



STEVEN A. THOMPSON
Executive Director

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

MARY FALLIN
Governor

September 16, 2013

US EPA Region 6 (6PD)
Thomas H. Diggs, Associate Director-Air
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Dear Mr. Diggs:

In fulfillment of the requirements of 40 CFR, part 53 and 58, Oklahoma submits this request for approval of the Oklahoma Air Monitoring FY2014 Annual Network Review. The network review was posted on the Oklahoma DEQ website for a 30 day comment period, no comments were received.

I look forward to receiving your approval of the FY2014 Annual Network Review for Oklahoma. If you have any questions or concerns please contact me at (405) 702-4100.

Sincerely,

A handwritten signature in black ink, appearing to read "Eddie Terrill".

Eddie Terrill
Director
Air Quality Division

NKS:kg

Enclosure



**Oklahoma Department of Environmental Quality
Air Quality Division
Monitoring Section
Annual Network Review for Ambient Air Monitoring
Fiscal Year 2014**

The Oklahoma Department of Environmental Quality, Air Quality Division (DEQ/AQD) submits its Annual Network Review (ANR) to the Environmental Protection Agency (EPA). It provides the framework to establish and maintain an air quality surveillance system. Data collected by this network are going to be used for comparison to the National Ambient Air Quality Standards (NAAQS). The ANR is available for public inspection via the DEQ web site for at least 30 days prior to submission and contains proposed changes to the Oklahoma air monitoring network for Fiscal Year 2014 (FY14).

Table 1 lists all DEQ/AQD ambient air monitoring sites that the agency currently operates and maintains as of January 1 2013. "Air Quality System (AQS) Site ID#" in column 1 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.

Table 1- AQS Site Description

AQS Site ID #	Address/ Location	Latitude	Longitude	Pollutants Measured	Sampling Method	Analysis Method	Station Type	Operating Schedule	Monitoring Objective	Spatial Scale	NAAQS Comparable	MSA
40-027-0049	S.E. 19th St./Water Tower, Moore	35.320105	-97.484099	Ozone PM2.5	U.V. Photometric Low Volume TEOM FDMS		SLAMS SPM	Continuous Continuous	Population Exposure AQI	Urban Urban	Yes No	OKC OKC
40-031-0651	Lawton	34.63298	-98.42879	Ozone PM2.5	U.V. Photometric Low Volume TEOM FDMS		SLAMS SPM	Continuous Continuous	Population Exposure AQI	Urban Urban	Yes No	Lawton Lawton
40-043-0860	Municipal Airport, Seiling	36.158414	-98.931973	Ozone PM2.5	U.V. Photometric Low Volume TEOM FDMS		SLAMS SPM	Continuous Continuous	Regional Background AQI	Regional Regional	Yes No	Not in MSA Not in MSA
40-067-0671	Waurika	34.226639	-98.035444	Ozone	U.V. Photometric		SPM	Continuous	AQI & Regional Transport	Regional	No	Not in MSA
40-071-0604	306 E Otee, Ponca City	36.697186	-97.08135	SO2 PM2.5	Pulsed Fluorescence Low Volume TEI Sharp 5030		SLAMS SPM	Continuous Continuous	Population Exposure Population Exposure	Neighborhood Neighborhood	Yes Yes	Not in MSA Not in MSA
40-087-1073	310 E. Burr Oak Rd., Goldsby	35.159649	-97.473794	Ozone	U.V. Photometric		SLAMS	Continuous	Upwind Background	Regional	Yes	OKC

