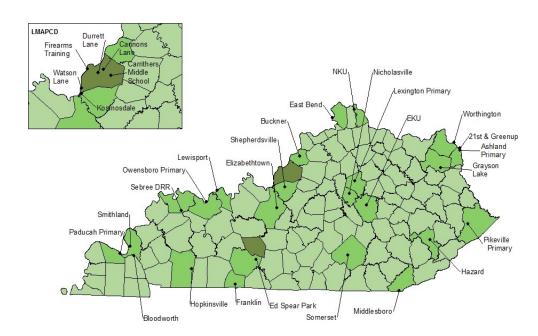
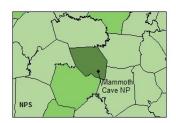
# Kentucky Annual Ambient Air Monitoring Network Plan 2019









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### CERTIFICATION

By the signatures below, the Kentucky Division for Air Quality certifies that the information contained in this Surveillance Network document for sampling year 2019 is complete and accurate at the time of submittal to EPA Region 4. However, due to circumstances that may arise during the sampling year, some network information may change. A notification of change and a request for approval will be submitted to EPA Region 4 at that time, following a 30-day public comment period.

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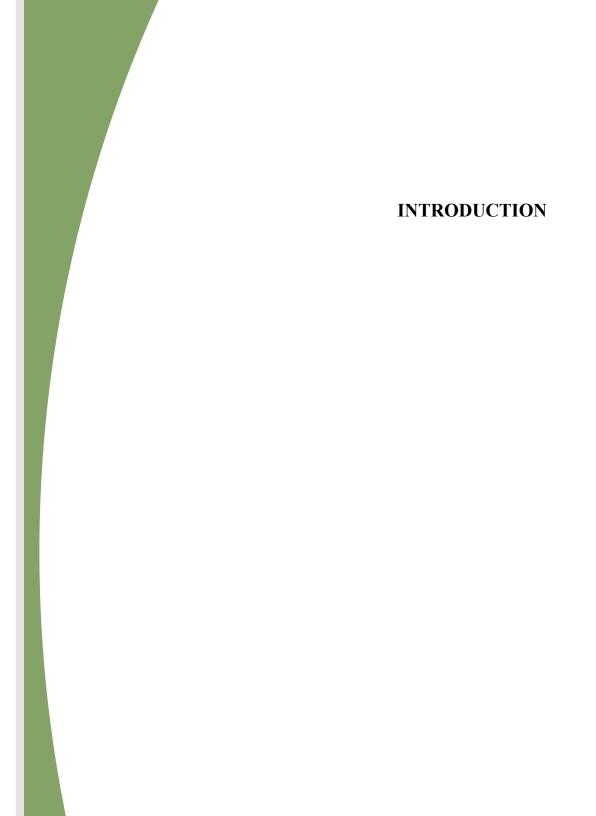
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### PUBLIC NOTIFICATION AND COMMENT PERIOD

In accordance with 40 C.F.R. 58.10(a)(1), the Kentucky Energy and Environment Cabinet shall make the annual monitoring network plan available for public inspection for at least 30 days prior to submission to the US EPA. The annual monitoring network plan details the operation and location of ambient air monitors operated by the Kentucky Division for Air Quality (KDAQ), Louisville Metro Air Pollution Control District (LMAPCD), and the National Park Service (NPS).

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### **INTRODUCTION**

The Kentucky Division for Air Quality (KDAQ) has operated an air quality monitoring network in the Commonwealth since July 1967. The Louisville Metro Air Pollution Control District (LMAPCD), a local agency, has maintained a sub-network in its area of jurisdiction since January 1956. Since that time, the networks have been expanded in accordance with United States Environmental Protection Agency's (US EPA) regulations.

In October 1975, the US EPA established a work group to critically review and evaluate current air monitoring activities at that time. This group was named the Standing Air Monitoring Working Group (SAMWG). The review by the SAMWG indicated several areas where deficiencies existed which needed correction. The principal areas needing correction were: an excess of monitoring sites in some areas to assess air quality; existing regulations that did not allow for flexibility to conduct special purpose monitoring studies; and data reporting that was untimely and incomplete. These deficiencies were primarily caused by a lack of uniformity in station locations and probe siting, sampling methodology, quality assurance practices, and data handling procedures.

In August 1978, recommendations developed by SAMWG, to remedy the deficiencies in the existing monitoring activities, were combined with the new requirements of Section 319 of the Clean Air Act. Section 319 provided for the development of uniform air quality monitoring criteria and methodology; reporting of a uniform air quality index in major urban areas; and the establishment of an air quality monitoring system nationwide which utilized uniform monitoring criteria and provides for monitoring stations in major urban areas that supplement State monitoring. The combination of the recommendations and requirements were included in a proposed revision to the air monitoring regulations.

In May 1979, air monitoring regulations were finalized by the US EPA requiring certain modifications and additions to be included in the State Implementation Plan for air quality surveillance. These regulations require each state to operate a network of monitoring stations designated as State and Local Air Monitoring Stations (SLAMS) that measure ambient concentrations of air pollutants for which standards have been established. The SLAMS designation contains provisions concerning the conformity to specific siting and monitoring criteria not previously required. The regulations also provide for an annual review of the monitoring network to insure objectives are being met and to identify needed modification.

The current overall network consists of 33 air monitoring stations, operated by KDAQ, LMAPCD, and the National Park Service (NPS). The Commonwealth's SLAMS air monitoring network monitors criteria pollutants for which the National Ambient Air Quality Standards (NAAQS) have been issued. In addition to a SLAMS network, KDAQ's air monitoring network includes special purpose monitors (SPM) for air toxics and meteorological data.

The annual monitoring network description, as provided for in 40 CFR Part 58.10, *Annual monitoring network plan and periodic network assessment*, must contain the following information for each monitoring station in the network:

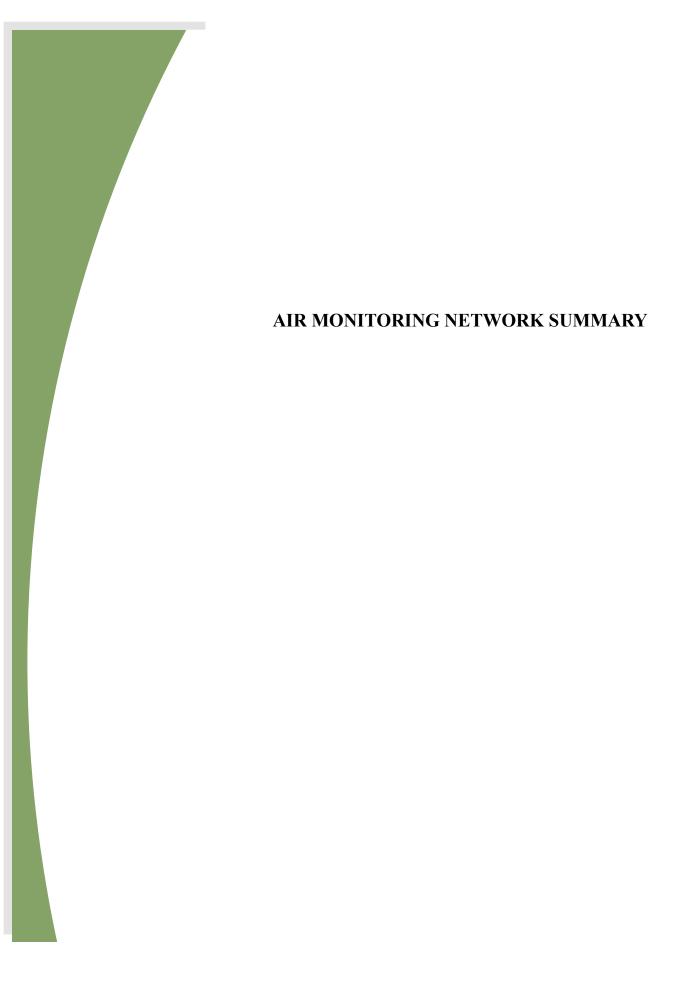
- 1. The Air Quality System (AQS) site identification number for existing stations.
- 2. The location, including the street address and geographical coordinates, for each monitoring station.
- 3. The sampling and analysis method used for each measured parameter.

- 4. The operating schedule for each monitor.
- 5. Any proposal to remove or move a monitoring station within a period of eighteen months following the plan submittal.
- 6. The monitoring objective and spatial scale of representativeness for each monitor.
- 7. The identification of any site that is suitable for comparison against the PM<sub>2.5</sub> NAAQS.
- 8. The Metropolitan Statistical Area (MSA), Core-Based Statistical Area (CBSA), Combined Statistical Area (CSA), or other area represented by the monitor.

The following document constitutes the Kentucky ambient air monitoring network description and is organized into main parts:

- 1. Station Description Format: An outline of the designations, parameters, monitoring methods, and the basis for site selection.
- 2. Network Summaries: Presenting the total number of sites and monitors in each region and for the state. Also included is a listing of all proposed changes to the current network.
- 3. Air Monitoring Station Description: Each air monitor station is described in detail as per the outline in (1) above.
- 4. Appendices: Additional information relating to the ambient air monitoring network.

Modification to the network as determined by an annual review process will be made each year to maintain a current network description document.



### **SUMMARY OF KDAQ NETWORK CHANGES 2019**

During the 2019-2020 monitoring year, KDAQ will operate 82 instruments, including 11 meteorological stations, located at 23 ambient air monitoring sites in 25 Kentucky counties. LMAPCD will operate an additional 30 instruments, including 6 meteorological stations, in Jefferson County. When combined with the air monitoring site operated by the National Park Service NPS at Mammoth Cave National Park, the total ambient air monitoring network will consist of 118 instruments, including 18 meteorological stations, located at 32 sites across 25 counties of the Commonwealth.

KDAQ proposes to make the changes below to the ambient air monitoring network. Changes to the LMAPCD network are detailed in Appendix E.

### **METROPOLITAN STATISTICAL AREAS (MSAs):**

### Paducah-KY-IL:

- Temporary shutdown of special-purpose VOC sampling at the Bloodworth site (21-139-0004); effective July 1, 2019. The Division, in conjunction with EPA, will re-establish a new special-purpose monitoring study in Calvert City no later than January 1, 2020.
- Remove FRM manual PM<sub>2.5</sub> sampler at the Paducah Primary (JPRECC) 21-145-1024; effective July 1, 2019.
- The FEM T640 continuous PM<sub>2.5</sub> sampler data is recommended for NAAQS comparisons at the Paducah Primary (JPRECC) 21-145-1024; effective July 1, 2019.

### Bowling Green, KY:

• Install an additional T640 monitor at Smiths Grove to fulfill continuous PM<sub>2.5</sub> collocation (FEM-FEM) monitoring requirements.

### Ashland, KY:

- Remove FRM manual PM<sub>2.5</sub> sampler at the Ashland Primary (FIVCO) 21-019-0017 site; effective July 1, 2019.
- The FEM T640 continuous PM<sub>2.5</sub> sampler data is recommended for NAAQS comparisons for the Ashland Primary (FIVCO) 21-019-0017 site; effective July 1, 2019.

### Owensboro, KY:

- Remove FRM manual PM<sub>2.5</sub> sampler at the Owensboro Primary 21-059-0005 site; effective July 1, 2019.
- The FEM T640 continuous PM<sub>2.5</sub> sampler data is recommended for NAAQS comparisons; effective July 1, 2019.

### Pikeville (Not in a MSA):

- Remove FRM manual PM<sub>2.5</sub> sampler at the Pikeville Primary (21-195-0002) site; effective December 31, 2019.
- The FEM T640 continuous PM<sub>2.5</sub> sampler data is recommended for NAAQS comparisons for Pikeville Primary (21-195-0002); effective December 31, 2019.

## **SUMMARY OF KDAQ NETWORK CHANGES 2019 (Continued)**

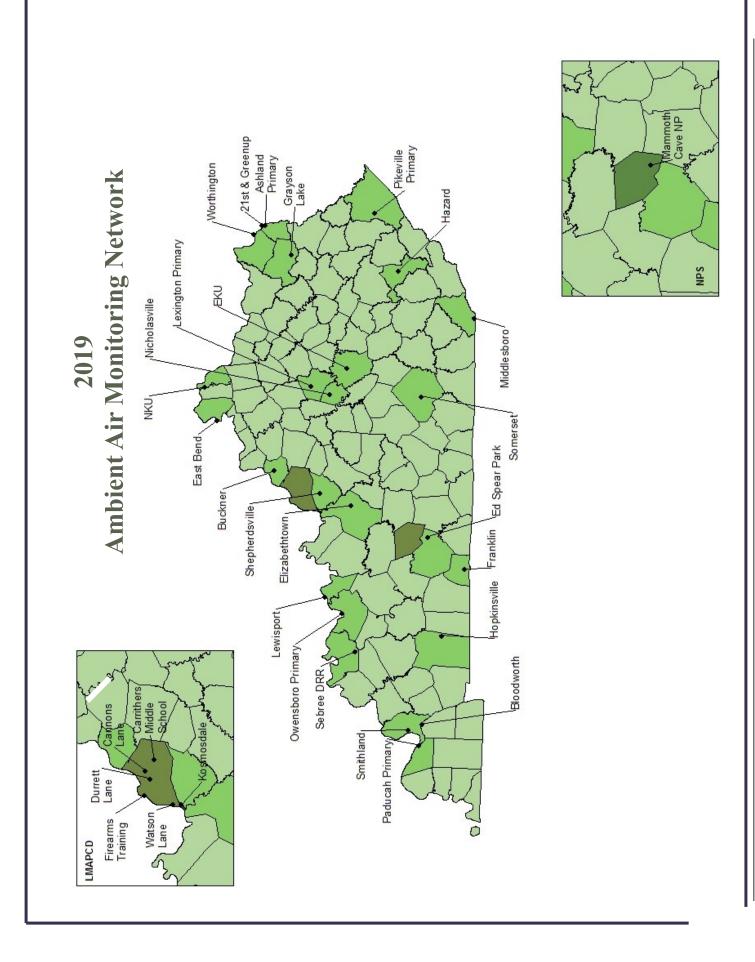
TVA Substation, KY (Not in a MSA):
• Temporary shutdown of special-purpose VOC sampling at the TVA Substation (21-157-0014); effective July 1, 2019. The Division, in conjunction with EPA, will re-establish a new special-purpose monitoring study in Calvert City no later than January 1, 2020.

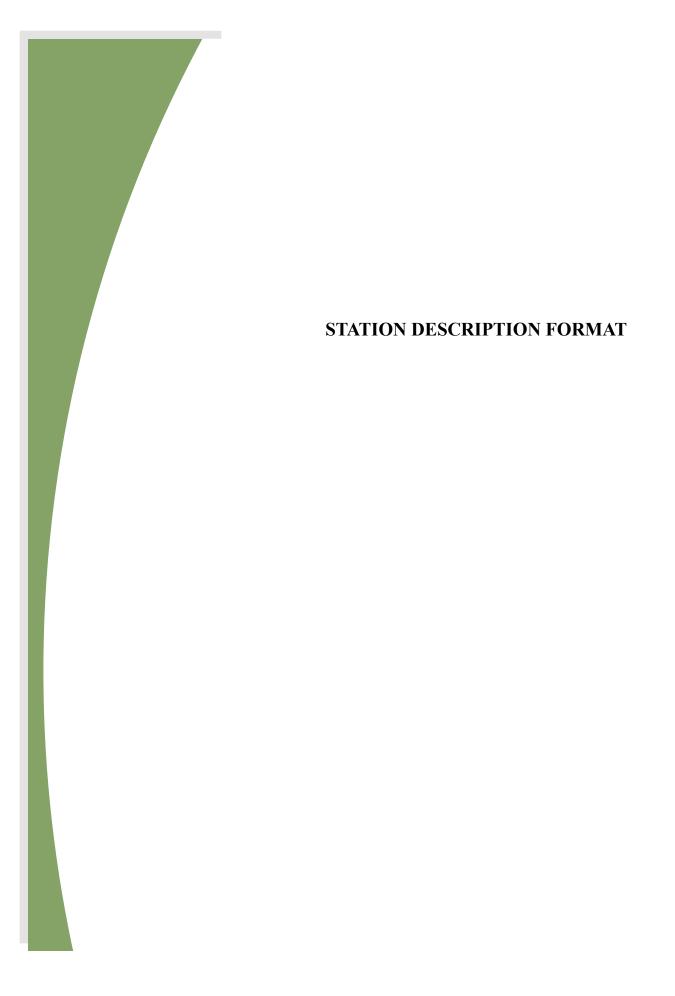
# 2019 AIR MONITORING STATIONS SUMMARY

Metropolitan Statistical Area	Site	Filter Based PM <sub>2.5</sub>	Continu- ous PM <sub>2.5</sub>	$PM_{10}$	Continuous PM <sub>10</sub> /PM coarse	$SO_2$	NO2	NO <sub>y</sub>	00	O <sup>3</sup>	Pb	NOC (	VOC Carbonyl PAH	РАН	PM <sub>2.5</sub> Speciation	Carbon Specia- tion	RadNet	Met
Bowling Green, KY	2	2 <sup>c</sup>	3 <sup>8,C,i</sup>			1		1	_	2 <sup>i,Max</sup>								-
Cincinnati-Middletown, OH-KY-IN (AQI) (PWEI)	2	2°	1 i ,S			1 <sup>i</sup>	1 <sub>i</sub>			2 <sup>i</sup>								1
Clarksville, TN-KY	1	1 <sup>X</sup>								-								1
Elizabethtown, KY	1	$2^{\rm c}$	1							1 Max								
Evansville, IN-KY (PWEI)	1					1 <sup>DRR</sup>												
Huntington-Ashland, WV-KY-OH (AQI) (PWEI)	3		1 <sup>i,,S</sup>	2 <sup>C,m</sup>		2 <sup>i</sup>	1 <sub>i</sub>			2 <sup>i,,Max</sup>								1
Lexington-Fayette, KY (AQI) (PWEI)	2	1	1 <sub>i</sub>	1 <sub>m</sub>		2 <sup>i</sup>	1 <sup>r40,i</sup>			2 <sup>i,Max</sup>							1	1
Louisville-Jefferson County, KY-IN (AQI) (PWE)	8	2 <sup>n,C</sup>	Si,S		2i"E	.i4	2 <sup>n,i</sup>	-	2 <sup>n,i</sup>	5 <sup>i,Max</sup>		2 <sup>G</sup>			1	1	1	7 <sup>n</sup>
Owensboro, KY	2		1 i,S			$1^{i}$	$1^{i}$			2 <sup>i,Max</sup>								1
Micropolitan Statistical Area																		
Paducah, KY-IL (PWEI)	3		1 <sup>i,,S</sup>	2 <sub>m</sub>		1 <sub>i</sub>	1 <sub>i</sub>			2 <sub>i</sub>							1	1
Somerset, KY	1	1								1								
Middlesboro, KY	1	1								1								1
Richmond-Berea, KY	1										2 <sup>c</sup>							
Not in a CBSA																		
Carter County	1	1 <sub>x</sub>		2 <sup>C,m</sup>						-		2 <sup>D</sup>	2 <sup>D</sup>	-				_
Perry County	1	1	18							-								-
Pike County	1		1 i,S							$1^{i}$								
Simpson County	1									1								-
KDAQ Totals	25	10	10	7	0	~	5	0	0	21	2	2	2	1	0	0	2	11
LMAPCD Totals	9	5	5	0	2	4	2	-	2	3	0	2	0	0	1	1	-	9
NPS Totals	-	0	-	0	0	-	0	-	-	-	0	0	0	0	0	0	0	-
Total Network	32	13	16	7	2	13	7	2	8	25	7	4	2	-	1	1	3	18
Tallies are equal to the actual number of monitors in operation. Superscripts represent additional information about the network. PWEI PWEI SO2 Monitoring Required in MSA; r40=RA-40	number	of monit	ors in operati	ion. Sup	erscripts represer	it additio	nal infor	mation a	bout the	networ	k. PWE	I = PWI	EI SO2 M	onitorin	g Required	in MSA; r	40 = RA - 4	0

Monitor; Max= Maximum O, Concentration Site; n=Near-Road Monitor; X= Regional PM<sub>2.5</sub> Transport or Background Monitor; S=Continuous PM 7640; AQI=AQI Monitoring Required in CBSA; i=AQI Reported; m= PM10 Filter Analyzed for Metals; G=Continuous Auto-GC; C=Collocated Monitors; D= Duplicate Channels; DRR= SO2 Data Requirements Rule Monitor; E= Continuous PM2.5-PM10 T640x-Coarse; (T640x samples for PM<sub>10</sub>, PM<sub>2.5</sub> and PM coarse with a single monitor)

8





### STATION DESCRIPTION FORMAT

### **AQS Site Identification Information**

Pertinent, specific siting information for each site and monitor is stored in the US EPA's AQS data system. This information includes the exact location of the site, local and regional population, description of the site location, monitor types, and monitoring objectives. This site and monitor information is routinely updated whenever there is a change in site characteristics or pollutants monitored.

### **Network Station Description**

The network station descriptions contained in this document include the following information:

### 1. Site Description

Specific information is provided to show the location of the monitoring equipment at the site, the CBSA in which the site is located, the AQS identification number, the GPS coordinates, and the conformance of monitors and monitor-probes to siting criteria.

### 2. Date Established

The date that each existing monitoring station was established is shown in the description. For proposed air monitoring stations, the date that the station is expected to be in operation is included in the annual Summary of Network Changes.

### 3. Site Approval Status

Each monitoring station in the existing network has been reviewed with the purpose of determining whether it meets all design criteria for inclusion in the SLAMS network. Stations that do not meet the criteria will either be relocated in the immediate area or, when possible, resited at the present location. KDAQ may also seek an exemption from certain criteria from the US EPA.

### 4. Monitoring Objectives

The monitoring network was designed to provide information to be used as a basis for the following actions:

- (a) To determine compliance with ambient air quality standards and to plan measures in order to attain these standards.
- (b) To activate emergency control procedures in the event of an impending air pollution episode.
- (c) To observe pollution trends throughout a region including rural areas and report progress made toward meeting ambient air quality standards.
- (d) To provide a database for the evaluation of the effects of air quality on population, land use, and transportation planning; to provide a database for the development and evaluation of air dispersion models.

### 5. Monitoring Station Designations, Monitor Types, and Network Affiliations

The Annual Network Surveillance document must describe the types of monitors that are used to collect ambient data. Most monitors described in the air quality surveillance network are designated as SLAMS, but some monitors fulfill other requirements. Additionally, monitors may be associated with additional networks beyond the state air program or may be used to fulfill multiple network design requirements.

**State and Local Air Monitoring Stations (SLAMS):** Requirements for air quality surveillance systems provide for the establishment of a network of monitoring stations designated as SLAMS that measure ambient concentrations of pollutants for which standards have been established. These stations must meet requirements that relate to four major areas: quality assurance, monitoring methodology, sampling interval, and siting of instruments.

**Special Purpose (SPM and SPM-Other):** Not all monitors and monitoring stations in the air quality surveillance network are included in the SLAMS network. In order to allow the capability of providing monitoring for complaint studies, modeling verification and compliance status, certain monitors are reserved for short-term studies and are designated as either Special Purpose Monitors (SPM) or Other Special Purpose Monitors (SPM-Other).

**NCore:** NCore is a multi pollutant network that integrates several advanced measurement systems for particulates, pollutant gases and meteorology.

Air Quality Index (AQI): The AQI is a method of reporting that converts pollutant concentrations to a simple number scale of 0-500. Intervals on the AQI scale are related to potential health effects of the daily measured concentrations of major pollutants. AQI reporting is required for all metropolitan statistical areas with a population exceeding 350,000. However, KDAQ provides this service to the general public for multiple areas within the state. KDAQ prepares the index twice daily for release to the public from the pollutant data reported from the selected sites in locations across Kentucky. The ambient air data establishing the AQI is subject to quality assurance procedures and is not considered official.

**Emergency Episode Monitoring (Episode):** Regulations provide for the operation of at least one continuous SLAMS monitor for each major pollutant in designated locations for emergency episode monitoring. These monitors are placed in areas of worst air quality and provide continual surveillance during episode conditions.

**EPA:** Monitor operated by the EPA or an EPA contractor. Monitors may be eligible for comparisons against the NAAQS and are typically a part of the CASTNET network.

**Non-EPA Federal:** Monitors operated by Federal agencies outside of the US EPA (such as the National Park Service) are designated as Non-EPA Federal monitors. These monitors are typically used for special studies, but the data may also be eligible for comparisons against the NAAQS.

**Population Weighted Emissions Index (PWEI):** On June 22, 2010, the US EPA released a new SO<sub>2</sub> Final Rule and a set of monitoring requirements. The requirements use a Population Weighted Emissions Index (PWEI) that is calculated for each Core-Based Statistical Area (CBSA). The PWEI is calculated by multiplying the population of each CBSA and the total amount of SO<sub>2</sub>, in tons per year, that is emitted within the CBSA based upon county level data from the National Emissions Inventory (NEI). The result is then divided by one million to

provide the PWEI value, which is expressed in a unit of million persons-tons per year. PWEI requirements technically apply to the MSA and are not monitor specific. Any SO<sub>2</sub> used to fulfill MSA PWEI requirements must first and foremost be designated as SLAMS.

**Regional Administrator 40 (RA-40):** On February 9, 2010, the US EPA released a new NO<sub>2</sub> Final Rule and a new set of monitoring requirements. Under the new monitoring regulations, the EPA Regional Administrator must collaborate with agencies to establish or designate 40 NO<sub>2</sub> monitoring locations, with a primary focus on protecting susceptible and vulnerable populations. RA-40 NO<sub>2</sub> monitors are SLAMS monitors foremost.

**Maximum Ozone Concentration:** Each Metropolitan Statistical Area (MSA) must have at least one ozone monitor designated to record maximum expected ozone concentrations. These monitors are first and foremost SLAMS (or SLAMS-like) monitors.

### 6. Monitoring Methods

All sampling and analytical procedures used for NAAQS compliance in the air-monitoring network conform to Federal reference (FRM), alternate (FAM), or equivalent (FEM) methods. In case there is no federal method, procedures are described in the Kentucky Air Quality Monitoring and Quality Assurance Manuals.

### (a) Particulate Matter 10 Microns in Size (PM<sub>10</sub>)

All PM<sub>10</sub> samplers operated by KDAQ are certified as either FRM or FEM samplers and are operated according to the requirements set forth in 40 CFR 50 and 40 CFR 53. Intermittent samplers typically collect a 24-hour sample every sixth day on 46.2 mm PTFE filters. However, certain sites may collect samples more frequently to address local air quality concerns. Filters are sent to a contract laboratory, where they are weighed before and after a sample run. The gain in weight in relation to the volume of air sampled is calculated in micrograms per cubic meter (ug/m³). The PTFE filters are to be equilibrated before each weighing for a minimum of 24 hours at a 20-23 degrees C mean temperature and a 30-40% mean relative humidity.

For continuous PM10 monitoring, LMAPCD discontinued the use of PM<sub>10</sub> BAMs during the winter of 2018-2019. Teledyne API T640x instruments are now used for PM<sub>10</sub> NAAQS compliance and PM<sub>coarse</sub> monitoring. TAPI T640x monitors collect PM<sub>2.5</sub>, PM10, and PM<sub>10-2.5</sub> (coarse) data continuously via the principle of broadband particle-scattering spectroscopy. During sampling, ambient air is pulled into an inlet at a rate of 16.7 lpm and through a sample conditioner, prior to being introduced to a particle sensor equipped with a polychromatic (broadband) LED. Particles in the sample reflect light from the LED, which is measured by the analyzer and used to calculate the particle-mass of the sample.

### (b) <u>Particulate Matter 2.5 Microns in Size (PM<sub>2.5</sub>)</u>

The Division currently operates continuous Teledyne-API (TAPI) T640 continuous PM<sub>2.5</sub> spectroscopy monitors and manual intermittent samplers for monitoring particulate matter 2.5 microns in size (PM<sub>2.5</sub>). All PM<sub>2.5</sub> samplers and monitors operated by KDAQ are certified as either reference or equivalent methods. All FRM manual intermittent samplers are operated per the requirements set forth in 40 CFR 50, Appendix L. Samples are collected on 46.2 mm PTFE filters over a 24-hour sampling period, with airflow maintained at 16.7 liters per minute. Filters are sent to a contract laboratory, where they are weighed before and after a sample run. The gain in weight in relation to the volume of air sampled is calculated in micrograms per cubic

meter (ug/m³). Samples must be retrieved within 177 hours of the end of the sample run and are kept cool (4 degrees C or cooler) during transit to the contract laboratory. The PTFE filters are to be equilibrated before each weighing for a minimum of 24 hours at a controlled atmosphere of 20-23 degrees C mean temperature and 30-40% mean relative humidity. Filters must be used within thirty days of initial weighing. Filters must be re-weighed within thirty days of the end of the sample run and must be kept at 4 degrees C or cooler.

TAPI T640 monitors collect PM<sub>2.5</sub> data continuously via the principle of broadband particle-scattering spectroscopy. The TAPI T640 is designated as a FEM for PM<sub>2.5</sub>. During sampling, ambient air is pulled into an inlet at a rate of 5.0 lpm and through a sample conditioner, prior to being introduced to a particle sensor equipped with a polychromatic (broadband) LED. Particles in the sample reflect light from the LED, which is measured by the analyzer and used to calculate the particle-mass of the sample.

