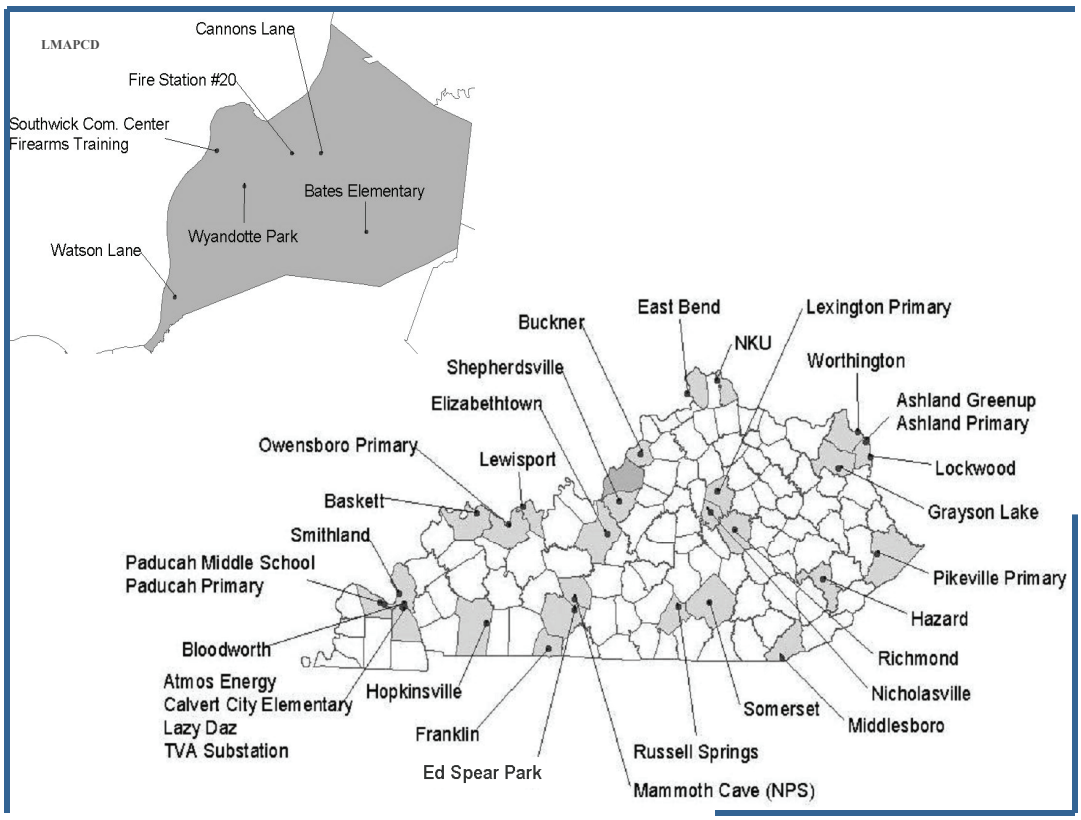
Kentucky Annual Ambient Air Monitoring Network Plan 2012



Commonwealth of Kentucky Energy & Environment Cabinet
Department for Environmental Protection
Division for Air Quality
200 Fair Oaks Lane, 1st Floor,
Frankfort, Kentucky 40601

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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 2012 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.

Print Name:	Jennifer F. Miller Environmental Technologist III	Signature:	Jennifer F. Miller	Date:	6-29-12
Print Name:	Stephanie McCarthy Technical Services Branch Manager	Signature:	Stephanie B. McCarthy	Date:	6-29-12
Print Name:	John S. Lyons Division Director	Signature:	John S. Lyons	Date:	6/29/12

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 U.S. EPA. The annual monitoring network plan details the operation and location of ambient air monitors operated by the Kentucky Division for Air Quality (KYDAQ), Louisville Metro Air Pollution Control District (LMAPCD), and the National Park Service (NPS).

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ACRONYMS

AEM – Automated Equivalent Method

AQI – Air Quality Index

AQS – Air Quality System

ARM – Automated Reference Method

BAM – Beta Attenuation Monitor

CBSA – Core-Based Statistical Area

CSA – Combined Statistical Area

CO – Carbon Monoxide

Cr^{+6} – Hexavalent Chromium

FAM – Federal Alternate Method

FEM – Federal Equivalent Method

FRM – Federal Reference Method

KYDAQ – Kentucky Division for Air Quality

LMAPCD – Louisville Metro Air Pollution Control District

MSA – Metropolitan Statistical Area

NAAQS – National Ambient Air Quality Standards

NAMS – National Air Monitoring Stations

NATTS – National Air Toxics Trends Stations

NO_2 – Nitrogen Dioxide

NPS – National Park Service

NR-SPM – Non-Regulatory Special Purpose Monitor

O_3 – Ozone

PAH – Polycyclic Aromatic Hydrocarbons

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ACRONYMS (CONTINUED)

Pb – Lead

PM – Particulate Matter

PWEI – Population Weighted Emissions Index

RA-40 – Regional Administrator 40

SAMWG – Standing Air Monitoring Working Group

SLAMS – State and Local Air Monitoring Stations

SO_2 – Sulfur Dioxide

SPM – Special Purpose Monitors

TBD – To Be Determined

TEOM – Tapered Elemental Mass Transducer

U.S. EPA – United States Environmental Protection Agency

VOC – Volatile Organic Compounds

INTRODUCTION

In October 1975, the United States Environmental Protection Agency (U.S.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 did not allow for flexibility to conduct special purpose monitoring studies; data reporting was untimely and incomplete, caused by a lack of uniformity in station location 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 U.S.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 Kentucky Division for Air Quality (KYDAQ) 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 the U.S.EPA's regulations to consist of a current overall network of 40 stations, operated by KYDAQ, LMAPCD, and the National Park Service. 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, KYDAQ's air monitoring network includes special purpose monitors (SPM) for air toxics, $PM_{2.5}$ speciation, 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 $PM_{2.5}$ 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 three 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.

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

STATION DESCRIPTION FORMAT

AQS Site Identification Information

Pertinent, specific siting information for each site and monitor is stored in the U.S. 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, if the site is located in a CSA/MSA, the AQS identification number, the GPS coordinates, and that monitors and monitor probes conform to the siting criteria.

2. Date Established

The date when each existing monitoring station was established is shown in the description. For those stations, which are proposed, a date is provided when it is expected for the station to be in operation.

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, re-sited at the present location.

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 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 Stations' Designations

Most stations described in the air quality surveillance network are designated as SLAMS. In addition, some of these stations fulfill other requirements, which must be identified. In this description of the network, designations are also made for Special Purpose Monitors (SPM), Emergency Episode Monitoring sites, and Air Quality Index sites (AQI). The following is the criteria used for each of these designations.

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.

POPULATION WEIGHTED EMISSIONS INDEX (PWEI): On June 22, 2010, the EPA released a new SO_2 Final Rule and a new set of monitoring requirements. The new 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_2, 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 SO_2 monitors are designated as SLAMS monitors foremost.

REGIONAL ADMINISTRATOR 40 (RA-40): On February 9, 2010, the EPA released a new NO_2 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_2 monitoring locations, with a primary focus on protecting susceptible and vulnerable populations. RA-40 NO_2 monitors are SLAMS monitors foremost.

EMERGENCY EPISODE MONITORING SITES (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.

AIR QUALITY INDEX (AQI): Certain stations in the SLAMS network provide data for daily index reporting. Index reporting is required for all urban areas with a population exceeding 350,000. However, KYDAQ is providing this service to the general public from all areas where monitoring and attending staff are available. The AQI is a method of reporting that converts concentration levels of pollution 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 the major pollutants. KYDAQ prepares the Index twice daily for release to the public from the pollutant data reported from the Field Offices.

SPM/NR-SPM: 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 Non-Regulatory Special Purpose Monitors (NR-SPM). These monitors are not committed to any one location or for any specified time period. They may be located as separate monitoring stations or be included at SLAMS locations. Monitoring data may be reported, provided that the monitors and stations conform to all requirements of the SLAMS network.

6. Monitoring Methods

All sampling and analytical procedures used 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_{10})

All PM_{10} samplers operated by the Division for Air Quality 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 collect a 24-hour sample every sixth day on 46.2 mm PTFE filters. The filter is weighed before and after the sample run. The gain in weight in relation to the volume of air sampled is calculated in micrograms per cubic meter (ug/m^3). 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.

Continuous PM_{10} samplers provide 24-hour samples daily for SLAMS reporting. During sampling, ambient air passes through an inlet designed to pass only particles smaller than 10 microns in diameter. After exiting the inlet, the sample stream is sent to a mass transducer. Inside the transducer the sample stream passes through a Teflon-coated glass fiber filter. This filter is weighed every two seconds. The difference between the current filter weight and the initial or installed weight gives the total mass of the collected particulate. The mass concentration is computed by dividing the total mass by the flow rate. Data is transmitted by telemetry for entry into the automated central data acquisition system.

(b) Particulate Matter 2.5 microns in size ($PM_{2.5}$)

The Division currently operates continuous TEOM monitors, continuous BAM monitors, and manual intermittent samplers for monitoring particulate matter 2.5 microns in size ($PM_{2.5}$). With the exception of continuous TEOM monitors, all $PM_{2.5}$ samplers operated by the Division for Air Quality are certified as either FRM or FEM samplers.

All FRM and FEM manual 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. Air flow through the filter is to be maintained at 16.7 liters per minute. The flow rate must not vary more than +/-5% for five minutes over a 24-hour sample period at actual ambient temperature and pressure. Samples must be retrieved within 177 hours of the end of the sample run and must be kept cool (4 degrees C or cooler) during transit to meet the thirty-day limit for re-weighing. 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. The gain in weight in relation to the volume of air sampled is calculated in micrograms per cubic meter (ug/m^3).

Continuous BAM FEM monitors measure $PM_{2.5}$ through beta ray attenuation. During sampling, ambient air passes through an inlet and a very sharp cut cyclone designed to pass only particles smaller than 2.5 microns in diameter. The sample is collected on filter tape as the air passes through the tape. The filter tape is then placed in between a beta source and a scintillation detector causing an attenuation of the beta particle signal. Data is transmitted by telemetry for

entry into the automated central data acquisition system. Continuous $PM_{2.5}$ BAM monitors provide 24-hour daily reporting for the AQI.

Continuous $PM_{2.5}$ TEOM monitors also provide 24-hour samples daily for AQI reporting. During sampling, ambient air passes through an inlet and very sharp cut cyclone designed to pass only particles smaller than 2.5 microns in diameter. After exiting the inlet, the sample stream is sent to a mass transducer. Inside the transducer the sample stream passes through a Teflon-coated glass fiber filter. This filter is weighed every two seconds. The difference between the current filter weight and the initial or installed weight gives the total mass of the collected particulate. The mass concentration is computed by dividing the total mass by the flow rate. Data is transmitted by telemetry for entry into the automated central data acquisition system.

(c) **$PM_{2.5}$ Speciation and Carbon Speciation Sampling and Analysis**

In addition to operating $PM_{2.5}$ samplers that determine only $PM_{2.5}$ mass values, KYDAQ also operates $PM_{2.5}$ speciation samplers that collect samples that are analyzed to determine the chemical makeup of $PM_{2.5}$. Samples are collected on a set of two filters, one comprised of Teflon and a 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**

Instruments used to continuously monitor sulfur dioxide levels in the atmosphere employ the UV fluorescence and UV open path methods. 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) **Carbon Monoxide**

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) **Ozone**

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**

The chemiluminescence method is used in 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.

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**

Lead concentrations are determined from the analysis of suspended particulates collected by high volume particulate samplers. These 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 (m^3/min) over the course of 24 hours. Samples are collected on 8x10 glass fiber filters. Upon collection, the filters are sent to an 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 five categories: metals, volatile organic compounds (VOC), polycyclic aromatic hydrocarbons (PAH), hexavalent chromium, and carbonyls.

Metal samples are collected on 46.2 mm PTFE filter over a 24-hour period similar to the PM_{10} monitoring method. The filter is weighed before and after the sample run. The gain in weight in relation to the volume of air sampled is used to calculate the concentration in micrograms per cubic meter (ug/m^3). The PTFE filter is 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. The filter is then delivered to an 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 EPA contract laboratory for gas chromatography/mass spectrometer analysis, with selective ion monitoring.

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 an EPA contract laboratory for analysis via gas chromatography/mass spectrometry.

Hexavalent chromium samples are collected on ashless cellulose filters. During sampling, ambient air is pulled through the filter over a 24-hour period. After sampling, the filter is shipped to an EPA contract laboratory for analysis via ion chromatography.

Carbonyl samples are collected on a DPNH cartridge. An ambient air stream flows through the cartridge at a (1) liter per minute flow rate for a 24-hour sampling period. The cartridge is packed on ice and shipped to an EPA contract laboratory for high-pressure liquid chromatography analysis.

(j) **RadNet**

The 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 EPA 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 the Division operates the monitor, all other aspects, including maintenance and data responsibility, are handled by the EPA. For more information, please visit the EPA's RadNet website: http://www.epa.gov/narel/radnet/.

7. Quality Assurance Status

The Division for Air Quality has an extensive quality assurance program to ensure that all air monitoring data collected is accurate and precise. 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. Data validation is performed monthly by verifying the data reported by each instrument is recorded accurately in the computerized database.

8. Area 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 citywide 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.

Closely associated with the area around the monitoring station where pollutant concentrations are reasonably similar are the basic monitoring exposures of the station. There are four basic exposures included in this description:

(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 general background concentration levels.

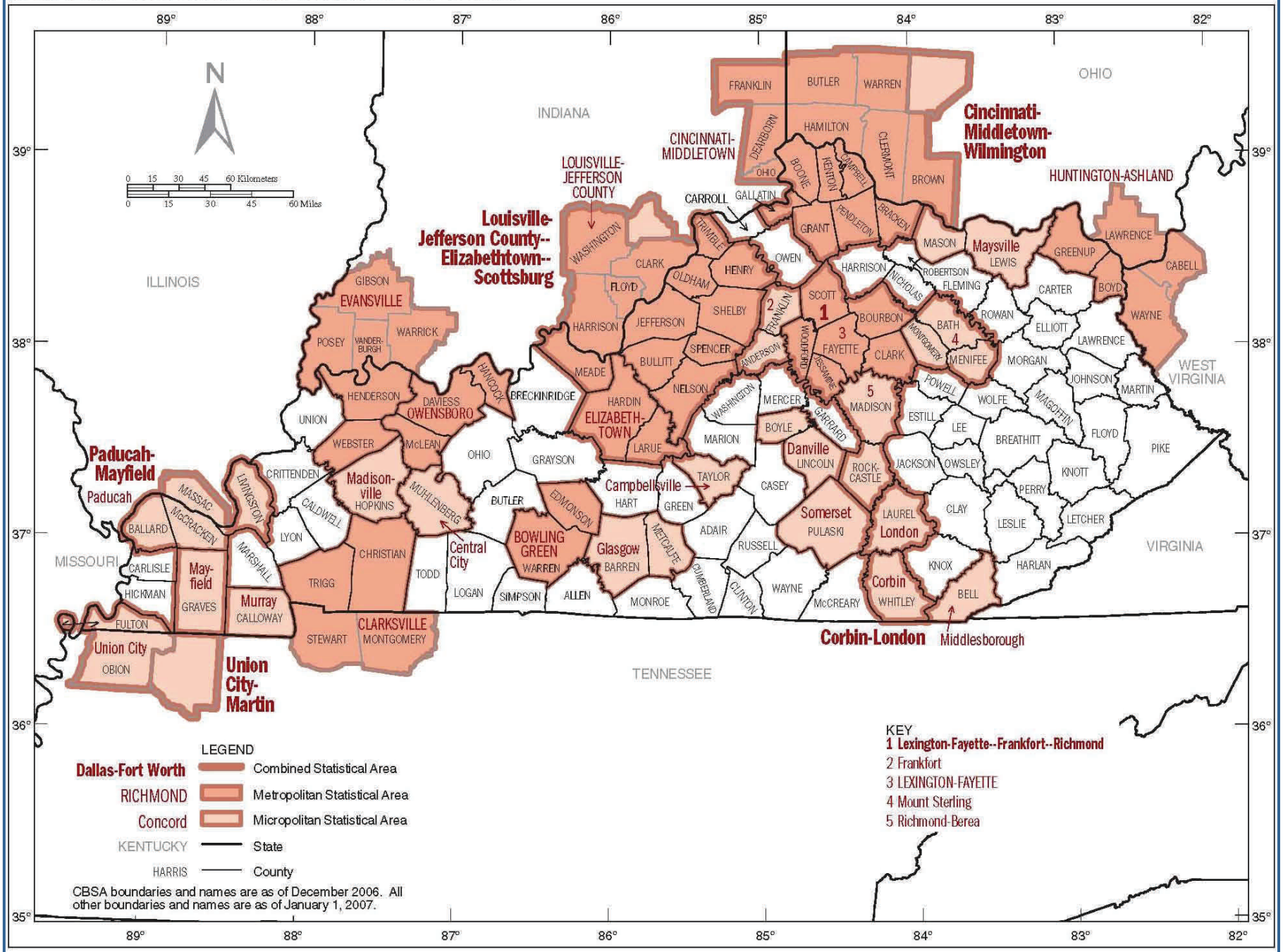
The design intent in siting stations is to correctly match the area dimensions represented by the sample of monitored air with the area dimensions most appropriate for the monitoring objective of the station. The following relationship of the four basic objectives and the area of representativeness are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

