

Arkansas Department of Environmental Quality  
 Technical Services Division  
 Air Lab  
 Annual Network Review 2009 – 2010 for Ambient Air Monitoring Network

Under 40 CFR, Part 58, Subpart B, States are required to submit an annual monitoring network review to the Environmental Protection Agency (EPA) regional office in Dallas, Texas. This network plan is required to provide the framework for establishment and maintenance of an air quality surveillance system. The annual monitoring network plan must be made available for public inspection for at least 30 days prior to submission to EPA. The following document represents network plan proposed changes to the Arkansas air monitoring network for Fiscal Year 2010. This document represents the commitment of the Air Lab Technical Services Division 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 communicate the data collected as quickly and accurately as possible.

Tables 1A&B contain a listing of all Arkansas Department of Environmental Quality, Technical Services Division, Air Lab (ADEQ) ambient air monitoring sites currently operated and maintained by the agency. The reference to “AQS#/ site ID” in column 1 represents a unique site identification name that is assigned to each and every monitoring site in the network. AQS stands for Air Quality System and is a national air monitoring database that is maintained by EPA. Data collected from monitoring sites are entered into the AQS database and made available to the public within 90 days following the end of each calendar quarter as required in the new monitoring regulations.

**TABLE 1A**

AQS#/Site ID	Address/ Location	Latitude	Longitude	Pollutants Measured	Station Type	Sampling Method
05-001-0011 Stuttgart	1703 N. Beurkle	34.518392	-91.558822	PM2.5	SLAMS	R&P 2000 FRM
05-003-0005 Crossett	201 Unity Rd.	33.136708	-91.950233	PM2.5	SLAMS	R&P 2000 FRM
05-045-0002 Conway	150 E. Siebenmorgan	35.105193	-92.427859	PM2.5	SLAMS	R&P 2000 FRM
05-035-0005 Marion	Polk & Colonial Dr.	35.197178	-90.193047	PM2.5 PM2.5 Ozone NO2	SLAMS SLAMS SLAMS SLAMS	R&P 2000 FRM R & P TEOM UV Photometric Chemiluminescence
05-051-0003 Hot Springs	300 Werner	34.469309	-93.000000	PM2.5	SLAMS	R&P 2000 FRM
05-067-0001 Newport	7648 Victory Blvd.	35.638069	-91.189381	PM2.5	SLAMS	R&P 2000 FRM
05-101-0002 Deer	Hwy 16	35.832633	-93.208072	Ozone	SLAMS	UV Photometric
05-107-0001 Helena	Cherry & Perry St.	34.529642	-90.585944	PM2.5	SLAMS	R&P 2000 FRM

AQS#/Site ID	Address/ Location	Latitude	Longitude	Pollutants Measured	Station Type	Sampling Method
05-113-0002 Mena	Hornbeck Rd	34.583581	-94.226019	PM2.5	SLAMS	R&P 2000 FRM
05-113-0003 Eagle Mtn	463 Polk 631	34.454428	-94.143317	Ozone	SLAMS	UV Photometric
05-115-0003 Russellville	1759 Airport Rd.	35.259775	-93.100050	PM2.5	SLAMS	R&P 2000 FRM
05-119-0007 PARR	Pike Ave at River Road	34.756072	-92.281139	PM2.5 PM10 Ozone NOx SO2 Speciation NOy CO Trace SO2 Trace CO Pb +	NCORE NCORE NCORE NCORE NCORE NCORE NCORE NCORE NCORE NCORE NCORE	R & P 2000 FRM Gravimetric UV Photometric Chemiluminescence Pulsed Fluorescent Low Volume Chemiluminescence Nondispersive Infrared  Gravimetric
05-119-1002 NLRAP	Remount Rd	34.835606	-92.260425	Ozone	SLAMS	UV Photometric
05-119-1004 Adams Field	1701 S. Bond	34.729486	-92.243431	PM2.5	SLAMS	R&P 2000 FRM
05-119-1007 VA	4300 Block of West 7 <sup>th</sup>	34.744814	-92.319906	PM10	SLAMS	Gravimetric
05-119-1008 DSR	Doyle Springs Rd	34.681225	-92.328539	PM2.5 PM2.5 Ozone	SLAMS SLAMS SLAMS	R&P 2000 FRM R&P TEOM UV Photometric
05-131-0008 Ft. Smith *	5 <sup>th</sup> & B St,	35.389572	-94.424064	PM2.5	SLAMS	R&P 2000 FRM
05-139-0006 El Dorado	Union Memorial Hospital	33.220122	-92.669453	PM2.5 PM2.5 SO2	SLAMS SLAMS SLAMS	R&P 2000 FRM R&P TEOM Pulsed Fluorescent
05-143-0005 Springdale	600 S. Old Missouri Rd	36.179617	-94.116611	PM2.5 Ozone	SLAMS SLAMS	R&P TEOM UV Photometric
05-145-0001 Searcy	1901 E. Market	35.248833	-91.715456	PM2.5	SLAMS	R&P 2000 FRM