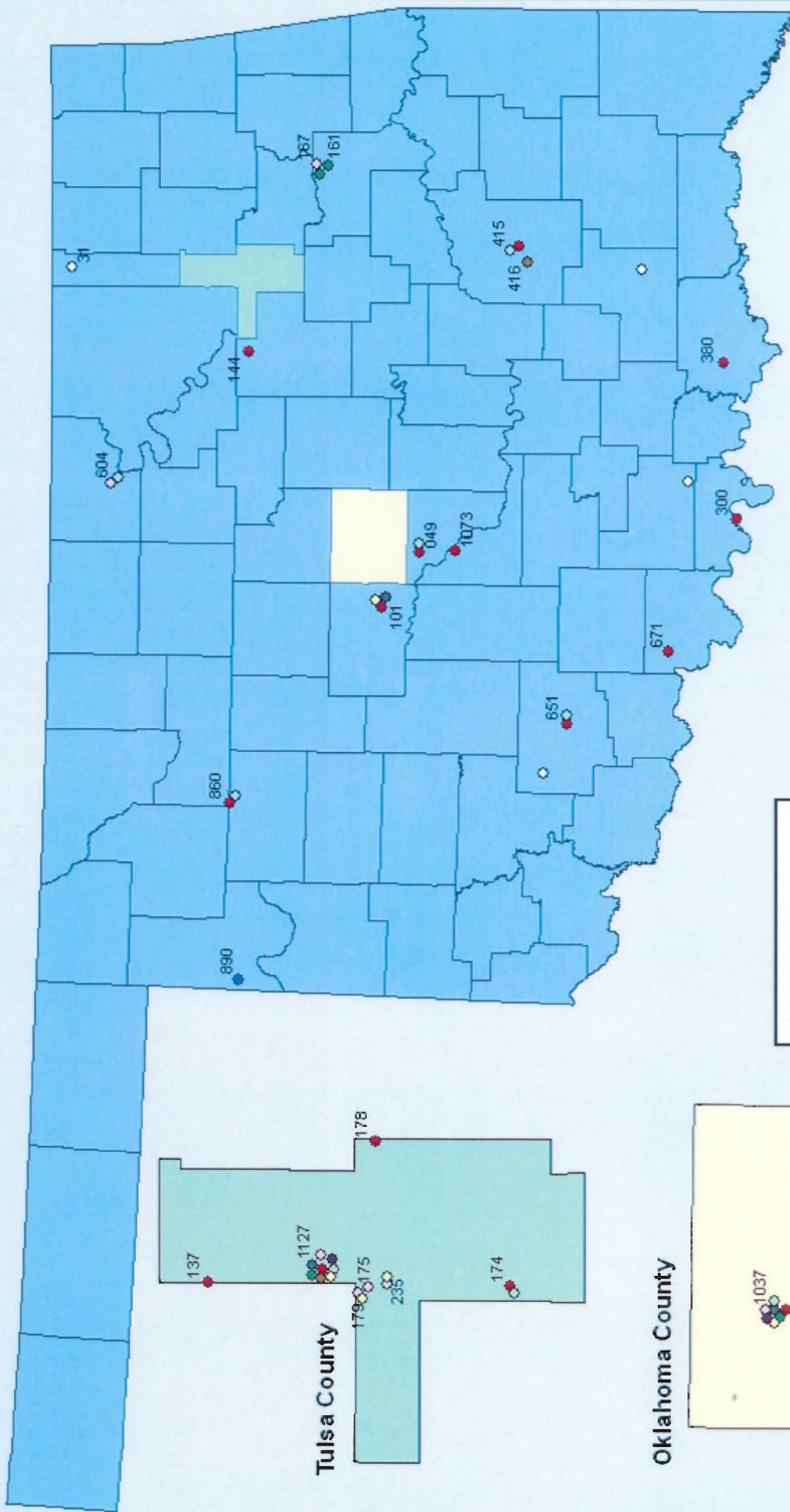
40-101-0161	Port of Muskogee	35.768333	-95.293889	PM10	Sequential Low Volume	Gravimetric filter weighing	SPM	(1 in 1)	Source Oriented	Middle	Yes	Not in MSA
40-101-0167	Water Treatment Plant, Muskogee	35.793134	-95.302235	SO2	Pulsed Fluorescence		SLAMS	Continuous	Source Oriented	Neighborhood	Yes	Not in MSA
				PM10	Low Volume TEOM		SLAMS	Continuous	Source Oriented	Middle	Yes	Not in MSA
40-017-0101	12575 N.W. 10th, Yukon	35.479215	-97.751503	Ozone	U.V. Photometric		SLAMS	Continuous	Population Exposure	Urban	Yes	OKC
40-109-0096	12880A N.E. 10th, Choctaw	35.477801	-97.303044	Ozone	U.V. Photometric		SLAMS	Continuous	Population Exposure	Urban	Yes	OKC
				NO2	Chemiluminescence		SLAMS	Continuous	Population Exposure	Neighborhood	Yes	OKC
40-109-0035	N.W. 5th and Sharrel, OKC	35.477036	-97.494309	Ozone	U.V. Photometric		SLAMS	Continuous	Population Exposure	Urban	Yes	OKC
				PM2.5	Sequential FRM	Micro-gravimetric filter weighing	SLAMS	(1 in 3)	Population Exposure	Neighborhood	Yes	OKC
40-019-0297	1800 Airport Rd., Healdton	34.257125	-97.474341	PM10	High Volume	Gravimetric Filter Weighing	SLAMS	(1 in 6) Co-located	Population Exposure	Neighborhood	Yes	OKC
				Ozone	U.V. Photometric		SPM	Continuous	AQI/Regional Transport	Regional	No	Not in MSA
				PM2.5	Low Volume TEOM FDMS		SLAMS	Continuous	AQI/Regional Transport	Regional	No	Not in MSA