LMAPCD discontinued use of PM<sub>2.5</sub> BAMs during the winter of 2018-2019. Teledyne API T640 and T640x are now used for NAAQS compliance monitoring. Continuous PM<sub>2.5</sub> T640s are used to provide 24-hour daily reporting for the AQI. The data obtained from continuous FEMs may or may not be used for comparison to the NAAQS. A statement on the use of continuous FEM PM<sub>2.5</sub> monitors is included in the appendices of this document.

### (c) PM<sub>2.5</sub> Speciation and Carbon Speciation Sampling and Analysis

In addition to operating PM<sub>2.5</sub> samplers that determine only PM<sub>2.5</sub> mass values, LMAPCD also operates PM<sub>2.5</sub> speciation samplers that collect samples that are analyzed to determine the chemical makeup of PM<sub>2.5</sub>. Samples are collected on a set of two filters, one comprised of Teflon and one comprised of nylon, over a 24-hour sampling period. The filters are composed of either Teflon or nylon in order to collect specific types of toxic pollutants. A second instrument collects a sample on a quartz filter over a 24-hour sampling period. The quartz filter is used to collect a speciated carbon sample.

After collection, the samples are shipped in ice chests to an EPA contract laboratory for analysis. At the laboratory, the samples are analyzed using optical and electron microscopy, thermal-optical analysis, ion chromatography, and x-ray fluorescence to determine the presence and level of specific toxic compounds. Sample results are entered in the AQS data system.

### (d) Sulfur Dioxide (SO<sub>2</sub>)

Instruments used to continuously monitor sulfur dioxide levels in the atmosphere employ the UV fluorescence method. The continuous data output from the instrument is transmitted by telemetry for entry into an automated central data system.

Calibration of these instruments is done dynamically using certified gas mixtures containing a known concentration of sulfur dioxide gas. This gas is then diluted in a specially designed apparatus to give varying known concentrations of sulfur dioxide. These known concentrations are supplied to the instruments, which are adjusted so that instrument output corresponds with the specific concentrations. Calibration curves are prepared for each instrument and each data point is automatically compared to this curve before entry into the data acquisition system.

### (e) <u>Carbon Monoxide (CO)</u>

Continuous monitoring for carbon monoxide is performed by use of the non-dispersive infrared

correlation method. Data is transmitted by telemetry for entry in an automated central data acquisition system.

Calibration of the instrument is performed periodically by using nitrogen or zero air to establish the zero baseline and NIST or NIST traceable gas mixtures of carbon monoxide in air. The span is checked daily using a certified mixture of compressed gas containing approximately 45 parts per million carbon monoxide.

### (f) $\underline{\mathbf{Ozone}(\mathbf{O}_3)}$

Ozone is monitored using the UV photometry methods. The continuous data output from the instrument is transmitted by telemetry for entry into an automated central data acquisition system.

Monitors are calibrated routinely using an ozone generator, which is calibrated using the ultra violet photometry reference method. Calibration curves are prepared for each instrument and each data point is automatically compared to this curve before entry into the data acquisition system.

### (g) Nitrogen Dioxide ( $NO_2$ )

KDAQ uses the chemiluminescence method for monitoring the nitrogen dioxide level in the ambient air. The continuous data output from the instrument is transmitted by telemetry for entry into an automated central data acquisition system.

LMAPCD utilizes the Cavity-Attenuated Phase-Shift (CAPS) spectroscopy method as well as chemiluminescence to measure nitrogen dioxide and total reactive nitrogen (NO/NOy) respectively.

Calibration of these instruments is done dynamically using NIST certified gas mixtures of nitric oxide. Through the use of dilution apparatus, varying concentrations are produced and supplied to the monitors, thus producing a specific calibration curve for each instrument. Each data point is automatically compared to this curve before entry into the data acquisition system.

### (h) Lead (Pb)

To determine lead concentrations, KDAQ uses high volume particulate samplers, which collect samples of suspended particulates onto 8 x 10 glass fiber filters. The samplers use a brushless motor and a critical flow orifice in order to achieve a sampling flow rate between 1.10 and 1.70 cubic meters per minute (m³/min) over the course of 24 hours. Upon collection, the filters are sent to an US EPA certified laboratory for analysis. The sample filters are cut into strips, acid digested according to 40 CFR Part 50, Appendix G, and analyzed by Inductively Coupled Plasma with Mass Spectroscopy Detection (ICP-MS).

### (i) Air Toxics

Air toxics samples are classified into four categories: metals, volatile organic compounds (VOC), polycyclic aromatic hydrocarbons (PAH), and carbonyls.

Metal samples are collected on 46.2 mm PTFE filters over a 24-hour period from the PM<sub>10</sub>

monitoring method. The filter is weighed before and after the sample run by a contract laboratory. The gain in weight in relation to the volume of air sampled is used to calculate the concentration in micrograms per cubic meter (ug/m³). The filter is then delivered to a separate US EPA contract laboratory for analysis by inductively coupled plasma/mass spectrometer analysis.

VOC samples are collected in a passivated vacuum canister. Ambient air is pulled into the canister over a 24-hour sampling period. The sample is shipped to an US EPA contract laboratory for analysis via gas chromatography. Additionally, LMAPCD operates a continuous automatic gas chromatographs, which continuously monitor for various VOCs and hazardous air pollutants.

PAH samples are collected by a hi-volume air sampler over a 24-hour period. The sample is collected on a polyurethane foam filter cartridge. After sampling, the filter cartridge is packed on ice and shipped to a US EPA contract laboratory for analysis via gas chromatography/mass spectrometry.

Carbonyl samples are collected on a DNPH cartridge. An ambient air stream flows through the cartridge at a one-liter per minute flow rate for a 24-hour sampling period. The cartridge is packed on ice and shipped to an US EPA contract laboratory for high-pressure liquid chromatography analysis.

### (j) RadNet

The US EPA RadNet fixed air station consists of a high-volume sampler that pulls ambient air through a 4-inch diameter filter at a rate of 1,000 liters per minute. Filters are collected twice each week. The instrument also consists of two radiation detectors that continuously measure gamma and beta radiation from particulates collected on the air filter. Data is recorded to the monitor's CPU and is sent hourly to the National Air and Radiation Environmental Laboratory (NAREL) for evaluation.

The RadNet network, which has stations in each State, has been used to track environmental releases of radioactivity from nuclear weapons tests and nuclear accidents. RadNet also documents the status and trends of environmental radioactivity. In general, data generated from RadNet provides the information base for making decisions necessary to ensure the protection of public health. The system helps the EPA determine whether additional sampling or other actions are needed in response to particular releases of radioactivity to the environment. RadNet can also provide supplementary information on population exposure, radiation trends, and other aspects of releases. Data is published by NAREL in a quarterly report entitled *Environmental Radiation Data*. While KDAQ and LMAPCD operate the monitors, all other aspects, including maintenance and data responsibility, are handled by the US EPA. For more information, please visit the US EPA's RadNet website: <a href="http://www.epa.gov/narel/radnet/">http://www.epa.gov/narel/radnet/</a>.

### 7. Quality Assurance Status

The Division for Air Quality and LMAPCD both have an extensive quality assurance program to ensure that all air monitoring data collected is accurate and precise. KDAQ staff members audit air monitors on a scheduled basis, including those operated by the Louisville Metro Air Pollution Control District and the National Park Service, to ensure that each instrument is calibrated and operating properly. Agencies audit their data monthly and verify that the data

reported by each instrument is recorded accurately in the computerized database.

### 8. Scale of Representativeness

Each station in the monitoring network must be described in terms of the physical dimensions of the air parcel nearest the monitoring station throughout which actual pollutant concentrations are reasonably similar. Area dimensions or scales of representativeness used in the network description are:

- (a) Microscale defines the concentration in air volumes associated with area dimensions ranging from several meters up to about 100 meters.
- (b) Middle scale defines the concentration typical of areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 kilometers.
- (c) Neighborhood scale defines the concentrations within an extended area of a city that has relatively uniform land use with dimensions in the 0.5 to 4.0 kilometers.
- (d) Urban scale defines an overall city-sized condition with dimensions on the order of 4 to 50 kilometers.
- (e) Regional Scale defines air quality levels over areas having dimensions of 50 to hundreds of kilometers.

The scale of representativeness is closely related to the type of air monitoring site and the objectives of that site. There are six basics types of sites supported by the ambient air monitoring network:

- (a) To determine the highest concentrations expected to occur in the area covered by the network.
- (b) To determine representative concentrations in areas of high population density.
- (c) To determine the impact on ambient pollution levels of significant sources or source categories.
- (d) To determine the extent of regional transport of pollutants.
- (e) To determine general background concentration levels.
- (f) To determine impacts on visibility, vegetation damage, or other welfare-based concerns.

The design intent in siting stations is to correctly match the area dimensions represented by the sample of monitored air with the area dimensions most appropriate for the monitoring objective of the station. The following relationship of these six basic site type and the scale of representativeness are appropriate when siting monitoring stations:

Monitoring Site Type
Highest Concentration
Population Oriented
Source Impact
Regional Transport & General Background
Welfare-based Impacts

Scale of Representativeness
Micro, Middle, Neighborhood
Neighborhood, Urban
Micro, Middle, Neighborhood
Neighborhood, Regional
Urban, Regional

### **Data Processing and Reporting**

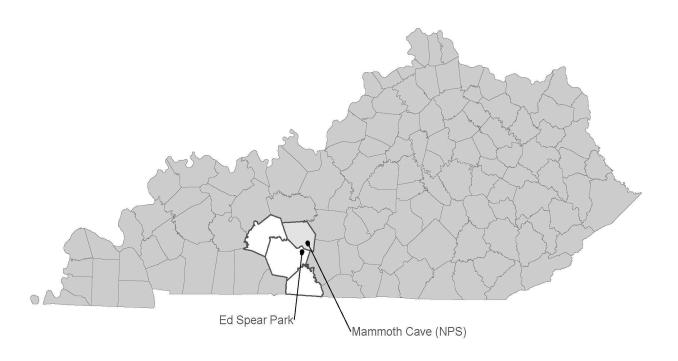
All ambient air quality data collected by KDAQ are stored on a server located at the main office building of Commonwealth Office of Technology at 101 Cold Harbor Drive, Frankfort, Kentucky. The server runs a full database back up every night and keeps an hourly transaction log. After each month of data has passed all quality assurance checks, the data is transmitted via telemetry to the US EPA's national data storage system known as AQS.

All ambient air quality and meteorological data collected by LMAPCD are stored on a server maintained by Louisville Metro's Department of Information Technology (DoIT) located at 410 South 5th Street in Louisville, KY. The server runs a full database back up every night and those data are stored at an offsite facility for disaster recovery purposes.

Statistical data summaries are generated from the AQS database are compiled to produce the Ambient Air Quality Annual Report. This report may be accessed at the KDAQ website: <a href="https://eec.ky.gov/Environmental-Protection/Air/Pages/Division-Reports.aspx">https://eec.ky.gov/Environmental-Protection/Air/Pages/Division-Reports.aspx</a>.

# AIR MONITORING STATION DESCRIPTIONS

# **Bowling Green, KY**



AQS ID / County	Site Address	PM2.5	Cont. PM2.5	PM10	Cont. PM10	SO2	NO2	NOy	СО	03	Pb	VOC	Carbonyl	PAH	PM2.5 Spec.	Carbon Spec.	RadNet	Met
21-061-0501	Alfred Cook Road		1 <sup>tF</sup>			1 <sup>F</sup>		1 <sup>F</sup>	1 <sup>F</sup>	1 <sup>F, M</sup>								$1^{\mathrm{F}}$
Edmonson	Mammoth Cave (NPS)																	
21-227-0009	226 Sunset Street	2 <sup>C</sup>	$2^{C,S,i}$							1 <sup>i</sup>								
Warren	Smiths Grove																	
Totals	2	2	3			1		1	1	2								1

Tallies are equal to the actual number of monitors present. Superscripts represent additional information about the network.

F=Non-EPA Federal Monitor

t=Continuous TEOM Monitor

C=Collocated

i=AQI Reported

M=Maximum Ozone Concentration Site for MSA

S=Continuous T640 Monitor

CSA/MSA: Bowling Green-Glasgow, KY CSA; Bowling Green, KY MSA 401 KAR 50:020 Air Quality Region: South Central Kentucky Intrastate (105)

Site Name: Mammoth Cave National Park, Houchin Meadow

**AQS Site ID:** 21-061-0501

Location: Alfred Cook Road, Park City, KY 42160

County: Edmonson

**GPS Coordinates:** 37.131944, -86.14778 (NAD83)

**Date Established:** August 1, 1997 **Inspection Date:** October 10, 2018 **Inspection By:** Shauna Switzer



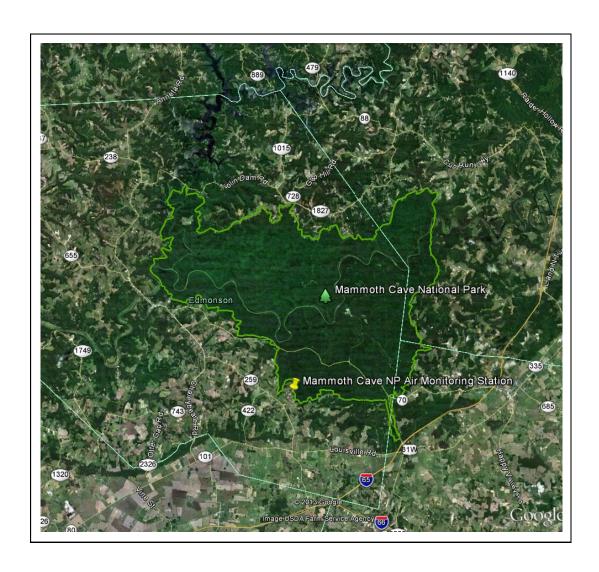
Mammoth Cave National Park was established as one of 156 mandatory Federal Class I Areas nationwide under the Clean Air Act Amendments of 1977. Class I Areas are imparted with the highest level of air quality protections, especially regarding visibility degradation (haze). The Division maintains a cooperative relationship with Mammoth Cave National Park and frequently includes the site's data in air quality analyses. Additionally, the ozone monitor is designated as the "Maximum Ozone Concentration" monitor for the Bowling Green, KY MSA. However, KDAQ does not operate the site nor certify the annual data. While the park conducts a variety of air quality studies, only certain data is reported to the EPA's AQS database.

### **Monitors:**

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	10.4	CASTNET Maximum O <sub>3</sub> Non-EPA Federal	Automated Equivalent Method utilizing UV photometry analysis	Continuously
Sulfur Dioxide	10.2	Non-EPA Federal	Automated Equivalent Method utilizing trace level UV fluorescence analysis	Continuously
Total Reactive Nitrogen (NO/NO <sub>Y</sub> )	10.2	Non-EPA Federal	Automated method utilizing trace level chemiluminescence analysis	Continuously
Carbon Monoxide	10.2	Non-EPA Federal	Automated Reference Method utilizing trace level non-dispersive infrared analysis	Continuously

### **Monitors (Continued):**

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
PM <sub>2.5</sub> TEOM	4.6	Non-EPA Federal	Tapered element oscillating microbalance, gravimetric.	Continuously
Meteorological	12.1	Non-EPA Federal	AQM grade instruments for wind speed, wind direction, solar radiation, precipitation, humidity, barometric pressure, and temperature	Continuously



CSA/MSA: Bowling Green-Glasgow, KY CSA; Bowling Green, KY MSA

**401 KAR 50:020 Air Quality Region:** South Central Kentucky Intrastate (105)

**Site Name:** Ed Spear Park **AQS Site ID:** 21-227-0009

Location: 226 Sunset Street, Smiths Grove, KY 42171

County: Warren

**GPS Coordinates:** 37.04926, -86. 21487 (NAD83)

**Date Established:** May 3, 2012 **Inspection Date:** October 10, 2018 **Inspection By:** Shauna Switzer

Site Approval Status: Siting and monitor design has been approved by the EPA.



This monitoring site was established as a replacement for the Oakland (Warren County) air monitoring station (21-227-0008). In October 2010, the Oakland site was found to be sitting within the doline of a sinkhole and was discontinued. Monitoring was established at the new Ed Spear Park site in May 2012. Inspections found the sample lines and equipment to be in good condition. The sample inlets are 35.9 meters from the nearest road. The site meets the requirements of 40 CFR 58, Appendices A, C, D, E and G.

### **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards. While not required for the CBSA, the site also provides levels of ozone and particulate matter for daily index reporting.

### **Monitors:**

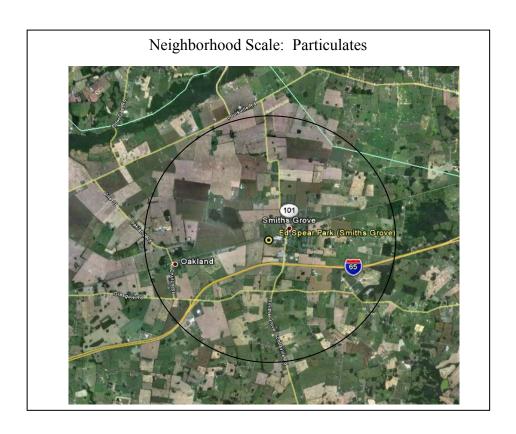
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	4.4	SLAMS	UV photometry	Continuously
		AQI		March 1 – October 31
PM <sub>2.5</sub> Continuous	4.5	SPM	Broadband Spectroscopy	Continuously
Collocated PM <sub>2.5</sub> Continuous	TBD (Install 2019)	SPM	Broadband Spectroscopy	Continuously
FRM PM <sub>2.5</sub>	2.3	SLAMS	Gravimetric	24-hours every third day
Collocated FRM PM <sub>2.5</sub>	2.2	SLAMS	Gravimetric	24-hours every sixth day

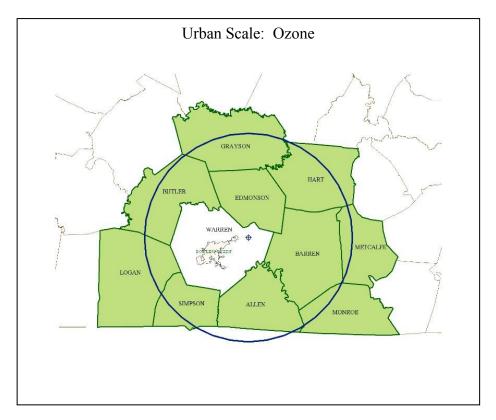
### **Quality Assurance Status:**

All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

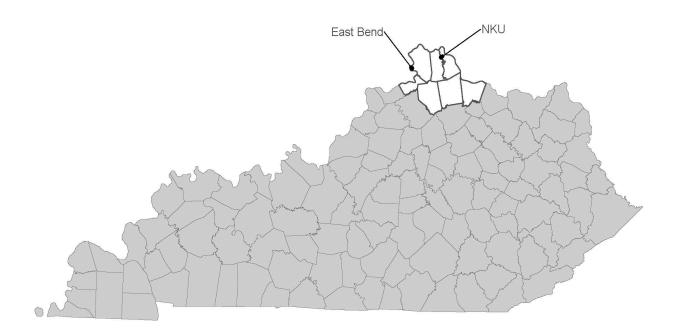
### **Area Representativeness:**

This site represents population exposure on a neighborhood scale for particulates. This site also represents population exposure on an urban scale for ozone.





# Cincinnati, OH-KY-IN



AQS ID / County	Site Address	PM2.5	Cont. PM2.5	PM10	Cont. PM10	SO2	NO2	NOy	СО	03	Pb	VOC	Carbonyl	PAH	PM2.5 Spec.	Carbon Spec.	RadNet	Met
21-015-0003	KY338 & Lower River									1								1
Boone	Union																	
21-037-3002	524A John's Hill Rd	$2^{\mathrm{C}}$	$1^{\text{Si}}$			1 iP	1 <sup>i</sup>			1 <sup>ei</sup>								
Campbell	Highland Heights																	
Totals	2	2	1			1	1			2								1

Tallies are equal to the actual number of monitors present. Superscripts represent additional information about the network.

i=AQI Reported

P=PWEI Monitor

C=Collocated Monitors

e=Emergency Episode Monitor

S=Continuous T640 Monitor

CSA/MSA: Cincinnati-Wilmington-Maysville, OH-KY-IN CSA; Cincinnati, OH-KY-IN MSA

**401 KAR 50:020 Air Quality Region:** Metropolitan Cincinnati (Ohio) Interstate (079)

Site Name: East Bend AQS Site ID: 21-015-0003

Location: KY 338 and Lower River Road, Union, KY 41091

County: Boone

**GPS Coordinates:** 38.918330, -84.852637 (NAD 83)

**Date Established:** July 1, 1977 **Inspection Date:** October 9, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located at the intersection of KY 338 and Lower River Road near East Bend, Kentucky. The sample inlet is 15 meters from the nearest road. Upon inspection, the sample line and monitor were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A,C, D and E.

### **Monitoring Objective:**

The monitoring objective is to determine compliance with National Ambient Air Quality Standards.

### **Monitors:**

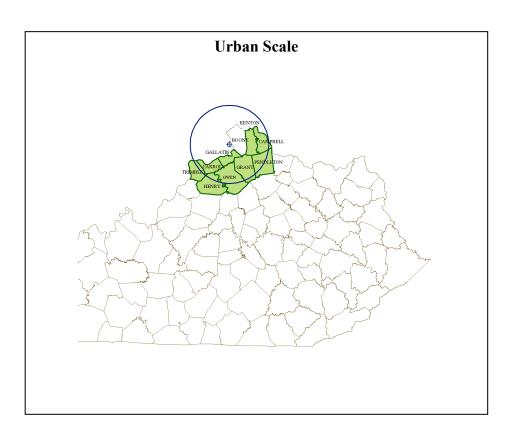
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.6	SLAMS	UV photometry	Continuously  March 1 – October 31
Meteorological	5.7		AQM grade instruments for wind speed, wind direction, humidity, barometric pressure and temperature	Continuously

### **Quality Assurance Status:**

All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

# Area Representativeness:

This site represents the upwind background levels on an urban scale for ozone.



CSA/MSA: Cincinnati-Wilmington-Maysville, OH-KY-IN CSA; Cincinnati, OH-KY-IN MSA

**401 KAR 50:020 Air Quality Region:** Metropolitan Cincinnati (Ohio) Interstate (079)

**Site Name:** Northern Kentucky University (NKU)

**AQS Site ID:** 21-037-3002

Location: 524A John's Hill Road, Highland Heights, KY 41076

County: Campbell

**GPS Coordinates:** 39.02181, -84.47445 (NAD 83)

**Date Established:** August 1, 2007 **Inspection Date:** October 9, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located on farmland owned by Northern Kentucky University in Highland Heights, Kentucky. The sample inlets are 451 meters from the nearest road, which is Interstate 275. Upon inspection, the sample lines and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A, C, D, E and G.

## **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards; to provide ozone, particulate, nitrogen dioxide, and sulfur dioxide levels for daily index reporting; and to detect elevated pollutant levels for activation of emergency control procedures for ozone.

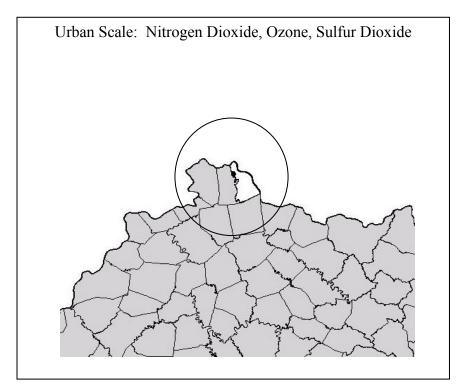
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Nitrogen Dioxide (NO <sub>2</sub> , NO, NO <sub>x</sub> )	3.8	SLAMS AQI	Chemiluminescence	Continuously
AEM Ozone	3.8	SLAMS AQI EPISODE	UV photometry	Continuously March 1 – October 31
FRM PM <sub>2.5</sub>	4.6	SLAMS	Gravimetric	24-hours every third day
Collocated FRM PM <sub>2.5</sub>	4.6	SLAMS	Gravimetric	24-hours every sixth day
PM <sub>2.5</sub> Continuous	4.6	SLAMS AQI	Broadband Spectroscopy	Continuously
AEM Sulfur Dioxide	3.8	SLAMS AQI PWEI	UV fluorescence	Continuously

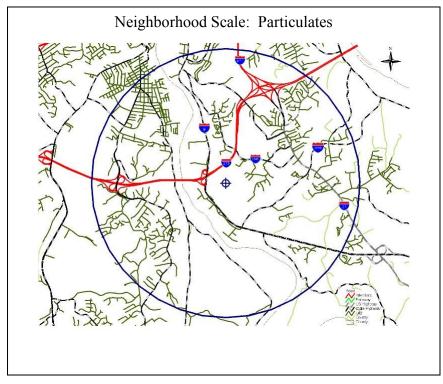
# **Quality Assurance Status:**

All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

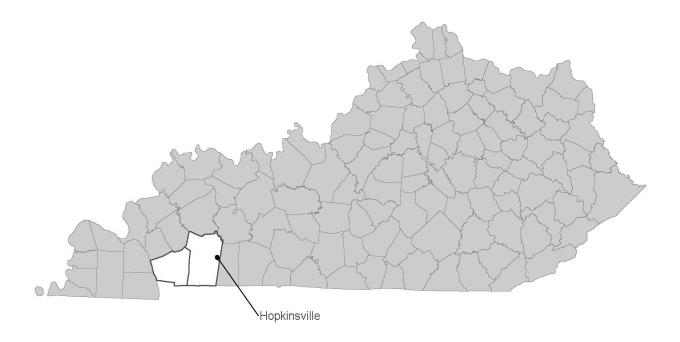
# **Area Representativeness:**

This site represents population exposure for nitrogen dioxide, ozone, and sulfur dioxide on an urban scale. This site also represents population exposure on a neighborhood scale for particulate matter.





# Clarksville, TN-KY



AQS ID / County	Site Address	PM2.5	Cont. PM2.5	PM10	Cont. PM10	SO2	NO2	NOy	СО	03	Pb	VOC	Carbonyl	PAH	PM2.5 Spec.	Carbon Spec.	RadNet	Met
21-047-0006	10800 Pilot Rock Rd	1 <sup>X</sup>								1								1
Christian	Hopkinsville																	
Totals	1	1								1								1

Tallies are equal to the actual number of monitors present. Superscripts represent additional information about the network.

X=Regional Transport PM2.5 Monitor

CSA/MSA: Clarksville, TN- KY MSA

**401 KAR 50:020 Air Quality Region:** Paducah - Cairo Interstate (072)

**Site Name:** Hopkinsville **AQS Site ID:** 21-047-0006

Location: 10800 Pilot Rock Road, Hopkinsville, KY 42240

County: Christian

**GPS Coordinates:** 36.91171, -87.32337 (NAD 83)

**Date Established:** January 1, 1999 **Inspection Date:** December 3, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitors meet all design criteria for the monitoring network.



The monitoring site consists of a  $PM_{2.5}$  monitoring platform and an adjacent stationary equipment shelter. The site is located in a field on the property of a private residence, located at 10800 Pilot Rock Road in Hopkinsville, Kentucky. The sample inlets are 116 meters from the nearest road. Upon inspection, the sample inlets and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A, C, D and E.

# **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards and to determine levels of interstate regional transport of fine particulate matter and ozone.

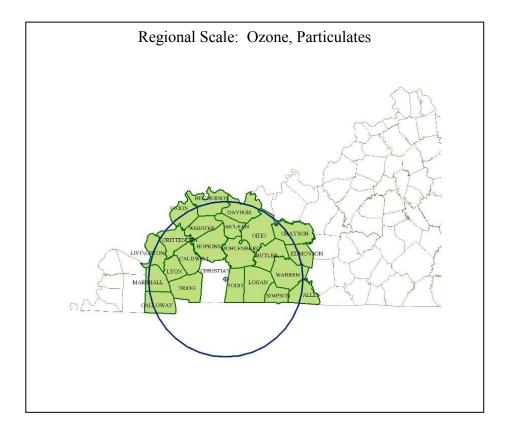
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.7	SLAMS		Continuously  March 1 – October 31
FRM PM <sub>2.5</sub>	2.3	SLAMS	Gravimetric	24-hours every third day
Meteorological	-removed for maintenanc e at time of site eval		AQM grade instruments for wind speed, wind direction, relative humidity, barometric pressure, and temperature	Continuously

# **Quality Assurance Status:**

All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

# **Area Representativeness:**

This site represents population exposure on a regional scale for ozone and PM<sub>2.5</sub>.



# Elizabethtown-Fort Knox, KY



AQS ID / County	Site Address	PM2.5	Cont. PM2.5	PM10	Cont. PM10	SO2	NO2	NOy	СО	03	Pb	VOC	Carbonyl	PAH	PM2.5 Spec.	Carbon Spec.	RadNet	Met
21-093-0006	801 North Miles St.	$2^{C}$	1 <sup>S</sup>							1 <sup>M</sup>								
Hardin	Elizabethtown																	
Totals	1	2	1							1								

Tallies are equal to the actual number of monitors present. Superscripts represent additional information about the network.