Monitoring Exposures	**Siting Area Scale**
Highest concentration	Micro, Middle, Neighborhood
Population	Neighborhood, Urban
Source impact	Micro, Middle, Neighborhood
General/background	Neighborhood, Regional

Data Processing and Reporting

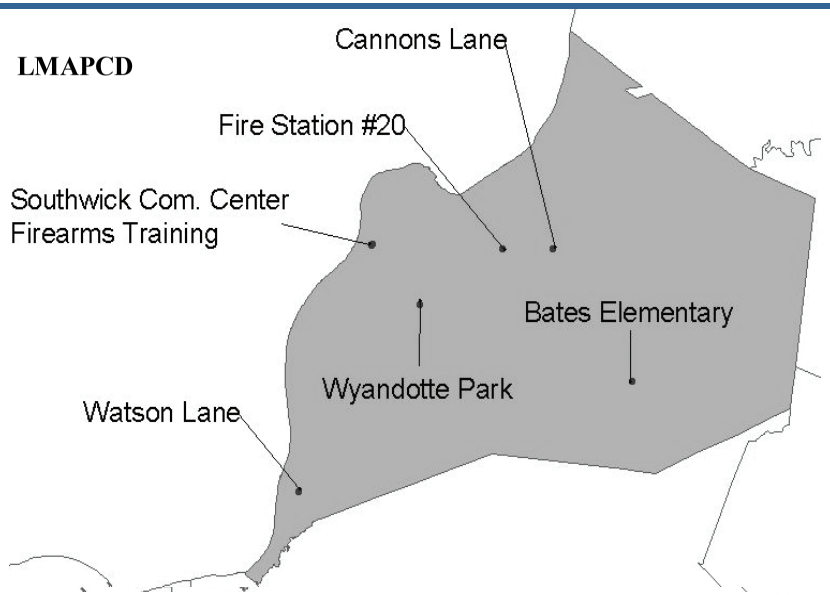
All ambient air quality data are stored in a centralized server located at the 14th floor of the Capital Plaza Tower, the Energy and Environment Cabinet (EEC) headquarters in Frankfort, Kentucky. The server is backed up on tape nightly, weekly, and monthly. The backup tape of the server is stored off site of the EEC headquarters and is cycled through use on a monthly schedule. After each month of data has passed all quality assurance checks, the data is transmitted via telemetry to the U.S. EPA's national data storage system known as AQS. Statistical data summaries are generated from this database and compiled to produce the Ambient Air Quality Annual Report. This report may be accessed at the KYDAQ website: http://air.ky.gov. The report is located under **Resources**.

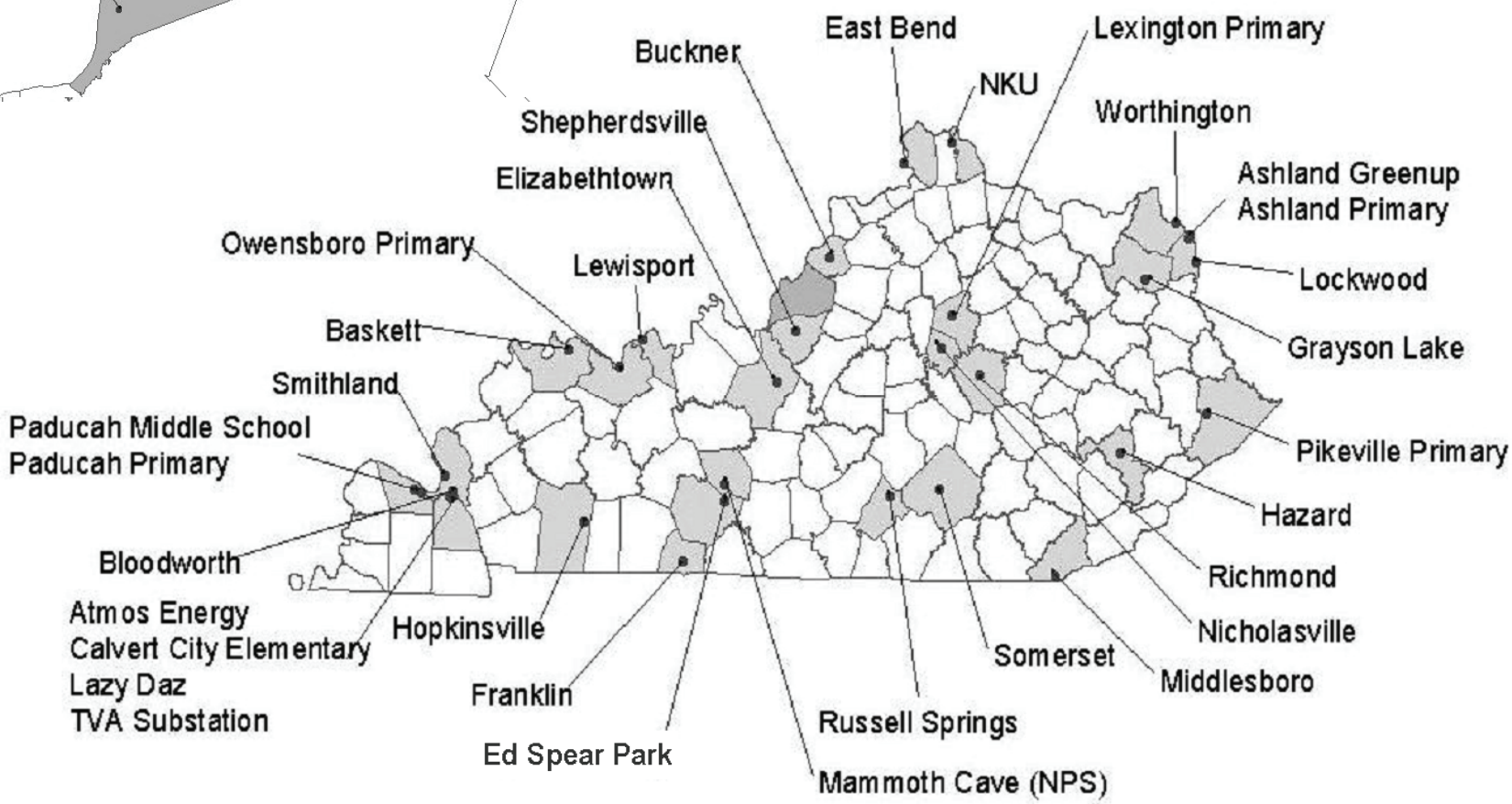
KENTUCKY - Core Based Statistical Areas and Counties



U.S. DEPARTMENT OF COMMERCE Economics and Statistics Administration U.S. Census Bureau

KYDAQ
Ambient Air Monitoring Network





AIR MONITORING STATIONS SUMMARY

Metropolitan Statistical Area	Number of Sites	$PM_{2.5}$	PM_{10}	SO_2	NO_2	NO_y	CO	O_3	Pb	VOC	Carb-onyl	PAH	Cr^{+6}	$PM_{2.5}$ Speciation	Carbon Speciation	Rad -net	MET
Bowling Green, KY	2	4 CT	0	1	1	1	1	2	0	0	0	0	0	0	0	0	1
Cincinnati-Middletown, OH-KY-IN	2	2 T	0	1	1	0	0	2	0	0	0	0	0	0	0	0	1
Clarksville, TN-KY	1	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Elizabethtown, KY	1	3 CB	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Evansville, IN-KY	1	2 T	1 *	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Huntington-Ashland, WV-KY-OH	4	2 T	2 C*	2	1	0	0	2	1	1	1	0	0	1	1	0	1
Lexington-Fayette, KY	2	2 T	1 *	2	1	0	0	2	0	1	1	0	0	1	1	1	1
Louisville-Jefferson County, KY-IN	9	9 CT B	5 CT B Pb*	3	1	1	2	5	0	0	0	0	0	1	1	1	4
Owensboro, KY	2	2 T	0	1	1	0	0	2	0	0	0	0	0	0	0	0	1
Micropolitan Statistical Area																	
Paducah, KY-IL	4	2 T	1	1	1	0	0	2	0	1	0	0	0	0	0	0	1
Somerset, KY	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Middlesboro, KY	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Richmond-Berea, KY	2	1	0	0	0	0	0	0	3 C	0	0	0	0	0	0	0	0
Not in a MSA																	
Carter County	1	1	2 C*	0	0	0	0	1	0	1 D	1 D	1	2 C	1	1	0	1
Marshall County	4	0	1 *	0	0	0	0	0	0	5 C	0	0	0	0	0	0	1
Perry County	1	1 T	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Pike County	1	3 CB	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Russell County	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Simpson County	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
TOTALS	41	37	13	13	7	2	3	26	5	9	3	1	2	4	4	2	16

C=Collocated monitors; D=Duplicate monitor; T or B= Continuous PM2.5 monitors or continuous PM10 monitors; *=Multiple analysis: PM10 Teflon filters used for PM10, metals, and/or PM10c monitoring; Pb= PM10 Teflon filter used for lead analysis

SUMMARY OF NETWORK CHANGES 2012

Metropolitan Statistical Area Summary:

Bowling Green, KY- Ed Spear Park (21-227-0009): Change the designation of the ozone monitor from a special purpose monitor (SPM) to a state and local air monitoring station (SLAMS), as recommended by the EPA's 2011 Network Plan response regarding minimum monitoring requirements for the Bowling Green MSA.

Cincinnati-Middletown, OH-KY-IN - Northern Kentucky University (21-037-3002): Discontinue the FEM $PM_{2.5}$ BAM monitor. The BAM monitor is designated as a non-regulatory special purpose monitor (NR-SPM). The BAM will be replaced with a $PM_{2.5}$ TEOM special purpose continuous monitor.

Elizabethtown, KY- Elizabethtown (21-093-0006): Change the designation of the ozone monitor from a SPM to SLAMS, as recommended by the EPA's 2011 Network Plan response regarding minimum monitoring requirements for the Elizabethtown MSA.

Lexington-Fayette, KY - Lexington Primary (21-067-0012): Recommend the Lexington Primary NO_2 monitor be designated as a Regional Administrator 40 (RA-40) monitor.

Louisville-Jefferson County, KY-IN - Watson Lane (21-111-0051): Change the SO_2 monitor designation to represent "Maximum Concentration," as recommended by the EPA's 2011 Network Plan response.

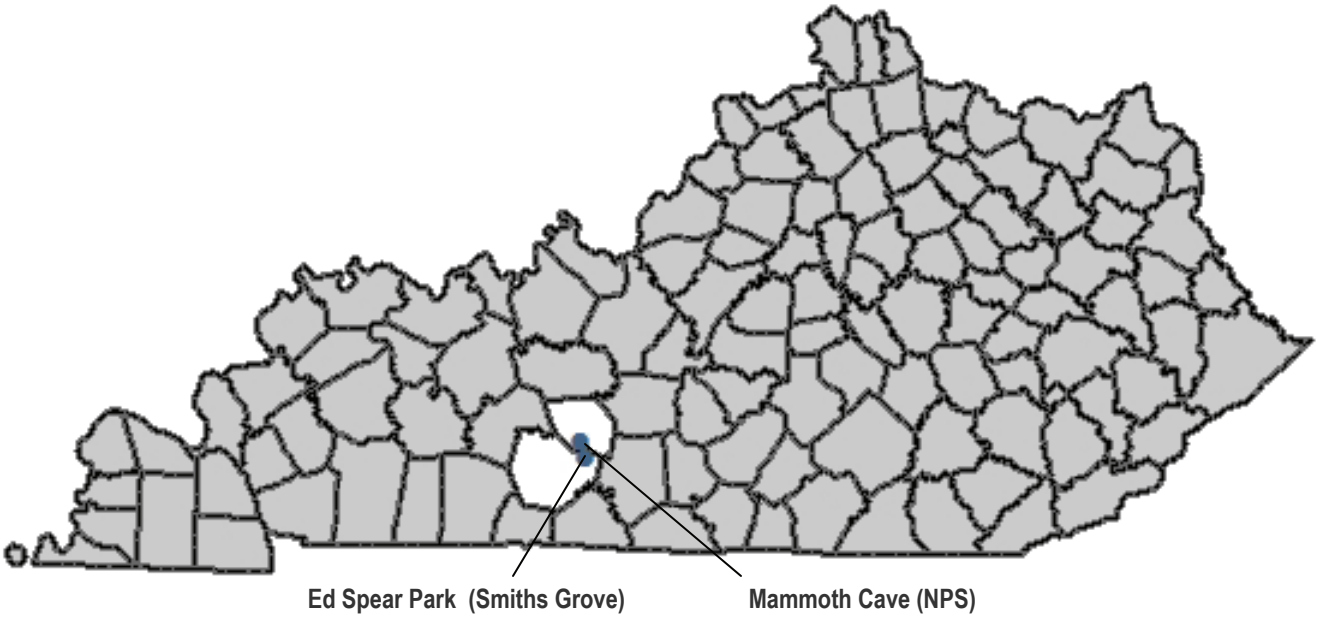
Micropolitan Statistical Area Summary:

Richmond-Berea, KY- EKU (21-151-0005): Establish a temporary lead monitoring site on the campus of Eastern Kentucky University to evaluate lead data generated from the nearby Mayfield Elementary site (21-151-0003).

Not in a Metropolitan or Micropolitan Statistical Area Summary:

Pikeville Primary (21-195-0002): Discontinue the $PM_{2.5}$ TEOM and establish a FEM $PM_{2.5}$ BAM monitor. The BAM will be designated as NR-SPM.

Bowling Green, KY



AQS ID	ADDRESS	PM2.5	PM10	SO2	NOx	NOy	CO	O3	Lead	VOC	Carbonyl	Speciation	MET
21-061-0501 (NPS)	Alfred Cook Road Mammoth Cave (Edmonson)	X(tI)		X	X	X	X	X					X
21-227-0009	226 Sunset Street Smiths Grove (Warren)	X(ctI)						X(I)					
	TOTAL	4	0	1	1	1	1	2	0	0	0	0	1

(c) Collocated Monitor
(I) Air Quality Index Monitor
(s) Special Purpose Monitor
(t) Continuous PM Monitor

(Rev.5/10/12)

CSA/MSA: Bowling Green, KY MSA
401 KAR 50:020 Air Quality Region: South Central Kentucky Intrastate (105)
Site Name: Ed Spear Park (Smiths Grove)
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: TBD
Inspection By: TBD
Site Approval Status: Siting and monitor design has not 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 siting within the doline of a sinkhole and was discontinued. Monitoring was established at the new Ed Spear Park site in May 2012. The site meets the requirements of 40 CFR 58, Appendices C, D and E; however, annual siting evaluations for the new site have not been conducted.

