) applies where the modeling was based on actual emissions. In such cases, the air agency will be required to submit an annual report to the EPA providing updated emissions information and recommending to the EPA whether further modeling is warranted to assess any expected changes in recent air quality.

On September 11, 2015, the Arkansas Department of Environmental Quality (ADEQ) submitted to the EPA an SO₂ air dispersion modeling analysis using actual emissions for the Entergy Arkansas, Inc. White Bluff Steam Electric Station (White Bluff Station) located in Jefferson County, AR. The modeling analysis reported that the maximum model-predicted impact of 162.4 µg/m³ was below the 2010 1-hour SO₂ NAAQS of 196.5 µg/m³. Therefore, ADEQ recommended to the EPA a designation of "Unclassifiable/Attainment" (meeting the SO₂ NAAQS requirements) for Jefferson County. On July 12, 2016 (FR Vol. 81, No. 133, 45039) EPA concurred with the ADEQ recommendation and published the Final Rule: *Air Quality Designations for the 2010 Sulfur Dioxide (SO₂) Primary National Ambient Air Quality Standard—Round 2*, that designated Jefferson County, AR as having a designation of "Unclassifiable/Attainment".

For the September 11, 2015 White Bluff Station 1-hour SO₂ NAAQS modeling analysis, all five sources of SO₂ at the White Bluff Station were included in the modeling analysis (Table 1) and actual emission data for the years 2012-2014 were used. Because actual emissions data were used in the modeling analysis, ADEQ is subject to the annual follow-up analysis described in 40 CFR Part 51, Subpart BB (Data Requirements for Characterizing Air Quality for the Primary SO₂ NAAQS), §51.1205(b)(1).

Table 1: White Bluff Station SO₂ Sources

Source Description	Source ID
Unit No. 1 Boiler	SN-01
Unit No. 2 Boiler	SN-02
Auxiliary Boiler	SN-05
Emergency Diesel Generator	SN-21
Emergency Fire Pump Engine	SN-22

The requirements of 40 CFR Part 51, Subpart BB, §51.1205(b)(1), entail ADEQ submitting an annual assessment to the U.S. EPA by July 1, 2017 (and by July 1 each year thereafter) that provides updated emissions information and recommends whether further modeling is warranted to assess any expected changes in recent air quality:

§ 51.1205 Ongoing data requirements.

(b) Modeled areas. For any area where modeling of actual SO₂ emissions serve as the basis for designating such area as attainment for the 2010 SO₂ NAAQS, the air agency shall submit an annual report to the EPA Regional Administrator by July 1 of each year, either as a stand-alone document made available for public inspection, or as an appendix to its Annual Monitoring Network Plan (also due on July 1 each year under 40 CFR 58.10), that documents the annual SO₂ emissions of each applicable source in each such area and provides an assessment of the cause of any emissions increase from the previous year. The first report for each such area is due by July 1 of the calendar year after the effective date of the area's initial designation.

(1) The air agency shall include in such report a recommendation regarding whether additional modeling is needed to characterize air quality in any area to determine whether the area meets or does not meet the 2010 SO₂ NAAQS. The EPA Regional Administrator will consider the emissions report and air agency recommendation, and may require that the air agency conduct updated air quality modeling for the area and submit it to the EPA within 12 months.

Comparisons of the annual SO₂ emissions for the three years (2012-2014) included in the September 11, 2015 modeling analysis and the two years since the September 11, 2015 modeling analysis indicate that SO₂ emissions at the White Bluff Station have decreased (Table 2 and Figure 1). As a result of this decrease in annual SO₂ emissions at the White Bluff Station, ADEQ recommends to the EPA that no additional modeling is needed at this time to evaluate the SO₂

emissions from the White Bluff Station and that Jefferson County, AR remains Unclassifiable/Attainment for the 2010 SO₂ NAAQS.

Table 2: White Bluff Station SO₂ Emissions for the previously modeled years (2012-2014) and the more recent years (2015-2016) as an update