C=Collocated

S=Continuous T640 Monitor

M=Maximum Ozone Concentration Site for MSA

CSA/MSA: Louisville/Jefferson County-Elizabethtown-Madison, KY-IN CSA; Elizabethtown-Fort

Knox, KY MSA

**401 KAR 50:020 Air Quality Region:** North Central Kentucky Intrastate (104)

**Site Name:** Elizabethtown **AQS Site ID:** 21-093-0006

Location: American Legion Park, 801 North Miles Street, Elizabethtown, KY 42701

County: Hardin

**GPS Coordinates:** 37.705635, -85.852656 (NAD 83)

**Date Established:** February 24, 2000 **Inspection Date:** October 8, 2018 **Inspection By:** Shauna Switzer

Site Approval Status: Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located near the tennis courts on the grounds of the American Legion Park in Elizabethtown, Kentucky. In 2012, the site was moved approximately 23 meters due to potential expansion of a nearby park building. From the new location, the sample inlets are approximately 40 meters from the nearest road. Upon inspection, the sample lines and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A, C, D, and E.

## **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards.

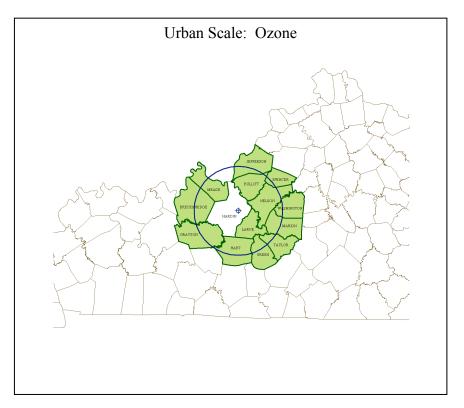
#### **Monitors:**

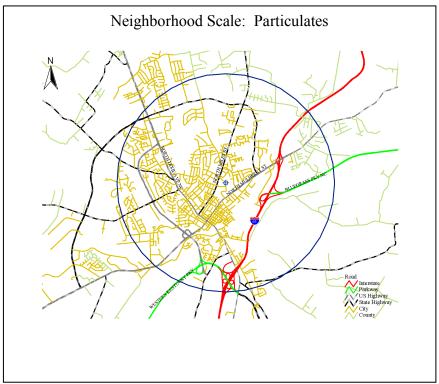
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone		SLAMS Maximum O <sub>3</sub>	UV photometry	Continuously  March 1 – October 31
FRM PM <sub>2.5</sub>	4.6	SLAMS	Gravimetric	24-hours every third day
Collocated FRM PM <sub>2.5</sub>	4.6	SLAMS	Gravimetric	24-hours every sixth day
PM <sub>2.5</sub> Continuous	TBD (Install date 3/27/19)	SPM	Broadband Spectroscopy	Continuously

#### **Ouality Assurance Status:**

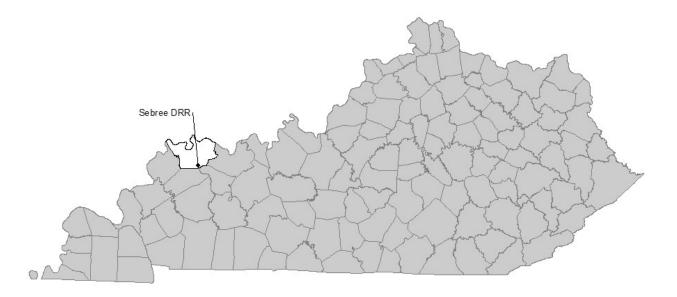
# **Area Representativeness:**

This site represents population exposure on a neighborhood scale for particulates and population exposure on an urban scale for ozone.





# **Evansville, IN-KY**



AQS ID / County	Site Address	PM2.5	Cont. PM2.5	PM10	Cont. PM10	SO2	NO2	NOy	СО	03	Pb	VOC	Carbonyl	PAH	PM2.5 Spec.	Carbon Spec.	RadNet	Met
21-101-1011	Alcan Aluminum Rd.					$1^{DRR}$												
	Robards, KY 42452																	
Totals	1					1												

Tallies are equal to the actual number of monitors present. Superscripts represent additional information about the network.

DRR = SO2 Data Requirements Rule Monitor

Rev. 5/1/16

CSA/MSA: Evansville, IN-KY MSA

**401 KAR 50:020 Air Quality Region:** Evansville-Owensboro-Henderson Interstate (077)

Site Name: Sebree SO<sub>2</sub> DRR Site

**AQS Site ID:** 21-101-1011

Location: Alcan Aluminum Road

County: Henderson

**GPS Coordinates:** 37.654391, -87.511424

**Date Established:** January 1, 2017 **Inspection Date:** October 19, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitor meet design criteria for the monitoring network.



On August 10, 2015, the EPA finalized requirements in 40 CFR 51, Subpart BB requiring air pollution control agencies to monitor ambient sulfur dioxide (SO<sub>2</sub>) concentrations in areas with large sources of sulfur dioxide emissions in order to assist in the implementation for the one-hour SO<sub>2</sub> National Ambient Air Quality Standard (NAAQS). Known as the "Data Requirements Rule (DRR)," this action established that, at a minimum, agencies must characterize air quality around sources that emit 2,000 tons per year (tpy) or more of sulfur dioxide. The site meets the requirements of 40 CFR 58, Appendices A, C, D, and E.

As allowed by the DRR, an ambient air monitoring site has been established near Sebree, Kentucky, to characterize maximum hourly sulfur dioxide concentrations in the immediate vicinity of the Big Rivers Electric Corporation and Century Aluminum Sebree, LLC facilities. The site is located at the intersection of Alcan Aluminum Road and a facility coal-truck access road, approximately 1/2 mile south of State Route 2678.

#### **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards.

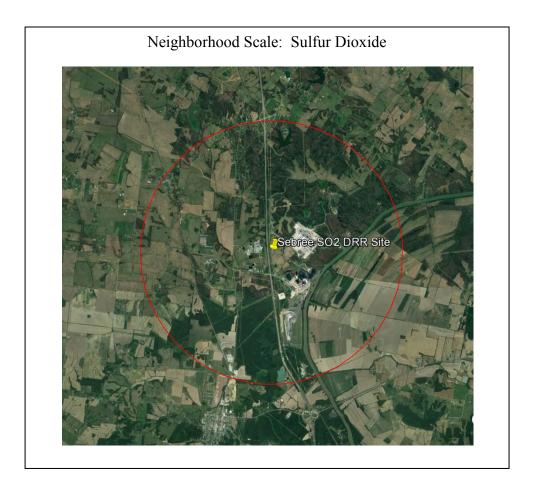
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Sulfur Dioxide	3.8	SLAMS	UV fluorescence	Continuously

# **Quality Assurance Status:**

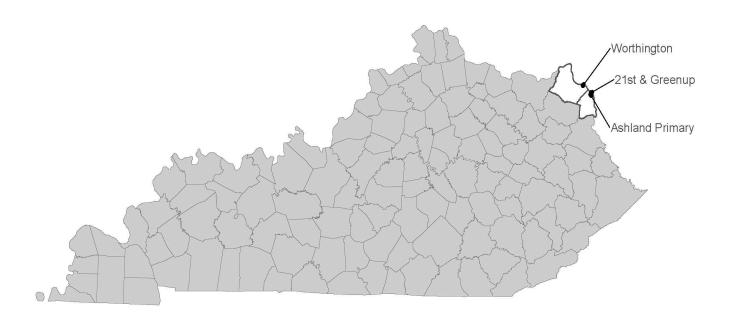
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

# **Area Representativeness:**

This site also represents population exposure on a neighborhood scale for sulfur dioxide.



# **Huntington-Ashland, WV-KY-OH**



AQS ID / County	Site Address	PM2.5	Cont. PM2.5	PM10	Cont. PM10	SO2	NO2	NOy	СО	03	Pb	VOC	Carbonyl	PAH	PM2.5 Spec.	Carbon Spec.	RadNet	Met
21-019-0002	122 22nd Street			$2^{\text{Cm}}$														
Boyd	Ashland																	
21-019-0017	2924 Holt Street		1 <sup>Si</sup>			1 <sup>eiP</sup>	1 <sup>ei</sup>			1 <sup>eiM</sup>								1
Boyd	Ashland																	
21-089-0007	Scott St. & Center Ave.					1e				1 e								
Greenup	Worthington																	
Totals	3		1	2		2	1			2								1

Tallies are equal to the actual number of monitors present. Superscripts represent additional information about the network.

i=AQI Reported

m=PM10 Filter Analyzed for Metals

C=Collocated

e=Emergency Episode Monitor

S=Continuous T640 Monitor

P = PWEI Monitor

M=Maximum Ozone Concentration Site for MSA

CSA/MSA: Charleston-Huntington-Ashland, WV-OH-KY CSA; Huntington-Ashland, WV-KY-OH

MSA

**401 KAR 50:020 Air Quality Region:** Huntington (WV)-Ashland (KY)-Portsmouth-Ironton (OH)

Interstate (103)

**Site Name:** 21<sup>st</sup> and Greenup **AQS Site ID:** 21-019-0002

**Location:** 122 22<sup>nd</sup> Street, Ashland, KY 41101

County: Boyd

**GPS Coordinates:** 38.47676, -82.63137 (NAD 83)

**Date Established:** April 2, 1978 **Inspection Date:** September 12, 2018 **Inspection By:** Shauna Switzer

Site Approval Status: Site and monitors meet all design criteria for the monitoring network.



The monitoring site is located on the west end of the roof of the Valvoline Oil complex building in Ashland, Kentucky. The building is one story tall. The sample inlets are 76.6 meters from the nearest road. Upon inspection, the sample inlets and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A, C, D and E.

## **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards and to measure concentrations of a sub-group of air toxics.

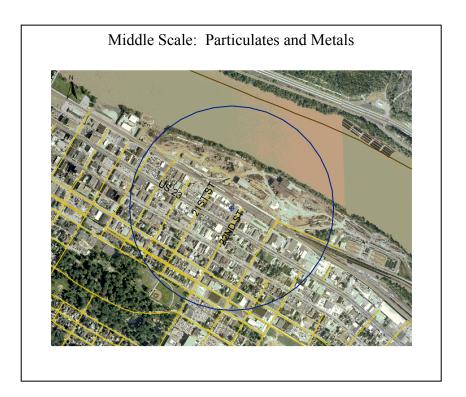
#### **Monitors:**

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
FEM PM <sub>10</sub>	6.8	SLAMS	Gravimetric	24-hours every sixth day
- Metals PM <sub>10</sub>		SPM-Other	Determined from the PM <sub>10</sub> sample using EPA method IO 3.5	Same as PM <sub>10</sub>
Collocated FEM PM <sub>10</sub>	6.8	SLAMS	Gravimetric	24-hours every twelfth day
- Collocated Metals PM <sub>10</sub>		SPM-Other	Determined from the PM <sub>10</sub> sample using EPA method IO 3.5	24-hours; six samples per year

#### **Quality Assurance Status:**

# Area Representativeness:

The site represents maximum concentration on a middle scale for particulates and metals.



CSA/MSA: Charleston-Huntington-Ashland, WV-OH-KY CSA; Huntington-Ashland, WV-KY-OH

MSA

**401 KAR 50:020 Air Quality Region:** Huntington (WV)-Ashland (KY)-Portsmouth-Ironton (OH)

Interstate (103)

**Site Name:** Ashland Primary (FIVCO)

**AQS Site ID:** 21-019-0017

Location: FIVCO Health Department, 2924 Holt Street, Ashland, KY 41101

County: Boyd

**GPS Coordinates:** 38.45934, -82.64041 (NAD 83)

**Date Established:** January 1, 1999 **Inspection Date:** September 13, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located on the grounds of the health department building in Ashland, Kentucky. The sample inlets are 70.7 meters from the nearest road. Upon inspection, the sample lines and monitors were found to be in good condition.

Previously, airflow at the site was partially obstructed by tall trees. However, KDAQ and the FIVCO Health Department invested in significant tree removal in November 2016, alleviating siting criteria concerns. The site is operated in accordance with all criteria required by 40 CFR 58, Appendices A, C, D, E, and G.

## **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards; to detect elevated pollutant levels for activation of emergency control procedures for nitrogen dioxide, ozone, and sulfur dioxide; and to provide pollutant levels for daily air quality index reporting.

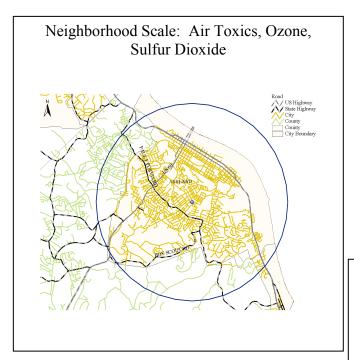
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Nitrogen Dioxide (NO <sub>2</sub> , NO, NO <sub>x</sub> )	3.8	SLAMS AQI EPISODE	Chemiluminescence	Continuously
AEM Sulfur Dioxide	3.8	SLAMS AQI EPISODE PWEI	UV fluorescence	Continuously
AEM Ozone	3.8	SLAMS AQI EPISODE Maximum O <sup>3</sup>	UV photometry	Continuously March 1 – October 31
PM <sub>2.5</sub> Continuous	4.6	SLAMS AQI	Broadband spectroscopy	Continuously
Meterological	5.7	Other	AQM grade instruments for wind speed, wind direction, humidity, barometric pressure, and temperature	Continuously

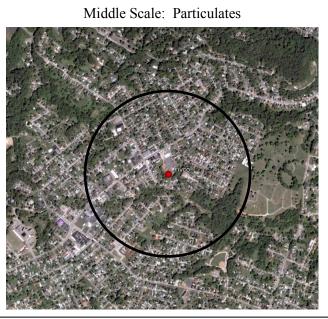
## **Quality Assurance Status:**

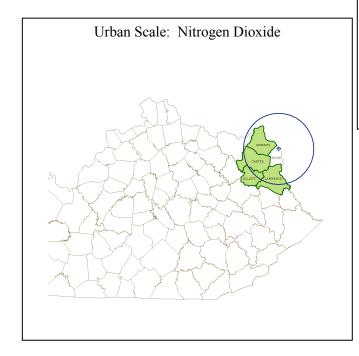
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

## **Area Representativeness:**

This site represents population exposure on a neighborhood scale for air toxics, ozone, and sulfur dioxide. This site also represents maximum concentrations on a middle scale for particulates, as well as an urban scale for nitrogen dioxide.







CSA/MSA: Charleston-Huntington-Ashland, WV-OH-KY CSA; Huntington-Ashland, WV-KY-OH

MSA

**401 KAR 50:020 Air Quality Region:** Huntington (WV)-Ashland (KY)-Portsmouth-Ironton (OH)

Interstate (103)

**Site Name:** Worthington **AQS Site ID:** 21-089-0007

Location: Scott Street & Center Avenue, Worthington, KY 41183

County: Greenup

**GPS Coordinates:** 38.548136, -82.731163 (NAD 83)

**Date Established:** October 12, 1980 **Inspection Date:** September 12, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located on the grounds of a water tower near the intersection of Scott Street and Center Avenue in Worthington, Kentucky. The sample inlets are 16.6 meters from the nearest road. Upon inspection, the sample lines and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A, C, D, and E.

# **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards; to detect elevated pollutant levels for activation of emergency control procedures for ozone and sulfur dioxide.

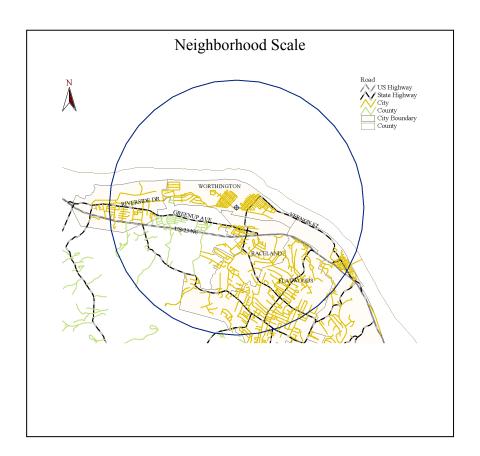
#### **Monitors:**

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone		SLAMS EPISODE	UV photometry	Continuously March 1 – October 31
AEM Sulfur Dioxide	-	SPM EPISODE	UV fluorescence	Continuously

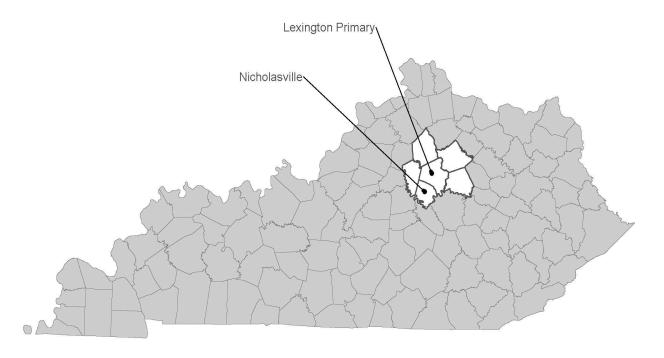
#### **Quality Assurance Status:**

# **Area Representativeness:**

This site represents population exposure on a neighborhood scale for ozone and sulfur dioxide.



# Lexington-Fayette, KY



AQS ID / County	Site Address	PM2.5	Cont. PM2.5	PM10	Cont. PM10	SO2	NO2	NOy	СО	03	Pb	VOC	Carbonyl	PAH	PM2.5 Spec.	Carbon Spec.	RadNet	Met
21-067-0012	650 Newtown Pike	1	1 <sup>Si</sup>	1 m		1 <sup>ie</sup>	1 <sup>ier</sup>			1 <sup>ieM</sup>							1	
Fayette	Lexington																	
21-113-0001	260 Wilson Drive					1				1								1
Jessamine	Nicholasville																	
Totals	2	1	1	1		2	1			2							1	1

Tallies are equal to the actual number of monitors present. Superscripts represent additional information about the network.  $PWEI SO_2$  monitor required in CBSA.

i = AQI

r=RA-40 Monitor

S=Continuous T640 Monitor

M=Maximum Ozone Concentration Site for MSA

m=PM10 Filter Analyzed for Metals

e=Emergency Episode Monitor

CSA/MSA: Lexington-Fayette-Richmond-Frankfort, KY CSA; Lexington-Fayette, KY MSA

**401 KAR 50:020 Air Quality Region:** Bluegrass Intrastate (102)

**Site Name:** Lexington Primary **AOS Site ID:** 21-067-0012

Location: Fayette County Health Department, 650 Newtown Pike, Lexington, KY 40508

County: Fayette

**GPS Coordinates:** 38.06503, -84.49761 (NAD 83)

**Date Established:** November 8, 1979 **Inspection Date:** October 5, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located on the grounds of the Fayette County Health Department building in Lexington, Kentucky. The sample inlets are 119 meters from the nearest road. Upon inspection, the sample lines and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A, C, D, E and G.

## **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards; to detect elevated pollutant levels for activation of emergency control procedures for nitrogen dioxide, ozone, particulates, and sulfur dioxide; and to provide pollutant levels for daily air quality index reporting.

Additionally, the nitrogen dioxide monitor has been approved as a RA-40 monitor. According to CFR, each EPA Regional Administrator is required to collaborate with agencies to establish or designate 40 NO<sub>2</sub> monitoring locations, with a primary focus on protecting susceptible and vulnerable populations.

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.8	SLAMS AQI EPISODE Maximum O <sup>3</sup>	UV photometry	Continuously  March 1 – October 31
AEM Nitrogen Dioxide (NO <sub>2</sub> , NO, NO <sub>x</sub> )	4.0	SLAMS (RA-40) AQI EPISODE	Chemiluminescence	Continuously
AEM Sulfur Dioxide	3.6	SLAMS AQI EPISODE	UV fluorescence	Continuously
PM <sub>2.5</sub> Continuous	4.5	SPM AQI	Broadband Spectroscopy	Continuously

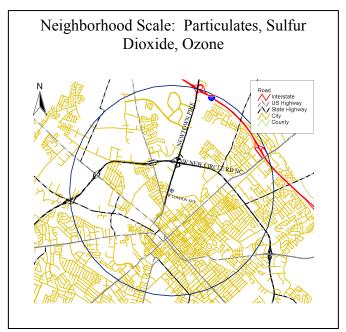
FRM PM <sub>2.5</sub>	2.3	SLAMS	Gravimetric	24-hours every third day
$PM_{10}$	2.3	SLAMS	Gravimetric	24-hours every sixth day
- PM <sub>10</sub> Metals		SPM-Other	Determined from the PM <sub>10</sub> sample using EPA method IO 3.5	Same as PM <sub>10</sub>
Radiation	1.2	RadNet	RadNet fixed stationary monitor, manual and automated methods	Continuously & 2 weekly filters

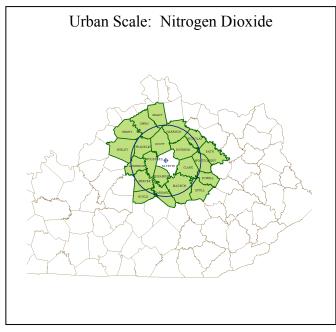
## **Quality Assurance Status:**

All quality assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

# **Area Representativeness:**

This site represents population exposure on a neighborhood scale for particulates, sulfur dioxide and ozone. This site also represents population exposure on an urban scale for nitrogen dioxide.





CSA/MSA: Lexington-Fayette-Richmond-Frankfort, KY CSA; Lexington-Fayette, KY MSA

**401 KAR 50:020 Air Quality Region:** Bluegrass Intrastate (102)

**Site Name:** Nicholasville **AQS Site ID:** 21-113-0001

Location: KYTC Maintenance Garage, 260 Wilson Drive, Nicholasville, KY 40356

County: Jessamine

**GPS Coordinates:** 37.89147, -84.58825 (NAD 83)

**Date Established:** August 1, 1991 **Inspection Date:** October 5, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located on the grounds of the Kentucky Transportation Cabinet garage in Nicholasville, Kentucky. The sample inlets are 113 meters from the nearest road. Upon inspection, the sample inlets and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A, C, D, and E.

# **Monitoring Objective:**

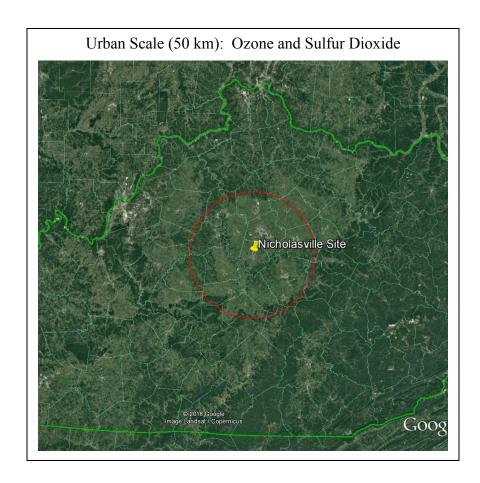
The monitoring objectives are to determine compliance with National Ambient Air Quality Standards and to provide ozone data upwind of the Lexington area.

#### **Monitors:**

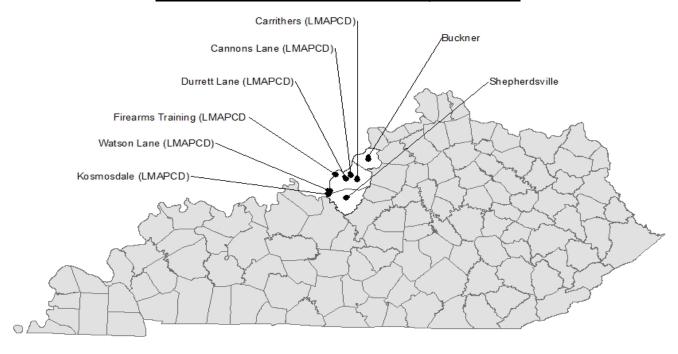
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.9	SLAMS	UV photometry	Continuously March 1 – October 31
AEM Sulfur Dioxide	3.9	SPM	UV fluorescence	Continuously
Meteorological	5.6	Other	AQM grade instruments for wind speed, wind direction, temperature, and barometric pressure	Continuously

#### **Quality Assurance Status:**

**Area Representativeness:** This site represents population exposure on an urban scale.



# Louisville/Jefferson County, KY-IN



AQS ID / County	Site Address	PM2.5	Cont. PM2.5	PM10	Cont. PM10/ PMcoarse	SO2	NO2	NOy	CO	03	Pb	VOC	Carbonyl	РАН	PM2.5 Spec.	Carbon Spec.	RadNet	Met
21-029-0006	2nd & Carpenter St									1								
Bullitt	Shepherdsville																	
21-185-0004	1601 South Hwy 393									1								1
Oldham	LaGrange																	
21-111-0051	7201 Watson Ln		$1^{i,S,*}$			1 <sup>i</sup>				1 i								1
Jefferson	Louisville (LMAPCD)																	
21-111-0065	15501R Dixie Hwy					1 <sup>i</sup>												1
Jefferson	Louisville (LMAPCD)																	
21-111-0067	2730 Cannons Ln	1 <sup>C</sup>	1 <sup>i,E,*</sup>		1 <sup>i,E</sup>	1 <sup>i</sup>	1 <sup>i</sup>	1 <sup>i</sup>	1 <sup>i</sup>	$1^{i,M}$		$1^{G}$			1	1	1	1
Jefferson	Louisville (LMAPCD)																	
21-111-0075	1517 Durrett Ln	1 <sup>n,C</sup>	1 <sup>S,n,i,*</sup>				1 <sup>n,i</sup>		1 <sup>n,i</sup>									1 <sup>n</sup>
Jefferson	Louisville (LMAPCD)																	
21-111-0080	4320 Billtown Rd		1 <sup>i,*,S</sup>							1 i								1
Jefferson	Louisville (LMAPCD)																	
21-111-1041	4201 Algonquin Pkwy		1 <sup>i,E,*</sup>		1 <sup>i,E</sup>	1 <sup>i</sup>						1 <sup>G</sup>						1
Jefferson	Louisville (LMAPCD)																	
Totals	8	2	5		2	4	2	1	2	5		2			1	1	1	7

Tallies are equal to the actual number of parameters currently monitored. Superscripts represent additional information about the network.

C=Collocated G=Auto GC

S=Continuous T640 Monitor i=AQI Reported

\*=Eligible for PM2.5 NAAQS Comparisons n=Near-Road Monitor

M=Maximum Ozone Concentration Site for MSA E=Continuous T640x PM<sub>2.5</sub>, PM<sub>10</sub>, PMCoarse

Note: T640x samples for  $PM_{10}$ ,  $PM_{2.5}$  and  $PM_{coarse}$  with a single monitor for 21-111-1041 and 21-111-0067 sites

CSA/MSA: Louisville/Jefferson County-Elizabethtown-Madison, KY-IN CSA; Louisville/Jefferson

County, KY-IN MSA

**401 KAR 50:020 Air Quality Region:** North Central Kentucky Intrastate (104)

**Site Name:** Shepherdsville **AQS Site ID:** 21-029-0006

Location: East Joe B. Hall Avenue & Carpenter Streets, Shepherdsville, KY 40165

**County:** Bullitt

**GPS Coordinates:** 37.98629, -85.71192 (NAD 83)

**Date Established:** January 30, 1992 **Inspection Date:** October 8, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located in a fenced-in area near the intersection of Second and Carpenter Streets in Shepherdsville, Kentucky. The sample inlets are 66.4 meters from the nearest road. Upon inspection, the sample lines and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A, C, D, and E.

# **Monitoring Objective:**

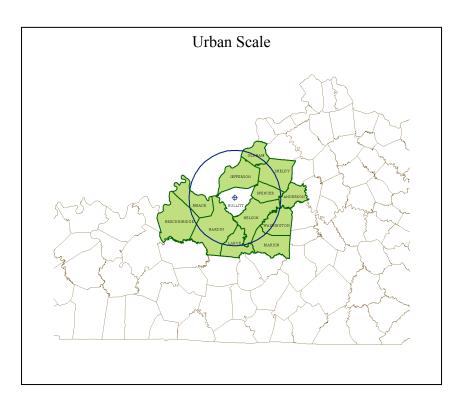
The monitoring objectives are to determine compliance with National Ambient Air Quality Standards.

#### **Monitors:**

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	4.0	SLAMS	1	Continuously  March 1 – October 31

### **Quality Assurance Status:**

**Area Representativeness:** This site represents population exposure on an urban scale for ozone.



CSA/MSA: Louisville/Jefferson County-Elizabethtown-Madison, KY-IN CSA; Louisville/Jefferson

County, KY-IN MSA

**401 KAR 50:020 Air Quality Region:** North Central Kentucky Intrastate (104)

Site Name: Buckner

**AQS Site ID:** 21-185-0004

Location: KYTC Maintenance Facility, 1601 South Hwy 393, LaGrange, KY 40031

County: Oldham

**GPS Coordinates:** 38.40020, -85.44428 (NAD 83)

**Date Established:** May 1, 1981 **Inspection Date:** October 8, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitor meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located on the grounds of the Kentucky Transportation Cabinet Highway garage in Buckner, Kentucky. The sample inlet is 51 meters from the nearest road. Upon inspection, the sample line and monitor were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices C, D, and E.