Monitoring Objective:
The monitoring objectives are to determine compliance with National Ambient Air Quality Standards and to provide levels of ozone and particulate matter for daily index reporting.

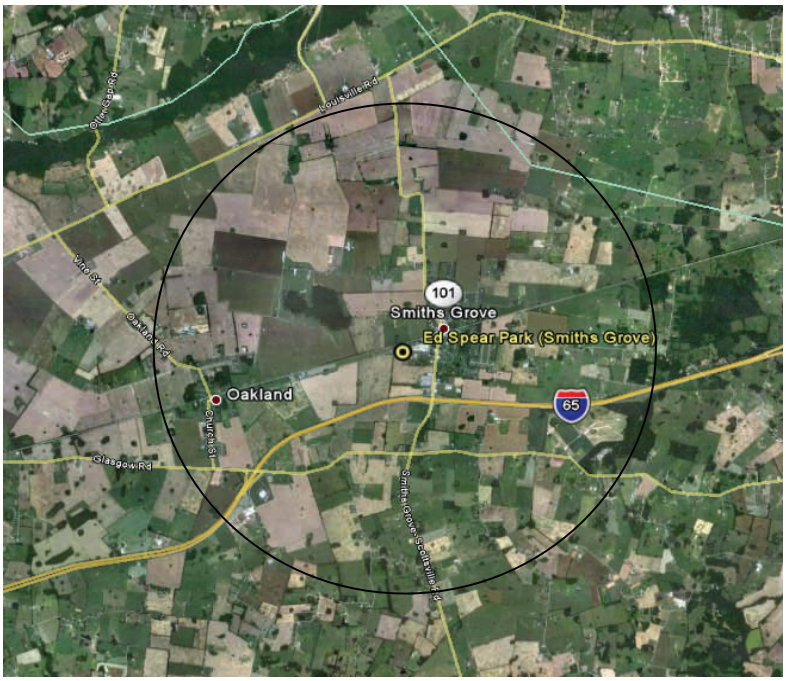
Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	TBD	SLAMS AQI	UV photometry	Continuously March 1 – October 31
$PM_{2.5}$ TEOM	TBD	SPM AQI	Tapered element oscillating microbalance, gravimetric	Continuously
FEM $PM_{2.5}$	TBD	SLAMS	Gravimetric	24-hours every third day
Collocated FRM $PM_{2.5}$	TBD	SLAMS	Gravimetric	24-hours every sixth day

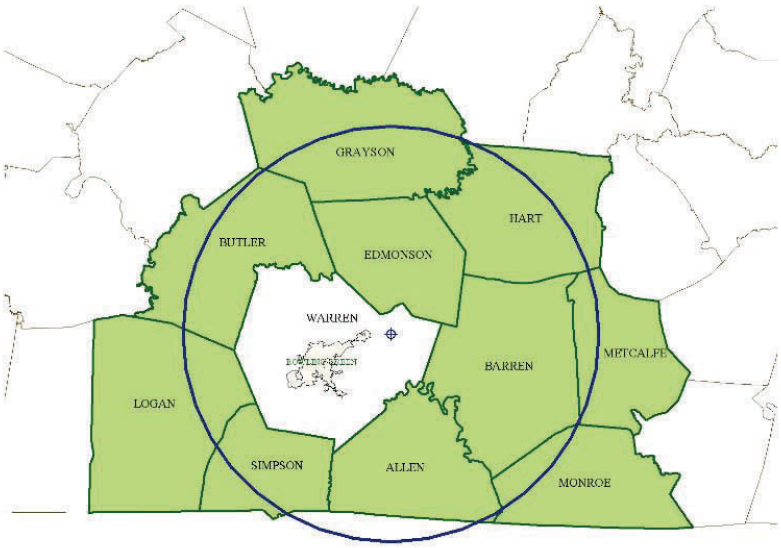
Quality Assurance Status:
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

Area Representativeness:
This site represents population exposure on a neighborhood scale for particulates. This site also represents maximum concentrations on an urban scale for ozone.

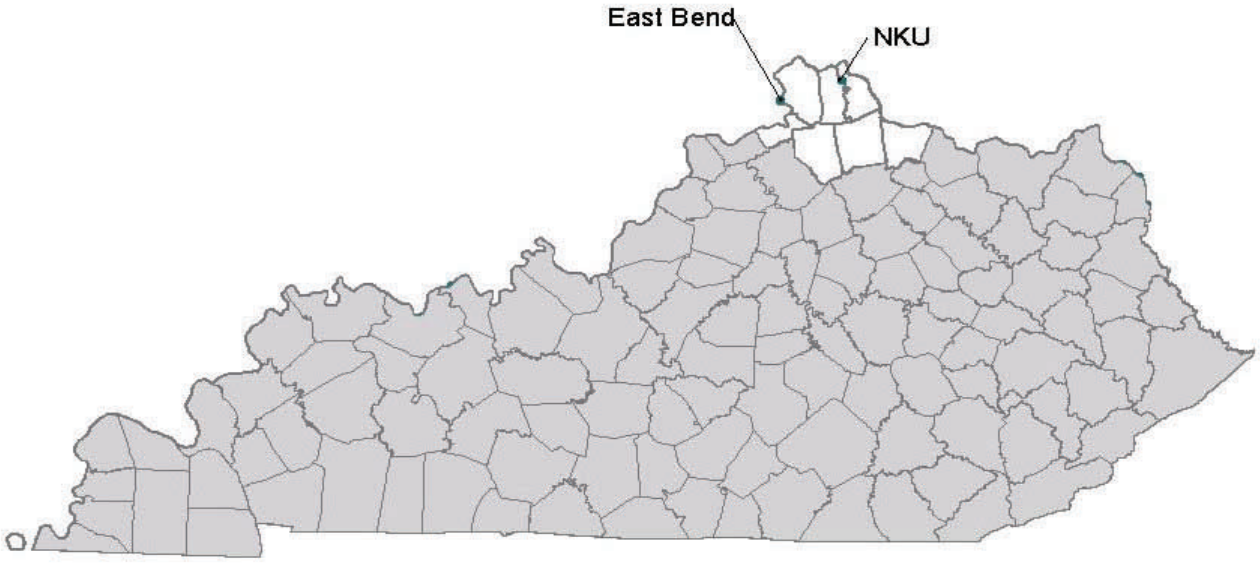
Neighborhood Scale: Particulates



Urban Scale: Ozone



Cincinnati-Middletown, OH-KY-IN



AQS ID	ADDRESS	PM2.5	PM10	SO2	NO2	CO	O3	Lead	VOC	Carbonyl	Speciation	MET
21-015-0003	KY 338 & Lower River Road East Bend (Boone)						X					X
21-037-3002	524A John's Hill Road Highland Heights (Campbell)	X(It)		X(I)	X		X(Ie)					
	TOTAL	2	0	1	1	0	2	0	0	0	0	1

(e) Emergency Episode Monitor
(I) Air Quality Index Monitor
(s) Special Purpose
(t) Continuous PM Monitor

(Rev.5/18/12)

CSA/MSA: Cincinnati-Middletown-Wilmington, OH-KY-IN CSA/Cincinnati-Middletown, 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, East Bend, KY 41005
County: Boone
GPS Coordinates: 38.918330, -84.852637 (NAD 83)
Date Established: July 1, 1977
Inspection Date: August 25, 2011
Inspection By: Jennifer F. Miller
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 in East Bend, Kentucky. The sample inlet is 15 meters from the nearest road. The most recent site inspection was conducted on August 25, 2011. 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.

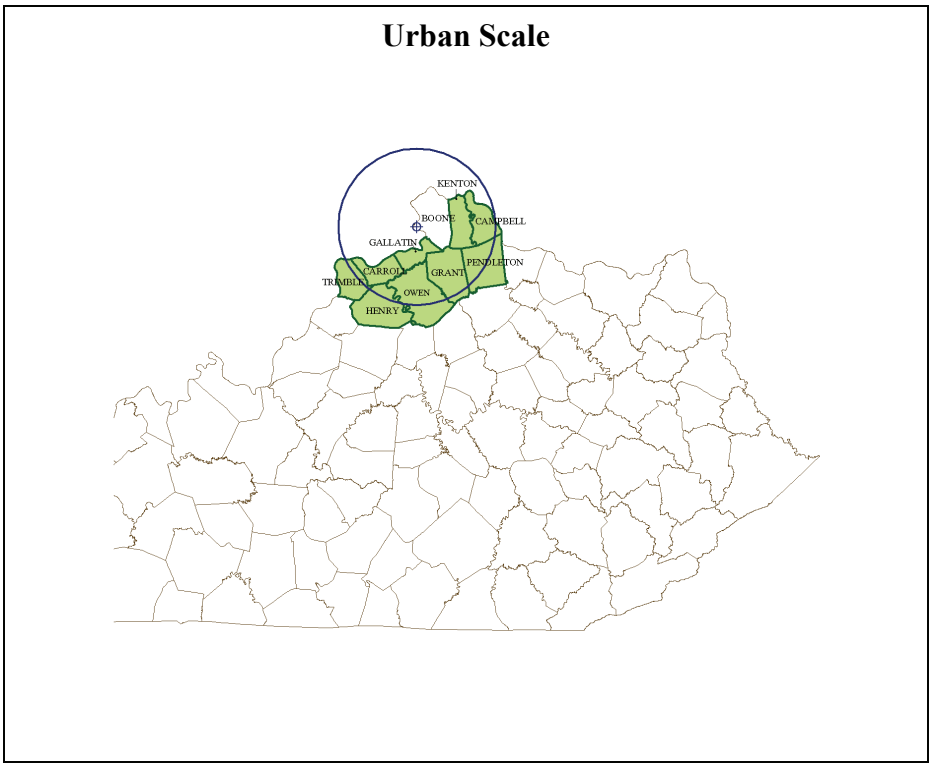
Monitoring Objective:
The monitoring objective is to determine compliance with National Ambient Air Quality Standards.

Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.3	SLAMS AQI	UV photometry	Continuously March 1 – October 31
Meteorological	6.9	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 background levels on an urban scale for ozone.



CSA/MSA: Cincinnati-Middletown-Wilmington, OH-KY-IN CSA/Cincinnati-Middletown, 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: August 25, 2011
Inspection By: Jennifer F. Miller
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 23 meters from the nearest road, which is a dirt service drive for a radio tower. The most recent site inspection was conducted on August 25, 2011. 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.

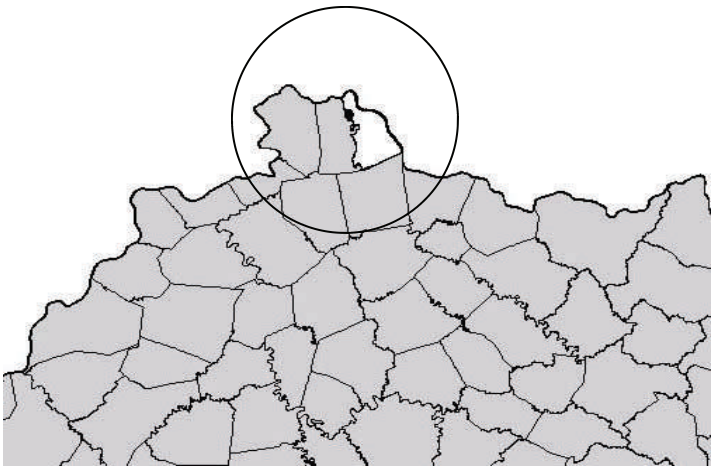
Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Nitrogen Dioxide	3.8	SLAMS	Chemiluminescence	Continuously
AEM Ozone	3.8	SLAMS AQI EPISODE	UV photometry	Continuously March 1 – October 31
FRM $PM_{2.5}$	4.6	SLAMS	Gravimetric	24-hours every third day
$PM_{2.5}$ TEOM	TBD	SPM AQI	Tapered element oscillating microbalance, gravimetric	Continuously
AEM Sulfur Dioxide	3.9	SLAMS (PWEI) AQI	UV fluorescence	Continuously

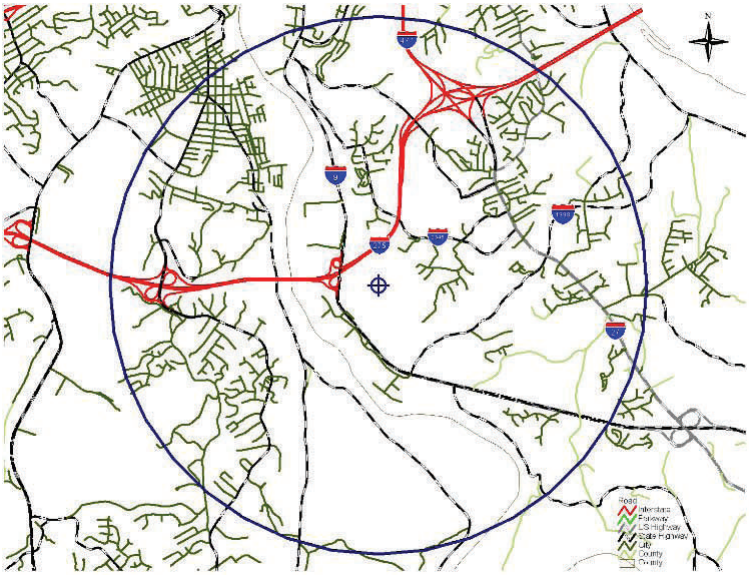
Quality Assurance Status:
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

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.

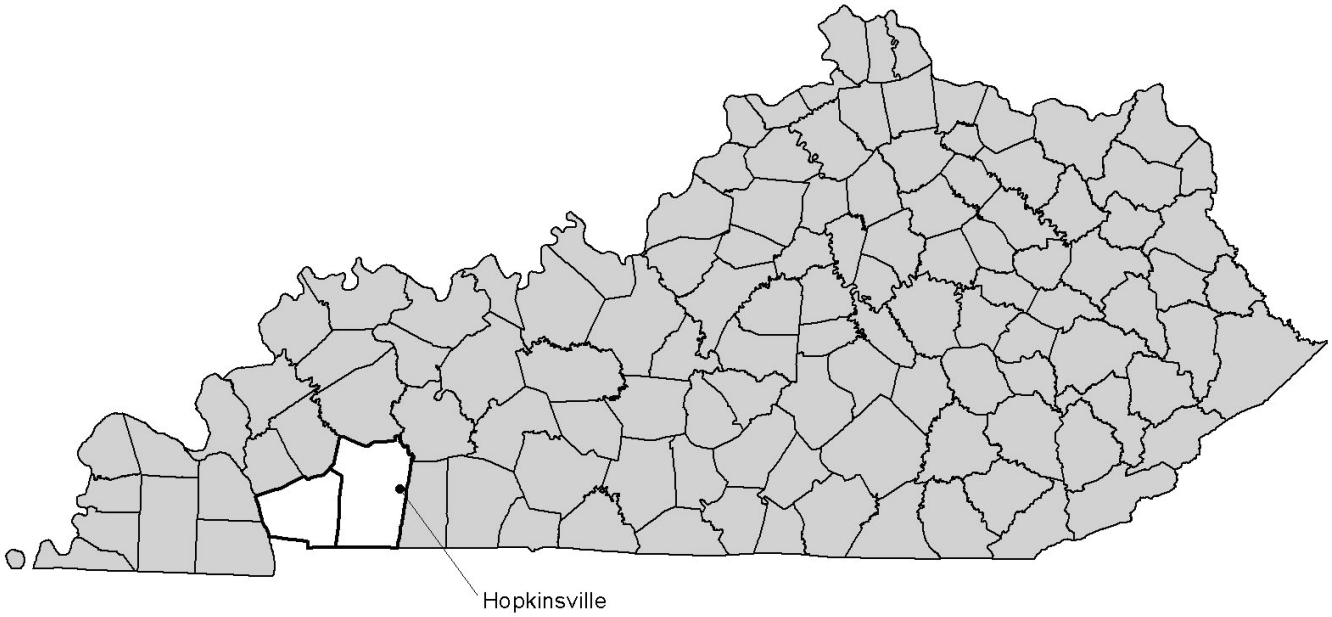
Urban Scale: Nitrogen Dioxide, Ozone, Sulfur Dioxide



Neighborhood Scale: Particulates



Clarksville, TN-KY



AQS ID	ADDRESS	PM2.5	PM10	SO2	NO2	CO	O3	Lead	VOC	Carbonyl	Speciation	MET
21-047-0006	10800 Pilot Rock Road Hopkinsville (Christian)	X		X(s)			X					
	TOTAL	1	0	1	0	0	1	0	0	0	0	0

(s) Special Purpose

(Rev. 5/20/12)

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, -87.323337 (NAD 83)
Date Established: January 1, 1999
Inspection Date: December 2, 2011
Inspection By: Jennifer F. Miller
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 108 meters from the nearest road. The most recent site inspection was conducted on December 2, 2011. Upon inspection, the sample inlets and monitors 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 and to determine levels of interstate regional transport of fine particulate matter and ozone. The monitoring objective will also include determining levels of regional transport of sulfur dioxide.