40-109-1037	Okla. Christian Univ., OKC	35.614131	-97.475083	SO2	Pulsed Fluorescence	Gravimetric filter weighing	SLAMS	Continuous	General background	Urban	Yes	OKC
				Chemical Speciation	Low Volume	Gravimetric filter weighing	SPM	(1 in 6)	Population Exposure	Urban	No	OKC
				PM10	Sequential FRM	Gravimetric Filter Weighing	SLAMS	(1 in 6)	Population Exposure	Urban	Yes	OKC
				PM2.5	Sequential FRM	Micro-gravimetric filter weighing	SLAMS	(1 in 3)	Population Exposure	Urban	Yes	OKC
				PM2.5	Low Volume TEOM FDMS		SPM	Continuous	AQI	Urban	No	OKC
				NO2	Chemiluminescence		SLAMS	Continuous	Max. precursor	Urban	Yes	OKC
				CO	Gas Filter Correlation		SLAMS	Continuous	Population Exposure	Urban	Yes	OKC
				Ozone	U.V. Photometric		SLAMS	Continuous	Highest Conc.	Urban	Yes	OKC
				Ozone	U.V. Photometric		SLAMS	Continuous	Regional Transport	Regional	Yes	Not in MSA
40-121-0415	104 Airport Rd., McAlester	34.885610	-95.784375	PM2.5	Low-volume TEI Sharp 5030		SPM	Continuous	AQI	Regional	Yes	Not in MSA
40-121-0416	108 N Main St., Savanna	34.829396	-95.843642	PM2.5	Sequential FRM	Micro-gravimetric filter weighing	SLAMS	(1 in 3)	General Background	Regional	Yes	Not in MSA
40-045-0890	Ellis County WMA, Arnett	36.085509	-99.935376	IMPROVE Visibility	IMPROVE protocol	EQL 0310189	NA	(1 in 3)	Source Orientated	Middle	Yes	Not in MSA
				Lead	HiVol		SLAMS Co-located	(1 in 6)	Source Orientated	Middle	Yes	Not in MSA
				IMPROVE Visibility	IMPROVE protocol		NA	(1 in 3)	Visibility/Regional Haze	Regional	No	Not in MSA

40-037-0144	City Water Plant, Mannford	36.105481	-96.361196	Ozone	U.V. Photometric			SLAMS	Continuous	Population Exposure	Urban	Yes	Tulsa
40-143-0174	502 E. 144th Pl., Glenpool	35.953708	-96.004975	Ozone	U.V. Photometric			SLAMS	Continuous	Upwind Background	Urban	Yes	Tulsa
				PM2.5	Low Volume TEOM FDMS			SPM	Continuous	Population Exposure	Urban	No	Tulsa
40-143-0178	Lynn Lane, Tulsa	36.133802	-95.764537	Ozone	U.V. Photometric			SLAMS	Continuous	Population Exposure	Urban	Yes	Tulsa
40-143-0175	1710 W. Charles Page Blvd., Tulsa	36.149877	-96.011664	SO2	Pulsed Fluorescence			SLAMS	Continuous	Source Oriented	Neighborhood	Yes	Tulsa
				SO2, H2S	Pulsed Fluorescence PF with Converter			SLAMS	Continuous	Source Oriented	Neighborhood	Yes	Tulsa
40-143-0235	2443 S. Jackson Ave., Tulsa	36.126945	-95.998941	SO2	Pulsed Fluorescence			SLAMS	Continuous	Source Oriented	Middle	Yes	Tulsa
				H2S	PF with Converter			SPM	Continuous	Source Oriented	Middle	No	Tulsa

All DEQ/AQD sites and monitors conform to 40 CFR, Subchapter C, Part 58 appendix A, Appendix C (see methods in column 6 of table 1), and appendices D & E (see photos located @ <http://www.deq.state.ok.us/AQDnew/monitoring/cpdata.htm> by clicking on desired location of the site map). Figure 1 one shows a graphical representation of the network.