# **Monitoring Objective:**

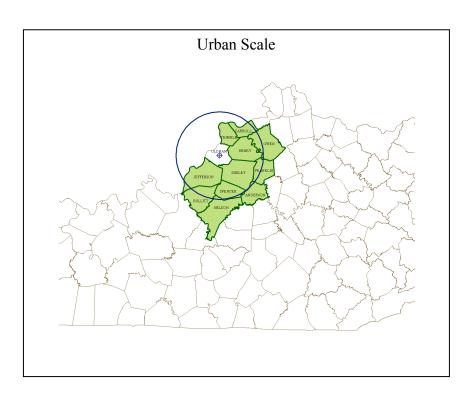
The monitoring objectives are to determine compliance with National Ambient Air Quality Standards.

#### **Monitors:**

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.8	SLAMS		Continuously  March 1 – October 31
Meteorological	5.5		AQM grade instruments for wind speed, wind direction, humidity, barometric pressure, and temperature	Continuously

#### **Quality Assurance Status:**

**Area Representativeness:** This site represents maximum concentrations on an urban scale.



CSA/MSA: Louisville/Jefferson County-Elizabethtown-Madison, KY-IN CSA; Louisville/Jefferson

County, KY-IN MSA

401 KAR 50:020 Air Quality Region: Louisville Interstate (078)

Site Name: Watson Lane AQS Site ID: 21-111-0051

Location: 7201 Watson Lane, Louisville, KY 40272

County: Jefferson

**GPS Coordinates:** 38.06091, -85.89804 (NAD 83)

**Date Established:** July 16, 1992 **Inspection Date:** October 22, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located on the grounds of the Watson Lane Elementary School in Louisville, Kentucky. The sample inlets are 4 meters above ground level and 73.7 meters from the nearest road. Upon inspection, the sample lines and monitors were found to be in good condition. The air monitoring site meets the criteria established by 40 CFR Part 58, Appendices C, D, E and G.

### **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards and to provide pollution levels for daily index reporting.

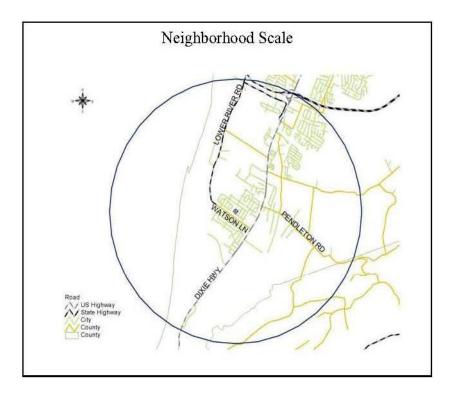
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	4.1	SLAMS AQI	UV photometry	Continuously  March 1 – October 31
PM <sub>2.5</sub> Continuous	TBD (Install 2019)	SLAMS AQI	Broadband Spectroscopy	Continuously
AEM Sulfur Dioxide	4.1	SLAMS AQI	UV fluorescence	Continuously
Meteorological	5.8	Other	AQM grade instruments for wind speed and wind direction. Not reported to AQS.	Continuously

# **Quality Assurance Status:**

All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

# **Area Representativeness:**

This site represents population exposure on a neighborhood scale for ozone and particulates. This site also represents maximum concentrations on a neighborhood scale for  $SO_2$ .



CSA/MSA: Louisville/Jefferson County-Elizabethtown-Madison, KY-IN CSA; Louisville/Jefferson

County, KY-IN MSA

**401 KAR 50:020 Air Quality Region:** Louisville Interstate (078)

Site Name: Kosmosdale AQS Site ID: 21-111-0065

Location: 15501R Dixie Highway, Louisville, KY 40272

County: Jefferson

**GPS Coordinates:** 38.0296139, -85.911389 (NAD 83)

**Date Established:** TBD **Inspection Date:** TBD **Inspection By:** TBD

Site Approval Status: TBD



Due to the need for additional characterization of ambient air quality in the southwestern Jefferson County, a new site will be established to measure ambient concentrations of SO2 at a location approved by EPA on February 1, 2018. LMAPCD will continue to work with EPA, KDAQ, and permitted facilities to install the site and monitoring equipment as expeditiously as possible. LMAPCD anticipates full operation of this site by January 1, 2020.

### **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards and to provide pollution levels for daily index reporting.

### **Monitors:**

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Sulfur Dioxide	TBD	SLAMS	UV fluorescence	Continuously
Meteorological	TBD		AQM grade instruments for wind speed, wind direction, temperature, and humidity. Not reported to AQS; thus, there is no designation.	Continuously

### **Quality Assurance Status:**

All Quality Assurance procedures will be implemented in accordance with 40 CFR 58, Appendix A.

# Area Representativeness:

This site will represent population exposure on a neighborhood scale for sulfur dioxide.

Neighborhood Scale: Sulfur Dioxide



CSA/MSA: Louisville/Jefferson County-Elizabethtown-Madison, KY-IN CSA; Louisville/Jefferson

County, KY-IN MSA

**401 KAR 50:020 Air Quality Region:** Louisville Interstate (078)

Site Name: Cannons Lane AQS Site ID: 21-111-0067

Location: Bowman Field, 2730 Cannons Lane, Louisville, KY 40204

County: Jefferson

**GPS Coordinates:** 38.2288760, -85.654520 (NAD 83)

**Date Established:** July 1, 2008 **Inspection Date:** October 22, 2018 **Inspection By:** Shauna Switzer

Site Approval Status: EPA SLAMS approval on December 22, 2008; EPA NCore approval on

October 30, 2009.



The station is located on property leased by The site is located in the NE quadrant of LMAPCD. Jefferson County and is approximately 9 km from the urban core of Metro Louisville. The site was originally established as a SLAMS site in 2008 and became a NCore site in 2009. In December 2010, a solar electric array designed to produce approximately 6,336 kWh per year was installed. The array provides over 50% of the power used by the air monitoring station. Upon inspection, the sample lines and monitors were found to be in good condition. The air monitoring site meets the criteria of 40 CFR Part 58. Appendices A, C, D, E and G.

## **Monitoring Objective:**

The NCore Network addresses the following monitoring objectives:

- timely reporting of data to the public through AIRNow, air quality forecasting, and other public reporting mechanisms
- support development of emission strategies through air quality model evaluation and other observational methods
- accountability of emission strategy progress through tracking long-term trends of criteria and non-criteria pollutants and their precursors
- support long-term health assessments that contribute to ongoing reviews of the National Ambient Air Quality Standards (NAAQS)
- compliance through establishing nonattainment/attainment areas by comparison with the NAAQS
- support multiple disciplines of scientific research, including public health, atmospheric, and ecological.

# **Monitors:**

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
Carbon Monoxide	4.3	NCore SLAMS AQI	Automated Reference Method utilizing trace level non-dispersive infrared analysis.	Continuously
Nitrogen Dioxide (NO <sub>2</sub> )	4.2	NCore SLAMS AQI	Cavity Attenuated Phase Shift Spectrometry	Continuously
Total Reactive Nitrogen (NO/NO <sub>y</sub> )	7.2	NCore PAMS	Automated method utilizing trace level chemiluminescence analysis.	Continuously
Ozone	4.2	NCore PAMS SLAMS AQI	Automated Equivalent Method utilizing UV photometry analysis.	Continuously
Sulfur Dioxide	4.2	NCore SLAMS AQI	Automated Equivalent Method utilizing trace level UV fluorescence analysis.	Continuously
PM <sub>2.5</sub> and PM <sub>10</sub> Continuous - PM <sub>Coarse</sub> (PM <sub>10</sub> -PM <sub>2.5</sub> )	TBD (Install 2019)	NCore SLAMS AQI	Broadband Spectroscopy	Continuously
PM <sub>2.5</sub> Speciation	2.4	NCore SLAMS	Multi-Species manual collection method utilizing thermal optical ion chromatography, gravimetric, and X-ray fluorescence.	24-hours every third day
PM <sub>2.5</sub> Carbon Speciation	2.2	NCore SLAMS	Multi-species manual collection method utilizing thermal optical and gravimetric analyses.	24-hours every third day
FRM PM <sub>2.5</sub> Collocated	TBD (Install 2019)	NCore SLAMS QA Collocated	Manual reference method utilizing gravimetric analysis	24-hours every third day
Volatile Organic Compounds	TBD (Install 2019)	PAMS	Automatic gas chromatograph with flame ionization detection	Continuously

# **Monitors (Continued):**

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling			
Meteorological	9.0	NCore PAMS	Air Quality Measurements approved instrumentation for wind speed, wind direction, humidity, and temperature	Continuously			
-Ceilometer	TBD (Install 2019)	PAMS	Pulsed diode laser light detection and ranging (LIDAR)	Continuously			
-Solar Radiation	5.0	NCore PAMS	Air Quality Measurements approved instrumentation for solar radiation	Continuously			
-Rain Gauge	1.4	NCore PAMS	Air Quality Measurements approved instrumentation for precipitation	Continuously			
Radiation	1.5	RadNet	RadNet fixed station air monitor, manual and automated methods	Continuously + 2 weekly filters			

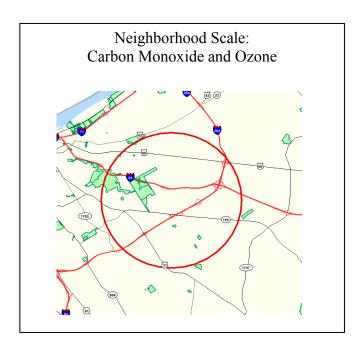
### **Quality Assurance Status:**

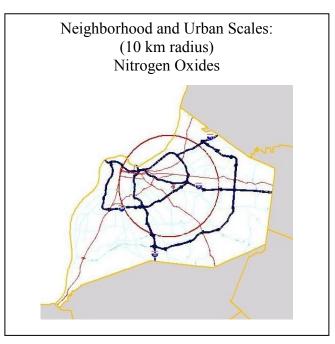
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

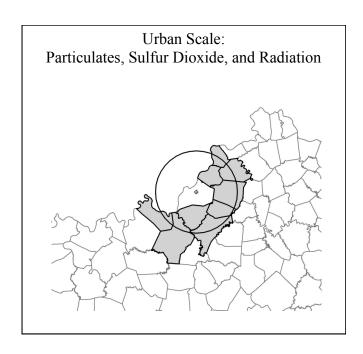
# **Area Representativeness:**

The air monitoring equipment at the Cannon's Lane NCore station is specifically located at the urban and neighborhood scales. These scales are generally the most representative of the expected population exposures that occur throughout metropolitan areas.

Pollutant	Spatial Scale	Comments
Ozone	Neighborhood	
NO <sub>x</sub> /NO <sub>y</sub>	Neighborhood and Urban Scale	10 km radius
Carbon Monoxide	Neighborhood Scale	4 km radius
$SO_2$	Urban Scale	50 km radius
Particulates	Urban	50 km radius
Radiation	Urban	50 km radius







CSA/MSA: Louisville/Jefferson County-Elizabethtown-Madison, KY-IN CSA; Louisville/Jefferson

County, KY-IN MSA

**401 KAR 50:020 Air Quality Region:** Louisville Interstate (078)

Site Name: Durrett Lane (Near-Road Site)

**AQS Site ID:** 21-111-0075

Location: 1517 Durrett Lane, Louisville, KY 40213

County: Jefferson

**GPS Coordinates:** 38.193632, -85.711950 (NAD 83)

**Date Established:** January 1, 2014 **Inspection Date:** October 22, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitors meet all design criteria for the monitoring network.



On February 9, 2010, the EPA released a new NO<sub>2</sub> Final Rule and a new set of monitoring requirements. Under the new monitoring requirements, State and Local agencies are required to establish near-road monitoring stations based upon core based statistical area (CBSA) populations and traffic metrics. The Louisville/Jefferson County, KY-IN MSA is required to establish not only a near-road nitrogen dioxide monitor, but also near-road PM25 and carbon monoxide monitors. In response, LMAPCD has established multi-pollutant near-road site that includes instrumentation to measure nitrogen dioxide, PM<sub>2.5</sub>, carbon monoxide, and meteorology. The specific site was chosen following the development of a formal site proposal and a 30-day comment public period in April 2013. collection at the site began in January 2014. More information regarding near-road monitoring can be found in the appendices of this Annual Network Plan.

### **Monitoring Objective:**

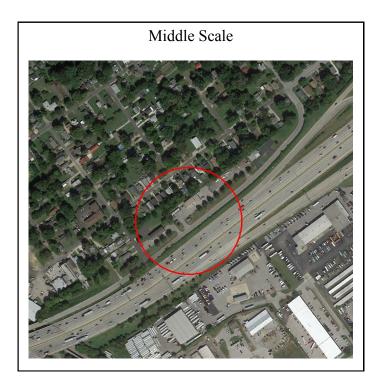
The monitoring objective will be to determine compliance with National Ambient Air Quality Standards for nitrogen dioxide, carbon monoxide, and particulate matter.

### Monitors:

Monitors:							
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling			
AEM Nitrogen Dioxide (NO <sub>2</sub> )	4.2	SLAMS	Cavity Attenuated Phase Shift Spectroscopy	Continuously			
Carbon Monoxide	4.2	SLAMS	Automated Reference Method utilizing trace-level non-dispersive infrared analysis	Continuously			
FRM PM <sub>2.5</sub> Collocated	4.7	SLAMS	Manual Reference Method utilizing gravimetric analysis	One sample every third day			
Meteorological	8.4	Other	AQM grade instruments for wind speed, wind direction, humidity, and temperature				
PM <sub>2.5</sub> Continuous	TBD (Install 2019)	Broadband Spectroscopy	Continuously				

**Area Representativeness:** The site represents maximum concentrations on a middle scale.

**Quality Assurance Status:** All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.



CSA/MSA: Louisville/Jefferson County-Elizabethtown-Madison, KY-IN CSA; Louisville/Jefferson

County, KY-IN MSA

**401 KAR 50:020 Air Quality Region:** Louisville Interstate (078)

Site Name: Carrithers Middle School

**AQS Site ID: 21-111-0080** 

Location: 4320 Billtown Road, Louisville, KY 40291

County: Jefferson

**GPS Coordinates:** 38.182511, -85.574167 (NAD 83)

**Date Established:** January 9, 2018 **Inspection Date:** October 22, 2018 **Inspection By:** Shauna Switzer **Site Approval Status:** TBD



Due to Jefferson County Public School's plan for significant modification to the Bates Elementary property, the Bates site was retired in early 2018. A new site was established on the grounds of Carrithers Middle School, which is located three miles to the north of the Bates Elementary School site. The instrumentation from Bates was transferred to Carrithers and the new site became operational on 1/9/2018.

### **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards and to provide pollution levels for daily index reporting.

### **Monitors:**

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.7	SLAMS AQI	UV photometry	Continuously  March 1 – October 31
PM <sub>2.5</sub> Continuous	TBD (Install 2019)	SPM AQI	Broadband Spectroscopy	Continuously
Meteorological	5.7		AQM grade instruments for wind speed, wind direction, temperature, and humidity. Not reported to AQS; thus, there is no designation.	Continuously

### **Quality Assurance Status:**

All Quality Assurance procedures will be implemented in accordance with 40 CFR 58, Appendix A.

# **Area Representativeness:**

This site also represents population exposure on a neighborhood scale for ozone and fine particulates.

Neighborhood Scale: Particulates and Ozone



CSA/MSA: Louisville/Jefferson County-Elizabethtown-Madison, KY-IN CSA; Louisville/Jefferson

County, KY-IN MSA

**401 KAR 50:020 Air Quality Region:** Louisville Interstate (078)

Site Name: Firearms Training AQS Site ID: 21-111-1041

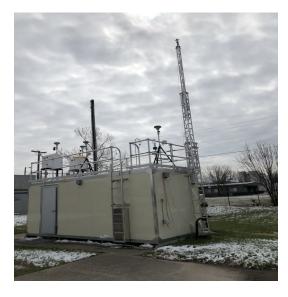
Location: 4201 Algonquin Parkway, Louisville, KY 40211

County: Jefferson

**GPS Coordinates:** 38.23158, -85.82675 (NAD 83)

**Date Established:** April 13, 1978 **Inspection Date:** October 22, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitor meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located on the grounds of the Firearms Training Center in Louisville, Kentucky. The sample inlet is 4.5 meters above ground level and 53.5 meters from the nearest road. Upon inspection, the sample lines and monitors were found to be in good condition. The air monitoring site meets the criteria established by 40 CFR Part 58, Appendices C, D, E and G.

LMAPCD replaced the existing shelter with a new, larger shelter in September, 2017 to house a continuous Toxics Monitor (Auto GC). Particulate instruments were transferred from Southwick Community Center site to the Firearms Training site. The particulate transfer was completed by January 1, 2018.

# **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards, to provide pollution levels for daily index reporting, and to characterize VOC concentrations.

### **Monitors:**

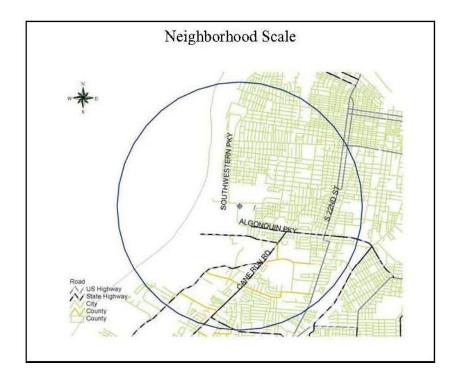
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling				
PM <sub>2.5</sub> & PM <sub>10</sub> Continuous	(Install	SLAMS AQI	Broadband Spectroscopy	Continuously				
AEM Sulfur Dioxide	4.0	SLAMS	UV Fluorescence	Continuously				
Volatile Organic Car- bon	TBD (Install 2019)	SPM	Automatic gas chromatograph with flame ionization detection	Continuously				
Meteorological	8.2	Other	AQM grade instruments for wind speed, wind direction, temperature, barometric pressure, and humidity.	Continuously				

# **Quality Assurance Status:**

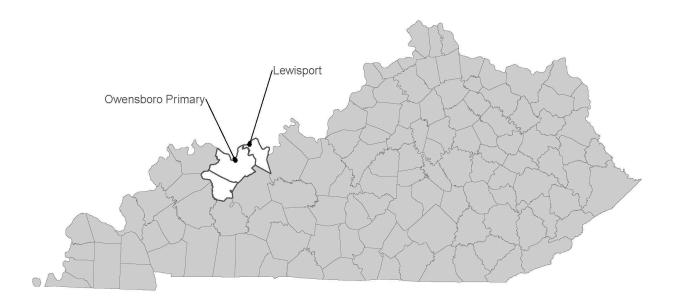
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

# **Area Representativeness:**

This site represents population exposure on a neighborhood scale.



# Owensboro, KY



AQS ID / County	Site Address	PM2.5	Cont. PM2.5	PM10	Cont. PM10	SO2	NO2	NOy	СО	03	Pb	VOC	Carbonyl	PAH	PM2.5 Spec.	Carbon Spec.	RadNet	Met
21-059-0005	716 Pleasant Valley Rd.		1 Sei			1 <sup>ei</sup>	1 <sup>ei</sup>			1 <sup>ei</sup>								1
Daviess	Owensboro																	
21-091-0012	Second & Caroline St.									$1^{M}$								
Hancock	Lewisport																	
Totals	2	1	1			1	1			2								1

Tallies are equal to the actual number of monitors present. Superscripts represent additional information about the network.

e=Emergency Episode Monitor

S=Continuous T640 Monitor

i=AQI Reported

M=Maximum Ozone Concentration Site for MSA

CSA/MSA: Owensboro, KY MSA

**401 KAR 50:020 Air Quality Region:** Evansville-Owensboro-Henderson Interstate (077)

Site Name: Owensboro Primary

**AQS Site ID:** 21-059-0005

Location: 716 Pleasant Valley Road, Owensboro, KY 42303

County: Daviess

**GPS Coordinates:** 37.780776, -87.075307 (NAD 83)

**Date Established:** December 1, 1970 **Inspection Date:** October 19, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located on the grounds behind the Wyndall's Shopping Center in Owensboro, Kentucky. The sample inlets are 45.8 meters from the nearest road. Upon inspection, the sample lines and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A, C, D, E and G.

# **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards; to detect emergency pollution levels of criteria pollutants for activation of emergency control procedures. While not required for the CBSA, the site also provide levels of pollutants for daily index reporting.

### **Monitors:**

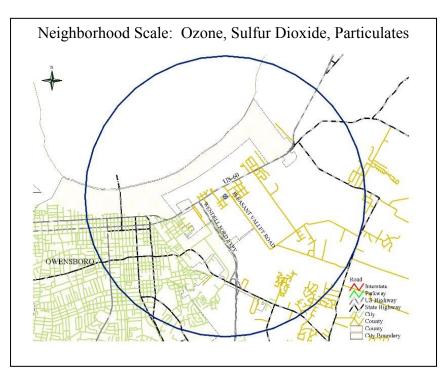
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling				
AEM Nitrogen Dioxide (NO <sub>2</sub> , NO, NO <sub>x</sub> )	4.5	SLAMS EPISODE AQI	Chemiluminescence	Continuously				
AEM Ozone	3.8	SLAMS EPISODE AQI	UV photometry	Continuously  March 1 – October 31				
PM <sub>2.5</sub> Continuous	4.7	SLAMS EPISODE AQI	Broadband Spectroscopy	Continuously				
AEM Sulfur Dioxide	4.5	SLAMS PWEI EPISODE AQI	UV fluorescence	Continuously				
Meteorological	5.6	Other	AQM grade instruments for wind speed, wind direction, humidity, barometric pressure and temperature	Continuously				

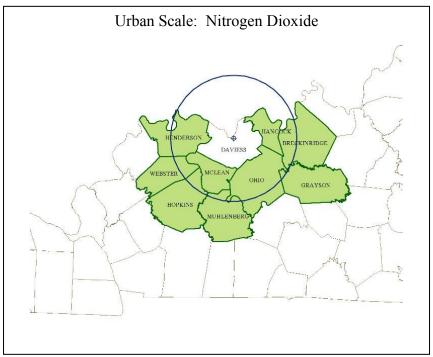
### **Quality Assurance Status:**

All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

### **Area Representativeness:**

This site represents population exposure on a neighborhood scale for particulates, ozone, and sulfur dioxide. This site also represents population exposure on an urban scale for nitrogen dioxide.





CSA/MSA: Owensboro, KY MSA

**401 KAR 50:020 Air Quality Region:** Evansville-Owensboro-Henderson Interstate (077)

**Site Name:** Lewisport **AQS Site ID:** 21-091-0012

Location: Community Center Drive & First Street, Lewisport, KY 42351

County: Hancock

**GPS Coordinates:** 37.93829, -86.89719 (NAD 83)

**Date Established:** September 5, 1980 **Inspection Date:** October 19, 2018 **Inspection By:** Shauna Switzer

Site Approval Status: Site and monitor meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located on the athletic fields of the former Lewisport Consolidated Elementary School in Lewisport, Kentucky. The sample inlet is 54.8 meters from the nearest road. Upon inspection, the sample line and monitor were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A, C, D, and E.

# **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards.

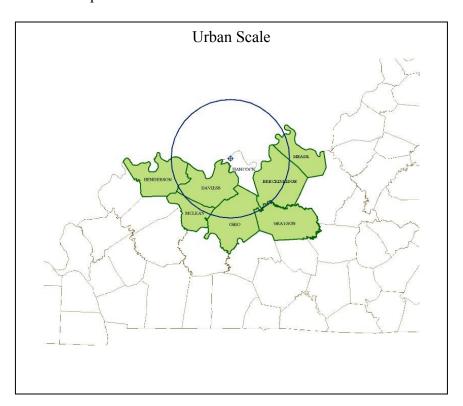
### **Monitors:**

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.7	SLAMS	UV photometry	Continuously
		Maximum O <sub>3</sub>		March 1 – October 31

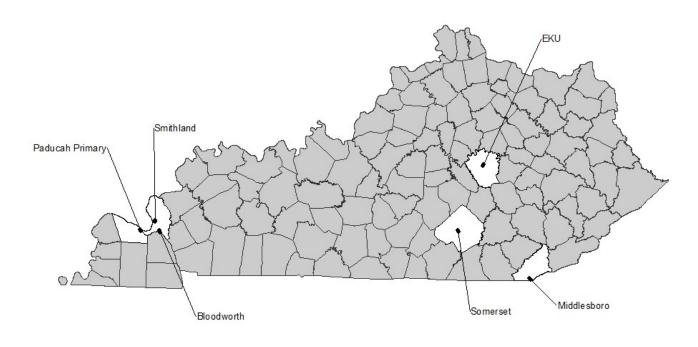
### **Quality Assurance Status:**

All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

**Area Representativeness:** This site represents maximum concentrations on an urban scale.



# **Micropolitan Statistical Areas**



AQS ID / County	Site Address	PM2.5	Cont. PM2.5	PM10	Cont. PM10	SO2	NO2	NOy	СО	03	Pb	VOC	Carbonyl	PAH	PM2.5 Spec.	Carbon Spec.	RadNet	Met
21-013-0002	1420 Dorchester Ave.	1								1								1
Bell	Middlesboro																	
21-139-0003	706 State Drive									1							1	
Livingston	Smithland																	
21-139-0004	763 Bloodworth Road			1 <sup>m</sup>														1
Livingston	Smithland																	
21-145-1024	2901 Powell Street		$1^{Si}$	1		1 <sup>Pei</sup>	1 <sup>ei</sup>			1 <sup>ei</sup>								
McCracken	Paducah																	
21-151-0005	Van Hoose Drive										$2^{\mathrm{C}}$							
Madison	Richmond																	
21-199-0003	305 Clifty Street	1								1								
Pulaski	Somerset																	
Totals	6	2	1	2		1	1			4	2						1	2

Tallies are equal to the actual number of monitors present. Superscripts represent additional information about the network. P= PWEI SO2 monitor required in CBSA.

C = Collocated

m = PM10 Filter Analyzed for Metals

P=PWEI Monitor

e=Emergency Episode Monitor

S=Continuous T640 Monitor

i=AQI Reported

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CSA/MSA: Middlesborough, KY Micropolitan Statistical Area 401 KAR 50:020 Air Quality Region: Appalachian Intrastate (101)

Site Name: Middlesboro AQS Site ID: 21-013-0002

Location: Middlesboro Airport, 1420 Dorchester Avenue, Middlesboro, KY 40965

County: Bell

**GPS Coordinates:** 36.60843, -83.73694 (NAD 83)

**Date Established:** February 14, 1992 **Inspection Date:** October 29, 2018 **Inspection By:** Shauna Switzer

Site Approval Status: Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located on the grounds of the Middlesboro Airport in Middlesboro, Kentucky. The sample inlets are 94.2 meters from the nearest road. Upon inspection the sample lines and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A, C, D, and E.

## **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards and to provide information on the transport of ozone into the region.

### **Monitors:**

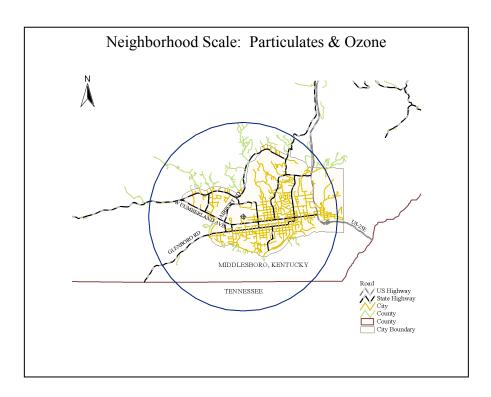
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.8	SPM	UV photometry	Continuously  March 1 – October 31
FRM PM <sub>2.5</sub>	4.9	SPM	Gravimetric	24-hours every sixth day
Meteorological	5.9		AQM grade instruments for wind speed, wind direction, humidity, barometric pressure and temperature	Continuously

### **Quality Assurance Status:**

All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

# **Area Representativeness:**

The site represents population exposure on a neighborhood scale for particulates and ozone.



CSA/MSA: Paducah-Mayfield, KY-IL CSA; Paducah, KY-IL Micropolitan Statistical Area

**401 KAR 50:020 Air Quality Region:** Paducah-Cairo Interstate (072)

Site Name: Smithland AQS Site ID: 21-139-0003

Location: Livingston County Road Dept., 730 State Drive, Smithland, KY 42081

County: Livingston

**GPS Coordinates:** 37.155392, -88.394024 (NAD 83)

**Date Established:** April 1, 1988 **Inspection Date:** December 3, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located on the grounds of the Livingston County Road Dept. facility in Smithland, Kentucky. The sample inlets are 138.7 meters from the nearest road. Upon inspection, the sample lines and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A, C, D, and E.

### **Monitoring Objective:**

The monitoring objective is to determine compliance with National Ambient Air Quality Standards.