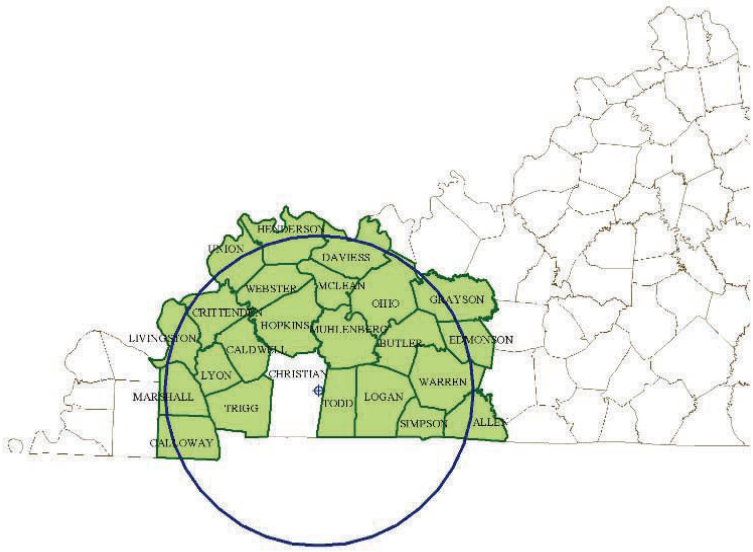
Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.4	SLAMS AQI	UV photometry	Continuously March 1 – October 31
AEM Sulfur Dioxide	3.5	SPM	UV fluorescence	Continuously
FEM $PM_{2.5}$	3.3	SLAMS	Gravimetric	24-hours every third day

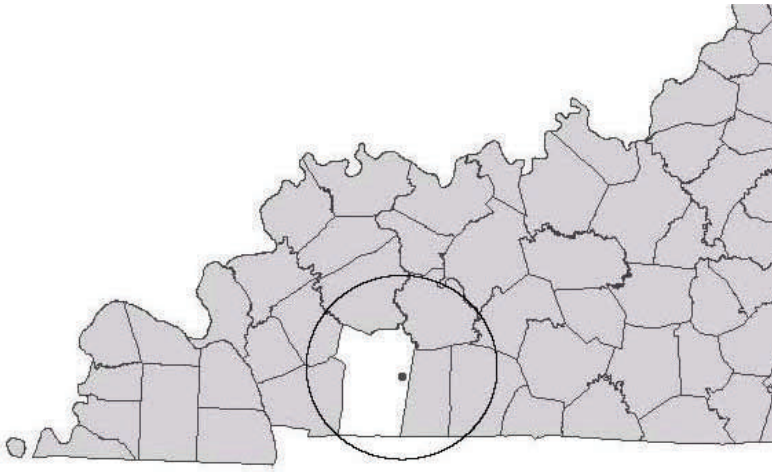
Quality Assurance Status:
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

Area Representativeness:
This site represents population exposure on a regional scale for ozone and $PM_{2.5}$. This site will also represent population exposure on an urban scale for sulfur dioxide.

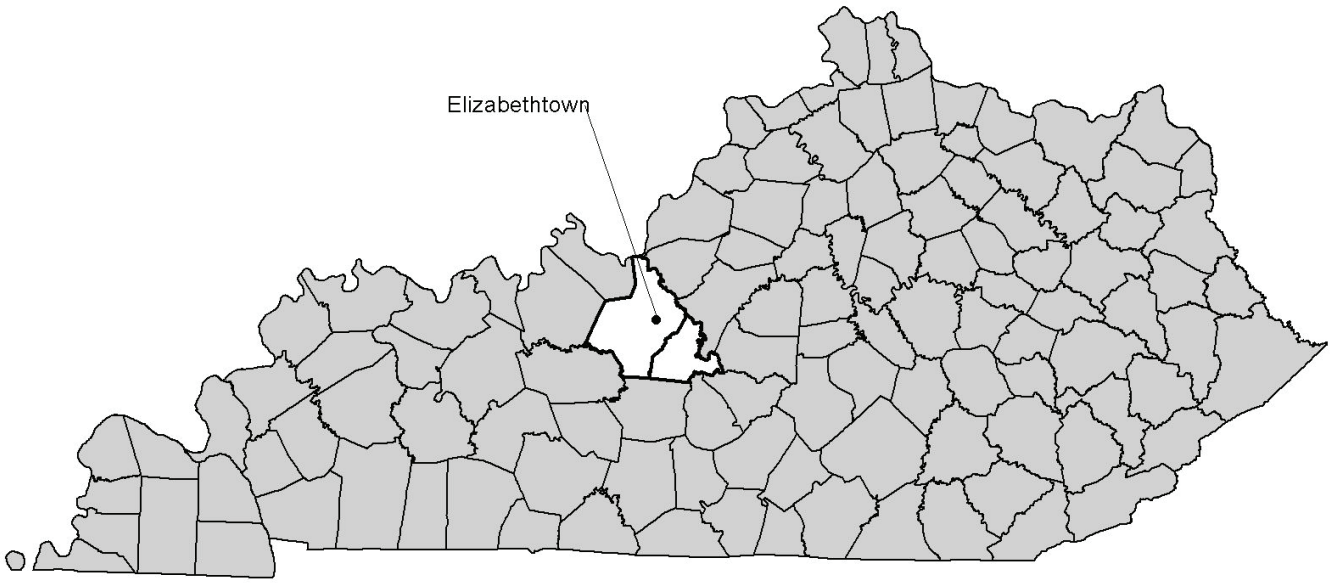
Regional Scale: Ozone, Particulates



Urban Scale: Sulfur Dioxide



Elizabethtown, KY



AQS ID	ADDRESS	PM2.5	PM10	SO2	NO2	CO	O3	Lead	VOC	Carbonyl	Speciation	MET
21-093-0006	801 N Miles St, Am Legion Park Elizabethtown (Hardin)	X(cb)					X					
	TOTAL	3	0	0	0	0	1	0	0	0	0	0

(c) Collocated Monitor

(s) Special Purpose Monitor

(b) Continuous PM Monitor

(Rev.5/12/12)

CSA/MSA: Louisville-Jefferson County-Elizabethtown-Scottsburg, KY-IN CSA / Elizabethtown, 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: 37.70558, -85.85245 (NAD 83)
Date Established: February 24, 2000
Inspection Date: September 15, 2011
Inspection By: Jennifer F. Miller
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. The sample inlets are 32 meters from the nearest road. The most recent site inspection was conducted on September 15, 2011. 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 and to provide ozone and particulate levels for daily index reporting.

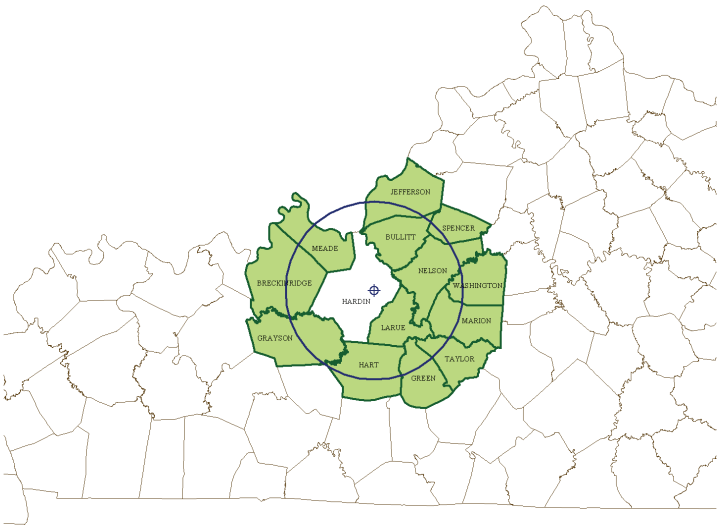
Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.4	SLAMS AQI	UV photometry	Continuously March 1 – October 31
FEM $PM_{2.5}$	4.6	SLAMS	Gravimetric	24-hours every third day
Collocated FEM $PM_{2.5}$	4.6	SLAMS	Gravimetric	24-hours every sixth day
FEM $PM_{2.5}$ BAM	4.4	NR-SPM AQI	Beta Attenuation Mass Monitor	Continuously

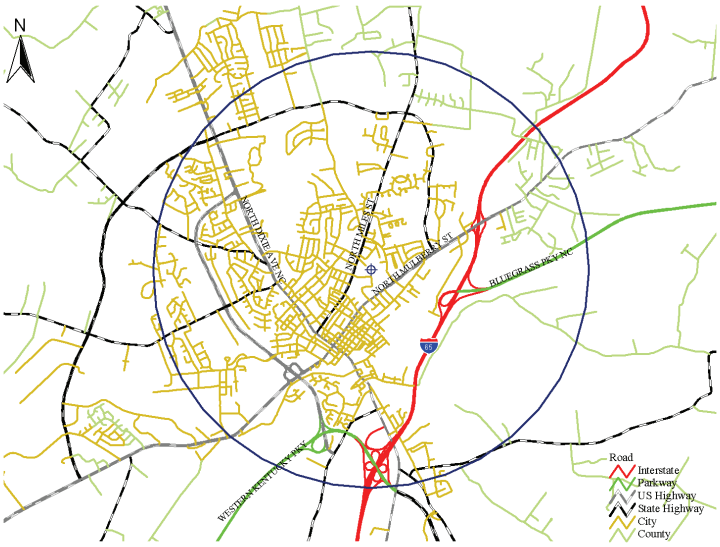
Quality Assurance Status:
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

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

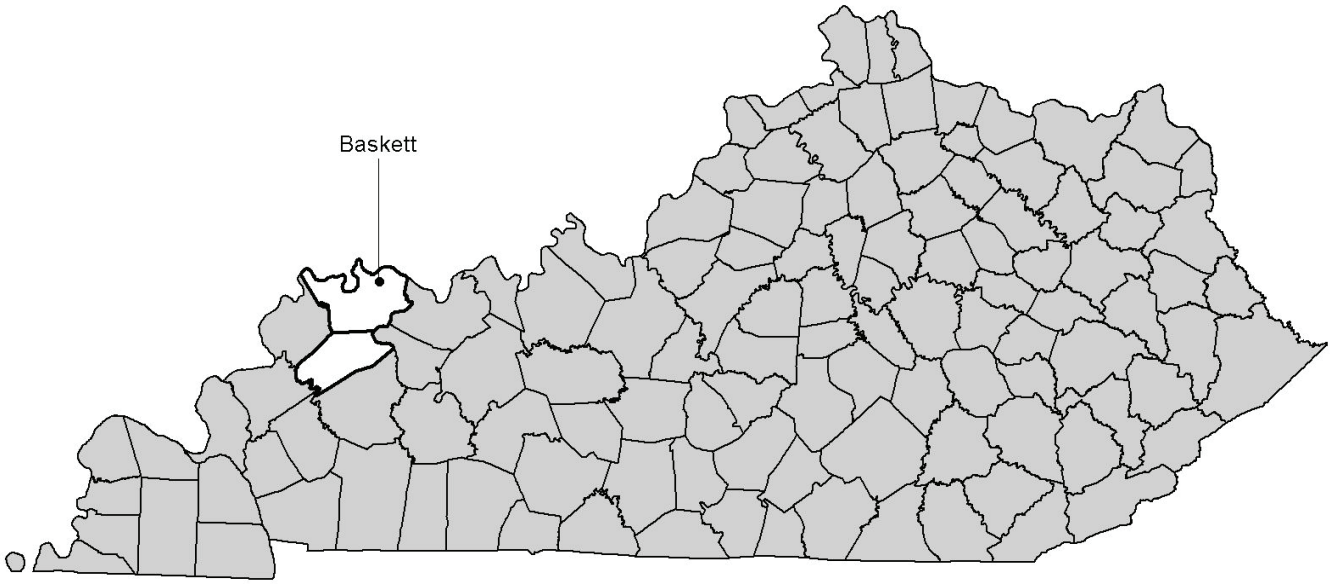
Urban Scale: Ozone



Neighborhood Scale: Particulates



Evansville, IN-KY



AQS ID	ADDRESS	PM2.5	PM10	SO2	NO2	CO	O3	Lead	VOC	Carbonyl	Speciation	MET
21-101-0014	Baskett Fire Department Baskett (Henderson)	X(t)	X(m)	X			X(s)					
	TOTAL	2	1	1	0	0	1	0	0	0	0	0

(s) Special Purpose Monitor

(t) Continuous PM Monitor

(m) Metals

(Rev. 5/20/12)

CSA/MSA: Evansville, IN-KY MSA
401 KAR 50:020 Air Quality Region: Evansville-Owensboro-Henderson Interstate (077)
Site Name: Baskett
AQS Site ID: 21-101-0014
Location: Baskett Fire Department, Baskett, KY 42402
County: Henderson
GPS Coordinates: 37.87120, -87.46375 (NAD 83)
Date Established: February 27, 1992
Inspection Date: September 22, 2011
Inspection By: Jennifer F. Miller
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 Baskett Fire Department in Baskett, Kentucky. The sample inlets are 6.5 meters from the nearest road. The most recent site inspection was conducted on September 22, 2011. Upon inspection, the sample lines and monitors were found to be in good condition. The site meets the requirements of 40 CFR 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 ozone, particulate, and sulfur dioxide levels for daily index reporting.