+ to be added to the network by 1/1/2011

\* possible relocation to Roland OK 35.40814, -94.524413

**Table 1B**

AQS#/Site ID	Pollutants Measured	Operating Schedule	Monitoring Objective	Spatial Scale	NAAQS Comp.	MSA
05-001-0011 Stuttgart	PM2.5	Daily 1 in 3	Population Exposure	Neighborhood	Yes	Not in a MSA
05-003-0005 Crossett	PM2.5	Daily 1 in 3	Population Exposure	Neighborhood	Yes	Not in a MSA
05-035-0005 Marion	PM2.5 PM2.5 Ozone NO2	Daily 1 in 3 Continuous Continuous Continuous	Regional Transport	Neighborhood Neighborhood Neighborhood Neighborhood	Yes No Yes Yes	Memphis
05-051-0003 Hot Springs	PM2.5	Daily 1 in 3	Population Exposure	Neighborhood	Yes	Not in a MSA
05-067-0001 Newport	PM2.5	Daily 1 in 3	Population Exposure	Neighborhood	Yes	Not in a MSA

AQS#/Site ID	Pollutants Measured	Operating Schedule	Monitoring Objective	Spatial Scale	NAAQS Comp.	MSA
05-107-0001 Helena	PM2.5	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	PM2.5	Daily 1 in 3	Background	Neighborhood	Yes	Not in a MSA
05-113-0003 Eagle Mtn	Ozone	Continuous	Regional Transport	Neighborhood	Yes	Not in a MSA
05-115-0003 Russellville	PM2.5	Daily 1 in 3	Population Exposure	Neighborhood	Yes	Not in a MSA
05-119-0007 PARR	PM2.5 PM2.5 PM10 Ozone NOx SO2 Speciation CO NOy Trace SO2 Trace CO Pb+	Daily 1 in 1 Continuous Daily 1 in 6 Continuous Continuous Continuous Daily 1 in 6 Continuous Continuous Continuous Daily 1 in 3	Population Exposure Population Exposure	Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood Neighborhood	Yes No Yes Yes Yes Yes No Yes No No No No	Little Rock
05-119-1002 NLRAP	Ozone	Continuous	Population Exposure	Neighborhood	Yes	Little Rock
05-119-1004 Adams Field	PM2.5	Daily 1 in 3	Population Exposure	Neighborhood	Yes	Little Rock
05-119-1007 VA	PM10	Daily 1 in 6	Population Exposure	Neighborhood	Yes	Little Rock
05-119-1008 DSR	PM2.5 PM2.5 Ozone	Daily 1 in 1 Continuous Continuous	Population Exposure	Neighborhood Neighborhood Neighborhood	Yes No Yes	Little Rock
05-131-0008 Ft. Smith *	PM2.5	Daily 1 in 3	Population Exposure	Neighborhood	Yes	Not in a MSA
05-139-0006 El Dorado	PM2.5 PM2.5 SO2	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	PM2.5 PM2.5 Ozone	Continuous Daily 1 in 3	Population Exposure Population Exposure AQI	Neighborhood Neighborhood	No Yes	Fayetteville/ Springdale
05-145-0001 Searcy	PM2.5	Daily 1 in 3	Population Exposure	Neighborhood	Yes	Not in a MSA
05-045-0002 Conway	PM2.5	Daily 1 in 3	Population Exposure	Neighborhood	Yes	Little Rock