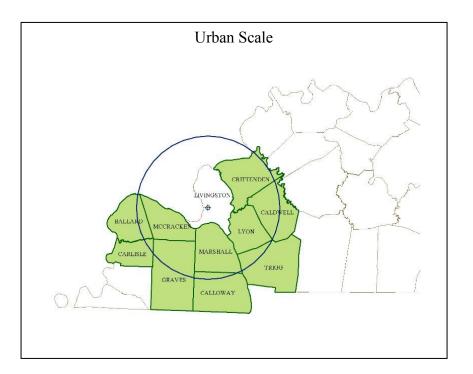
### **Monitors:**

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling					
AEM Ozone	3.8	SLAMS	UV photometry	Continuously					
Radiation	1.3		RadNet fixed stationary monitor, manual and automated methods	Continuously & 2 weekly filters					

### **Quality Assurance Status:**

All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

**Area Representativeness:** This site represents maximum concentrations on an urban scale.



CSA/MSA: Paducah-Mayfield, KY-IL CSA; Paducah, KY-IL Micropolitan Statistical Area

**401 KAR 50:020 Air Quality Region:** Paducah-Cairo Interstate (072)

Site Name: Bloodworth AQS Site ID: 21-139-0004

Location: 763 Bloodworth Road, Smithland, KY 42081

County: Livingston

**GPS Coordinates:** 37.07151, -88.33389 (NAD 83)

**Date Established:** September 15, 1986 **Inspection Date:** December 3, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located at the residence of 763 Bloodworth Road in Livingston County, Kentucky. The sample inlets are 8 meters from the nearest road, which is an access road for a residence. Upon inspection, the inlet and sampler were found to be in good condition. The site meets the requirements of 40 CFR58, Appendices A, C, D, and E.

### **Monitoring Objective:**

The monitoring objective is to determine compliance with National Ambient Air Quality Standards for  $PM_{10}$  and to detect and quantify air toxics in ambient air.

### **Monitors:**

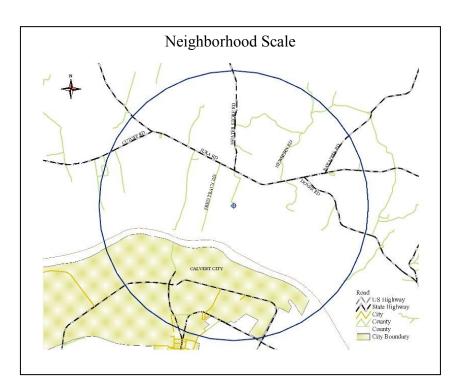
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling				
FRM PM <sub>10</sub>	4.5	SPM	Gravimetric	24-hours every sixth day				
- Metals PM <sub>10</sub>		SPM-Other	Determined from the PM <sub>10</sub> sample using EPA method IO 3.5	Same as PM <sub>10</sub>				
Meteorological	5.6	Other	AQM grade instruments for wind speed, wind direction, humidity, barometric pressure and temperature	Continuously				

### **Quality Assurance Status:**

All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

# Area Representativeness:

The site represents source impacts on a neighborhood scale.



CSA/MSA: Paducah-Mayfield, KY-IL CSA; Paducah, KY-IL Micropolitan Statistical Area

**401 KAR 50:020 Air Quality Region:** Paducah-Cairo Interstate (072)

**Site Name:** Jackson Purchase-Paducah Primary

**AQS Site ID:** 21-145-1024

Location: Jackson Purchase RECC, 2901 Powell Street, Paducah, KY 42003

County: McCracken

**GPS Coordinates:** 37.05822, -88.57251 (NAD 83)

**Date Established:** August 15, 1980 **Inspection Date:** December 3, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitors meet design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located on the grounds of the Jackson Purchase RECC in Paducah, Kentucky. The site meets the requirements established by 40 CFR 58, Appendices C, D, E and G. Due to a new shelter installation in 2018, the sample inlets are now 20.7 meters from the nearest road.

# **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards and to detect elevated pollutant levels for activation of emergency control procedures for nitrogen dioxide, ozone, and sulfur dioxide. While not required for the CBSA, the site also provides pollutant levels for daily air quality index reporting.

### **Monitors:**

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling				
AEM Nitrogen Dioxide (NO <sub>2</sub> , NO, NO <sub>x</sub> )	4.1	SLAMS EPISODE AQI	Chemiluminescence	Continuously				
AEM Sulfur Dioxide	4.0	SLAMS AQI EPISODE	UV fluorescence	Continuously				
AEM Ozone	3.9	SLAMS AQI EPISODE	UV photometry	Continuously March 1 – October 31				

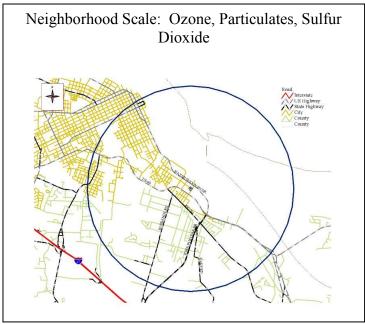
PM <sub>2.5</sub> Continuous	4.6	SLAMS AQI	Broadband Spectroscopy	Continuously				
FEM PM <sub>10</sub>	4.5	SLAMS	Gravimetric	24-hours every sixth day				

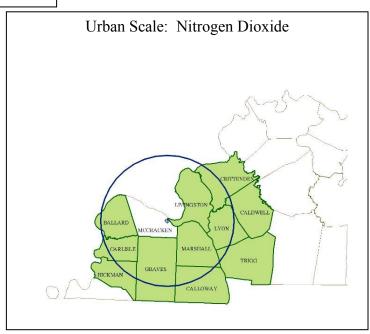
# **Quality Assurance Status:**

All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

### **Area Representativeness:**

This site represents population exposure on a neighborhood scale for ozone, particulates, and sulfur dioxide. This site also represents population exposure on an urban scale for nitrogen dioxide.





CSA/MSA: Lexington-Fayette-Richmond-Frankfort KY CSA; Richmond-Berea, KY Micropolitan

Statistical Area

**401 KAR 50:020 Air Quality Region:** Bluegrass Intrastate (102)

Site Name: EKU

**AQS Site ID:** 21-151-0005

Location: Eastern Kentucky University, Van Hoose Drive, Richmond, KY 40475

County: Madison

**GPS Coordinates:** 37.73635, -84.29169 (NAD 83)

**Date Established:** March 10, 2012 **Inspection Date:** October 5, 2018 **Inspection By:** Shauna Switzer

Site Approval Status: Site and monitors meet all design criteria for the monitoring network.



The site is located behind the Gentry Facilities Services building and is adjacent to Eastern Kentucky University's athletic fields. The sample inlets are 3.0 meters from the nearest road. Upon inspection, the sample inlet and monitor were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A, C, D and E.

### **Monitoring Objective:**

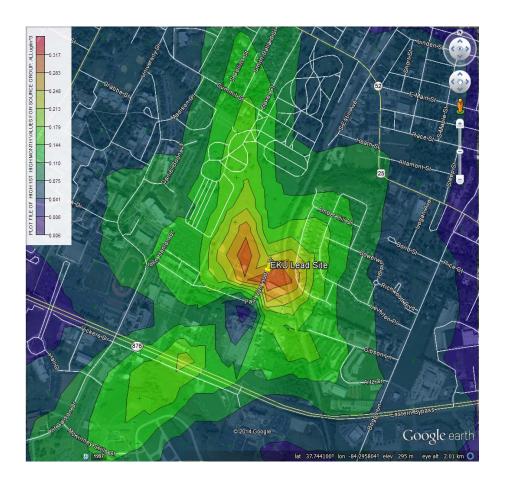
The monitoring objectives are to determine compliance with National Ambient Air Quality Standards.

### **Monitors:**

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
FRM Lead	2.2		High volume air sampler. Analysis via ICP-MS.	24-hours every sixth day
Collocated FRM Lead	2.2		High volume air sampler. Analysis via ICP-MS.	24-hours every twelfth day

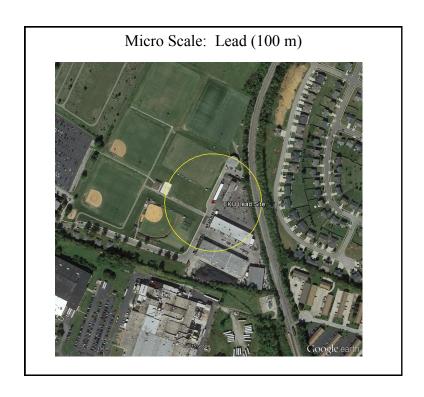
### **Quality Assurance Status:**

All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.



# **Area Representativeness:**

This site represents source impacts on a micro scale for lead.



CSA/MSA: Somerset, KY Micropolitan Statistical Area

**401 KAR 50:020 Air Quality Control Region:** South Central Kentucky Intrastate (105)

Site Name: Somerset AQS Site ID: 21-199-0003

**Location:** Somerset Gas Company Warehouse, 305 Clifty Street, Somerset, KY 42501

County: Pulaski

**GPS Coordinates:** 37.09798, -84.61152 (NAD 83)

**Date Established:** February 14, 1992 **Inspection Date:** October 29, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status**: Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located on the grounds of the Somerset Gas Company Warehouse on Clifty Street in Somerset, KY. The sample inlets are 10 meters from the nearest road, which is a dead-end street with little traffic. Upon inspection the sample line and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A, C, D, and E.

### **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards.

### **Monitors:**

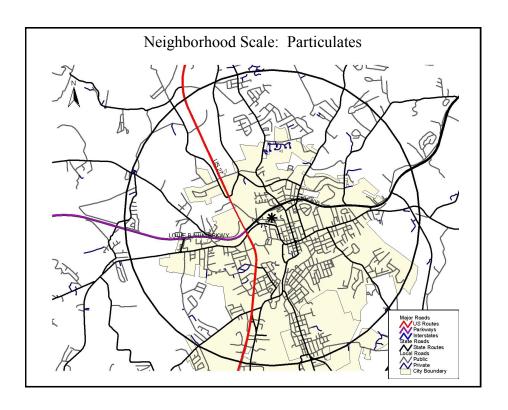
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling					
AEM Ozone	4.4	SPM		Continuously  March 1 – October 31					
FRM PM <sub>2.5</sub>	4.8	SPM	Gravimetric	24-hours every third day					

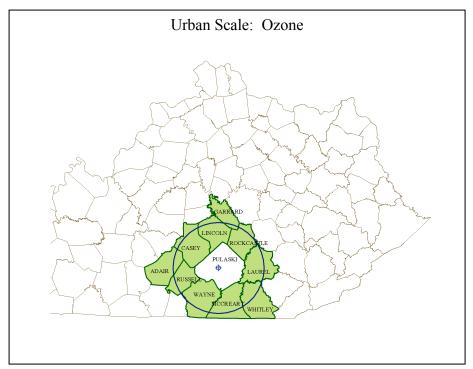
### **Quality Assurance Status:**

All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

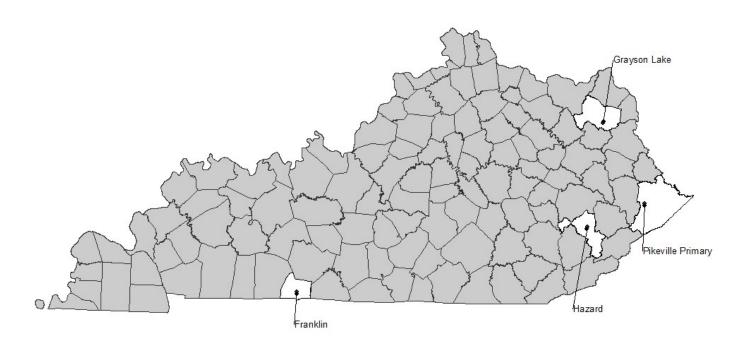
# **Area Representativeness:**

The site represents population exposure on an urban scale for ozone. This site also represents population exposure on a neighborhood scale for particulates.





# Not in a Metropolitan or Micropolitan Statistical Area



AQS ID / County	Site Address	PM2.5	Cont. PM2.5	PM10	Cont. PM10	SO2	NO2	NOy	СО	03	Pb	VOC	Carbonyl	PAH	PM2.5 Spec.	Carbon Spec.	RadNet	Met
21-043-0500	1486 Camp Webb Road	1 <sup>X</sup>		$2^{\text{Cm}}$						1		$2^{\mathrm{D}}$	$2^{\mathrm{D}}$	1				1
Carter	Grayson																	
21-193-0003	354 Perry Park Road	1	1 <sup>t</sup>							1 e								1
Perry	Hazard																	
21-195-0002	109 Loraine Street		1 <sup>S,i</sup>							1 i								
Pike	Pikeville																	
21-213-0004	573 Harding Road									1								1
Simpson	Franklin																	
Totals	4	2	2	2						4		2	2	1				3

Tallies are equal to the actual number of monitors present. Superscripts represent additional information about the network.

D=Duplicate

m=PM10 Filter Analyzed for Metals

C=Collocated

i=AQI Reported

t=Continuous TEOM Monitor

X = Regional Background PM2.5 Monitor

S=Continuous PM T640

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CSA/MSA: Not in a MSA - Rural

401 KAR 50:020 Air Quality Region: Huntington (WV)-Ashland (KY)-Portsmouth-Ironton (OH)

Interstate (103)

**Site Name:** Grayson Lake **AQS Site ID:** 21-043-0500

Location: Camp Robert Webb, 1486 Camp Webb Road, Grayson Lake, KY 41143

County: Carter

**GPS Coordinates:** 38.23887, -82.98810 (NAD 83)

**Date Established:** May 13, 1983 **Inspection Date:** September 12, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status:** Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter in a fenced area located in a remote section of Camp Webb in Grayson, Kentucky. The nearest road is a service road to the site and is 106 meters from the site. Upon inspection, the sample lines and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A, C, D, and E.

### **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards; to determine background levels of  $PM_{2.5}$  and  $PM_{10}$ ; to provide ozone data upwind of the Ashland area; and to measure rural concentrations of a sub-group of air toxics for use in a national air toxics assessment.

### **Monitors:**

Monitor Type	nitor Type Inlet Designati Height (meters)		Analysis Method	Frequency of Sampling				
AEM Ozone	3.7	SPM	UV photometry	Continuously  March 1 – October 31				
FRM PM <sub>10</sub>	2.1	SLAMS	Gravimetric	24-hours every sixth day				
- Metals PM <sub>10</sub>		NATTS SPM-Other	Determined from the PM <sub>10</sub> samples using EPA method IO 3.5	Same as PM <sub>10</sub>				
Collocated PM <sub>10</sub>	2.1	SLAMS	Gravimetric	24-hours every twelfth day				
- Collocated metals PM <sub>10</sub>		NATTS SPM-Other	Determined from the PM <sub>10</sub> samples using EPA method IO 3.5	24-hours; six samples per year				

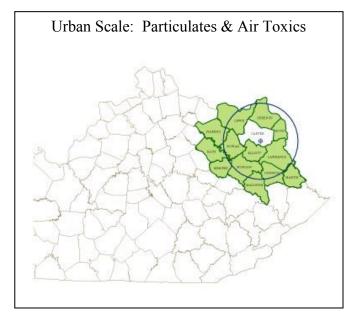
FRM PM <sub>2.5</sub>	2.2	SLAMS	Gravimetric	24-hours every third day
Volatile Organic Compounds	3.7	NATTS SPM-Other	EPA method TO-15.	24-hours every sixth day
- Duplicate Volatile Organic Compounds		NATTS SPM-Other	EPA method TO-15. Collected via same sampling system as primary VOCs.	24-hours; six samples per year
Polycyclic Aromatic Hydrocarbons	2.1	NATTS SPM-Other	EPA method TO-13A	24-hours every sixth day
Carbonyls	3.95	NATTS SPM-Other	EPA method TO-11A	24-hours every sixth day
- Duplicate Carbonyls		NATTS SPM-Other	EPA method TO-11A. Collected via same sampling system as primary carbonyls.	24-hours; six samples per year
Meteorological	12.1	Other	AQM grade instruments for wind speed, wind direction, relative humidity, and temperature	Continuously

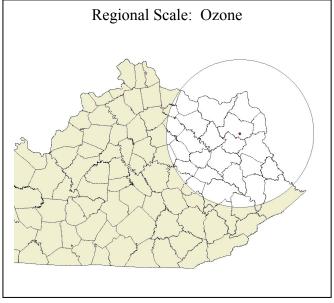
#### **Quality Assurance Status:**

All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

#### **Area Representativeness:**

The site represents background levels on an urban scale for particulates and air toxics. This site also represents upwind/background levels on an regional scale for ozone.





**CSA/MSA:** Not in a MSA - Rural

**401 KAR 50:020 Air Quality Control Region:** Appalachian Intrastate (101)

Site Name: Hazard

**AQS Site ID:** 21-193-0003

**Location:** Perry County Horse Park, 354 Perry Park Road, Hazard, KY 41701

County: Perry

**GPS Coordinates:** 37.28329, -83.20932 (NAD 83)

**Date Established:** April 1, 2000 **Inspection Date:** October 16, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status**: Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located on the grounds of the Perry County Horse Park in Hazard, Kentucky. The sample inlets 29.2 meters from the nearest road. Upon inspection the sample lines and monitors were found to be in good condition. This site meets the requirements of 40 CFR 58, Appendices A, C, D, and E.

#### **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards and to detect elevated pollutant levels for activation of emergency control procedures for ozone.

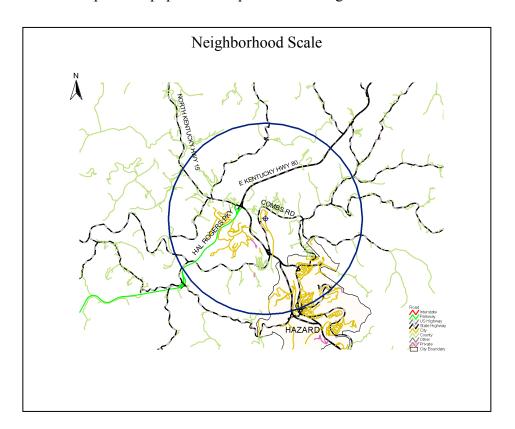
#### **Monitors:**

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.7	SPM	UV photometry	Continuously
		EPISODE		March 1 – October 31
FRM PM <sub>2.5</sub>	2.3	SPM	Gravimetric	24-hours every sixth day
PM <sub>2.5</sub> Continuous	4.6	SPM	Broadband Spectroscopy	Continuously
Meteorological	5.6	Other	AQM grade instruments for wind speed, wind direction, relative humidity, barometric pressure, and temperature	Continuously

#### **Quality Assurance Status:**

All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

**Area Representativeness:** The site represents population exposure on a neighborhood scale.



**CSA/MSA:** Not in a MSA - Rural

**401 KAR 50:020 Air Quality Control Region:** Appalachian Intrastate (101)

**Site Name:** Pikeville Primary **AQS Site ID:** 21-195-0002

Location: KYTC District Office, 109 Loraine Street, Pikeville, KY 41501

County: Pike

**GPS Coordinates:** 37.48260, -82.53532 (NAD 83)

**Date Established:** May 1, 1994 **Inspection Date:** October 16, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status**: Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located behind the KYTC District Office building in Pikeville, KY. The sample inlets are 91.9 meters from the nearest road. Upon inspection the sample lines and monitors were found to be in good condition. This site meets the requirements of 40 CFR 58, Appendices A, C, D, E and G.

#### **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards. While not required, the site also provides pollutant levels for daily air quality index reporting.

#### **Monitors:**

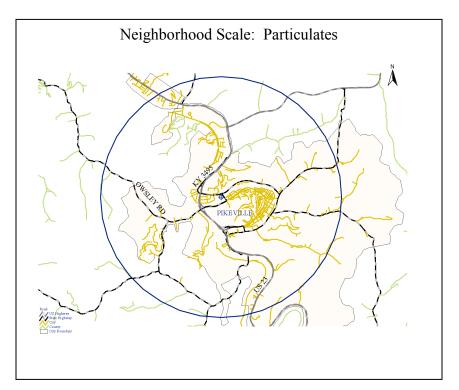
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone		SPM AQI		Continuously  March 1 – October 31
PM <sub>2.5</sub> Continuous		SLAMS AQI	Broadband Spectroscopy	Continuously

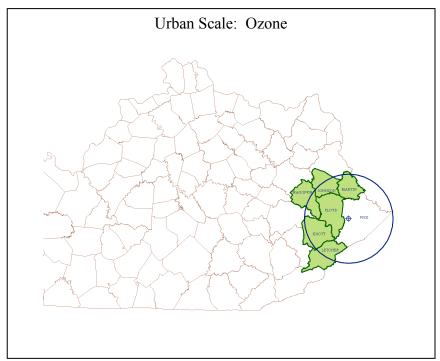
#### **Quality Assurance Status:**

All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

### **Area Representativeness:**

The site represents population exposure on a neighborhood scale for particulates. This site also represents population exposure on an urban scale for ozone.





**CSA/MSA:** Not in a MSA - Rural

**401 KAR 50:020 Air Quality Control Region:** South Central Kentucky Intrastate (105)

Site Name: Franklin AQS Site ID: 21-213-0004

Location: KYTC Maintenance Facility, 573 Harding Road (KY1008), Franklin, KY 42134

**County:** Simpson

**GPS Coordinates:** 36.708607, -86.566284 (NAD 83)

**Date Established:** June 19, 1991 **Inspection Date:** October 10, 2018 **Inspection By:** Shauna Switzer

**Site Approval Status**: Site and monitors meet all design criteria for the monitoring network.



The monitoring site is a stationary equipment shelter located on the grounds of the KYTC Garage on Harding Road (KY1008) in Franklin, Kentucky. The sample inlet is 42.5 meters from the nearest road. Upon inspection, the sample line and monitor were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices A, C, D, and E.

#### **Monitoring Objective:**

The monitoring objectives are to determine compliance with National Ambient Air Quality Standards; to measure ozone levels upwind of Bowling Green; and to provide data on interstate ozone transport.

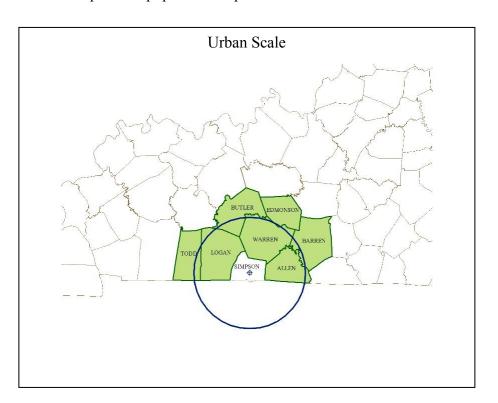
#### **Monitors:**

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	4.4	SPM		Continuously  March 1 – October 31
Meteorological	7.5		AQM grade instruments for wind speed, wind direction, relative humidity, barometric pressure, and temperature	Continuously

#### **Quality Assurance Status:**

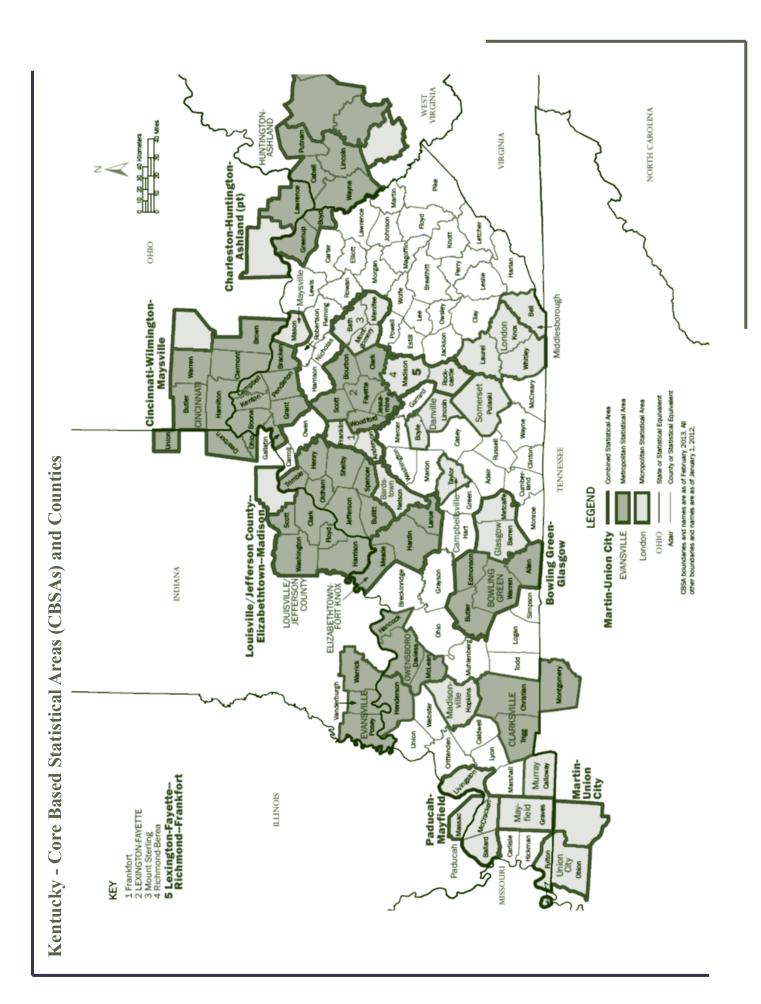
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

**Area Representativeness:** The site represents population exposure on an urban scale.



### APPENDIX A

## KENTUCKY CORE-BASED STATISTICAL AREAS AND COUNTIES MAP



### APPENDIX B

## MEMORANDUM OF AGREEMENT CINCINNATI, OH-KY-IN MSA

# MEMORANDUM OF AGREEMENT ON AIR QUALITY MONITORING FOR CRITERIA POLLUTANTS FOR THE CINCINNATI OH-KY-IN METROPOLITAN STATISTICAL AREA (MSA)

Participating Agencies:

Kentucky Department for Environmental Protection (KDEP) Division for Air Quality (DAQ)

Hamilton County Department of Environmental Services (HCDOES)

Indiana Department of Environmental Management (IDEM)
Office of Air Quality (OAQ)

#### PURPOSE/OBJECTIVES/GOALS

The purpose of this Memorandum of Agreement (MOA) is to establish the Cincinnati OH-KY-IN Metropolitan Statistical Area (MSA) Criteria Pollutant Air Quality Monitoring Agreement among KDEP, IDEM, and HCDOES to collectively meet United States Environmental Protection Agency (EPA) minimum monitoring requirements for particles of an aerodynamic diameter of 10 micrometers and less (PM10), particles of an aerodynamic diameter of 2.5 micrometers and less (PM2.5), and ozone; as well as other criteria pollutant air quality monitoring deemed necessary to meet the needs of the MSA as determined reasonable by all parties. According to 40 CFR Part 58, Appendix D, the Cincinnati OH-KY-IN MSA minimum monitoring requirements (based on a population of 2,172,000) are (2) ozone monitors, (2-4) PM-10 monitors, (3) FRM PM-2.5 monitors, and (2) collocated continuous PM-2.5 monitors with the FRM PM-2.5 monitors. This MOA will formalize and reaffirm the collective agreement in order to provide adequate criteria pollutant monitoring for the Cincinnati OH-KY-IN MSA as required by 40 CFR 58 Appendix D, Section 2(e).

PM2.5 MSA monitoring network includes:

County	Federal Reference Method PM2,5	Continuous PM2.5	Speciation PM2.5	Collocated PM2.5
Campbell County, KY KDEP	1	1	0	0
Boone County, KY KDEP	0	0	0	0
Hamilton County, OH HCDOES	. 4	.2	1	1
Butler County, OH HCDOES	2	0	. 0	1
Clermont County, OH HCDOES	1	1	0	0
Warren County, OH HCDOES	1	1	0	0
Franklin County, IN IDEM	0	0	0	0
Dearborn County, IN IDEM	0	Ò	0	0
Ohio County, IN IDEM	0	0	0	0

Criteria Air Pollutant MSA monitoring network includes:

County	PM10	O <sub>4</sub>	NO./NO/NO2	CO	SO <sub>2</sub>
Campbell County, KY	0	1	I	0	1
KDEP					
Boone County, KY	0	1	0	0	0
KDEP					
Hamilton County, OH	3	3	1	1	1
HCDOES					
Butler County, OH	2	2	0	0	0
HCDOES					
Clermont County, OH	0	1	0.	0	0
HCDOES					
Warren County, OH	0	1	0 .	0	0
HCDOES					
Franklin County, IN	0	0	0	0	0
IDEM .					
Dearborn County, IN	0	-0	0	0	0
IDEM			<u> </u>		
Ohio County, IN	0	0	0	0	0
IDEM					

#### RESPONSIBLITIES/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 KDEP,
  IDEM, or HCDOES 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 KDEP, IDEM, or HCDOES, their officers or employees, or any other person. This MOA does not apply to any entity outside KDEP, IDEM, or HCDOES
- 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 KDEP, IDEM, and HCDOES. Each party reserves the right to terminate this MOA. A thirty (30) day written notice must be given prior to the date of termination.

#### **APPROVALS**

We agree with the provisions outlined in this Memorandum of Agreement and commit our agencies to implement them in a spirit of cooperation and mutual support.