Monitors:

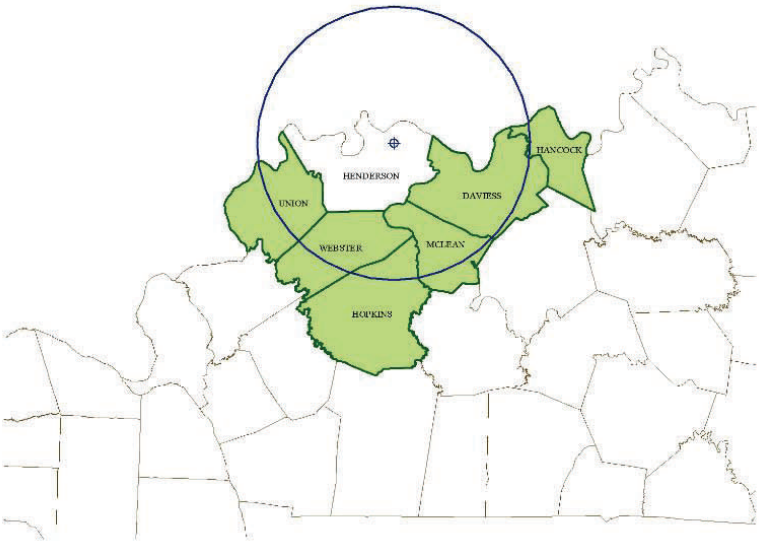
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.9	SPM AQI	UV photometry	Continuously March 1 – October 31
FEM $PM_{2.5}$	4.5	SLAMS	Gravimetric	24-hours every third day
$PM_{2.5}$ TEOM	4.7	SPM AQI	Tapered element oscillating microbalance, gravimetric	Continuously
FRM PM_{10}	4.7	SLAMS	Gravimetric	24-hours every sixth day
- PM_{10} Metals		SPM	Determined from the PM_{10} sample using EPA method IO 3.4	Same as PM_{10}
AEM Sulfur Dioxide	3.5	SLAMS (PWEI) AQI	UV fluorescence	Continuously

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

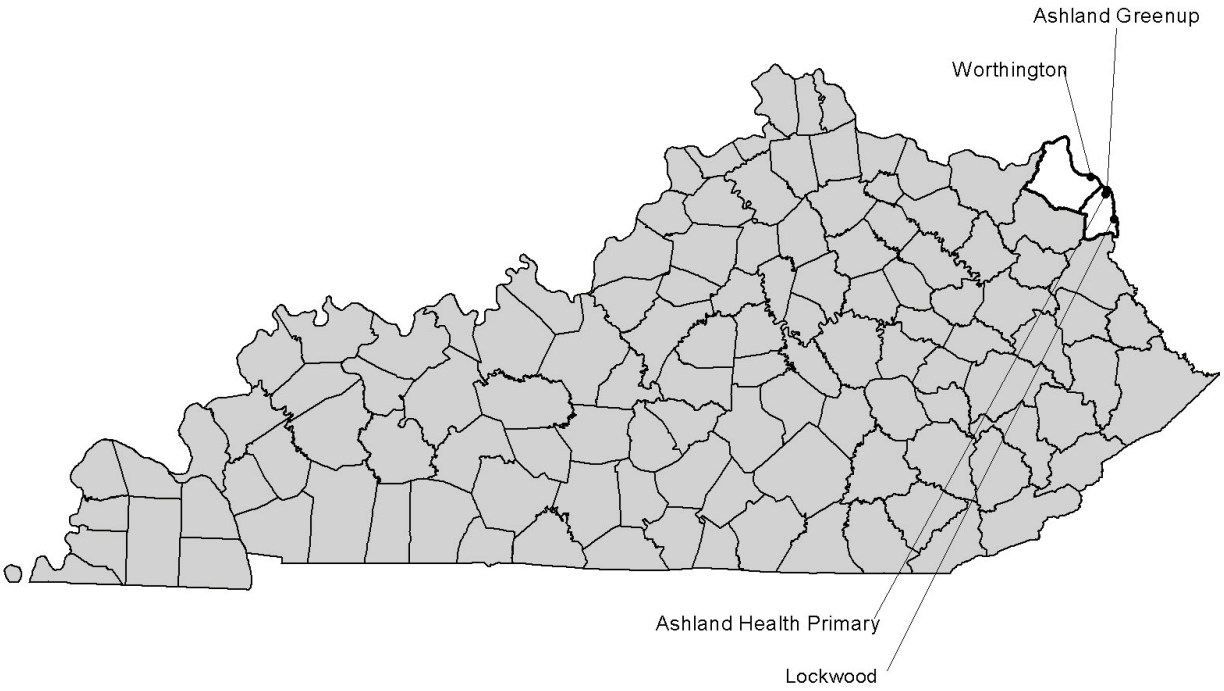
Area Representativeness:
This site represents maximum concentrations on an urban scale for ozone. This site also represents population exposure on a neighborhood scale for particulates and sulfur dioxide.

Neighborhood Scale: Particulates, Sulfur Dioxide

Urban Scale: Ozone



Huntington-Ashland, WV-KY-OH

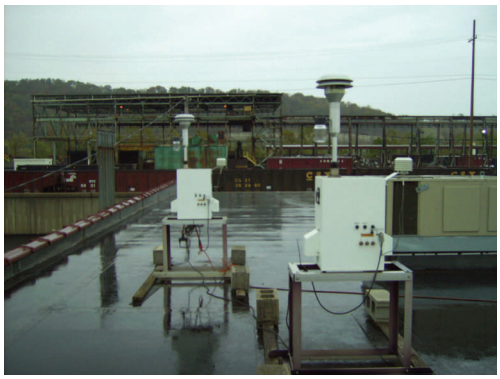


AQS ID	ADDRESS	PM2.5	PM10	SO2	NO2	CO	O3	Lead	VOC	Carbonyl	Speciation	MET
21-019-0002	21st & Greenup Ashland (Boyd)		X(cm)									
21-019-0016	18138 Cherrywood Catlettsburg (Boyd)							X				
21-019-0017	2924 Holt St, FIVCO Health Dept Ashland (Boyd)	X(It)		X(eI)	X(e)		X(eI)		X(s)	X(s)	X(s)	X
21-089-0007	Water Tower, Scott & Center Sts. Worthington (Greenup)			X(se)			X(e)					
	TOTAL	2	2	2	1	0	2	1	1	1	1	1

(c) Collocated Monitor
(e) Emergency Episode Monitor
(I) Air Quality Index Monitor
(s) Special Purpose Monitor
(t) Continuous PM Monitor
(m) Metals

(Rev.5/20/12)

CSA/MSA: 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 - Greenup (21st and Greenup)
AQS Site ID: 21-019-0002
Location: 122 22nd Street, Ashland, KY 41101
County: Boyd
GPS Coordinates: 38.47676, -82.63137 (NAD 83)
Date Established: April 2, 1978
Inspection Date: October 26, 2011
Inspection By: Jennifer F. Miller
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 Ashland Valvoline Oil complex building in Ashland, Kentucky. The building is one story tall. The sample inlets are 20 meters from the nearest road. The most recent site inspection was conducted on October 26, 2011. 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:

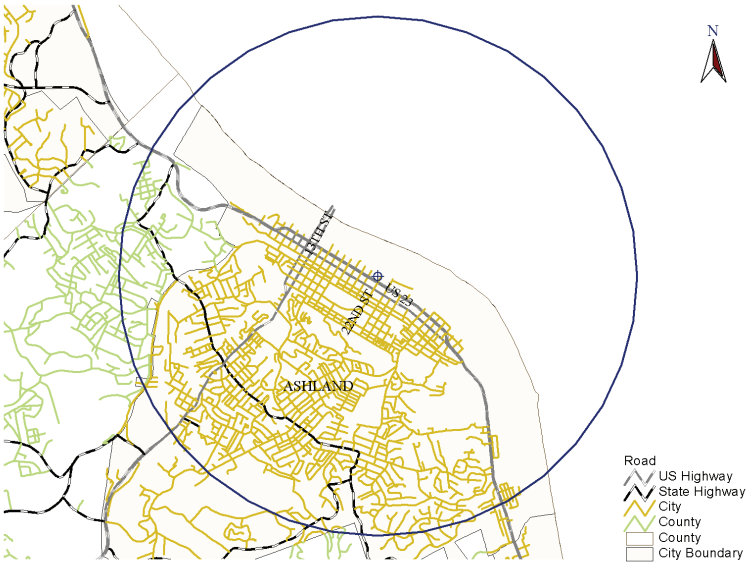
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
FRM PM_{10}	6.4	SLAMS	Gravimetric	24-hours every sixth day
- Metals PM_{10}		SPM	Determined from the PM_{10} sample using EPA method IO 3.4	Same as PM_{10}
Collocated FRM PM_{10}	6.4	SLAMS	Gravimetric	24-hours every twelfth day
- Collocated Metals PM_{10}		SPM	Determined from the PM_{10} sample using EPA method IO 3.4	24-hours; six samples per year

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

Area Representativeness:
The site represents maximum concentrations on a middle scale for particulates. This site also represents population exposure on a neighborhood scale for air toxics.

Middle Scale: Particulates

Neighborhood Scale: Air Toxics



CSA/MSA: Huntington-Ashland, WV-KY-OH MSA
401 KAR 50:020 Air Quality Region: Huntington (WV)-Ashland (KY)-Portsmouth-Ironton (OH) Interstate (103)
Site Name: Lockwood
AQS Site ID: 21-019-0016
Location: 18138 Cherrywood, Lockwood Estates, Catlettsburg, KY 41129
County: Boyd
GPS Coordinates: 38.33150, -82.59106 (NAD 83)
Date Established: January 1, 2010
Inspection Date: October 26, 2011
Inspection By: Jennifer F. Miller
Site Approval Status: Site and monitors meet all design criteria for the monitoring network.

Calgon Carbon, located in Catlettsburg, Kentucky, was identified as a lead source emitting over 6 tons per year of actual reported emissions in 2007. In accordance with 40 CFR Part 58, Appendix D, a lead source monitoring site was located in the Lockwood Estates off U.S. 23 in Catlettsburg, Kentucky. The location of this source-oriented lead monitor was determined through the use of AERMOD modeling analysis. The model indicated that majority of the source impact would be in West Virginia. However, the model indicated that Lockwood Estates was within the deposition boundary.

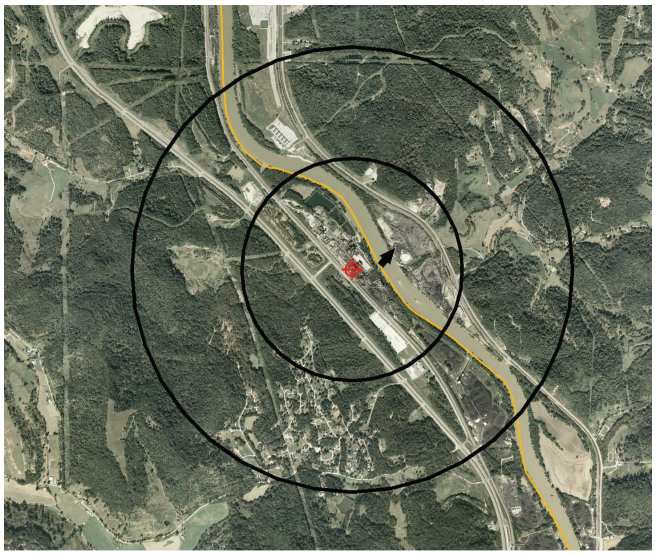
The lead monitor is located on a sampling platform and the inlets are 76 meters from the nearest road. The most recent site inspection, on November 16, 2010, showed the sampler and inlet to be in good condition. The site meets the requirements of 40 CFR 58, Appendices C, D and E.

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

Monitors:

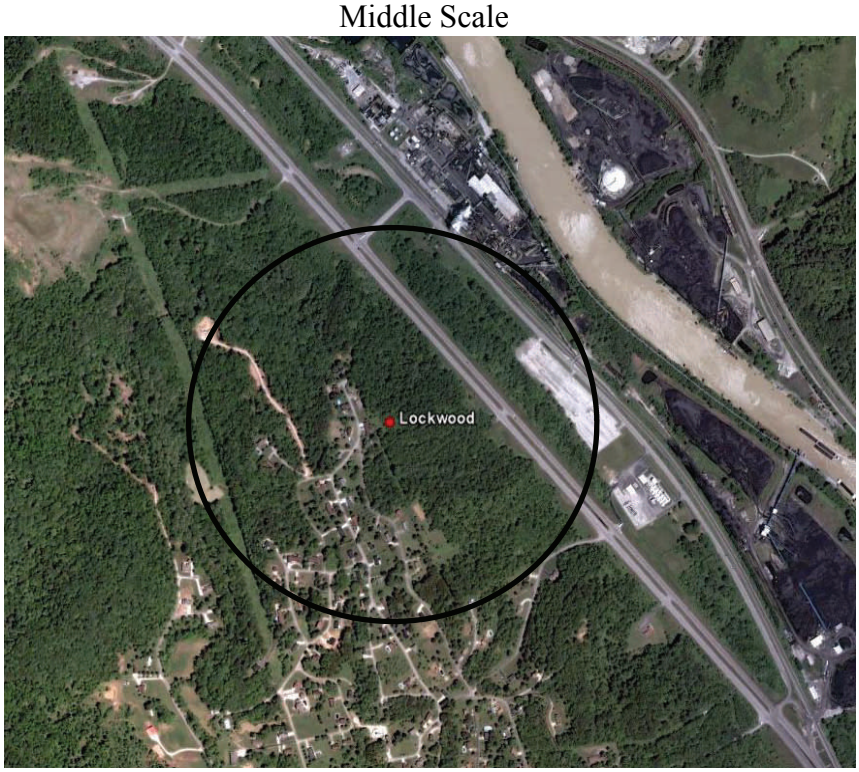
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
FRM Lead	2.0	SLAMS	High volume air sampler. Analysis via ICP-MS.	24-hours every sixth day

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



Area Representativeness:
The site represents maximum concentrations, from a source, on a middle scale for lead.

Middle Scale



CSA/MSA: 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: October 26, 2011
Inspection By: Jennifer F. Miller
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 meters from the nearest road. The most recent site inspection was conducted on December 7, 2010. 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, and sulfur dioxide; and to provide pollutant levels for daily air quality index reporting.

Monitors:

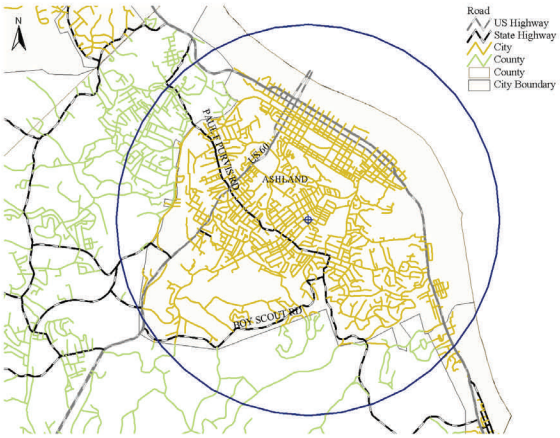
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Nitrogen Dioxide	4.3	SLAMS EPISODE	Chemiluminescence	Continuously
AEM Sulfur Dioxide	4.3	SLAMS AQI EPISODE	UV fluorescence	Continuously
AEM Ozone	4.3	SLAMS AQI EPISODE	UV photometry	Continuously March 1 – October 31
FRM $PM_{2.5}$	4.7	SLAMS	Gravimetric	24-hours every third day
$PM_{2.5}$ Speciation	4.6	SLAMS	Ion chromatography and X-ray fluorescence	24-hours every sixth day
Carbon Speciation	4.8	SLAMS	Thermal-optical	24-hours every sixth day
$PM_{2.5}$ TEOM	4.7	SPM AQI	Tapered element oscillating microbalance, gravimetric	Continuously
Volatile Organic Compounds	3.8	SPM	EPA method TO-15	24-hours every sixth day
Carbonyls	4.0	SPM	EPA method TO-11A	24-hours every sixth day

Meteorological	5.9	Other	AQM grade instruments for wind speed, wind direction, humidity, barometric pressure, and temperature	Continuously

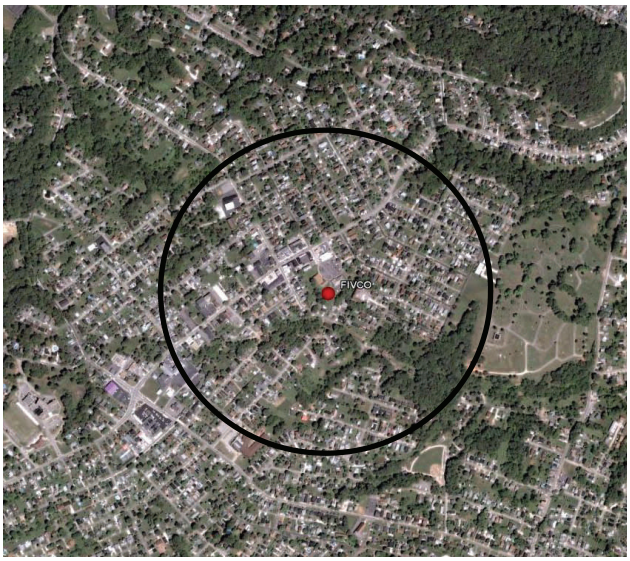
Quality Assurance Status:
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

Area Representativeness:
This site also 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.