+ to be added to the network by 1/1/2011

\* possible relocation to Roland OK 35.40814, -94.524413

All ADEQ sites and monitors conform to 40 CFR, Subchapter C, Part 58 Appendices A (see attached Precision/Accuracy Report), C (see methods listed in Table 1a), D & E.

ADEQ is requesting the following change to the network: Possible moving of the PM2.5 monitors from Ft. Smith to Roland, Oklahoma. Cherokee Nation is installing a site at Roland (2 miles west of Ft. Smith). Their site plans are to include a PM2.5 BAM & PM10 BAM. Our monitors are FRMs and could be operated there, if needed. Currently, the PM2.5 samplers at Ft.

Smith are located on the roof of a Fire Station. Sampler maintenance and replacement is made difficult due to the precarious roof access.

### **Population Statistics**

The MSA's for the state of Arkansas:

1. Little Rock MSA – 583,845
2. Fayetteville MSA – 311,121
3. Ft. Smith MSA – 207,290
4. Texarkana MSA – 129,749
5. Pine Bluff MSA – 84,278
6. Jonesboro MSA – 82,148
7. Memphis TN,MS,AR MSA – 1,135,614

### **Ozone**

According to Table D-2 of Appendix D to Part 58, 40 CFR the minimum number of SLAMS ozone monitors required based on population are:

Little Rock – 2  
Memphis MSA – 2

Currently the state exceeds the minimum requirements with 3 ozone monitors in the Little Rock MSA, 1 in the Memphis MSA (Memphis has 2 monitors) and 1 in the Fayetteville MSA. There are 2 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. The current network is more than adequate to assess population exposure, transport and background ozone levels. At the present the only changes proposed are those to meet the new ozone network requirements.

The new requirements for establishing monitors to meet the Urban and Rural requirements are in the planning stage. The Rural objectives have been met with the Deer and Eagle Mountain sites. AR will be required to add additional ozone monitors (3) in the state monitoring network. The sites will be determined in the near future from the following candidates: Hot Springs, Pine Bluff, Jonesboro & the Fort Smith MSA. Ft. Smith will be covered by the Ozone monitor in to be installed in Roland, OK.

### **PM2.5**

According to Table D-5 of Appendix D, Part 58, 40 CFR, the minimum number of SLAMS PM2.5 monitors required are:

Little Rock – 3  
Memphis MSA – 3  
Fayetteville/Springdale MSA - 1

ADEQ currently operates the following sites (Table 2) in the Arkansas network which meet minimum SLAMS network requirements and are comparable to the PM2.5 NAAQS. The 5 Year Network Assessment will address changes, if needed, in the PM 2.5 network. The relocation of the Ft.Smith site was address after Table 1B.