Kentucky Department for Environmental Protection
Division for Air Quality
BY: John Lyons A. Lyons
TITLE: Director, Division for Air Quality
DATE: 5/13/10
J
Hamilton County Department of Environmental Services
On a Almeter rede
BY: Cory Chadwick Cary R. Church Sich
TITLE: Director
DATE: 5/13/10
Indiana Department of Environmental Management Office of Air Quality
BY: Keith Baugues Kirth Bangus
TITLE: Assistant Commissioner, Office of Air Quality
DATE CLANICA

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### **APPENDIX C**

## MEMORANDUM OF AGREEMENT EVANSVILLE, IN-KY MSA

# MEMORANDUM OF AGREEMENT ON AIR QUALITY MONITORING FOR CRITERIA POLLUTANTS FOR THE EVANSVILLE, IN-HENDERSON, KY METROPOLITAN STATISTICAL AREA (MSA)

Participating Agencies:

Kentucky Department for Environmental Protection (KDEP) Division for Air Quality (DAQ)

Indiana Department of Environmental Management (IDEM)
Office of Air Quality (OAQ)

#### PURPOSE/OBJECTIVES/GOALS

The purpose of this Memorandum of Agreement (MOA) is to establish the Evansville, IN-Henderson, KY Metropolitan Statistical Area (MSA) Criteria Pollutant Air Quality Monitoring Agreement among KDEP and IDEM 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 (PM2.5), and ozone; as well as other criteria pollutant air quality monitoring deemed necessary to meet the needs of the MSA as determined reasonable by all parties. According to 40 CFR Part 58, Appendix D, the Evansville, IN-Henderson, KY MSA minimum monitoring requirements (based on a population of 350,000) are (2) ozone monitors, (0-1) PM-10 monitors, (1) FRM PM-2.5 monitor, and (1) collocated continuous PM-2.5 monitor with the FRM pm-2.5 monitor. This MOA will formalize and reaffirm the collective agreement in order to provide adequate criteria pollutant monitoring for the Evansville, IN-Henderson, KY MSA as required by 40 CFR 58 Appendix D, Section 2, (e).

PM 2.5 MSA monitoring network includes:

Gounty	Federal Reference Michael PVI2-5		Lateration of the second second second second	CEO HOCTEO PMD 6
Henderson County,	1	1	0	0
KDEP				
Vanderburgh County, IN	3	. 1	1	1
IDEM				

Criteria Air Pollutant MSA monitoring network includes:

H-H-County	PM10	$0_{6}$	Newnonner	(c)	SO <sub>2</sub>
	1	1	0	0	1
Henderson County, KY KDEP			·		
Vanderburgh County, IN IDEM	1 -	2	1	1	1

#### RESPONSIBLITIES/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 KDEP or IODEM 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 KDEP or IDEM, their officers or employees, or any other person. This MOA does not apply to any entity outside KDEP or IDEM.
- 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 KDEP and IDEM. Each party reserves the right to terminate this MOA. A thirty (30) day written notice must be given prior to the date of termination.

#### **APPROVALS**

We agree with the provisions outlined in this Memorandum of Agreement and commit our agencies to implement them in a spirit of cooperation and mutual support.

Kentucky Department for Environmental Protection Division for Air Quality
BY: John. S. Lyons The L. Tuych
TITLE: Director, Division for Air Quality
DATE: _5/14/10
Indiana Department of Environmental Management Office of Air Quality
BY: Keith Baugues Kerth Bauguss
TITLE: Assistant Commissioner, Office of Air Quality
DATE: Sland of

### APPENDIX D

## MEMORANDA OF AGREEMENT CLARKSVILLE, TN-KY MSA





### STATE OF TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Air Pollution Control William R. Snodgrass TN Tower 312 Rosa L. Parks Ave., 15<sup>th</sup> Floor Nashville, Tennessee 37243

July 1, 2014

Sean Alteri, Director Kentucky Division for Air Quality Kentucky Department for Environmental Protection 200 Fair Oaks Lane Frankfort, KY 40601

Dear Mr. Alteri:

The United States Environmental Protection Agency (EPA) revised monitoring regulations found in 40 CFR Part 58, Appendix D states in part: "The EPA recognizes that there may be situations where the EPA Regional Administrator and the affected State or local agencies may need to augment or to divide the overall MSA/CSA monitoring responsibilities and requirements among these various agencies to achieve an effective network design. Full monitoring requirements apply separately to each affected State or local agency in the absence of an agreement between the affected agencies and the EPA Regional Administrator." This revision of the CFR also describes the minimum monitoring requirements for the NAAQS pollutants, including continuous PM 2.5 as it applies to MSA areas where the population is sufficient to warrant monitoring for that pollutant. Tennessee and Kentucky share the Clarksville, TN-KY MSA, which is comprised of Trigg and Christian counties in Kentucky and Montgomery county in Tennessee. The US Census Bureau lists this area as containing a population in excess of 260,000.

CBSA	Geographic	Legal/statistical	July 1, 2013	2010
Code	area	Area description	Estimate	Census
17300	Clarksville,	Metropolitan Statistical	272,579	260,625
	TN-KY	Area		,

The Tennessee Division of Air Pollution Control (TDAPC) currently operates one (1) PM 2.5 FRM monitor and one (1) continuous PM 2.5 monitor in this area. The TDAPC believes the operation of the existing PM 2.5 monitors; (FRM and continuous), are sufficient to properly characterize the particulate air quality in the entire Clarksville, TN-KY MSA and comply with the requirements for both population and concentration based monitoring identified in the revised monitoring regulations as found at 40 CFR58,AppD. The TDAPC would like to invite the

Sean Alteri July 2, 2014 Page 2

Kentucky Division for Air Quality to participate in Tennessee's annual ambient air monitoring network review. Tennessee commits to sharing with Kentucky any and all quality assured ambient air monitoring data collected in the Tennessee portion of the Clarksville, TN-KY MSA. Tennessee also will notify Kentucky in advance of the intent to relocate or shutdown any of the PM 2.5 monitors referenced above so that adequate monitoring arrangements can be made to meet the entire MSA monitoring requirements for PM 2.5.

Sincerely,

Barry R. Stephens, PE

Director, Air Pollution Control Division

BRS/lb

Cc: Heather McTeer-Toney, US EPA Region IV

Steven L. Beshear Governor

Leonard K. Peters Secretary



#### **Energy and Environment Cabinet**

#### **Department for Environmental Protection**

Division for Air Quality 200 Fair Oaks Lane, 1<sup>st</sup> Floor Frankfort, Kentucky 40601-1403 Web site: air.ky.gov

May 15, 2015

Mr. Barry R. Stephens, PE Director Tennessee Division of Air Pollution Control 312 Rosa L. Parks Avenue, 15<sup>th</sup> Floor Nashville, TN 37243

Dear Mr. Stephens:

In a letter from your office dated July 1, 2014, the Tennessee Division of Air Pollution Control (TDAPC) agreed to operate a continuous PM<sub>2.5</sub> monitor and an intermittent FRM PM<sub>2.5</sub> sampler, to meet the minimum network design requirements stated in 40 CFR 58, Appendix D for the Clarksville, TN-KY metropolitan statistical area (MSA). The Kentucky Division for Air Quality (Division) appreciates TDAPC's cooperation and looks forward to participating in TDAPC's annual air monitoring network review.

The Division currently operates one (1) intermittent FRM  $PM_{2.5}$  sampler and one (1) continuous ozone monitor at the Hopkinsville site (21-047-0006) in Christian County. In accordance with Table D-2 of 40 CFR 58, Appendix D, one (1) ozone monitor is required to be operated in the Clarksville, TN-KY MSA, based upon the most current population estimates from the US Census Bureau, as well as 2012-2014 ozone design values.

Geographic Area	Area Description	2014 USCB Population Estimate	2014 Three-Year Ozone DV (ppm)
Christian County, KY	County	74,250	0.067
Trigg County, KY	County	14,142	0.069 (CASTNET)
Montgomery County, TN	County	189,961	N/A
Clarksville, TN-KY	MSA	278,353	0.069

To satisfy the regulatory requirement, the Division agrees to operate one ozone monitor at the Hopkinsville site. Also, the Division agrees to notify TDAPC in the event that shutdown or relocation of the ozone monitor is necessary.

Despite the fact that 2012-2014 design values show that no FRM  $PM_{2.5}$  samplers are required in the Clarksville MSA, the Division will continue to operate the  $PM_{2.5}$  sampler at

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Mr. Barry Stephens May 15, 2015 Page 2

Hopkinsville. The Division also agrees to notify TDAPC in the event that the Hopkinsville FRM  $PM_{2.5}$  sampler must be shutdown or relocated, as it is the design value monitor for the MSA.

The Division commits to sharing with TDAPC any and all quality-assured ambient monitoring data collected in the Kentucky portion of the Clarksville, TN-KY MSA. The Division also welcomes TDAPC participation in Kentucky's annual network review process. If you have any questions or concerns, please contact me at 502-564-3999.

Sincerely,

Sean Alteri, Director

SA/jfm

c: -Heather McTeer Toney, USEPA Region IV -Daniel Garver, USEPA Region IV

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### APPENDIX E

### LMAPCD AMBIENT AIR MONITORING NETWORK 2019



### Louisville Metro Air Pollution Control District's Proposed Changes to the Ambient Air Quality Monitoring Network

May, 2019

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LMAPCD Proposed Network Changes - Overview	. 2
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Particulate Matter Instrument Proposed Changes	. 2
LMAPCD Intended Use of Continuous PM <sub>2.5</sub> Monitors	. 2
Photochemical Assessment Monitoring Station (PAMS)	
Kosmosdale SO <sub>2</sub> Site	5
Conclusion	5

#### LMAPCD Proposed Network Changes - Overview

The Louisville Metro Air Pollution Control District (LMAPCD) is proposing some changes to the ambient monitoring network during the 2019 Network Planning period (July 2019 through June 2020). Most of the changes presented in this document serve to clarify proposed changes mentioned in prior network plans as implementation of prior proposed changes has deviated slightly from the original proposals or have been delayed. Clarifications are provided regarding PM network monitoring objectives as significant effort has been put forth to modify the methods for analyzing particulate matter. LMAPCD is still working with several parties to implement a new site in southwestern Jefferson County for measurements of SO<sub>2</sub>. It is anticipated that this new site will be operational by January 1, 2020. Additionally, LMAPCD continues to work on establishing Auto GC instrumentation for the Photochemical Assessment Monitoring Station (PAMS) program. Despite expected delays in the Environmental Protection Agency's (EPA) PAMS monitoring regulations, LMAPCD continues to move forward with PAMS implementation. The details concerning these proposed changes are presented below.

#### Particulate Matter Instrument Proposed Changes

Per the 2018 Network Plan, LMAPCD evaluated the API Teledyne T640 particulate analyzer and the data that it produces. One T640 analyzer ran for a period of time in LMAPCD's shop area and was installed at the Firearms Training site as a special purpose monitor in the Spring of 2018. This instrument remained operational throughout the remainder of 2018 and into the first part of 2019. The API T640 analyzer operated alongside a Met One BAM1020 PM $_{10}$  and PM $_{2.5}$  instrument, as well as collocated FRM Partisol 2025i instruments. An evaluation of the API T640 particulate analyzer and its data was performed and found that the T640 instrument was acceptable both from an operational and data comparability standpoint. Installation of the T640 / T640x analyzers throughout the rest of the LMAPCD particulate network occurred in late 2018 and early 2019. Along with the installation of the T640 / T640x instruments, some changes were also made to the FRM network due to collocation requirements. The subsequent section provides clarifications on the monitoring objectives and methods for PM2.5 monitoring.

#### LMAPCD Intended Use of Continuous PM<sub>2.5</sub> Monitors

As discussed above as well as in the 2018 Network Plan, APCD has recently implemented several changes in the PM monitoring network. In general, the continuous PM method was modified as Met One BAM 1020s were replaced with Teledyne API T640 / T640x instruments. Additionally, some changes were made to the FRM network. In an effort to more efficiently meet the collocation requirements laid out in 40 CFR Part 58 Appendix A, some additional changes were made to the monitoring objectives and the identification of primary monitors. As such, some of the proposed changes from the 2018 Network Plan were modified slightly. In general, all APCD monitoring sites now contain a continuous PM2.5 FEM monitor (API T640 or API T640x), and these continuous PM2.5 analyzers serve as the primary monitors for those sites and are intended to assess compliance with the PM2.5 NAAQS. Table 1 serves to clarify the intended use of PM2.5 data for calendar year 2019 and beyond. Table 2 provides similar information, but for 2018. The information in Table 2 is provided to clarify the intended use of those monitors for CY 2018, given that the objectives changed slightly from what was originally proposed in the 2018 Network Plan.

	PI	M <sub>2.5</sub> Monitors	Operat	ed by LMA	PCD – Curren	t (2019)		
Site Name	AQS ID	Parameter Code	POC	Monitor Type	Method	Primary Monitor?	Compare to NAAQS?	Eligible for AQI?
Watson Lane	21-111-0051	88101	3	SLAMS	API T640	Yes	Yes	Yes
Cannons Lane	21-111-0067	88101	3	SLAMS	API T640x	Yes	Yes	Yes
Cannons Lane	21-111-0067	88101	1	Colloc	FRM <sup>1</sup>	No	Yes	NA
Carrithers Middle School	21-111-0080	88101	3	SLAMS	API T640	Yes	Yes	Yes
Durrett Lane	21-111-0075	88101	3	SLAMS	API T640	Yes	Yes	Yes
Durrett Lane	21-111-0075	88101	1	Colloc	FRM	No	Yes	NA
Firearms Training	21-111-1041	88101	3	SLAMS	API T640x	Yes	Yes	Yes

Table 1 - List of LMAPCD PM25 monitors that are currently in place and will remain in place through 2019.

	Clarifica	itions on PM <sub>2</sub>	.s Monit	tors Operat	ed by LMAPC	D for CY 201	8	
Site Name	AQS ID	Parameter Code	POC	Monitor Type	Method	Primary Monitor?	Compare to NAAQ5?	Eligible for AQI?
Watson Lane	21-111-0051	88101	3	SLAMS	BAM 1020	Yes	Yes	Yes
Cannons Lane	21-111-0067	88101	3	SLAMS	BAM 1020	Yes <sup>2</sup>	Yes	Yes
Cannons Lane	21-111-0067	88101	1	Colloc	FRM <sup>1</sup>	No	Yes	NA
Carrithers Middle School	21-111-0080	88501	3	SPM	BAM 1020 w SCC	Yes	No	Yes
Durrett Lane	21-111-0075	88101	1	SLAMS	FRM	Yes	Yes	NA
Firearms Training	21-111-1041	88101	1	SLAMS	FRM	Yes	Yes	NA
Firearms Training	21-111-1041	88101	2	Colloc	FRM	No	Yes	NA
Firearms Training	21-111-1041	88101	3	SLAMS	BAM 1020	No	Yes	Yes
Firearms Training	21-111-1041	88501	4	SPM	API T640	No	No	No

Table 2 - List of LMAPCD PM<sub>2.5</sub> monitors that were in place during 2018 and clarifications on the intended use of those monitors for CY 2018.

<sup>&</sup>lt;sup>1</sup> Cannons Lane FRM was moved from a ground level deck to be located on top of shelter to meet siting requirements for collocation distance. This was done in March of 2019. Data collected in 2018 did not meet siting requirements for collocation distance from primary monitor.
<sup>2</sup> Per 2018 Network Plan, Cannons Lane PM2.5 BAM was not originally intended to serve as the primary monitor;

<sup>&</sup>lt;sup>2</sup> Per 2018 Network Plan, Cannons Lane PM2.5 BAM was not originally intended to serve as the primary monitor; however, due to the need to collocate an FRM with the BAM method, it was later determined that the Cannons Lane PM2.5 BAM would serve as the primary monitor for 2018, and the FRM would serve as the collocated monitor.

#### Photochemical Assessment Monitoring Station (PAMS)

Based on 40 CFR Part 58, Appendix D, state and local air monitoring agencies were required to begin making PAMS measurement at their NCore location by June 1, 2019. APCD has been planning for PAMS implementation for some time, however, APCD understands that EPA is working on a proposed rule that will provide state and local agencies an additional two years from the current implementation date of June 1, 2019 to implement the PAMS program requirements. This extension is needed to provide all agencies the funding and equipment necessary to implement the program. APCD will continue preparing to implement the program as funding and personnel resources allow with the goal of full implementation on or before June 1, 2021.

In order to accommodate the new instrumentation for PAMS, an additional shelter will be needed at the Cannons Lane site. Acquisition of the monitoring shelter, the Auto GC, and the Ceilometer is currently underway. Table 3 provides a listing of all required PAMS parameters and their status at APCD's Cannons Lane NCore site.

Stati	us of PAMS Para	meters at APCD's Cannons Lane NCore S	ite
Required PAMS	Status	Current / Expected Instrumentation	Operational Date /
Measurement			Estimated Date
Hourly VOCs	Acquiring	CAS / Chromatotec Auto GC	6/1/2020
Carbonyls	Evaluating	TBD	6/1/2021
Hourly Ozone	Operational	Teledyne API T400 <sup>3</sup>	2/27/2016
True NO2	Operational	Teledyne API T500U	6/15/2017
NOy	Operational	Teledyne API T200U NOy <sup>3</sup>	6/12/2018
Ambient Temp	Operational	Vaisala HMW93D Temp/RH Probe	1/1/2010
Wind	Operational	RM Young 85000 Ultrasonic	1/19/2010
Ambient Pressure	Operational	RM Young 61302V	10/8/2018
Precipitation	Operational	Met One 370 Tipping Bucket <sup>3</sup>	6/23/2016
Hourly Mixing Height	Acquiring	Vaisala Ceilometer CL51	6/1/2020
Solar Radiation	Operational	Eppley PS Pyranometer	3/1/2009
UV Radiation	Evaluating	TBD	6/1/2021

Table 3 - List of PAMS parameters required by 40 CFR Part 58 Appendix D and the status of those parameters at APCD's Cannons Lane NCore site.

LMAPCD will work as diligently as possible to install and operate the new PAMS instrumentation so that meaningful, valid data can be collected and reported to EPA's AQS database. Due to the anticipated delays in PAMS implementation and associated funding, some delays in technical guidance and resources may occur. As such, LMAPCD does not plan to report these PAMS data to EPA's database until there is adequate confidence in the data being collected.

<sup>&</sup>lt;sup>3</sup> Operational date listed is for this specific method. Parameter has been collected for several years prior to the operational date listed using different instrumentation / method.

#### Kosmosdale SO2 Site

As has been discussed in prior network plans, LMAPCD continues to work with the EPA, the Kentucky Division for Air Quality (KDAQ), and permitted facilities to install a new site for monitoring SO<sub>2</sub> concentrations in southwestern Jefferson County at a location approved by EPA on February 1, 2018. APCD will continue to work with EPA, KDAQ, and permitted facilities to install the site and monitoring equipment as expeditiously as possible. LMAPCD anticipates full operation of this site by January 1, 2020.

#### Conclusion

The majority of the changes being proposed for the Network Planning period (July 2019 – June 2020) do not alter LMAPCD's criteria pollutant network. Most of the changes are metadata changes that are intended to clarify the objective and purpose of the PM monitors within APCD's monitoring network. The most substantial change to LMAPCD's network will be the installation of several pieces of equipment at the Cannons Lane NCore station to meet PAMS requirements. The PAMS instrumentation is new to most state, local, and tribal agencies, and as such, additional effort will likely be needed to make sure that the instrumentation is producing meaningful, valid data. In an effort to ensure that the Louisville Metropolitan Statistical Area (MSA) continues to meet minimum monitoring requirements, Table 4 provides a summary of the number of ambient air quality monitoring sites in operation for each pollutant group within the Louisville MSA. Some changes were made to update the numbers based on expected changes to other monitoring networks within the MSA<sup>4</sup>. The following changes are noted between the current and proposed changes:

- Increase of one SO<sub>2</sub> site is result of proposed addition of the Kosmosdale site
- Increase of one PAMS site is result of proposed addition of PAMS instrumentation at Cannons Lane

As can be seen in Table 4, the Louisville MSA continues to meet the EPA minimum monitoring requirements through the collective efforts of the Indiana Department of Environmental Management (IDEM), KDAQ, and the LMAPCD. It should also be noted that the operation of ambient air quality monitors by the LMAPCD alone meets the EPA minimum monitoring requirements.

Louisville / Jefferson County MSA Monitoring Requirements									
	O <sub>3</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>c</sub>	SO <sub>2</sub>	NO <sub>2</sub>	co	Toxics	PAMS
# Sites Required by CFR	2	3	2-4	1	1	2	2	0	1
# Current Sites	7 (3)	7 (5)	3 (2)	1 (1)	4 (3)	2 (2)	2 (2)	2 (1)	0 (0)
# Sites After proposed Changes	7 (3)	7 (5)	3 (2)	1 (1)	5 (4)	2 (2)	2 (2)	2 (1)	1 (1)

Table 4 - Summary of monitoring requirements in Louisville / Jefferson County MSA compared to number of monitors / sites before and after proposed network changes. Numbers in parenthesis represents number of sites that APCD operates (versus total number in MSA).

<sup>&</sup>lt;sup>4</sup> Per communication with Indiana Department of Environmental Management, some changes to sites / monitors in Southern Indiana are anticipated in the near future. See IDEM network plan for more details.

## Appendix E - Part B LMAPCD Equipment Inventory

ocation	Instrument Type	Manufacturer	Model	Serial Number	Condition	Status
Carrithers	Calibrator	API	T703	255	Good	In Use
Carrithers	Datalogger	ESC Agilaire LLC	8832	4411	Fair	In Use
Carrithers	O3 Analyzer	API	T400	316	Good	In Use
Carrithers	PM	API	T640	457	Good	In Use
Carrithers	RH/Temp Probe	RM Young	41382	n/a	Good	In Use
Carrithers	RH/Temp Sensor	Vaisala	HMW93D	N1540018	Good	In Use
Carrithers	Site Shelter	EKTO Mfg.	81012	4234-1	Fair	In Use
arrithers	Wind Monitor	RM Young	05103VM-42	118039	Good	In Use
CLAMS	Anemometer	RM Young	85000	UB1390	Good	In Use
LAMS	Baro Pressure	RM Young	61302V	BPA1240	Good	In Use
LAMS	Calibrator	API	T700U	107	Good	In Use
CLAMS	CO Analyzer	API	T300U	281	Good	In Use
LAMS	Datalogger	ESC Agilaire LLC	8832	4410	Good	In Use
LAMS	Meteorology Tower	Aluma Tower	T-35H	AP-29071-U-4	Good	In Use
LAMS	NO2 Analyzer	API	T500U	169	Good	In Use
LAMS	Noy Analyzer	API	T200U	316	Good	In Use
LAMS	O3 Analyzer	API	T400	1468	Good	In Use
LAMS	PM	API	T640x	591	Good	In Use
LAMS	PM	Met One	SASS	6079	Fair	In Use
LAMS	PM	Met One	Super SASS	1046	Good	In Use
LAMS	PM	Thermo	2025i	21317	Good	In Use
LAMS	PM	Thermo	2025i	21318	Good	In Use
LAMS	PM	URG	3000N	BN-251	Fair	In Use
LAMS	PM	URG	3000N	BN-933	Fair	In Use
LAMS	Pyranometer	Eppley	PSP	34257F3	Good	In Use
LAMS	RadNet	HI-Q	HVP-4004BRL-S	17603	Fair	In Use
LAMS	Rain	Met One	370	U10772	Good	In Use
LAMS	RH/Temp Probe	RM Young	41382	21011	Good	In Use
LAMS	RH/Temp Sensor	Vaisala	HMW93D	H05200002	Good	In Use
LAMS	Site Shelter	Modular Connections	MCP-296	MC2519	Good	In Use
LAMS	SO2 Analyzer	API	T100U	276	Good	In Use

## LMAPCD Equipment Inventory (Continued)

ocation	Instrument Type	Manufacturer	Model	Serial Number	Condition	Status	
CLAMS	TEOM shelter	EKTO Mfg.	432-SP	3535-6	Good	In Us	
CLAMS	Wind Monitor	RM Young	5305AQ	135267	Good	In Us	
CLAMS	Zero Air	API	T701H	604	Good	In Use	
ireArms	Anemometer	RM Young	85000	UB3773	Good	In Use	
ireArms	Auto GC C3-C6	Chromatotec	airmoVOC A21022	56410717	Good	In Use	
ireArms	Auto GC C6-C12	Chromatotec	airmoVOC C6-C12 A21022	26400717	Good	In Use	
ireArms	Auto GC Calibrator	Chromatotec	airmoCal	56440717	Good	In Us	
ireArms	Auto GC H2 Generator	Chromatotec	Hydroxychrom	56420717	Good	In Us	
ireArms	Auto GC Zero Air	Chromatotec	airmoPure D	56430717	Good	In Use	
reArms	Calibrator	API	T700	289	Good	In Us	
ireArms	Datalogger	ESC Agilaire LLC	8832	4294	Fair	In Us	
ireArms	PM	API	T640x	592	Good	In Us	
reArms	PM	Met One	BAM	N2946	Fair	In Us	
reArms	PM	Met One	BAM	T18981	Good	In Us	
reArms	PM	Thermo	2025i	20614	Good	In Us	
reArms	RH/Temp Probe	RM Young	41372VC	Y490092	Fair	In Us	
reArms	RH/Temp Sensor	Vaisala	HMW93D	H052001	Good	In Us	
ireArms	Site Shelter	EKTO Mfg.	8812	4222-5641017	Good	In Use	
ireArms	SO2 Analyzer	API	T100U	81	Fair	In Use	
reArms	Zero Air	API	T701M	647	Good	In Use	
ear Road	Anemometer	RM Young	85000	4675	Fair	In Use	
ear Road	Calibrator	API	T700U	106	Good	In Use	
lear Road	CO Analyzer	API	T300U	155	Fair	In Use	
ear Road	Datalogger	ESC Agilaire LLC	8832	4293	Fair	In Use	
ear Road	Meteorology Tower	Aluma Tower	T-135	AT-213072-Y-6-1	Good	In Use	
ear Road	NO2 Analyzer	API	T500U	168	Good	In Use	
ear Road	PM	API	T640	458	Good	In Use	
ear Road	PM	Thermo	2025i	20608	Good	In Use	
ear Road	RH/Temp Probe	RM Young	41382	25029	Fair	In Use	
ear Road	RH/Temp Sensor	Vaisala	HMW93D	H052004	Good	In Use	
ear Road	Site Shelter	CAS	CAS	3200-7	Good	In Use	

## LMAPCD Equipment Inventory (Continued)

ocation	Instrument Type	Manufacturer	Model	Serial Number	Condition	Status	
ear Road	Wind Monitor	RM Young	05305V	128356	Fair	In Use	
ear Road	Zero Air	API	T701H	839	Good	In Use	
outhwick	BAM shelter	Met One	BAM Shelter	n/a	Good	Spare	
outhwick	Meteorology Tower	Unknown	Meteorology Tower	fixed tower/unknown	Good	In Use	
outhwick	PM	Met One	BAM	T18983	Good	Spare	
outhwick	PM	Thermo	2025B	20450	Fair	Spare	
outhwick	PM	Thermo	2025B	21665	Fair	Spare	
outhwick	Rain	Met One	0.1 Rain Gauge	E5009	Good	In Use	
outhwick	TEOM shelter	EKTO Mfg.	432-SP	3408-6	Good	Spare	
outhwick	TEOM shelter	EKTO Mfg.	432-SP	3408-7	Good	Spare	
/atson	Anemometer	RM Young	85000	2568	Good	In Use	
/atson	Calibrator	API	T700U	174	Good	In Use	
/atson	Datalogger	ESC Agilaire LLC	8832	4291	Fair	In Use	
atson	O3 Analyzer	API	T400	1467	Good	In Use	
atson	PM	API	T640	456	Good	In Use	
atson	PM	Met One	BAM	T18977	Good	Spare	
/atson	RH/Temp Probe	RM Young	41382	126462	Good	In Use	
/atson	RH/Temp Sensor	Vaisala	HMW93D	H0520003	Good	In Use	
atson	Site Shelter	EKTO Mfg.	8812	3728-1	Good	In Use	
atson	SO2 Analyzer	API	T100	1321	Good	In Use	
atson	Zero Air	API	T701M	648	Good	In Use	
пор	Air Toxics FTIR	IMACC	M-ZSE12-180	M0015	Good	Spare	
пор	Air Toxics Sampler	Thermo	Miran Saphire	79545411	Good	Spare	
пор	Anemometer	Met One	50.5	B-1031	Poor	Spare	
пор	Anemometer	Met One	50.5	Y3338	Good	Spare	
пор	Anemometer	RM Young	5305AQ	VW101749	Good	Spare	
юр	Anemometer	RM Young	85000	n/a	Good	Spare	
пор	Anemometer	RM Young	85000	UB-1309	Good	Spare	
юр	Calibrator	API	T700	1619	Good	Spare	
пор	Calibrator	API	T700	1620	Good	Spare	