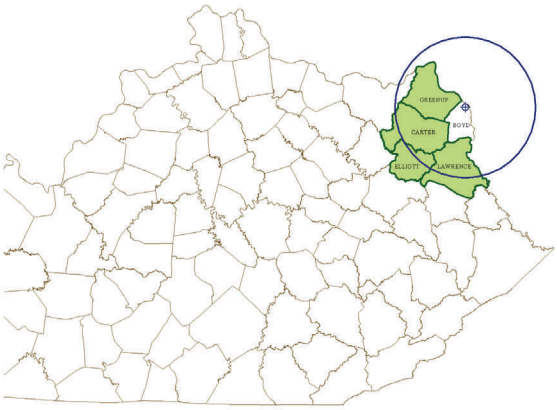
Neighborhood Scale: Air Toxics, Ozone, Sulfur Dioxide



Middle Scale: Particulates



Urban Scale: Nitrogen Dioxide



CSA/MSA: 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 and Center Avenue, Worthington, KY 41183
County: Greenup
GPS Coordinates: 38.548164, -82.731131 (NAD 83)
Date Established: October 12, 1980
Inspection Date: October 26, 2011
Inspection By: Jennifer F. Miller
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 18 meters from the nearest road. The most recent site inspection was conducted on October 26, 2011. Upon inspection, the sample lines and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

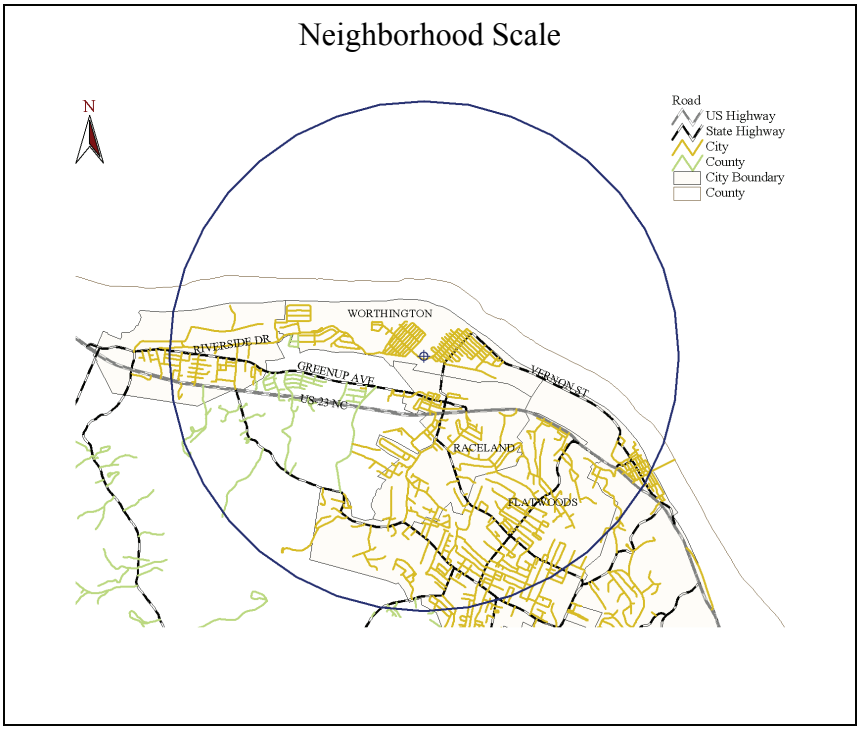
Monitoring Objective:
The monitoring objectives are to determine compliance with National Ambient Air Quality Standards; to detect elevated pollutant levels for activation of emergency control procedures for ozone and sulfur dioxide; and to provide pollutant levels for daily air quality index reporting.

Monitors:

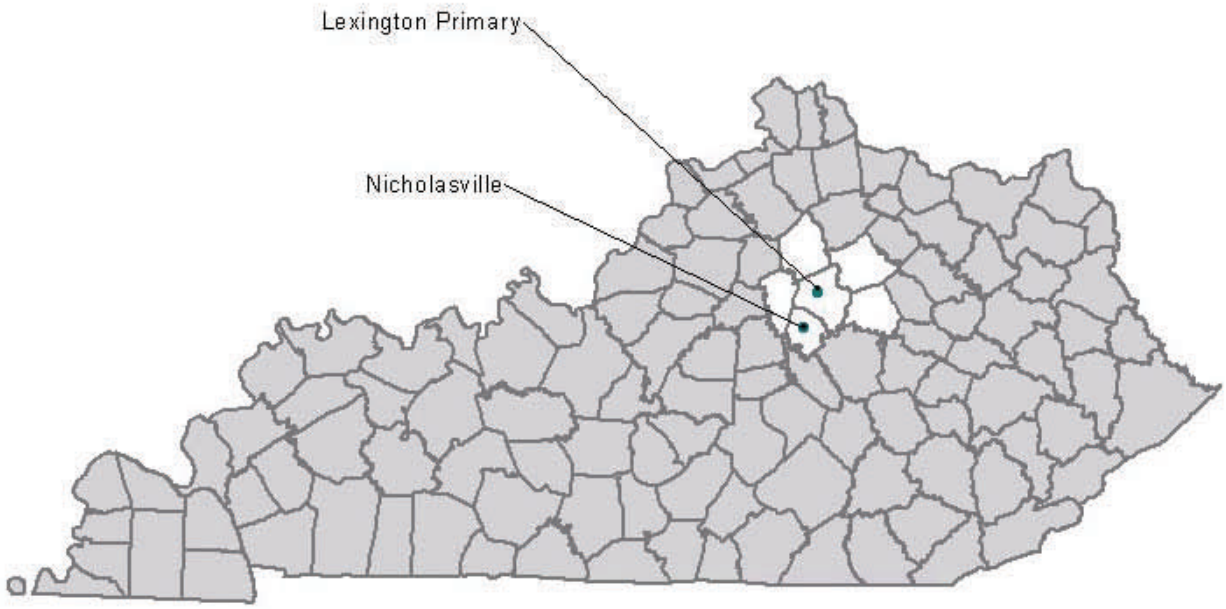
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	4.2	SLAMS EPISODE AQI	UV photometry	Continuously March 1 – October 31
AEM Sulfur Dioxide	4.2	SPM EPISODE	UV fluorescence	Continuously

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 on a neighborhood scale for ozone and sulfur dioxide.



Lexington-Fayette, KY



AQS ID	ADDRESS	PM2.5	PM10	SO2	NO2	CO	O3	Pb	VOC	Carbonyl	Speciation	Radnet	MET
21-067-0012	650 Newtown Pike Lexington (Fayette)	X(t)	X(m)	X(eI)	X(e)		X(I e)		X(s)	X(s)	X(s)	X	
21-113-0001	KY DOT Garage, US 27 Bypass Nicholasville (Jessamine)			X(s)			X						X
	TOTAL	2	1	2	1	0	2	0	1	1	1	1	1

(e) Emergency Episode Monitor
(I) Air Quality Index Monitor
(s) Special Purpose Monitor
(t) Continuous PM Monitor
(m) Metals

(Rev.5/20/12)

CSA/MSA: Lexington-Fayette-Frankfort-Richmond, KY CSA / Lexington-Fayette, KY MSA
401 KAR 50:020 Air Quality Region: Bluegrass Intrastate (102)
Site Name: Lexington Primary
AQS 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: September 16, 2011
Inspection By: Jennifer F. Miller
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 122 meters from the nearest road. The most recent site inspection was conducted on September 16, 2011. 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.

Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
ARM Nitrogen Dioxide	4.1	SLAMS (RA-40) EPISODE	Chemiluminescence	Continuously
AEM Ozone	3.8	SLAMS AQI EPISODE	UV photometry	Continuously March 1 – October 31
FEM $PM_{2.5}$	4.7	SLAMS	Gravimetric	24-hours every third day
PM_{10}	4.5	SLAMS	Gravimetric	24-hours every sixth day
- PM_{10} Metals		SPM	Determined from the PM_{10} sample using EPA method IO 3.4	Same as PM_{10}
$PM_{2.5}$ Speciation	2.1	SLAMS	Ion chromatography and X-ray fluorescence	24-hours every sixth day
Carbon Speciation	2.4	SLAMS	Thermal-optical	24-hours every sixth day
AEM Sulfur Dioxide	3.6	SLAMS (PWEI) AQI EPISODE	UV fluorescence	Continuously

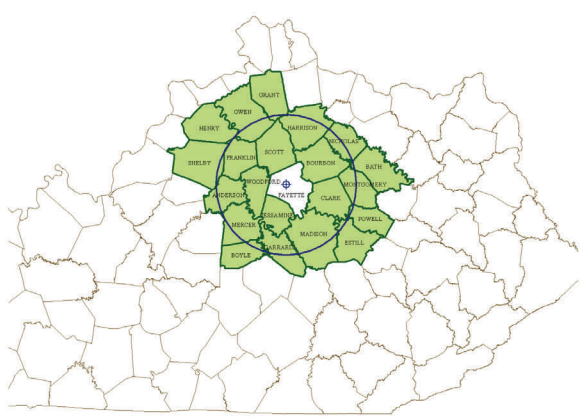
$PM_{2.5}$ TEOM	4.6	SPM AQI	Tapered element oscillating microbalance, gravimetric	Continuously
Volatile Organics Compound	3.4	SPM	EPA method TO-15	24-hours every sixth day
Carbonyls	3.4	SPM	EPA method TO-11A	24-hours every sixth day
Radiation	4.0	RadNet	RadNet fixed stationary monitor, manual and automated 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 and air toxics.

Neighborhood Scale: Particulates, Sulfur Dioxide, Ozone

Urban Scale: Nitrogen Dioxide, Air Toxics



CSA/MSA: Lexington-Fayette-Frankfort-Richmond, 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: DOT Garage, US 27 Bypass, Nicholasville, KY 40356
County: Jessamine
GPS Coordinates: 37.89147, -84.58825 (NAD 83)
Date Established: August 1, 1991
Inspection Date: September 16, 2011
Inspection By: Jennifer F. Miller
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 DOT Garage in Nicholasville, Kentucky. The sample inlets are 110 meters from the nearest road. The most recent site inspection was conducted on September 16, 2011. Upon inspection, the sample inlets and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Monitoring Objective:
The monitoring objectives are to determine compliance with National Ambient Air Quality Standards; to provide ozone data upwind of the Lexington area; and to provide pollutant levels for daily air quality index reporting.

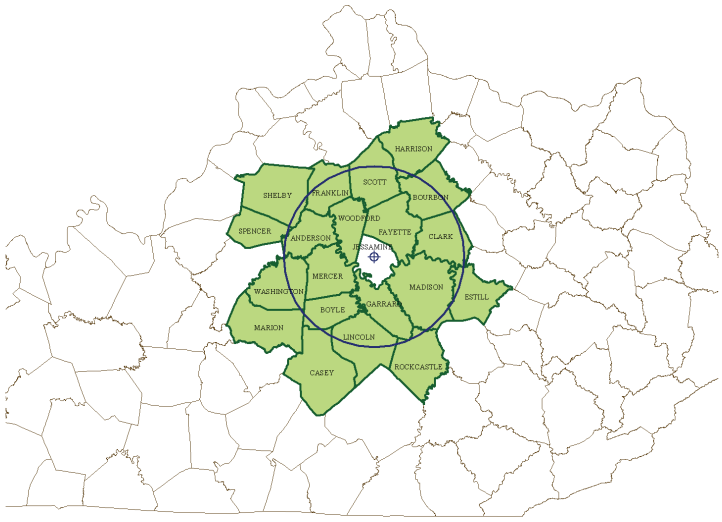
Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.9	SLAMS AQI	UV photometry	Continuously March 1 – October 31
AEM Sulfur Dioxide	3.9	SPM AQI	UV fluorescence	Continuously
Meteorological	5.9	Other	Wind speed, wind direction, temperature, barometric pressure	Continuously

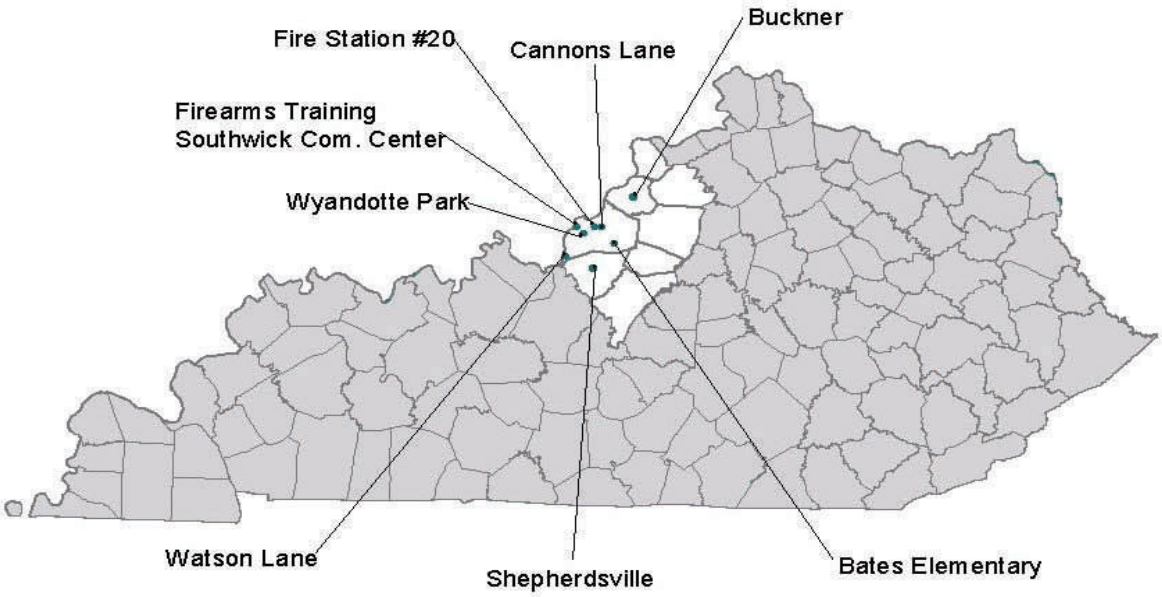
Quality Assurance Status:
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

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

Urban Scale: Criteria, Air Toxics



Louisville-Jefferson County, KY-IN



AQS ID	ADDRESS	PM2.5	PM10	SO2	NOx	NOy	CO	O3	Pb	VOC	Carbonyl	Speciation	Radnet	MET
21-029-0006	2nd & Carpenter Streets Shepherdsville (Bullitt)							X(I)						X
21-185-0004	DOT Garage, 3995 Morgan Rd Buckner (Oldham)							X(I)						
21-111-0027	7601 Bardstown Road Louisville (Jefferson)	X(tsI)						X(I)						
21-111-0043	3621 Southern Avenue Louisville (Jefferson)	X(ctI)	X(ctI)											X
21-111-0044	1032 Beecher Avenue Louisville (Jefferson)	X	X(tI)											
21-111-0051	7201 Watson Lane Louisville (Jefferson)	X (bsI)		X				X(I)						X
21-111-0067	2730 Cannons Lane Louisville (Jefferson)	X(bsI)	X(Ibs**L**)	X(I)	X(I)	X	X(I)	X(I)				X	X	X
21-111-1019	1735 Bardstown Road Louisville (Jefferson)						X(I)							
21-111-1041	4201 Algonquin Parkway Louisville (Jefferson)			X(e)										
	TOTAL	9	5	3	1	1	2	5	0	0	0	1	1	4

(c) Collocated Monitor
(e) Emergency Episode Monitor
(I) Air Quality Index Monitor
(s) Special Purpose Monitor
(t) or (b) Continuous PM Monitor
(**L**) PM10 metals filter analyzed for lead

(Rev. 5/20/12)

CSA/MSA: Louisville-Jefferson County-Elizabethtown-Scottsburg, KY-IN CSA / Louisville-Jefferson, 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: Second and Carpenter Streets, Shepherdsville, KY 40165
County: Bullitt
GPS Coordinates: 37.98629, -85.71192 (NAD 83)
Date Established: January 30, 1992
Inspection Date: September 15, 2011
Inspection By: Jennifer F. Miller
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 56 meters from the nearest road. The most recent site inspection was conducted on September 15, 2011. Upon inspection, the sample lines and monitors were found to be in good condition. The site meets the requirements of 40 CFR 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 ozone levels for daily index reporting.