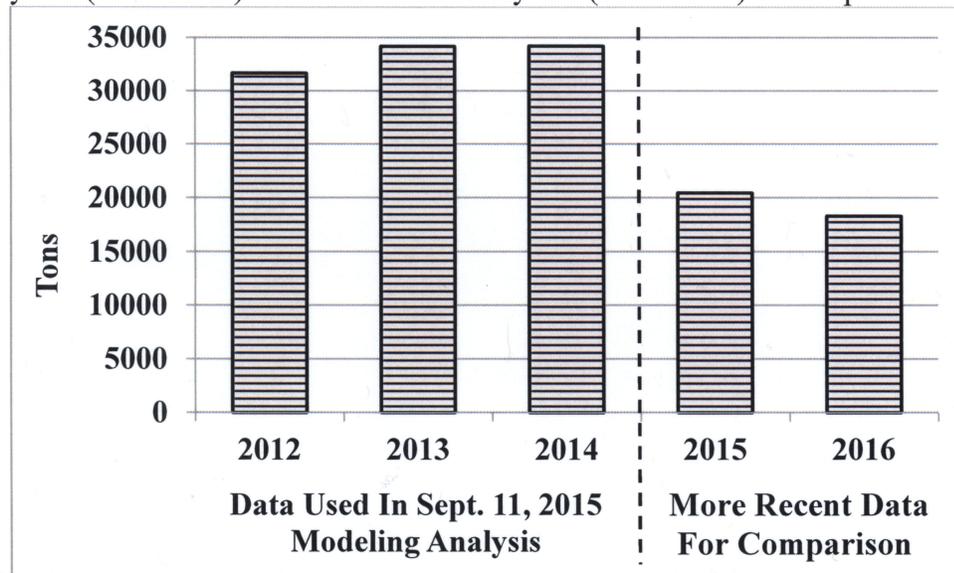
Annual SO ₂ Emissions (Tons/Year)							
Data Period	Year	Unit No. 1 Boiler ¹	Unit No. 2 Boiler ¹	Auxiliary Boiler ²	Emergency Diesel Generator ³	Emergency Diesel Fire Pump ³	Total
Data used in Sept. 11, 2015 Modeling Analysis	2012	15,231.9	16,455.3	0.030	0.0007	0.0013	31,687.2
	2013	17,227.1	16,969.2	0.001	0.0016	0.0021	34,196.3
	2014	17,503.5	16,719.1	0.003	0.0004	0.0026	34,222.6
More Recent Data For Comparison	2015	10,149.4	10,331.1	0.001	0.0130	0.0039	20,480.5
	2016	7,984.0	10,352.0	0.068	0.0128	0.0025	18,336.1

¹Emissions from Electrical Generating Units (Unit No. 1 and Unit No. 2 Boilers) as measured by the facility Continuous Emission Monitoring System (CEMS) and reported to the EPA Clean Air Markets Division (CAMD).

²Emissions from Auxiliary Boiler calculated on actual annual fuel oil usage and measured fuel oil sulfur content.

³Emissions from Emergency Diesel Generator and Emergency Diesel Fire Pump calculated based on actual annual hours of operation and U.S. EPA AP-42 emissions factors.

Figure 1: White Bluff Station SO₂ Emissions for the previously modeled years (2012-2014) and the more recent years (2015-2016) as an update



This 2010 SO₂ NAAQS annual report fulfills the requirement in accordance with 40 CFR Part 51, Subpart BB, §51.1205(b)(1) that ADEQ submit an emissions update assessment and additional modeling recommendation to the EPA Regional Administrator. If you have any questions regarding this emissions update assessment for the Entergy Arkansas, Inc. White Bluff Steam Electric Station, please contact David Clark, Epidemiologist at (501) 682-0070 or clarkd@adeq.state.ar.us or my staff or myself at (501) 682-0750 or spencer@adeq.state.ar.us.

Sincerely,

Stuart Spencer
Associate Director, Office of Air Quality
Arkansas Department of Environmental Quality

- 6. Appendix B – 2018 Update to the May/June 2008 Memorandum of Agreement (MOA) between SCHD, MDEQ and ADEQ concerning air quality monitoring requirements for the Memphis MSA**



SHELBY COUNTY HEALTH DEPARTMENT



MARK H. LUTTRELL, JR.
MAYOR

ALISA R. HAUSHALTER, DNP, RN, PHNA-BC
DIRECTOR

HELEN MORROW, MD, MPA
HEALTH OFFICER

Public Health
Prevent. Promote. Protect.

April 3rd, 2018

Mr. Robert Brawner, Environmental Fellow
Tennessee Department of Environment and Conservation
Air Pollution Control Division
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Ave., 15th Floor
Nashville, TN 37243-1531

Mr. Jason Stephens, Environmental Manager
Tennessee Department of Environment and Conservation
Air Pollution Control Division
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Ave., 15th Floor
Nashville, TN 37243-1531

Mr. Chad LaFontaine, Air Director
Mississippi Department of Environmental Quality
Office of Pollution Control, Air Division
P.O. Box 2261
Jackson, MS 39201

Mr. Stuart Spencer, Chief of the Air Division
Arkansas Department of Environmental Quality
5301 Northshore Dr.
North Little Rock, AR 72118-5317

Dear All,

In accordance with the provisions of the Memorandum of Agreement (MOA) signed in May and June of 2008 between the Shelby County Health Department (SCHD), Mississippi Department of Environmental Quality (MDEQ) and the Arkansas Department of Environmental Quality (ADEQ), this letter serves as a notification that no changes have been made in our current network. A copy of this agreement will be included in Shelby County's current year's annual network plan.