## LMAPCD Equipment Inventory (Continued)

ocation	Instrument Type	Manufacturer	Model	Serial Number	Condition	Status
hop	Calibrator	API	T700E	1038	Good	Spare
hop	Calibrator	API	T700U	457	Good	In Use
hop	Calibrator	API	T750	54	Good	In Use
hop	CO Analyzer	Thermo	48i-TLE	0814429-062	Fair	Spare
hop	CO Analyzer	Thermo	48i-TLE	617817-228	Fair	Spare
hop	Datalogger	ESC Agilaire LLC	8832	2713K	Fair	In Use
hop	Datalogger	ESC Agilaire LLC	8832	4691K	Fair	In Use
hop	Datalogger	ESC Agilaire LLC	8872	731	Good	Spare
hop	Flow Standard	AliCat	FP-25	148162	Good	In Use
hop	Flow Standard	AliCat	MWB	189496	Good	In Use
пор	Flow Standard	Chinook	SLP	HL041007	Fair	In Use
hop	Flow Standard	Chinook	SLP	HL170606	Good	In Use
пор	Flow Standard	Chinook	SLP	HL170607	Good	In Us
пор	Flow Standard	Chinook	SLP	HM041005	Poor	Spare
пор	Flow Standard	Chinook	SLP	HM041006	Fair	In Use
пор	Flow Standard	Chinook	SLP	HM70204	Fair	In Use
пор	Flow Standard	Fluke	Fluke	2213	Good	In Use
hop	Flow Standard	MesaLab	Bios Dry Cal	105393	Fair	Spare
пор	Flow Standard	MesaLab	Delta Cal	465	Fair	Spare
hop	Flow Standard	MesaLab	Delta Cal	466	Fair	Spare
пор	Lab Fridge	Thermo	REL1204A	1.55473E+14	Good	In Use
hop	Met Station	Met One	Portable	5876	Fair	Spare
пор	Met Station	Met One	Portable	E5678	Good	Spare
hop	NO2 Analyzer	API	T500U	170	Good	In Use
hop	O3 Analyzer	API	T400	315	Good	Spare
hop	O3 Analyzer	Thermo	49C	413906-381	Poor	Spare
юр	O3 Analyzer	Thermo	49C	417007-061	Poor	Spare
пор	O3 Analyzer	Thermo	49C	70020-364	Good	In Use
пор	O3 Analyzer	Thermo	49C	74462-376	Poor	Spare
пор	O3 Analyzer	Thermo	49i	617817-230	Fair	Spare
hop	O3 Analyzer	Thermo	49iPS	617817-229	Good	In Use

ocation.	Instrument Type	Manufacturer	Model	Serial Number	Condition	Status
hop	PM	API	T640	151	Good	Spare
hop	PM	API	T640	458	Good	Spare
hop	PM	API	T640	459	Good	Spare
hop	PM	Met One	BAM	H1710	Fair	Spare
hop	PM	Met One	BAM	K19862	Fair	Spare
hop	PM	Met One	BAM	K19863	Fair	Spare
hop	PM	Met One	BAM	N3593	Fair	Spare
hop	PM	Met One	BAM	T18984	Good	Spare
hop	PM	Met One	SASS	6080	Fair	Spare
hop	PM	Thermo	2025B	22560	Fair	Parts
hop	PM	Thermo	2025i	20607	Good	Spare
hop	PM	Thermo	2025i	20612	Good	Spare
hop	PM	URG	3000N	1045	Fair	Spare
hop	Pump	Rocker	Rocker	B001	Fair	Spare
hop	Pump	Rocker	Rocker	B002	Fair	Spare
hop	Pump	Rocker	Rocker	C031	Fair	Spare
hop	Pump	Rocker	Rocker	H005	Fair	Spare
hop	Pyranometer	Eppley	PSP	33927F3	Fair	Spare
hop	Rain	RM Young	52202	TB03206	Good	Spare
hop	RH/Temp Sensor	Vaisala	HMW93D	N1540017	Fair	In Use
hop	RH/Temp Standard	Vaisala	HPM	J0871073	Fair	Spare
hop	RH/Temp Standard	Vaisala	HPM	x3810013	Fair	In Use
hop	RH/Temp Transmitter	Vaisala	HMW71Y	W3650008	Fair	Spare
hop	RH/Temp Transmitter	Vaisala	HMW71Y	X0840020	Fair	Spare
hop	SO2 Analyzer	API	T100	1322	Good	Spare
hop	SO2 Analyzer	Thermo	43i-TLE	814428-732	Fair	Spare
hop	Temp Probe	RM Young	41342VF	41376A	Fair	Spare
hop	Temp Probe	RM Young	41342VF	41376A	Fair	Spare
hop	Temp Probe	RM Young	41342VF	TS05123	Good	Spare
hop	Vehicle	Ford	Escape	3700	Fair	In Use
hop	Vehicle	Ford	Escape	4220	Good	In Use

	Louisville Air Pollutio	n Control District Ambiei	nt Monitoring Group Instrum	ient & Equipment Inventor	y - May, 2019	
Location	Instrument Type	Manufacturer	Model	Serial Number	Condition	Status
Shop	Vehicle	Ford	Escape	4221	Good	In Use
Shop	Vehicle	Ford	Explorer	3500	Fair	In Use
Shop	Vehicle	Ford	F250 (big truck)	1268	Good	In Use
Shop	Vehicle	Ford	F350 (big van)	2966	Poor	In Use
hop	Vehicle	Ford	Ranger	3114	Poor	In Use
Shop	Vehicle	Ford	Transit	2116	Good	In Use
hop	Wind Monitor	RM Young	05103VM	WM101749	Fair	Spare
Shop	Wind Monitor	RM Young	05103VM	WM47808	Fair	Spare
Shop	Wind Monitor	RM Young	05305V	WM00101749	Fair	Spare
Shop	Zero Air	API	T701H	773	Fair	In Use
Shop	Zero Air	API	T701M	801	Good	Spare
hop	Zero Air	API	T701M	802	Good	In Use
hop	Zero Air	API	T751	62	Good	In Use
Varehouse	Air Toxics UV	IMACC	Air Toxics UV	Air Toxics UV	Fair	Not In U
Varehouse	Analyzer	EcoTech	300	1586	Poor	Not In U
Varehouse	BAM shelter	Met One	BAM Shelter	n/a	Good	Not In U
Varehouse	Calibrator	EcoTech	6100	4012	Poor	Not In U
Varehouse	Calibrator	Thermo	146C	0417007-062	Poor	Not In U
Varehouse	Calibrator	Thermo	146C	382	Poor	Not In U
Varehouse	Calibrator	Thermo	146C	70386-365	Poor	Not In U
Varehouse	Calibrator	Thermo	146i	0814428-735	Fair	Not In U
Varehouse	CO Analyzer	Thermo	48C	351	Poor	Not In U
Varehouse	CO Analyzer	Thermo	48C	417007-060	Poor	Not In U
Varehouse	CO Analyzer	Thermo	48C	67474-356	Poor	Not In U
Varehouse	CO Analyzer	Thermo	48C	68840-361	Poor	Not In U
Varehouse	Datalogger	ESC Agilaire LLC	8816	1917	Fair	Not In U
Varehouse	Datalogger	ESC Agilaire LLC	8816	1971	Fair	Not In U
Varehouse	Datalogger	ESC Agilaire LLC	8816	1972	Fair	Not In U
Varehouse	Datalogger	ESC Agilaire LLC	8816	1973	Fair	Not In U
Warehouse	Datalogger	ESC Agilaire LLC	8816	2423	Fair	Not In U
Varehouse	Datalogger	ESC Agilaire LLC	8816	2764	Fair	Not In U

Location	Instrument Type	Manufacturer	Model	Serial Number	Condition	Status
Warehouse	Datalogger	ESC Agilaire LLC	8816	3303	Poor	Not In Us
Warehouse	Datalogger	ESC Agilaire LLC	8816	3304	Poor	Not In Us
Warehouse	Datalogger	ESC Agilaire LLC	8816	3305	Poor	Not In U
Warehouse	Datalogger	ESC Agilaire LLC	8816	3306	Fair	Not In U
Warehouse	Datalogger	ESC Agilaire LLC	8816	3307	Fair	Not In U
Warehouse	Datalogger	ESC Agilaire LLC	8816	3308	Fair	Not In U
Warehouse	Datalogger	ESC Agilaire LLC	8816	3801	Good	Not In U
Warehouse	Datalogger	ESC Agilaire LLC	8816	4422	Fair	Not In U
Warehouse	Datalogger	ESC Agilaire LLC	8816	4423	Fair	Not In U
Warehouse	Datalogger	ESC Agilaire LLC	8816	4424	Fair	Not In U
Warehouse	Datalogger	ESC Agilaire LLC	8832	4291	Fair	Not In U
Warehouse	Datalogger	ESC Agilaire LLC	8832	5058	Poor	Not In U
Warehouse	Datalogger	ESC Agilaire LLC	8832	A1014	Good	Not In U
Warehouse	Meteorology Tower	Unknown	Meteorology Tower	n/a	Good	Not In U
Warehouse	NO2 Analyzer	API	T200	341	Fair	Not In U
Varehouse	NO2 Analyzer	API	T200UP	85	Good	Not In U
Warehouse	NO2 Analyzer	EcoTech	Ecotech Serinus	40-10-51	Poor	Not In U
Warehouse	NO2 Analyzer	Thermo	42C	070415-365	Poor	Not In U
Warehouse	NO2 Analyzer	Thermo	42C	70979-367	Poor	Not In U
Warehouse	Noy Analyzer	Thermo	42i-Y	0814428-734	Poor	Not In U
Varehouse	O3 Analyzer	Thermo	49C	43374-269	Poor	Not In U
Warehouse	O3 Analyzer	Thermo	49C	47646-280	Poor	Not In U
Varehouse	O3 Analyzer	Thermo	49C	64282-342	Poor	Not In U
Warehouse	PM	Met One	BAM	N3596	Fair	Not In U
Warehouse	PM	Met One	SASS	3565	Fair	Not In U
Warehouse	PM	Met One	SASS	3567	Fair	Not In U
Varehouse	PM	Thermo	2025B	21310	Fair	Not In U
Warehouse	PM	Thermo	2025B	21656	Fair	Not In U
Varehouse	PM	Thermo	2025B	21666	Fair	Not In U
Warehouse	Shelter (mobile)	Mobile Structures	Mobile Trailer	5WJVN14238L000673	Fair	Not In U
Warehouse	Site Shelter	EKTO Mfg.	8812	3876-1	Good	Not In U

Location	Instrument Type	Manufacturer	Model	Serial Number	Condition	Status
Warehouse	SO2 Analyzer	Thermo	43C	436610-205	Poor	Not In Use
Warehouse	SO2 Analyzer	Thermo	43C	518612-095	Poor	Not In Use
Warehouse	SO2 Analyzer	Thermo	43C	69873-364	Poor	Not In Use
Warehouse	TEOM	R&P	1400a	230750005	Poor	Not In Use
Warehouse	TEOM	R&P	1400a	23746	Poor	Not In Use
Warehouse	TEOM	R&P	1400a	23748	Poor	Not In Use
Warehouse	TEOM	R&P	1400a	24601	Poor	Not In Use
Warehouse	TEOM	R&P	1400ab	24059	Poor	Not In Use
Warehouse	TEOM	R&P	1400ab	24097	Poor	Not In Use
Warehouse	TEOM	R&P	1400ab	24885	Poor	Not In Use
Warehouse	TEOM	R&P	1400ab	24926	Poor	Not In Use
Warehouse	TEOM shelter	EKTO Mfg.	432-SP	3200-7	Poor	Not In Use
Warehouse	TEOM shelter	EKTO Mfg.	432-SP	3278-10	Good	Not In Use
Warehouse	TEOM shelter	EKTO Mfg.	432-SP	3278-9	Good	Not In Use
Warehouse	Zero Air	API	T701M	835	Poor	Not In Use
Warehouse	Zero Air	API	T701M	837	Poor	Not In Use

### APPENDIX F

### KDAQ INTENDED USE OF CONTINUOUS PM<sub>2.5</sub> FEMS

## Appendix F KDAQ Intended Use of Continuous PM<sub>2.5</sub> FEMs

Historically, continuous PM<sub>2.5</sub> monitors that are designated as Federal Equivalent Methods (FEMs) have been excluded from comparisons to the PM<sub>2.5</sub> NAAQS, as long as these monitors were specified as special-purpose monitors (SPMs). Data from these monitors was used for reporting of the AQI. Monitors could remain designated as SPMs for a period of two years of operation at each site. However, after that two-year period, the data was eligible for comparison to the NAAQS, regardless of monitor-type designation.

In December 2012, a new PM NAAQS and set of monitoring rules were finalized. These new monitoring rules amended the previous requirement to compare all data from FEMs collected after a period of two-years to the NAAQS. Instead, agencies could operate a continuous PM<sub>2.5</sub> FEM for longer than two years and could elect to exclude the data from NAAQS-comparisons, provided that the monitor did not meet certain performance specifications.

Data from monitors established for less than two years and designated as SPM remain ineligible for attainment decisions. Specifically, the final rule allows certain continuous PM<sub>2.5</sub> FEM data to be excluded if:

- the monitor does not meet performance criteria when compared to the data collected from collocated Federal Reference Methods (FRMs);
- the monitoring agency requests exclusion of data; and,
- the EPA Regional Office approves exclusion of the data.

Regardless of whether an exclusion is sought, each agency must address the use of all continuous  $PM_{2.5}$  FEMs in the network. Each monitor must be properly referenced by a set of parameter codes, primary monitor designations, and monitor-types.

KDAQ has successfully replaced all nine non-FEM TEOMS with FEM T640s. Of the nine currently deployed T640 instruments, five will have completed a trial 24-month period in the field by February 2020. KDAQ recommends that those five T640s, located at FIVCO, JPRECC, Owensboro, Pikeville, and NKU, be used for NAAQS comparisons.

Four of the remaining T640s will remain eligible for an exclusion from NAAQS compliance for the upcoming monitoring year. KDAQ requests EPA-approval to exclude data collected from these four recently installed FEM T640 monitors, located at Elizabethtown, Hazard, Lexington, and Ed Spear Park, from NAAQS comparisons for completion of the allowable two-year comparability studies.

The monitor designations for Teledyne-API T640 continuous PM<sub>2.5</sub> FEMs that will be operated by KDAQ are summarized in the charts on the following page.

# $\frac{Appendix\;F}{KDAQ\;Intended\;Use\;of\;Continuous\;PM_{2.5}\;FEMs}$

### PM2.5 Continuous FEM monitors eligible for NAAQS compliance

Ashland Primary (21-019-0017), Paducah Primary (21-145-1024), Owensboro (21-059-0005), Pikeville (21-195-0002), NKU (21-037-3002)

Scenario	Parameter Name	Parameter Code	Pollution Occurrence Code (POC)	Monitor Type	Primary Monitor (Collocation)	Used for substi- tutions of miss- ing primary data?	Used for NAAQS Comparisons?	Eligible for AQI?
PM <sub>2.5</sub> Continuous FEM is eligible for NAAQS comparisons.	PM2.5 Local Conditions	88101	3	SLAMS	FRM	Yes	Yes	Yes

### Special purpose monitoring and AQI reporting only

Elizabethtown (21-093-0006); Hazard (21-193-0003); Lexington Primary(21-067-0012); Ed Spear Park (21-227-0009)									
Scenario	Parame- ter Name		Pollution Occurrence Code (POC)	Monitor Type	Primary Monitor (Collocation)	Used for substi- tutions of miss- ing primary data?	Used for NAAQS Comparisons?	Eligible for AQI?	
 PM <sub>2.5</sub> Continuous FEM is being tested and is less than 24 months; FRM is retained as the Primary monitor.	i iocai	88101	3	SPM & Non- Regula- tory	FRM	No	No	Yes	

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### **APPENDIX G**

### **NEAR-ROAD MONITORING**

## Appendix G Part A - Near-Road Monitoring

On February 9, 2010, the EPA released a new NO<sub>2</sub> Final Rule and a new set of monitoring requirements. Under the new monitoring requirements, State and Local agencies are required to establish NO<sub>2</sub> near-road monitoring stations based upon core based statistical area (CBSA) populations and traffic metrics.

Specifically, the final rule required:

- 1 near-road monitor in CBSAs with populations greater than or equal to 500,000; and
- 2 near-road monitors in CBSAs with populations greater than or equal to 2,500,000.

#### Additionally, the final rule required:

• 2 near-road monitors for any road segment that has an annual average daily traffic (AADT) count of 250,000 or more.

Similarly, the EPA revised the PM<sub>2.5</sub> NAAQS and monitoring rule on December 14, 2012, and the CO monitoring rule on August 31, 2011. Together, these rules require CO and PM<sub>2.5</sub> monitoring to be established at near-road sites for any CBSA with a population of one-million or greater. Ultimately, near-road sites are intended to be multi-pollutant sites. These sites are used to characterize the impacts vehicle exhaust and traffic patterns on public health.

In March 2013, the EPA finalized the use of a "phased" approach for establishing NO<sub>2</sub> near-road monitoring sites across the Nation. The phased approach necessitates:

- Phase 1: One required near-road monitor in CBSAs with a population of 1,000,000 or more must be established by January 1, 2014.
- Phase 2: Any second required near-road monitor in CBSAs that have a population greater than 2,500,000, or have a population of 500,000 or greater and have a traffic segment with an AADT of 250,000 or more, must be established by January 1, 2015.
- Phase 3: Required sites in remaining CBSAs with populations of 500,000 or more must be established by January 1, 2017.

Based upon population estimates and AADT counts, near-road monitors were required to be established in the following CBSAs during the implementation of Phase 1. No Phase 2 monitors are required in Kentucky.

CBSA Name (500,000 or more people)	2015 CBSA Population Estimate*	Highest Road Segment 2-Way AADT for CBSA**	Number of Monitors Required in CBSA
Cincinnati-Middletown, OH-KY-IN	2,128,603	193,399	1
Louisville-Jefferson County, KY-IN	1,251,351	166,432	1

<sup>\*</sup>Source: US Census Bureau, 2015 Population Estimates (Last accessed: April 5, 2016)

<sup>\*\*</sup>Source: KYTC Traffic Database. http://datamart.business.transportation.ky.gov/EDSB SOLUTIONS/CTS/. Last accessed: June 2015

The determination of the final locations of near-road monitoring locations within these CBSAs was a cooperative effort between multiple State and Local Agencies. The exact location of each site was determined using the following criteria:

- Fleet mix
- Roadway design
- Traffic congestion patterns
- Local topography

- Meteorology
- Population exposure
- Employee and public safety
- Site logistics

The requirement for a near-road site in the Cincinnati, OH-KY-IN MSA is fulfilled by a Memorandum of Agreement (MOA). The site is located in Ohio and is operated by the Southwest Ohio Air Quality Agency.

The near-road site in the Louisville-Jefferson County, KY-IN MSA has been established and is operated by the Louisville Metro Air Pollution Control District (LMAPCD). Specifics regarding this site are included in the site detail pages of this Annual Network Plan.

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### **APPENDIX H**

KENTUCKY SO<sub>2</sub> PWEI VALUES

#### Appendix H Kentucky SO<sub>2</sub> PWEI Values

40 CFR 58, Appendix D, requires that a minimum number of SO<sub>2</sub> monitors be operated based upon a Population Weighted Emissions Index (PWEI) values. This index, which is calculated for each Core Based Statistical Area (CBSA), is calculated by multiplying the population of each CBSA and the total amount of SO<sub>2</sub>, in tons per year, that is emitted within the CBSA, based upon aggregated county level emissions data from the National Emissions Inventory (NEI). The result is then divided by one million to provide the PWEI value, which is expressed in a unit of million persons-tons per year.

The minimum number of monitors required are:

- 3 monitors in CBSAs with index values of 1,000,000 or more;
- 2 monitors in CBSAs with index values less than 1,000,000 but greater than 100,000; and
- 1 monitor in CBSAs with index values greater than 5,000.

Additionally, the EPA Regional Administrator may, at their discretion, require additional monitors beyond the minimum required by PWEI calculations. However, Kentucky currently does not have any Regional Administrator required SO<sub>2</sub> monitors.

Based upon Kentucky's calculated PWEI values, the following CBSAs require SO<sub>2</sub> monitors:

Kentucky CBSAs	2015 PWEI* (million persons-tons per year)	Number of SO <sub>2</sub> Monitors Required	Number of SO <sub>2</sub> Monitors Present	Kentucky Site Name	Kentucky AQS ID
Cincinnati, OH-KY-IN	380,617	2	6**	NKU	21-037-3002
Evansville, IN-KY	7,771	1	1**	N/A	N/A
Huntington-Ashland, WV-KY-	4,553	1	2	Ashland Primary	21-019-0017
ОН	4,333	1	2	Worthington	21-089-0007
Lavinatan Farretta VV		1	2	Lexington Primary	21-067-0012
Lexington-Fayette, KY	3,522	1	2	Nicholasville	21-113-0001
				Watson Lane	21-111-0051
Louisville-Jefferson County, KY-IN	60,030	1	3***	Cannons Lane	21-111-0067
K I -IIN				Firearms Training	21-111-1041
Paducah, KY-IL	5,514	1	1	Jackson Purchase	21-145-1024

<sup>\* 2015</sup> PWEI calculated from 2013 USCB Population Estimates and 2011 NEI.

<sup>\*\*</sup> Additional monitors operated by SWOAQA in Ohio.

<sup>\*\*\*</sup>Monitors operated by the Louisville Metro Air Pollution Control District

<sup>\* \*</sup>Requirement fulfilled by MOA-Indiana Department of Environmental Management

### **APPENDIX I**

### EPA CASTNET STATIONS IN KENTUCKY

## Appendix I EPA CASTNET Stations in Kentucky

The Clean Air Status and Trends Network (CASTNET) is a nation-wide, long-term monitoring network designed to measure acidic pollutants and ambient ozone concentrations in rural areas. CASTNET is managed collaboratively by the Environmental Protection Agency – Clean Air Markets Division (EPA), the National Park Service – Air Resources Division (NPS), and the Bureau of Land Management – Wyoming State Office (BLM-WSO). In addition to EPA, NPS, and BLM-WSO, numerous other participants provide network support including tribes, other federal agencies, States, private land owners, and universities. More information about CAST-NET can be found at: <a href="https://www.epa.gov/castnet">https://www.epa.gov/castnet</a>

KDAQ does not operate nor serve as the Primary Quality Assurance Organization for any site in the CASTNET network. However, KDAQ does maintain a cooperative relationship with the staff of Mammoth Cave National Park. At the request of KDAQ, the NPS has designated the ozone monitor as the "Maximum O<sub>3</sub> Concentration" site for the Bowling Green, KY MSA. More information about the Mammoth Cave site can be found in the site detail pages of the Annual Network Plan.

KDAQ requested that EPA designate the CASTNET ozone monitor at the Cadiz site (21-221-9991) as the "Maximum O<sub>3</sub> Concentration" site for the Clarksville, TN-KY MSA. EPA agreed to the change and has since updated the metadata for the monitor in AQS.

#### **Clean Air Status & Trends Network (CASTNET)**

#### **Kentucky Ozone Monitors**

Monitor ID		County/ Metropolitan Statistical Area	Designation	Monitoring Scale
21-061-0501	Mammoth Cave National Park	Edmonson/ Bowling Green, KY MSA	CASTNET Non-EPA Federal Maximum O <sub>3</sub> Concentration*	Regional
21-175-9991	Crockett	Morgan/ Not in a MSA	CASTNET EPA	Regional
21-221-9991	Cadiz	Trigg/ Clarksville, TN-KY MSA	CASTNET EPA Maximum O <sub>3</sub> Concentration**	Regional
21-229-9991	Mackville (POC 1)	Washington/ Not in a MSA	CASTNET EPA	Regional
21-229-9991	Mackville Collocated (POC 2)	Washington/ Not in a MSA	CASTNET- QA Collocated*** EPA	Regional

<sup>\*</sup> Maximum Ozone Concentration Site for the Bowling Green, KY MSA

<sup>\*\*</sup> Maximum Ozone Concentration site for the Clarksville, TN-KY MSA

<sup>\*\*\*</sup>Not usable for NAAQS comparisons

### **APPENDIX J**

## KDAQ EQUIPMENT INVENTORY

### Appendix J KDAQ Equipment Inventory

Item Description	Item Model	Site Name	Condition
8832 DATALOGGER	Datalogger 8832	Smithland	G
8832 DATALOGGER	Datalogger 8832	Grayson Lake	G
8832 DATALOGGER	Datalogger 8832	Shop	G
8832 DATALOGGER	Datalogger 8832	East Bend	G
8832 DATALOGGER	Datalogger 8832	Franklin	G
8832 DATALOGGER	Datalogger8832	Shop	G
8832 DATALOGGER	Datalogger8832	Shop	F
8832 DATALOGGER	Datalogger8832	Shop	F
3832 DATALOGGER	Datalogger8832	Shop	G
3832 DATALOGGER	Datalogger8832	Shop	F
3832 DATALOGGER	Datalogger 8832	Shop	G
3832 DATALOGGER	Datalogger8832	Shop	F
3832 DATALOGGER	Datalogger8832	Lewisport	G
3832 DATALOGGER	Datalogger8832	Shop	F
8832 DATALOGGER	Datalogger8832	Shop	G
3832 DATALOGGER	Datalogger8832	Shop	G
3832 DATALOGGER	Datalogger8832	Shop	G
8832 DATALOGGER	Datalogger8832	Shop	G
8832 DATALOGGER	Datalogger8832	Shop	G
8832 DATALOGGER	Datalogger8832	Shop	F
8832 DATALOGGER	Datalogger8832	Shop	G
8832 DATALOGGER	Datalogger8832	Shop	F
8832 DATALOGGER	Datalogger8832	Shop	F
3832 DATALOGGER	Datalogger8832	Shop	G
8832 DATALOGGER	Datalogger8832	Shop	G
3832 DATALOGGER	Datalogger8832	Bloodworth Farm	G
3832 DATALOGGER	Datalogger8832	Shop	G
3832 DATALOGGER	Datalogger8832	Shop	G
3832 DATALOGGER	Datalogger8832	Hopkinsville	G
8832 DATALOGGER	Datalogger8832	Somerset	G
8832 DATALOGGER	Datalogger8832	Shop/ QA	G
3832 DATALOGGER	Datalogger8832	Shop	G
8832 DATALOGGER	Datalogger8832	Shop	F
8832 DATALOGGER	Datalogger8832	Hazard	G
3832 DATALOGGER	Datalogger8832	Shop	F
3832 DATALOGGER	Datalogger8832	Shop	G
3832 DATALOGGER	Datalogger8832	Middlesboro	G
8832 DATALOGGER	Datalogger8832	Buckner	G
8832 DATALOGGER	Datalogger8832	Shop	F
8832 DATALOGGER	Datalogger8832	Shop	F

Item Description	Item Model	Site Name	Condition
8832 DATALOGGER	Datalogger8832	Shop	F
8832 DATALOGGER	Datalogger8832	Shop	G
8832 DATALOGGER	Datalogger8832	Shop	G
8832 DATALOGGER	Datalogger8832	Shop	F
8832 DATALOGGER	Datalogger8832	Shop	F
8832 DATALOGGER	Datalogger 8832	Shop	G
8832 DATALOGGER	Datalogger 8832	Shop	G
8832 DATALOGGER	Datalogger 8832	Shop	G
8832 DATALOGGER	Datalogger 8832	Shop	F
8832 DATALOGGER	Datalogger 8832	Sebree	G
8832 DATALOGGER	Datalogger 8832	Shop/ LAB	G
8872 DATALOGGER	Datalogger 8872	Smiths Grove	G
8872 DATALOGGER	Datalogger 8872	Shop	G
8872 DATALOGGER	Datalogger 8872	Owensboro	G
8872 DATALOGGER	Datalogger 8872	Fivco	G
8872 DATALOGGER	Datalogger 8872	Pikeville	G
8872 DATALOGGER	Datalogger 8872	Worthington	G
8872 DATALOGGER	Datalogger 8872	Shop	G
8872 DATALOGGER	Datalogger 8872	Shop	G
8872 DATALOGGER	Datalogger 8872	Shop	G
8872 DATALOGGER	Datalogger 8872	Shop	G
8872 DATALOGGER	Datalogger 8872	Shop	G
8872 DATALOGGER	Datalogger 8872	Shop	G
8872 DATALOGGER	Datalogger 8872	Shop	G
8872 DATALOGGER	Datalogger 8872	Shop	G
8872 DATALOGGER	Datalogger 8872	Etown	G
8872 DATALOGGER	Datalogger 8872	NKU	G
8872 DATALOGGER	Datalogger 8872	Shop	G
8872 DATALOGGER	Datalogger 8872	Shop	G
8872 DATALOGGER	Datalogger 8872	Grayson Lake	G
8872 DATALOGGER	Datalogger 8872		G
		Shop	
8872 DATALOGGER	Datalogger 8872	Hazard	G
8872 DATALOGGER API ZERO AIR	Datalogger 8872 API701	NKU Shop	G G
API ZERO AIR	API701 API701	Owensboro	G
API ZERO AIR	API701	NKU	G
API ZERO AIR	API701	Sebree	G
API ZERO AIR	API701	Newtown	G
API ZERO AIR API ZERO AIR	API701 API701	Shop Franklin	G G