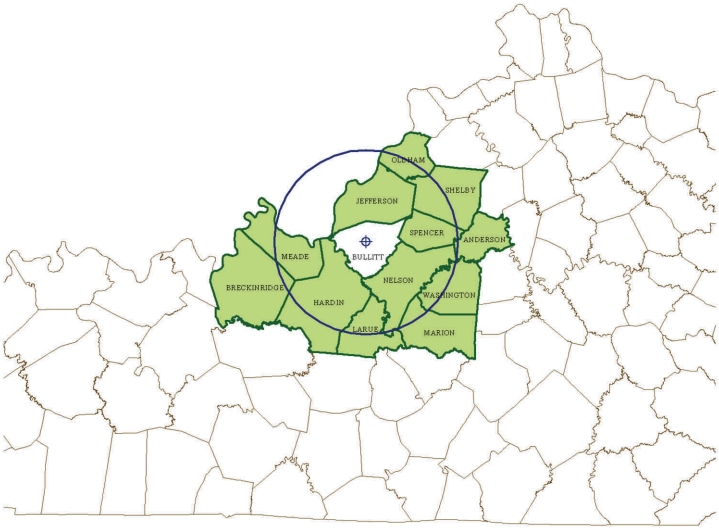
Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	4.0	SLAMS AQI	UV photometry	Continuously March 1 – October 31
Meteorological	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 an urban scale for ozone.

Urban Scale



CSA/MSA: Louisville-Jefferson County-Elizabethtown-Scottsburg, KY-IN CSA / Louisville-Jefferson, 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: DOT Garage, 3995 Morgan Road, Buckner, KY 40010
County: Oldham
GPS Coordinates: 38.40020, -85.44428 (NAD 83)
Date Established: May 1, 1981
Inspection Date: September 15, 2011
Inspection By: Jennifer F. Miller
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 DOT Highway Garage in Buckner, Kentucky. The sample inlet is 51 meters from the nearest road. The most recent site inspection was conducted on September 15, 2011. 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, E and G.

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

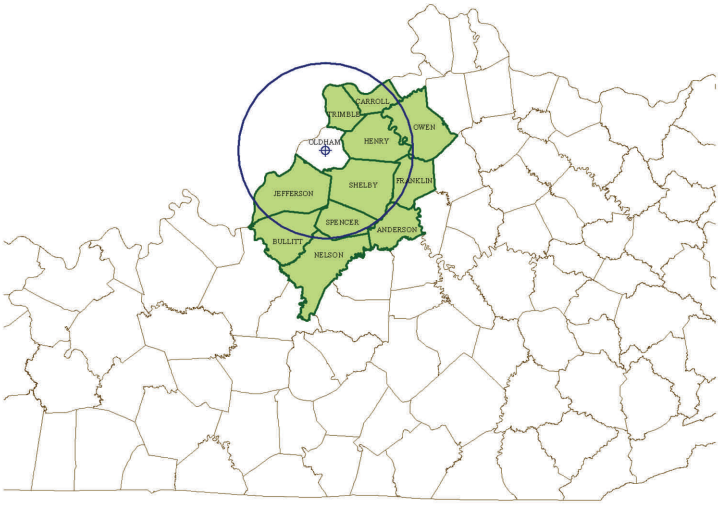
Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.8	SLAMS AQI	UV photometry	Continuously 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.

Urban Scale



CSA/MSA: Louisville-Jefferson County-Elizabethtown-Scottsburg, KY-IN CSA / Louisville-Jefferson, KY-IN MSA
401 KAR 50:020 Air Quality Region: Louisville Interstate (078)
Site Name: Bates Elementary
AQS Site ID: 21-111-0027
Location: Bates Elementary, 7601 Bardstown Road, Louisville, KY 40291
County: Jefferson
GPS Coordinates: 38.13784, -85.57648 (NAD 83)
Date Established: January 4, 1973
Inspection Date: November 17, 2011
Inspection By: Jennifer F. Miller
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 Bates Elementary School in Louisville, Kentucky. The sample inlets are 4.0 meters above ground level and 115 meters from the nearest road. The most recent site inspection was conducted on November 17, 2011. The air monitoring site was found to be in accordance with 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.

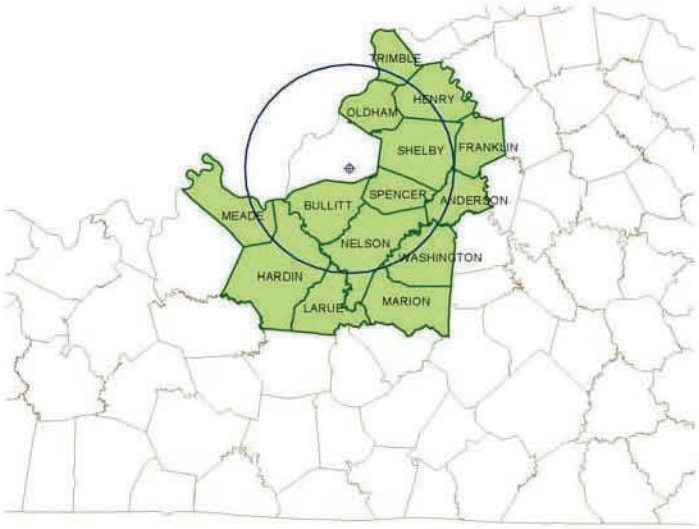
Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	4.0	SLAMS AQI	UV photometry	Continuously March 1 – October 31
$PM_{2.5}$ TEOM	5.6	Other AQI	Tapered element oscillating microbalance, gravimetric	Continuously

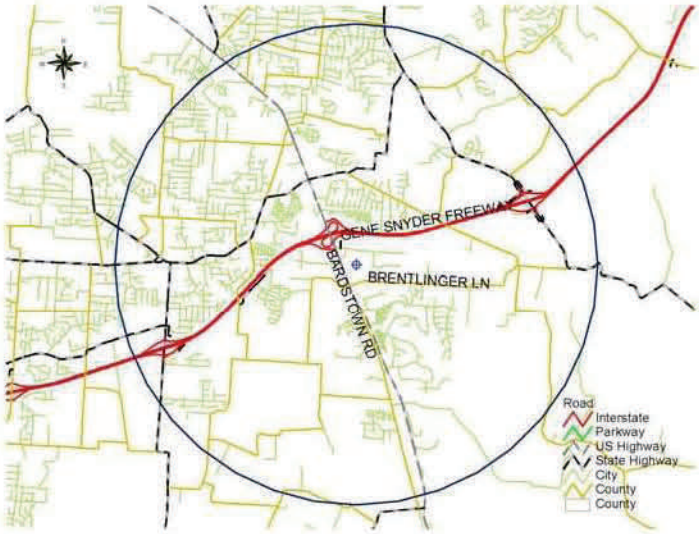
Quality Assurance Status:
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

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

Urban Scale: Ozone



Neighborhood Scale: Particulates



CSA/MSA: Louisville-Jefferson County-Elizabethtown-Scottsburg, KY-IN CSA / Louisville-Jefferson, KY-IN MSA
401 KAR 50:020 Air Quality Region: Louisville Interstate (078)
Site Name: Cannons Lane
AQS Site ID: 21-111-0067
Location: 2730 Cannons Lane, Louisville, KY 40204
County: Jefferson
GPS Coordinates: 38.22883, -85.6544 (NAD 83)
Date Established: January 1, 2009
Inspection Date: November 17, 2011
Inspection By: Jennifer F. Miller
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 LMAPCD. The location is in the NE quadrant of Jefferson County and is approximately 9 km from the urban core of Metro Louisville. 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. The most recent site inspection was conducted on December 15, 2010. The air monitoring site was found to be in accordance with 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)	Designations	Analysis Method	Frequency of Sampling	Startup Date
Carbon Monoxide (CO)	4.6	NCore SLAMS AQI	Automated Reference Method utilizing trace level non-dispersive infrared analysis.	Continuously	06/01/2011
Nitrogen Oxide (NO_x)	4.6	NCore SLAMS AQI	Automated Reference Method utilizing chemiluminescence analysis.	Continuously	01/01/2010
Nitrogen Dioxide (NO_2)	4.6	NCore SLAMS AQI	Automated Reference Method utilizing chemiluminescence	Continuously	01/01/2010
Total Reactive Nitrogen (NO/ NO_y)	8.8	NCore	Automated method utilizing trace level chemiluminescence analysis.	Continuously	01/01/2011
Ozone (O_3)	4.6	NCore SLAMS AQI	Automated Equivalent Method utilizing UV photometry analysis.	Continuously	01/01/2010
Sulfur Dioxide (SO_2)	4.6	NCore SLAMS (PWEI) AQI	Automated Equivalent Method utilizing trace level UV fluorescence analysis.	Continuously	06/01/2010
$PM_{2.5}$ BAM	4.6	NCore NR-SPM AQI	Automated Equivalent Method utilizing Beta Attenuation.	Continuously	01/24/2011
PM_{10} BAM - PM_{Coarse} (PM_{10}-$PM_{2.5}$) BAM	4.6	NCore NR-SPM AQI	Automated Equivalent Method utilizing Beta Attenuation. Differential Automated Equivalent Method utilizing Beta Attenuation.	Continuously Continuously	01/24/2011 01/24/2011
$PM_{2.5}$ Speciation	2.2	NCore SLAMS	Multi-Species manual collection method utilizing thermal optical ion chromatography, gravimetric, and X-ray fluorescence. A second $PM_{2.5}$ speciation sampler provides 1/3 day sampling coverage for weekends and holidays.	1/6 days 1/3 days	01/01/2009 01/01/2011
$PM_{2.5}$ Carbon Speciation	2.4	NCore SLAMS	Multi-species manual collection method utilizing thermal optical and gravimetric analyses. A second carbon speciation sampler provides 1/3 day sampling coverage for weekends and holidays.	1/6 days 1/3 days	01/01/2009 01/01/2011
PM_{10c} Filter - Lead	2.4	NCore SLAMS	Manual Reference Method PM_{10c} utilizing differential gravimetric analysis. Every other PM_{10c} Manual Reference Method filter analyzed via X-ray fluorescence.	1/3 days 1/6 days	01/01/2009 12/29/2011

Monitors (Continued):

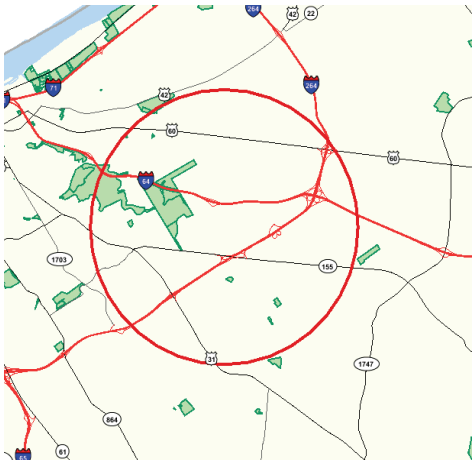
Monitor Type	Inlet Height (meters)	Designations	Analysis Method	Frequency of Sampling	Startup Date
FRM $PM_{2.5}$	2.4	NCore SLAMS	Manual Reference Method utilizing differential gravimetric analysis	1/3 days	01/01/2009
Meteoro-logical	9.3	NCore	Air Quality Measurements approved instrumentation for wind speed, wind direction, humidity, and temperature	Continuously	01/16/2010
-Solar Radiation	5.0	NCore	Air Quality Measurements approved instrumentation for solar radiation	Continuously	1/16/2010
-Rain Gauge	1.8	NCore	Air Quality Measurements approved instrumentation for precipitation	Continuously	1/16/2010
Radiation	1.5	RadNet	RadNet fixed station air monitor, manual and automated methods	Continuously + 2 weekly filters	01/01/2009

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.

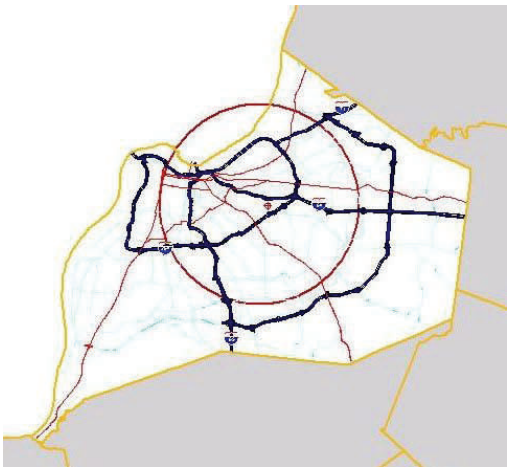
Quality Assurance Status:
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A. The District's current Quality Assurance Project Plan covers trace-level O_3, NO_x, SO_2, and CO, as well as $PM_{2.5}$ speciation, lead, and meteorological measurements. Standard operating procedures for trace-level CO, NO_x, NO_y, SO_2, O_3, $PM_{2.5}$ BAM, and meteorological measurements have been developed. Additional standard operating procedures manuals will be adopted or developed for new instrumentation.

Pollutant	Spatial Scale	Comments
Ozone	Neighborhood and Urban Scale	10 km radius
NO_x /NO_y	Neighborhood and Urban Scale	10 km radius
Carbon Monoxide	Neighborhood Scale	There is no urban scale for CO
SO_2	Neighborhood Scale	There is no urban scale for SO_2
Particulates	Urban	
Radiation	Urban	
VOCs	Neighborhood	

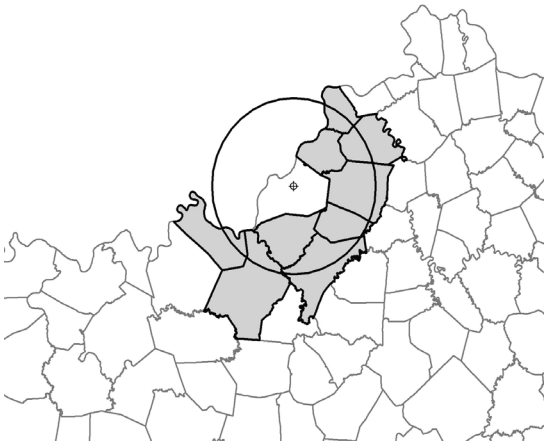
Neighborhood Scale (4 km): Carbon Monoxide, Sulfur Dioxide, and VOCs



Neighborhood and Urban Scales (10 km): Nitrogen Oxides and Ozone



Urban Scale (50 km): Particulates and Radiation



CSA/MSA: Louisville-Jefferson County-Elizabethtown-Scottsburg, KY-IN CSA / Louisville-Jefferson, KY-IN MSA
401 KAR 50:020 Air Quality Region: Louisville Interstate (078)
Site Name: Southwick Community Center
AQS Site ID: 21-111-0043
Location: Southwick Community Center, 3621 Southern Avenue, Louisville, KY 40211
County: Jefferson
GPS Coordinates: 38.23319, -85.81566 (NAD 83)
Date Established: July 1, 1983
Inspection Date: November 17, 2011
Inspection By: Jennifer F. Miller
Site Approval Status: Site and monitors meet all design criteria for the monitoring network.

The monitoring site is located on the roof of the Southwick Community Center in Louisville, Kentucky. The sample inlets are 6 meters above ground level and 45 meters from the nearest road. The most recent site inspection was conducted on November 17, 2011. The air monitoring site was found to be in accordance with 40 CFR Part 58, Appendices A, C, D, E and G.