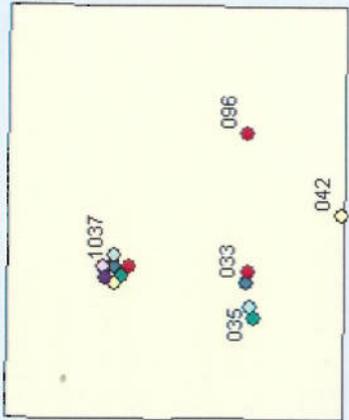
Oklahoma Air Monitoring Network



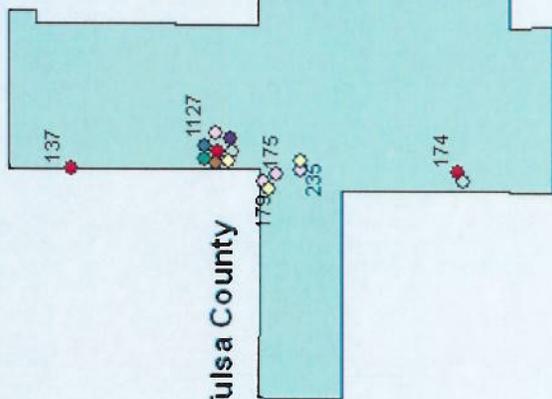
Legend

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●	PM _{2.5}
●	SO ₂
●	Toxics
●	Visibility

Oklahoma County



Tulsa County



We make every effort to provide and maintain accurate, complete, usable, and timely information. However, some data and information on this map may be preliminary in nature and is provided with the understanding that it is not guaranteed to be correct or complete. Conclusions drawn from, or actions undertaken on the basis of, such data and information are the sole responsibility of the user.



Population Statistics

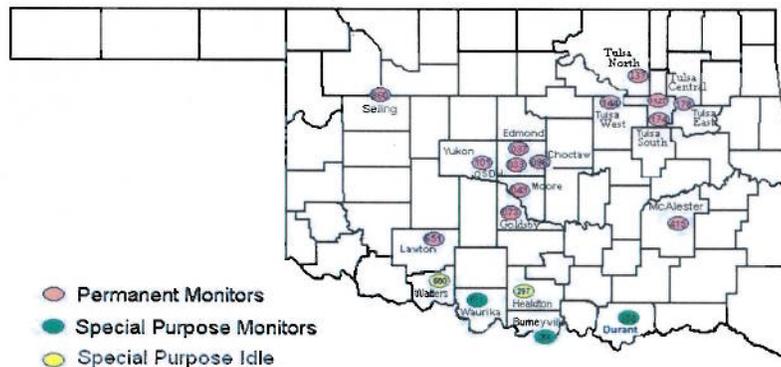
Oklahoma's largest Metropolitan Statistical Areas (MSAs) and their population according to the 2011 U.S. Census Bureau population estimates are Oklahoma City with a population of 1,277,053, Tulsa with a population of 946,962, and Lawton with a population of 125,815.

Ozone

According to Table D-2 of Appendix D to Part 58, 40 CFR the minimum number of State and Local Air Monitoring Sites (SLAMS) ozone monitors required based on population and ozone concentration are two sites for Oklahoma City, two sites for Tulsa, and one site for Lawton.

Figure 2 shows the locations of the ozone monitoring sites for 2013. Special Purpose Monitoring (SPM) sites 671(Waurika) and 300(Burneyville) will begin to monitor for a two year period beginning at the start of the 2013 ozone season. Site 380 (Durant) will begin sampling in August of 2013. Sites 297 (Healdton) and 680 (Walters) were closed at the end of the 2012 ozone season and will be idle during the 2013 and 2014 season. No other changes are planned.

Figure 2 – DEQ Ozone Monitoring Network



Lead

DEQ currently operates a lead sampler at NCore site (40-143-1127) which meets the requirements of a CBSA (Core Based Statistical Area) population of 500,000 or greater.