Item Description	Item Model	Site Name	Condition
API ZERO AIR	API701	Fivco	G
API ZERO AIR	API701	lewisport	G
API ZERO AIR	API701	Hopkinsville	G
API ZERO AIR	API701	Somerset	G
API ZERO AIR	API701	Shop	G
API ZERO AIR	API701	Shop	G
API ZERO AIR	API701	Shop	G
API ZERO AIR	API701	Shop	G
		· ·	
API ZERO AIR	API701	Shop	F -
API ZERO AIR	API701	Shop	F
API ZERO AIR	API701	Smiths Grove	F
API ZERO AIR	API701	Shop	F
API ZERO AIR	API701	Hazard	F
API ZERO AIR	API701	East Bend	F
API ZERO AIR	API701	Etown	F
API ZERO AIR	API701	Smithland	F
API ZERO AIR	API701	Shepherdsville	F
API ZERO AIR	API701	Shop	F
API ZERO AIR	API701	Shop	F
API ZERO AIR	API701	Smithland	G
API ZERO AIR	API701	Hazard	G
API ZERO AIR	API701	Nicholasville	G
API ZERO AIR	API701	Shop	G
API ZERO AIR	API701	Worthington	G
API ZERO AIR	API701	Shop	G
API ZERO AIR	API701	Buckner	G
API ZERO AIR	API701	Pikeville	G
Calibrator	700 E	Shop	G
Calibrator	700 E	Worthington	G
Calibrator	700 E	Nicholasville	G
Calibrator	API700E	Shop	G
Calibrator	API700E	Shop	G
Calibrator	API700E	Shop	G
Calibrator	API700E	Shop	G
Calibrator	API700E	Shop	G
Calibrator	API700E	Shop	G
Calibrator	API700E	NKU	G
Calibrator	API700E	Shop	G
Calibrator	API700E	Shop	G
Calibrator	T700	Shop	G

Item Description	Item Model	Site Name	Condition
Calibrator	T700	JPRECC	G
Calibrator	T700	Shop	G
Calibrator	T700	Shop	G
Calibrator	T700	Ashland	G
Calibrator	T700	Fivco	G
Calibrator	T700	Owensboro	G
Calibrator	API700E	Shop	F
Calibrator	API700E	Baskett	F
Calibrator	API700E	Shop	F
Calibrator	API700E	Shop	F
Calibrator	API700E	Nicholasville	F
Calibrator	API 700E	Shop	G
Calibrator	T700	Sebree	G
Calibrator	T700	Shop	G
CO MONITOR	ML 9830B CO	Shop/QA	F
NOX analyzer	API 200E	NKU	G
NOX Analyzer	API200E	Newtown	G
NOX Analyzer	API200E	Shop	G
Nox Analyzer	Teledyne API T200P	Newtown	G
Nox Analyzer	Teledyne API T200	Shop	G
Nox Analyzer	Teledyne API T200P	Shop	G
Nox Analyzer	Teledyne API T200	Shop	G
Nox Analyzer	Teledyne API T200	Fivco	G
Nox Analyzer	Teledyne API T200	Owensboro	G
Nox Analyzer	Teledyne API T200	JPRECC	G
Nox Analyzer	Teledyne API T200	Newtown	G
NOX MONITOR	API200E	Shop	F
NOX MONITOR	API200E	Shop	F
NOX MONITOR	API200E	Shop	F
NOX MONITOR	API200E	Shop	F
NOX MONITOR	API200E	Owensboro	F
NOX MONITOR	API200E	Fivco	F
NOX MONITOR	API200E	Shop	F
NOX MONITOR	API200E	Etown	F
O3 MONITOR	API400E	Shop	F
O3 MONITOR	API400E	shop	F
O3 MONITOR	API400E	shop	F
O3 MONITOR	API400E	Shop	F
O3 MONITOR	API400E	Shop	F
O3 MONITOR	API400E	Hazard	F

Item Description	Item Model	Site Name	Condition
O3 MONITOR	API400E	Shop	F
O3 MONITOR	API400E	Shop	F
O3 MONITOR	API400E	Shop	F
O3 MONITOR	API400E	Shop	F
O3 MONITOR	API400E	Shop	F
O3 MONITOR	API400E	Shop	F
O3 MONITOR	Teledyne API T400	Nicholasville	G
O3 MONITOR	Teledyne API T400	Shop	G
O3 MONITOR	Teledyne API T400	Franklin	G
O3 MONITOR	Teledyne API T400	Shop	G
O3 MONITOR	Teledyne API T400	Shepherdsville	G
O3 MONITOR	Teledyne API T400	Somerset	G
O3 MONITOR	Teledyne API T400	Grayson Lake	G
O3 MONITOR	Teledyne API T400	Owensboro	G
O3 MONITOR	Teledyne API T400	Shop	G
O3 MONITOR	Teledyne API T400	Fivco	G
O3 MONITOR	Teledyne API T400	Shop	G
O3 MONITOR	Teledyne API T400	Shop	G
O3 MONITOR	Teledyne API T400	Pikeville	G
O3 MONITOR	Teledyne API T400	Lewisport	G
O3 MONITOR	Teledyne API T400	Shop	G
O3 MONITOR	Teledyne API T400	Smiths Grove	G
O3 MONITOR	Teledyne API T400	Shop	G
O3 MONITOR	Teledyne API T400	Shop	G
O3 MONITOR	Teledyne API T400	Middlesboro	G
O3 MONITOR	Teledyne API T400	Eastbend	G
O3 MONITOR	Teledyne API T400	Newtown	G
O3 MONITOR	Teledyne API T400	JPRECC	G
O3 MONITOR	Teledyne API T400	Hazard	G
O3 MONITOR	Teledyne API T400	Buckner	G
O3 MONITOR	Teledyne API T400	NKU	G
O3 MONITOR	Teledyne API T400	Worthington	G
O3 MONITOR	Teledyne API T400	Smithland	G
O3 MONITOR	Teledyne API T400	Etown	G
O3 MONITOR	Teledyne API T400	Hopkinsville	G
O3 MONITOR	Teledyne API T400	Shop	G
Ozone Photometer	API703E	Franklin	G
Ozone Photometer	API703E	Somerset	G
Ozone Photometer	API703E	Smiths Grove	G
Ozone Photometer	API703E	Shop	G

Item Description	Item Model	Site Name	Condition
Ozone Photometer	API703E	Lewisport	G
Ozone Photometer	API703	Smithland	G
Ozone Photometer	API703	Shop	G
Ozone Photometer	API703	Buckner	G
Ozone photometer	API703	Shop	G
Ozone photometer	API703	Shop	G
Ozone Photometer	API703	Shop	G
Ozone photometer	API703	Hopkinsville	G
Ozone photometer	API703	Lewisport	G
OZONE PHOTOMETER	49C	Shop	Р
OZONE PHOTOMETER	49C	Shop	Р
OZONE PHOTOMETER	49C	Shop	Р
OZONE PHOTOMETER	49C	Shop	G
OZONE PHOTOMETER	API703	Shop	G
OZONE PHOTOMETER	API703	Smithland	G
OZONE PHOTOMETER	API703	Shop	G
OZONE PHOTOMETER	API703	Shop	G
Ozone Photometer	Teledyne API T703	Buckner	G
Ozone Photometer	Teledyne API T703	Smiths Grove	G
Ozone Photometer	Teledyne API T703	Pikeville	G
Ozone Photometer	Teledyne API T703	Shop	G
Ozone Photometer	Teledyne API T703	Hazard	G
Ozone Photometer	Teledyne API T703	Shop	G
OZONE PHOTOMETER	Teledyne API T703	Grayson Lake	G
OZONE PHOTOMETER	Teledyne API T703	Etown	G
OZONE PHOTOMETER	Teledyne API T703	East Bend	G
OZONE PHOTOMETER	Teledyne API T703	Shepherdsville	G
OZONE PHOTOMETER	Teledyne API T703	Middlesboro	G
PM10 PARTISOL	PM10 SAMPLER	Shop	G
PM10 PARTISOL	PM10 SAMPLER	Shop	G
PM10 PARTISOL	PM10 SAMPLER	Shop	G
PM10 PARTISOL	PM10 SAMPLER	Grayson Lake	G
PM10 PARTISOL	PM10 SAMPLER	Bloodworth Farm	G
PM10 PARTISOL	PM10 SAMPLER	JPRECC	G
PM10 PARTISOL	PM10 SAMPLER	Shop	G
PM10 PARTISOL	PM10 SAMPLER	Shop	G
PM10 PARTISOL	PM10 SAMPLER	Shop	G
PM10 PARTISOL	PM10 SAMPLER	Shop	G
PM10 PARTISOL	PM10 SAMPLER	Grayson Lake	G
PM10 PARTISOL	PM10 SAMPLER	Shop	Р

Item Description	Item Model	Site Name	Condition
PM10 PARTISOL	PM10 SAMPLER	EKU	P
PM2.5 sampler	P2025	Shop	G
PM2.5 sampler	P2025	Lexington Health	G
PM2.5 sampler	P2025	Shop	G
PM2.5 SAMPLER	P2025	Shop	G
PM2.5 SAMPLER	P2025	Ashland Spare	G
PM2.5 SAMPLER	P2025	Lexington Health	G
PM2.5 SAMPLER	P2025	Shop	G
PM2.5 SAMPLER	P2025	21st & Greenup	F
PM2.5 SAMPLER	P2025	Shop	G
PM2.5 SAMPLER	P2025	Shop	G
PM2.5 SAMPLER	P2025	Shop	G
PM2.5 SAMPLER	P2025	21st and greenup	G
PM2.5 SAMPLER	P2025	Etown	G
PM2.5 SAMPLER	P2025	Shop	G
PM2.5 SAMPLER	P2025	NKU	G
PM2.5 SAMPLER	P2025	Etown	G
PM2.5 SAMPLER	P2025	Shop	G
PM2.5 SAMPLER	P2025	Shop	G
PM2.5 SAMPLER	P2025	Etown	G
PM2.5 sampler	P2025	JPRECC	G
PM2.5 sampler	P2025	NKU	G
PM2.5 sampler	P2025	Shop	G
PM2.5 sampler	P2025	Shop	F
PM2.5 sampler	P2025	Shop	G
PM2.5 sampler	P2025I	Hazard	G
PM2.5 SAMPLER	P2025i	Shop	G
PM2.5 SAMPLER	P2025i	Middlesboro	G
PM2.5 SAMPLER	P2025i	Smiths Grove	G
PM2.5 SAMPLER	P2025i	Shop	G
PM2.5 SAMPLER	P2025i	Grayson Lake	G
PM2.5 SAMPLER	P2025i	Grayson Lake	G
PM2.5 SAMPLER	P2025i	Shop	G
PM2.5 SAMPLER	P2025i	Smiths Grove	G
PM2.5 SAMPLER	P2025i	Shop	G
PM2.5 SAMPLER	P2025i	Owensboro	G
PM2.5 SAMPLER	P2025i	Somerset	G
PM2.5 SAMPLER	P2025i	Shop	G
PM2.5 T640 SAMPLER	Teledyne API T640	Shop	G
PM2.5 T640 SAMPLER	Teledyne API T640	Shop	G

Item Description	Item Model	Site Name	Condition
PM2.5 T640 SAMPLER	Teledyne API T640	Smiths Grove	G
PM2.5 T640 SAMPLER	Teledyne API T640	Shop	G
PM2.5 T640 SAMPLER	Teledyne API T640	Shop	G
PM2.5 T640 SAMPLER	Teledyne API T640	Fivco	G
PM2.5 T640 SAMPLER	Teledyne API T640	Owensboro	G
PM2.5 T640 SAMPLER	Teledyne API T640	JPRECC	G
PM2.5 T640 SAMPLER	Teledyne API T640	NKU	G
PM2.5 TEOM	TEOM1400A	Shop	F
PM2.5 T640 SAMPLER	Teledyne API T640	Pikeville	G
PM2.5 T640 SAMPLER	Teledyne API T640	Shop	G
PM2.5 T640 SAMPLER	Teledyne API T640	Etown	G
PM2.5 T640 SAMPLER	Teledyne API T640	Shop	G
PM2.5 T640 SAMPLER	Teledyne API T640	Shop	G
PM2.5 T640 SAMPLER	Teledyne API T640	Shop	G
PM2.5 T640 SAMPLER	Teledyne API T640	Hazard	G
PM2.5 TEOM	TEOM1400A	Shop	F
PM2.5 TEOM	TEOM1400A	Shop	G
PM2.5 TEOM	TEOM1400A	Shop	G
PM2.5 TEOM	TEOM1400A	Shop	G
PM2.5 TEOM	TEOM1400A	Shop	G
R.M.Young Barometric Pressure	Met Equipment	Shop	G
R.M.Young Barometric Pressure	Met Equipment	Grayson Lake	G
RM Young Rain Gauge	RM Young Rain Gauge	Shop	G
RM Young Rain Gauge	RM Young Rain Gauge	Shop	G
RM Young Rain Gauge	RM Young Rain Gauge	Shop	G
RM Young Rain Gauge	RM Young Rain Gauge	Shop	G
Mettler XP6 Microbalance	Microbalance	Shop	G
SO2 Analyzer	Teledyne API T100	Shop	G
SO2 Analyzer	Teledyne API T100	Owensboro	G
SO2 Analyzer	Teledyne API T100	Shop	G
SO2 Analyzer	Teledyne API T100	Shop	G
SO2 Analyzer	Teledyne API T100	Shop	G
SO2 Analyzer	Teledyne API T100	Shop	G
SO2 Analyzer	Teledyne API T100	Shop	G
SO2 Analyzer	Teledyne API T100	Shop	G
SO2 Analyzer	Teledyne API T100	Newtown	G
SO2 Analyzer	Teledyne API T100	Shop	G
SO2 Analyzer	Teledyne API T100	Shop	G
SO2 Analyzer	Teledyne API T100	Shop	G
SO2 Analyzer	Teledyne API T100	Shop	G

Item Description	Item Model	Site Name	Condition
SO2 Analyzer	Teledyne API T100	Shop	G
SO2 Analyzer	Teledyne API T100	Shop	G
SO2 Analyzer	Teledyne API T100	Shop	G
SO2 Analyzer	Teledyne API T100	JPRECC	G
SO2 Monitor	API 100E	Shop	F
SO2 Monitor	API 100E	Shop	F
SO2 Monitor	API 100E	Shop	F
SO2 Monitor	API 100E	Shop	F
SO2 Monitor	API 100E	Southwest Ohio	F
Solar Radiation Sensor	Solar Radiation Sensor	Grayson Lake	F
Thermo 1405 TEOM	Thermo 1405 TEOM	Newtown	G
Thermo 1405 TEOM	Thermo 1405 TEOM	Shop	G
Thermo 1405 TEOM	Thermo 1405 TEOM	Shop	G
Thermo 1405 TEOM	Thermo 1405 TEOM	Shop	G
Thermo 1405 TEOM	Thermo 1405 TEOM	Newton	G
Thermo 1405 TEOM	Thermo 1405 TEOM	Shop	G
Thermo 1405 TEOM	Thermo 1405 TEOM	Shop	G
Thermo 1405 TEOM	Thermo 1405 TEOM	·	G
		Shop	
Thermo 1405 TEOM	Thermo 1405 TEOM	Shop	G
Thermo 1405 TEOM	Thermo 1405 TEOM	Shop	G
Thermo 1405 TEOM	Thermo 1405 TEOM	Shop	G
Thermo 1405 TEOM	Thermo 1405 TEOM	Shop	G
Thermo 1405 TEOM	Thermo 1405 TEOM	Shop	New
Thermo 1405 TEOM	Thermo 1405 TEOM	Shop	New
Thermo 1405 TEOM	Thermo 1405 TEOM	Mammoth Cave	New
Thermo 1405 TEOM	Thermo 1405 TEOM	Shop	G
Tisch Model TE-5170DV-BL TSP	Lead Sampler	Shop	G
Tisch Model TE-5170DV-BL TSP	Lead Sampler	Shop	G
Tisch Model TE-5170DV-BL TSP	Lead Sampler	Shop	G
Tisch Model TE-5170DV-BL TSP	Lead Sampler	EKU	G
Tisch Model TE-5170DV-BL TSP	Lead Sampler	Shop	G
Tisch Model TE-5170DV-BL TSP	Lead Sampler	Richmond	G
Tisch Model TE-5170DV-BL TSP	Lead Sampler	Richmond	G
VOC SAMPLER	ATEC 2200-2	Shop	G
VOC Sampler	ATEC 2200-2	Shop	G
VOC Sampler	Xonteck 911A	Bloodworth Farm	G
VOC Sampler	Xonteck 911A	Shop	G
VOC Sampler	Xonteck 911A	Shop	G
VOC Sampler	Xonteck 911A	TVA	G
VOC Sampler	Xonteck 911A	Bloodworth Farm	G

Item Description	Item Model	Site Name	Condition
VOC Sampler	ATEC 2200-2	Grayson lake	G
VOC SAMPLER	ATEC 2200	Ashland	F
VOC SAMPLER	ATEC 2200-2	Shop	F
VOC SAMPLER	ATEC 2200-2	Shop	G
Solar Radiation Sensor		Shop	F
RM Young Barometric Sensor		Grayson Lake	F
RM Young Barometric Sensor		Shop	F
Digital Router		Shop	G
Digital Router		Shop	G
Digital Router		Shop	G
Digital Router		Grayson Lake	G
Digital Router		Owensboro	G
Digital Router		Shop	G
Digital Router		Etown	G
Digital Router		Shop	G
Digital Router		Shop	G
Digital Router		Pikeville	G
Digital Router		Eastbend	G
EKTO Shelter	Site Shelter EKTO	Lewisport	G
Digital Router		Hazard	G
Computer Display		Lexington Primary	G
SIERRA Flow Meter		Ashland Office	G
Thermo 1405 TEOM	Thermo 1405 TEOM	Smiths Grove	G

### **APPENDIX K**

### **PUBLIC COMMENTS**

## KENTUCKY DIVISION FOR AIR QUALITY AMBIENT AIR MONITORING NETWORK

Comments Received on: June 20, 2019

#### **Energy and Environment Cabinet**

Department for Environmental Protection Division for Air Quality

A public comment period on the KENTUCKY DIVISION FOR AIR QUALITY AMBIENT AIR MONITOR-ING NETWORK PLAN 2019 was held from May 22, 2019 through June 20, 2019.

The following groups submitted comments during the public comment period:

#### **Name**

United States Environmental Protection Agency, Region IV

Subject: Discontinuation of VOC sampling at the Bloodworth and TVA monitoring stations

**Comment:** "The Summary of KDAQ Network Changes 2019 indicates that the special-purpose VOC sampling at the Bloodworth and TVA Substation monitoring sites are proposed for discontinuation. Please include a narrative describing the rationale for discontinuing the monitors, and a summary of the data that was collected to support this decision." The comments and response are included in the following pages of this network plan.

**Response:** The Division acknowledges the comment. The Division will proceed with the shut-down of the special-purpose VOC monitoring sites at the Bloodworth and TVA substation temporarily and will re-establish a new special-purpose monitoring study in Calvert City with the cooperation of EPA starting January 1, 2020.

#### **Name**

Kosmos Cement Company

**Subject:** Kosmosdale monitoring site installation date

**Comment:** The Division received comments from Kosmos Cement Company, via Bingham Greenebaum Doll LLP, Counsel for Kosmos Cement. The comment pertains to the anticipated start date of the Kosmosdale monitoring station. The comments received are directed towards the network operated by LMAPCD, as such LMAPCD is responsible for providing a response. The comments and response are included in the following pages of this network plan.

**Response:** LMAPCD acknowledges receipt of the public comment and will respond separately.

#### Switzer, Shauna L (EEC)

From: Moeller, Michael <moeller.michael@epa.gov>
Sent: Wednesday, June 19, 2019 10:57 AM

To: Switzer, Shauna L (EEC)

Cc: Miller, Jennifer F (EEC); Rinck, Todd; Worley, Gregg: Garver, Daniel; Brown, Ryan

Subject: RE: Kentucky DAQ 2019 Network Plan--Notice of Public Comment Period

Hi Shauna.

The EPA would like to submit the following public comment regarding KY's 2019 Annual Ambient Air Monitoring Network Plan:

"The Summary of KDAQ Network Changes 2019 indicates that the special-purpose VOC sampling at the Bloodworth and TVA Substation monitoring sites are proposed for discontinuation. Please include a narrative describing the rationale for discontinuing the monitors, and a summary of the data that was collected to support this decision."

Please let me know if you would like to discuss this comment any further.

Thanks,

-Mike

From: Switzer, Shauna L (EEC) <Shauna.Switzer@ky.gov>

Sent: Wednesday, May 22, 2019 8:58 AM

To: Kemker, Carol <Kemker.Carol@epa.gov>; Ackerman, Laura <Ackerman.Laura@epa.gov>; Zeiler, Dick <dzeiler@idem.IN.gov>; Anna.Kelley@hamilton-co.org; billy.dewitt@louisvilleky.gov; Rinck, Todd <Rinck.Todd@epa.gov>; robert.brawner@tn.gov; Sheila Holman <sheila.holman@ncdenr.gov>; Sharac, Timothy <Sharac.Timothy@epa.gov>; Palmer, Darren <Palmer.Darren@epa.gov>; Garver, Daniel <Garver.Daniel@epa.gov>; Gillam, Rick <Gillam.Rick@epa.gov>; Paris, Bryan C. <Bryan.Paris@louisvilleky.gov>; Moeller, Michael <moeller.michael@epa.gov>; Johnathan\_Jernigan@nps.gov

Cc: Duff, Melissa K (EEC) <melissa.duff@ky.gov>; Shewekah, Rick (EEC) <Rick.Shewekah@ky.gov>; jenniferf.miller@ky.gov; Bray, Wayne (EEC) <Wayne.Bray@ky.gov>; Bell, Jarrod C (EEC) <Jarrod.Bell@ky.gov> Subject: Kentucky DAQ 2019 Network Plan--Notice of Public Comment Period

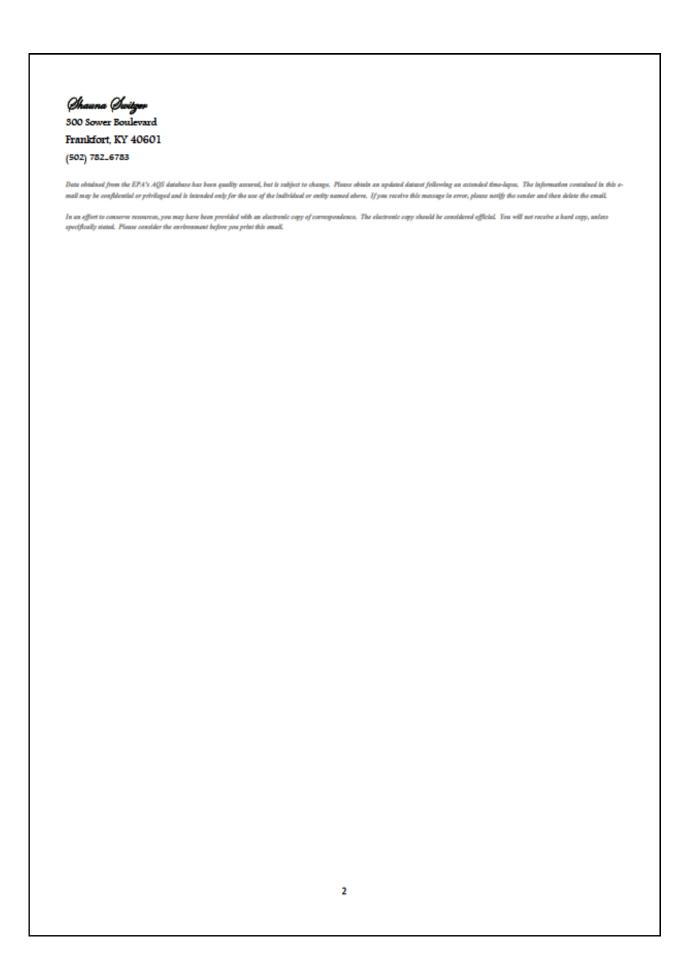
The 2019 Kentucky Annual Ambient Air Monitoring Network Plan was released for a 30-day public comment period today. Attached, you will find the network review letter addressed to Ms. Carol Kemker, along with a copy of the public notice. The network plan is available for you to review on the Division's website at:

#### https://eec.ky.gov/Environmental-Protection/Air/Pages/Public-Notices.aspx

This electronic copy of the letter should be considered the official correspondence, as a hard copy will not be mailed unless specifically requested.

If you have any questions or comments, please let me know.

Thank you.



#### KOSMOS CEMENT COMPANY

June 20, 2019

VacEngreyor, Man

Shauna Switzer, Environmental Scientist V Division for Air Quality 300 Sower Blvd., 2nd Floor Frankfort, KY 40601 Shauna.Switzer@ky.gov

Rachael Hamilton Louisville Metro Air Pollution Control District 701 Ormsby Avenue Louisville, KY 40203 Rachael Hamilton@louisvil.eky.gov

RE: Public Comments Regarding Louisville Metro Air Pollution Control District's Proposed Changes to the 2019 Kentucky Annual Ambient Air Monitoring Network, Published for Public Comment on May 22, 2019

Dear Ms. Switzer and Ms. Hamilton:

Kosmos Cement Company ("Kosmos") submits this comment letter regarding the Proposed Kentucky Ambient Air Monitoring Network Plan ("Plan"), 2019. Kosmos appreciates the opportunity to submit this comment letter and requests that the final 2019 Plan be revised consistent with this comment. Kosmos is submitting these formal comments to KDAQ and the Louisville Metro Air Pollution Control District ("i-MAPCD") before the close of the 2017 KY AAMNP public comment period on June 20, 2019.

Comment relating to LMAPCD monitor, AQS Site ID 21-111-0065, with a listed location of 15501R Dixie Hwy 1, Jefferson County (Kosmosdale): The description for this monitor as provided in the proposed Plan includes language providing that "LMAPCD anticipates full operation of this site by January 1, 2020." (Proposed Plan, page 68.) Kosmos submits that this sentence, including particularly the reference to an anticipated operation date for the site, be deleted and replaced with language similar to the 2018 Plan which simply noted delays associated with the installation of this monitoring site. The operational date for this site, or even installation, is uncertain due to delays in final action by 13.8 EPA on the State Implementation Plan for the Southwest Jefferson County SO<sub>2</sub> non-attainment area ("Nonattainment SIP"), third party comments submitted to 13.5. EPA during the Nonattainment SIP public comment period, and

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202.27836.1 15301 Dixie Highway, Louisville, KY 40272, (502) 935-7331, Fax (502) 933-6321

### KOSMOS CEMENT COMPANY

issues arising regarding finalization of a monitoring agreement for the site. It is not appropriate to include an anticipated operational date for this monitor as a result of these issues.

We appreciate consideration of our comments.

Sincerely,

Lillian De Primo
Director, Environmental

Co: Kelly Battley, Bingham Greenebaum Doll LLP



#### AIR POLLUTION CONTROL DISTRICT LOUISVILLE, KENTUCKY

GREG FISCHER
MAYOR
June 27, 2019

RECEIL H. TALLEY, SR. DIRECTOR

Melissa Duff, Director Kentucky Division for Air Quality 300 Sower Blvd., 2<sup>nd</sup> Floor Frankfort, KY 40601

SUBMITTED VIA E-MAIL

Re: Response to Kosmos Cement Company's June 20, 2019 Comment on the 2019 Kentucky Annual Ambient Air Monitoring Network Plan

Dear Ms. Duff:

The Louisville Metro Air Pollution Control District (LMAPCD) appreciates the opportunity to respond to Kosmos Cement Company's (Kosmos) recent comment on the 2019 Kentucky Annual Ambient Air Monitoring Network Plan regarding the Kosmosdale monitor, AQS Site ID 21-111-0065.

#### Kosmos' Comment:

The description for this monitor as provided in the proposed Plan includes language providing that "LMAPCD anticipates full operation of this site by January 1, 2020." (Proposed Plan, page 68.) Kosmos submits that this sentence, particularly the reference to the anticipated operation date for the site, be deleted and replaced with language similar to the 2018 Plan which simply noted delays associated with the installation of this monitoring site. The operational date for this site, or even installation, is uncertain due to delays in final action by the U.S. EPA on the State Implementation Plan for the Southwest Jefferson County SO<sub>2</sub> non-attainment area ("Nonattainment SIP"), third party comments submitted to U.S. EPA during the Nonattainment SIP public comment period, and issues arising regarding finalization of a monitoring agreement for the site. It is not appropriate to include an anticipated operational date for this monitor as a result of these issues.

#### LMAPCD's Response:

LMAPCD and Kosmos entered an Agreed Board Order on April 19, 2017, to evaluate ambient concentrations of SO<sub>2</sub> in the vicinity of Kosmos' facility pursuant to LMAPCD Regulation 3.01. This action is separate and independent of U.S. EPA's pending action on the Nonattainment SIP for the southwest Jefferson County SO<sub>2</sub> non-attainment area. At this time, LMAPCD anticipates the issues discussed in Kosmos' comment will be resolved in a timely manner and that retaining the date for operation is therefore appropriate.

WWW.LOHISVELEKY.GOV

WWW.LOUISVILLEY COVAPCO 704 WEST ORMSBY AVENUE SHITE SO A LOUISVILLE, KENTLICKY 40203-3137

If you have any questions or need any further information on the issue, please feel free to contact me at (502) 574-7229

Respectfully submitted,

Keith H. Talley, Sr.

Director, Louisville Metro Air Pollution Control District

cc: Shauna Switzer, KY DAQ Stacy Dott, JCAO Billy DeWitt, LMAPCD

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### KDAQ AIR MONITORING STATIONS BY REGIONAL OFFICE

### 2019 KDAQ MONITORING STATIONS BY REGIONAL OFFICE

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