If your agencies do not have current changes to the Network or may be contemplating changes in the near future, please notify the respective agencies of your intentions.

If you have any questions, please call me at (901) 222-9599.

Sincerely,

Robert Rogers, P.E. / Technical Manager
Pollution Control
Shelby County Health Department

Mission

To promote, protect and improve the health and environment of all Shelby County residents.

814 Jefferson Avenue ♦ Memphis, TN 38105 ♦ 901 222-9000 ♦ www.shelbytnhealth.com

**MEMORANDUM OF AGREEMENT
ON AIR QUALITY MONITORING FOR CRITERIA
POLLUTANTS FOR
THE MEMPHIS, TN- MS- AR
METROPOLITAN STATISTICAL AREA (MSA)**

Participating Agencies:

Shelby County Health Department (SCHD)
Air Pollution Control Program

Mississippi Department of Environmental Quality (MDEQ)
Office of Pollution Control, Air Division

Arkansas Department of Environmental Quality (ADEQ)

PURPOSE / OBJECTIVE / GOALS

The purpose of this Memorandum of Agreement (MOA) is to inform the entities of the Memphis, Tennessee-Mississippi-Arkansas Metropolitan Statistical Area of monitoring network changes. The MOA between SCHD, MDEQ, and ADEQ is to collectively meet United States Environmental Protection Agency (EPA) minimum monitoring requirements for particles of an aerodynamic diameter of 10 micrometers and less (PM_{10}), particles of an aerodynamic diameter of 2.5 micrometers and less ($PM_{2.5}$), and ozone; as well as other criteria pollutants air quality monitoring deemed necessary to meet the needs of the MSA as determined reasonable by all parties. This MOA will formalize and reaffirm the collective agreement in order to provide adequate criteria pollutant monitoring for the Memphis, TN-MS-AR MSA as required by 40 CFR 58 Appendix D, Section 2, (e).

PM 2.5 MSA monitoring network include:

<u>County</u>	<u>Federal Referenced Method PM_{2.5}</u>	<u>Continuous PM_{2.5}</u>	<u>Speciation PM_{2.5}</u>	<u>Co located PM_{2.5}</u>
Shelby County, TN SCHD	3 (includes 1 at the Near Road Station)	1	1	1
Crittenden County, AR ADEQ	1	1		
DeSoto County, MS MDEQ	1	1		1

Criteria Air Pollutant MSA monitoring network include:

<u>County</u>	<u>PM₁₀</u>	<u>O₃</u>	<u>NO_x/NO/NO₂</u>	<u>CO</u>	<u>SO₂</u>
Shelby County, TN SCHD	2 (includes low volume PM ₁₀ at NCore)	3	1 (includes 1 at the Near Road Station)	2 (includes 1 trace at NCore and 1 trace at the Near Road Station)	1 (trace at NCore)
Crittenden County, AR ADEQ		1	1		
DeSoto County, MS MDEQ		1			

RESPONSIBILITIES / ACTIONS

Each of the parties to this Agreement is responsible for ensuring that its obligations under the MOA are met. As conditions warrant, the affected agencies may conduct telephone conference calls, meetings, or other communications to discuss monitoring activities for the MSA. Each affected agency shall inform the other affected agencies via telephone or email of any monitoring changes occurring within its jurisdiction of the MSA at its earliest convenience, after learning of the need for the change or making the changes. Such unforeseen changes may include evictions from monitoring sites,

destruction of monitoring sites due to natural disasters, or any occurrences that result in an extended (greater than one quarter) or permanent change in the monitoring network.

LIMITATIONS

- All commitments made in this MOA are subject to the availability of appropriated funds and each agency's budget priorities. Nothing in this MOA obligates SCHD, MDEQ, or ADEQ to expend appropriations or to enter into any contract, assistance agreement, interagency agreement or other financial obligation.
- This MOA is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contribution of funds between parties to this agreement will be handled in accordance with applicable laws, regulations, and procedures, and will be subject to separate agreements that will be affected in writing by representatives of the parties.
- This MOA does not create any right or benefit enforceable by law or equity against SCHD, MDEQ, or ADEQ, their officers or employees, or any other person. This MOA does not apply to any entity outside SCHD, MDEQ, or ADEQ.
- No proprietary information or intellectual property is anticipated to arise out of this MOA.

TERMINATION

This Memorandum of Agreement may be revised upon the mutual consent of SCHD, MDEQ and ADEQ. Each party reserves the right to terminate this MOA. A thirty (30) day written notice must be given prior to the date of termination.