DEQ requests a waiver to close the Savanna lead site and relocate the collocated lead sampler to the NCore site in Tulsa. Results of a 3 year data set review showed all values to be well below 50% of the level of the lead NAAQS which is $.15\mu\text{g}/\text{m}^3$ quarterly average. Table 2 shows the 4 highest lead values from the 24 hour samples taken from 2010-2012.

Table 2 – Lead Summary

Year	Site ID	Duration	# of Obs	1st Max	2nd Max	3rd Max	4th Max
2010	401210416	24 hr.	55	0.005	0.004	0.004	0.004
	401210416C	24 hr.	19	0.005	0.004	0.003	0.003
2011	401210416	24 hr.	59	0.021	0.011	0.01	0.008
	401210416C	24 hr.	32	0.021	0.013	0.011	0.005
2012	401210416	24 hr.	61	0.023	0.012	0.009	0.007
	401210416C	24 hr.	30	0.009	0.007	0.006	0.005

By relocating the collocated sampler to the NCore site, our network will meet the collocated lead monitoring requirement.

Sulfur Dioxide

As a result of federal rulemaking, new minimum monitoring requirements for Tulsa and Oklahoma City were implemented based on population and SO₂ emissions. This Population Weighted Emissions Index (PWEI) required only one such site in the Tulsa CBSA and none in the Oklahoma City CBSA. Table 3 shows the PWEI of each CBSA. DEQ easily meets the minimum SO₂ network requirements for these index values.

Table 3- Population Weighted Emissions Index

Area	SO ₂ Emissions in Tons	Population	PWEI
TULSA	45,474	946,962	43,062
OKC	2614	1,227,053	3207

DEQ operates three source oriented monitoring sites in west Tulsa to meet the SO₂ CBSA requirement (40-143-0175, 40-143-0179 and 40-143-0235).

DEQ also maintains two source oriented sites in Ponca City (40-071-0604) and Muskogee (40-101-0167) and one background site in Oklahoma City (40-109-1037) that is used for trends and modeling purposes.

Hydrogen Sulfide

DEQ operates two sites located in West Tulsa (site # 40-143-0235 and 40-143-0179), which are used to determine compliance with the H₂S state standard. No changes are planned for this small network in FY14.

Oxides of Nitrogen

DEQ maintains four Nitrogen Oxide monitors for use of NAAQS comparison, trends and modeling, as well as use for studying effects on ozone. Two of these monitors, NO₂ and NO_y, are located at the NCore site 40-143-1127; the other two NO₂ monitors are located in Oklahoma City at sites 40-109-1037 and 40-109-0033. DEQ added a NO₂ monitor at the Yukon site (40-017-0101); this addition is part of an increasing effort to monitor the oil and gas activity in Canadian County.

Area Wide Sampling Requirement: DEQ plans to use the NO₂ sampler at the NCore site to meet the area wide requirement to protect susceptible and vulnerable populations in Tulsa. DEQ also plans to use site (40-109-0033) to meet the area wide requirement to protect susceptible and vulnerable populations in Oklahoma City. DEQ believes siting of monitors in these Tulsa and Oklahoma City locations will promote continued sampling in “Environmental Justice” areas.

Near Road Sampling Requirement: DEQ is in Phase II of the NO₂ near roadside monitoring program implementation. DEQ has performed a short term study using passive NO₂ devices at three potential near road site locations along the I-44 corridor. This effort has allowed for optimum site selection and confidence in data quality to meet the near road siting requirement. The outcome of the study showed the highest concentrations north of I-40 along the I-44 corridor. The installation of Oklahoma City near roadway site (40-109-0097) will be in Will Rogers Park near 32nd street and I-44 overpass, with the initial plan to relocate the existing NO₂ monitor from site 40-109-1037 to 40-109-0097. Negotiations with the Oklahoma City Parks Department are currently taking place to determine the details of security and landscaping of the site building on park property. Some small shrubs will be required surrounding the site building but no vegetation will be planted that will prevent DEQ from meeting all siting criteria. Small shrubs, less than 4 feet in height will be planted surrounding an 8’ chain link security fence.