**Table 2**

PM2.5 FRM Sites	Current Sampling Schedule	Proposed Sampling Schedule	2007 Daily 98 <sup>th</sup> %	2008 Daily 98 <sup>th</sup> %	2009 Daily 98 <sup>th</sup> %	Design Value % Daily NAQQS	2007 Arith. Mean	2008 Arith. Mean	2009 Arith. Mean	Design Value % Annual NAAQS	Co-located with TEOM
Adams Field	1:3	1:3	34.2	29.4	24.9	84	12.8	12.1	11.4	81%	NO
DSR	1:1	1:1	27.9	26.7	25.7	76	12.7	12.2	11.2	80%	YES
Conway	1:3	1:3	26.4	23.5	20.6	67	11.9	11.6	10.0	74%	NO
Crossett	1:3	1:3	25.3	23.5	18.5	65	12.0	10.7	9.4	71%	NO
El Dorado	1:3	1:3	26.3	22.2	21.6	67	12.6	10.9	10.0	74%	YES
Ft. Smith	1:3	1:3	29.2	21.7	22.8	70	12.2	11.1	10.8	76%	NO
Helena	1:3	1:3	28.0	28.7	18.2	71	12.4	11.1	9.7	73%	NO
Hot Springs	1:3	1:3	28.9	22.2	20.9	69	12.1	11.0	10.1	73%	NO
Marion	1:3	1:3	34.1	26.5	21.8	78	13.6	11.7	9.9	78%	YES
Mena	1:3	1:3	29.4	21.7	20.4	68	11.9	10.5	9.9	71%	NO
Newport	1:3	1:3	31.0	25.2	19.5	72	12.5	11.2	9.2	73%	NO
Parr	1:1	1:1	29.5	25.6	22.8	74	12.8	11.6	10.8	78%	YES
Russellville	1:3	1:3	27.2	24.6	23	71	12.8	11.4	10.8	77%	NO
Searcy	1:3	1:3	31.1	25.6	22.2	75	11.6	10.1	10.3	71%	NO
Springdale	1:3	1:3	19.9	20.3	23.2	60	10.0	10.6	10.2	68%	YES
Stuttgart	1:3	1:3	29.1	22.9	14.9	64	12.4	11.3	8.9	72%	NO

The following sites (Table 3) are 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 in number or location are requested for the two sites.

**Table 3**

Continuous PM2.5 AQI Sites	Sampling Frequency	AQS #
Springdale	Hourly	05-143-0005
PARR	Hourly	05-119-0007

**PM 10**

According to CFR 40, Table D-4 of Appendix D, Part 58, the minimum requirement for low concentrations sites and number of stations per MSA are:

Little Rock – 2

ADEQ currently has two monitors in the Little Rock MSA below in Table 4.

**Table 4**

PM 10 Sites	Current Sampling Schedule	2007 Annual Max.Conc.	2008 Annual Max. Conc.	2009 Annual Max. Conc.	3 yr avg. PM10 Conc. 2007-9	Proposed Sampling Schedule
05-119-0007	1:6	21	48	41	18	1:6
05-119-1007	1:6	30	63	48	25	1:6

**Sulfur Dioxide (SO2), Nitrogen Oxides (NO2), and Carbon Monoxide (CO)**

Under 40 CFR Part 58 Appendix D-4 of the new monitoring regulations, there are now no minimum requirements for the number of SO2, NO2, or CO sites, however, discontinuation of existing sites must be approved by the EPA Regional Administrator. ADEQ has no plans for changing the monitors that are currently in place.

SO<sub>2</sub> – Currently there are 2 sites in Arkansas: PARR in Little Rock (05-119-0007) and El Dorado (05-139-0006). No changes in the SO<sub>2</sub> network are being requested at this time.

NO<sub>2</sub> – There are 2 NO<sub>2</sub> sites in Arkansas: PARR in Little Rock (05-119-0007) and Marion (05-035-0005). No other changes are being requested at this time.

CO – There is one CO monitors in Arkansas it is located at the proposed NCORE site (PARR 05-119-0007). There are no plans for any additional CO sites.

### **NCORE – Trace SO<sub>2</sub>, CO and NO<sub>y</sub>**

NO<sub>y</sub>, Trace SO<sub>2</sub> and Trace CO are monitored at the NCORE site (PARR 05-119-0007). No changes are planned

### **PM<sub>2.5</sub> Chemical Speciation**

The new regulations require speciation at the NCORE site. We currently have a sampler at PARR (05-119-0007) and no changes are planned.

### **Lead**

Lead samplers will be added to the PARR location as required by 1/1/2011.

### **Summary**

Any comments or questions should be sent to:

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