The candidate site has the highest ranked unadjusted traffic count (Annual Average Daily Traffic, or, AADT of 155,300) of the three sites used in the passive survey and is the 7th ranked traffic count adjusted for truck emissions (Federal Equivalent Annual Average Daily Traffic FE-AADT of 195,554) of the three sites.

Additional required parameters that DEQ plans to install at this site are black carbon, carbon monoxide, PM_{2.5}, wind speed, wind direction, temperature, and barometric pressure. DEQ also plans to install this equipment by the required timeline.

Figure 3 shows an aerial photo of the proposed near road NO₂ site location near N.W. 32nd and Interstate 44.

Figure 3- Aerial photo of Proposed Near Road NO2 Site



Carbon Monoxide

DEQ operates two CO monitors; trace level CO is monitored in Tulsa at site 40-143-1127 and non-trace CO is monitored in Oklahoma City at site 40-109-1037.

DEQ plans to add a new CO monitor to the new near roadway site 40-109-0097. No other changes are planned for the CO network.

PM-10

DEQ maintains four low volume sequential PM10 TEI 2025 samplers in its network. DEQ operates one TEI 2025 sampler in Tulsa that is located at the NCore site 40-143-1127. DEQ operates three TEI 2025 samplers in Oklahoma City, two (collocated) samplers at site 40-109-0035 and one sampler at site 40-109-1037. DEQ will be adding a new PM10 TEI 2025 sampler to a new site 40-143-1110 in Tulsa at Turner Park. This site has just recently received approval from the city of Tulsa and will replace site 40-143-0110, which was forced to be shut down after a change of property ownership. Figure 4 shows an aerial photo of the proposed Turner Park site location.

Figure 4 – Aerial Photo of Proposed Turner Park PM10 Site



DEQ maintains a continuous source oriented TEOM PM10 located on the northeast side of Muskogee at site 40-101-0167. This site helps to monitor local source issues. DEQ also plans to add a continuous TEOM PM 10 sampler to Oklahoma City site 40-109-1037.

The SPM at the Muskogee Site #40-101-0161 was closed in October of 2012 and is not sampling at this time; sampling at this site may resume in the near future using a combination of continuous and filter based samplers.

PM-2.5

Continuous Sampler Network - DEQ plans to upgrade all remaining TEI TEOM/FDMS samplers to TEI SHARP 5030 samplers, resulting in a change of parameter code from 88502 to 88101. Healdton's (40-019-0297) continuous PM2.5 sampler is being relocated to Burneyville (40-085-0300) as the site no longer meets siting criteria as stated in 40 CFR part 58 appendix E. Region 6 has approved this relocation. All SHARPs will be designated SPM for two years. DEQ requests exclusion of SPM SHARP data from NAAQS comparison for this two year period.

FRM/Manual Sampler Network – DEQ maintains five manual method FRM PM2.5 samplers; two collocated at 40-143-1127, one at 40-109-1037, one at 40-121-0415, and one at 40-109-0035. DEQ plans to add a manual method FRM to the near road NO2 site 40-109-0097.

PMcoarse

The sole requirement for a PMCoarse network is to sample at NCore locations. DEQ currently operates one PMCoarse sampler at the NCore site 40-143-1127. No changes are being proposed for FY14.

PM2.5 Chemical Speciation

The state currently operates a “National Trends Speciation Sampler” at our NCore site 40-143-1127 and a 2nd supplemental speciation sampler in Oklahoma City at 40-109-1037. No other changes are planned for FY2014.

Visibility

IMPROVE (Integrated Monitoring of Protected Visual Environments) sites are used to monitor Class I areas in order to track and report reasonable progress toward Regional Haze goals. The Wichita Mountains Wildlife Refuge Federal Land Manager (FLM) is responsible for operation of one IMPROVE sampler that is required in the state’s lone Class One area located in the Wichita Mountains Wildlife Refuge. The only other visibility monitor in the state is designated as an “IMPROVE Protocol” site and is located in a state wildlife management area (Ellis County Wildlife Management Area) near Arnett, Oklahoma. This site is operated and maintained by the DEQ/AQD. Data from this site continues to be useful in terms of collecting good background speciated data for PM2.5 and will be operated until EPA grant funding has ceased.

This network review is available for public comment at <http://www.deq.state.ok.us/aqdnew/monitoring/index.htm> for 30 days from the date of posting. Please send comments to:

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