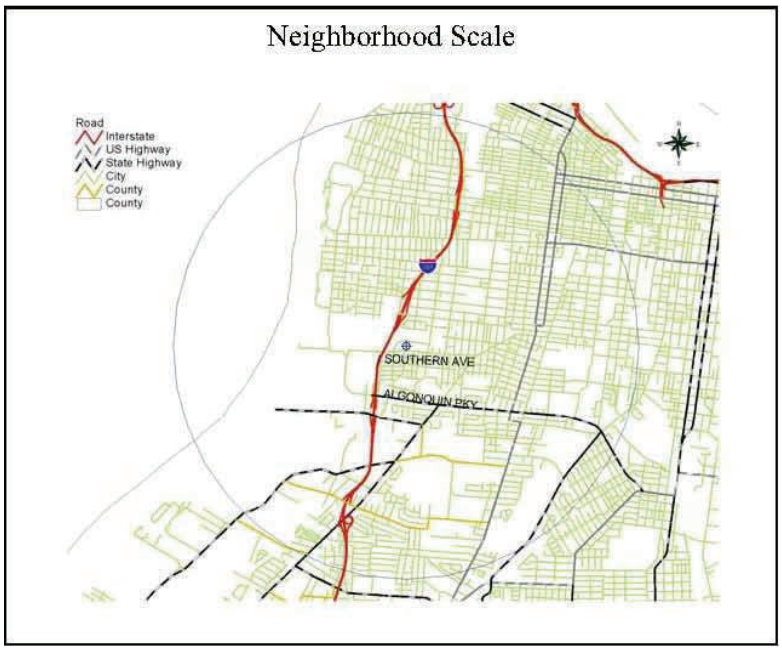
Monitoring Objective:
The monitoring objectives are to determine compliance with National Ambient Air Quality Standards and to provide pollution levels for daily index reporting.

Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
PM_{10} TEOM	5.9	AQI SLAMS	Tapered element oscillating microbalance, gravimetric	Continuously
Collocated PM_{10} TEOM	5.9	AQI SLAMS	Tapered element oscillating microbalance, gravimetric	Continuously
FRM $PM_{2.5}$	6.0	SLAMS	Gravimetric	24-hours everyday
Collocated FRM $PM_{2.5}$	6.0	Other	Gravimetric	24-hours every sixth day
$PM_{2.5}$ TEOM	6.0	Other AQI	Tapered element oscillating microbalance, gravimetric	Continuously
Meteorological	11.4	Other	AQM grade instruments for wind speed, wind direction, humidity, barometric pressure, and temperature	Continuously
-Rain Gauge	7.8	Other	AQM grade instrument for precipitation.	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. This site also represents population exposure, highest concentration for SLAMS speciation particulates.



CSA/MSA: Louisville-Jefferson County-Elizabethtown-Scottsburg, KY-IN CSA / Louisville-Jefferson, KY-IN MSA
401 KAR 50:020 Air Quality Region: Louisville Interstate (078)
Site Name: Wyandotte Park
AQS Site ID: 21-111-0044
Location: Wyandotte Park, 1032 Beecher Avenue, Louisville, KY 40215
County: Jefferson
GPS Coordinates: 38.19113, -85.77935 (NAD 83)
Date Established: September 1, 1983
Inspection Date: November 17, 2011
Inspection By: Jennifer F. Miller
Site Approval Status: Site and monitors meet all design criteria for the monitoring network.

The monitoring site is located on the roof of the recreation building at Wyandotte Park in Louisville, Kentucky. The sample inlets are 5 meters above ground level and 54 meters from the nearest road. The most recent site inspection was conducted on November 17, 2011. The air monitoring site was found to be in accordance with 40 CFR Part 58, Appendices C, D, E and G.

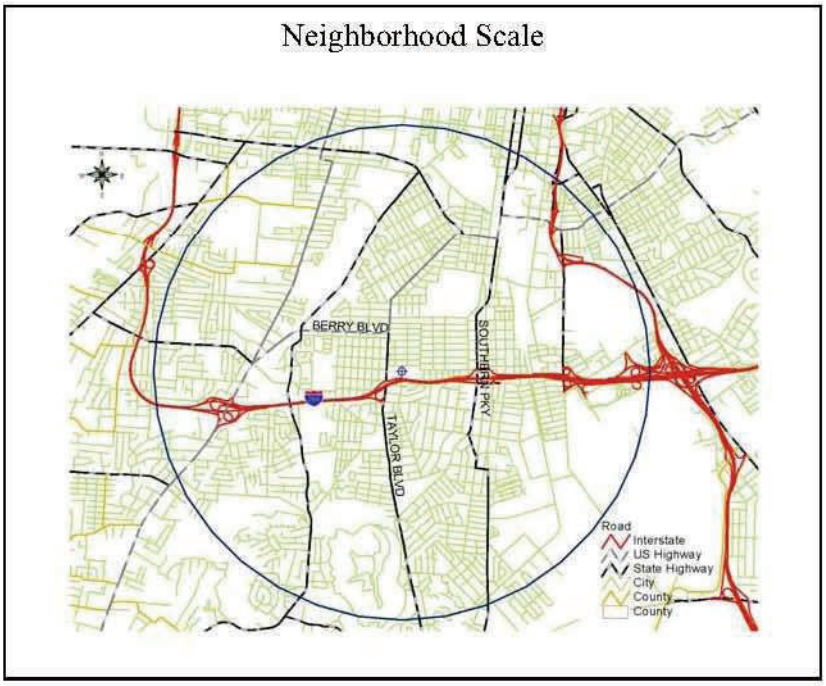
Monitoring Objective:
The monitoring objectives are to determine compliance with National Ambient Air Quality Standards and to provide pollution levels for daily index reporting.

Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
FRM $PM_{2.5}$	5.0	SLAMS	Gravimetric	24-hours everyday
PM_{10} TEOM	4.8	AQI	Tapered element oscillating microbalance, gravimetric	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.



CSA/MSA: Louisville-Jefferson County-Elizabethtown-Scottsburg, KY-IN CSA / Louisville-Jefferson, KY-IN MSA
401 KAR 50:020 Air Quality Region: Louisville Interstate (078)
Site Name: Watson Lane
AQS Site ID: 21-111-0051
Location: Watson Lane School, 7201 Watson Lane, Louisville, KY 40272
County: Jefferson
GPS Coordinates: 38.06091, -85.89804 (NAD 83)
Date Established: July 16, 1992
Inspection Date: November 17, 2011
Inspection By: Jennifer F. Miller
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 34 meters from the nearest road. The most recent site inspection was conducted on November 17, 2011. The air monitoring site was found to be in accordance with 40 CFR Part 58, Appendices C, D, E and G.

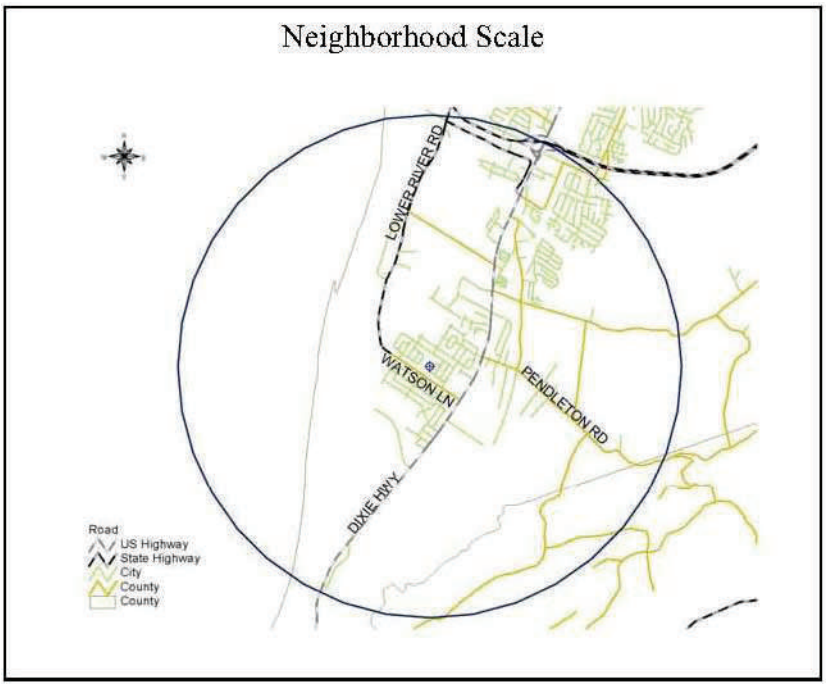
Monitoring Objective:
The monitoring objectives are to determine compliance with National Ambient Air Quality Standards and to provide pollution levels for daily index reporting.

Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	4.3	SLAMS AQI	UV photometry	Continuously March 1 – October 31
FRM $PM_{2.5}$	4.8	SLAMS	Gravimetric	24-hours every sixth day
$PM_{2.5}$ BAM	4.6	NR-SPM AQI	Automated Equivalent Method utilizing Beta Attenuation.	Continuously
AEM Sulfur Dioxide	4.3	SLAMS (PWEI)	UV fluorescence	Continuously
Meteorological	6.0	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-Scottsburg, KY-IN CSA / Louisville-Jefferson, KY-IN MSA
401 KAR 50:020 Air Quality Region: Louisville Interstate (078)
Site Name: Fire Station 20
AQS Site ID: 21-111-1019
Location: Fire Station 20, 1735 Bardstown Road, Louisville, KY 40205
County: Jefferson
GPS Coordinates: 38.2290, -85.7018 (NAD 83)
Date Established: January 1, 1973
Inspection Date: November 17, 2011
Inspection By: Jennifer F. Miller
Site Approval Status: Site and monitor meet all design criteria for the monitoring network.

The monitoring site is located at Fire Station Number 20 on Bardstown Road in Louisville, Kentucky. The sample inlet is 3.5 meters above ground level and 5 meters from the nearest road. The most recent site inspection was conducted on November 17, 2011. The air monitoring site was found to be in accordance with 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.

Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
ARM Carbon Monoxide	3.5	SLAMS AQI	Non-dispersive infrared	Continuously

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 a micro scale.

CSA/MSA: Louisville-Jefferson County-Elizabethtown-Scottsburg, KY-IN CSA / Louisville-Jefferson, KY-IN MSA
401 KAR 50:020 Air Quality Region: Louisville Interstate (078)
Site Name: Firearms Training
AQS Site ID: 21-111-1041
Location: Firearms Training, 4201 Algonquin Parkway, Louisville, KY 40211
County: Jefferson
GPS Coordinates: 38.23158, -85.82675 (NAD 83)
Date Established: April 13, 1978
Inspection Date: November 17, 2011
Inspection By: Jennifer F. Miller
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 52 meters from the nearest road. The most recent site inspection was conducted on November 17, 2011. The air monitoring site was found to be in accordance with 40 CFR Part 58, Appendices C, D, E and G.

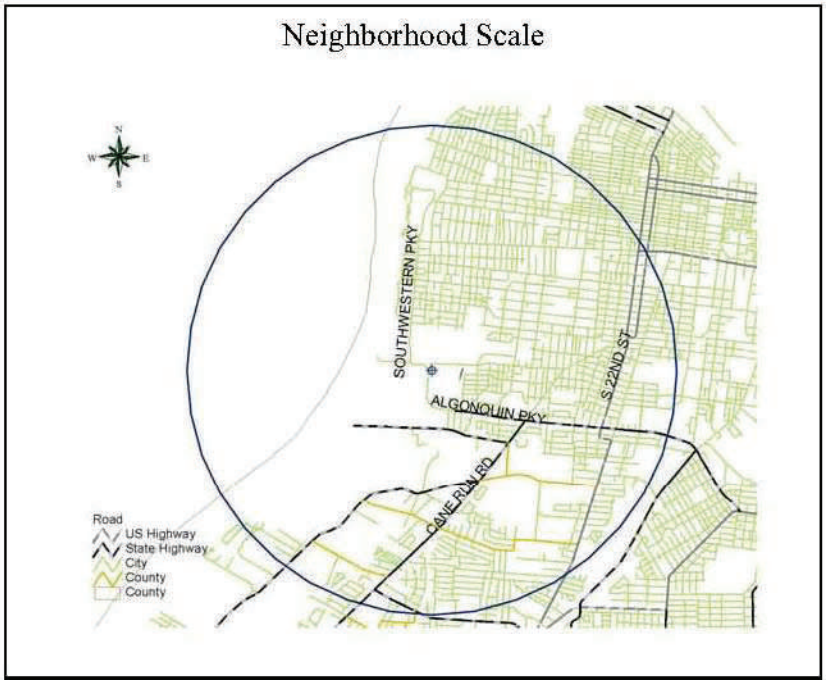
Monitoring Objective:
The monitoring objectives are to determine compliance with National Ambient Air Quality Standards and to detect episode levels for the activation of emergency control procedures.

Monitors:

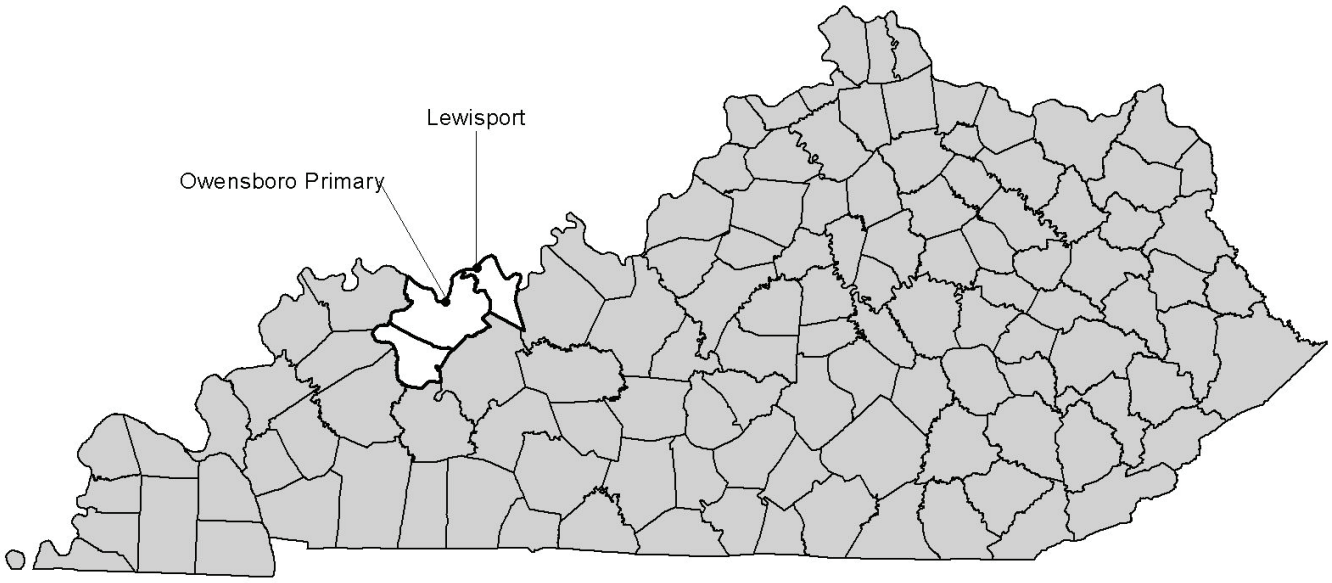
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Sulfur Dioxide	4.5	SLAMS EPISODE	UV fluorescence	Continuously

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 on a neighborhood scale.



Owensboro, KY



AQS ID	ADDRESS	PM2.5	PM10	SO2	NO2	CO	O3	Lead	VOC	Carbonyl	Speciation	MET
21-059-0005	716 Pleasant Valley Road Owensboro (Daviess)	X(tIe)		X(eI)	X(e)		X(eI)					X
21-091-0012	Lewisport Elementary School Lewisport (Hancock)						X					
	TOTAL	2	0	1	1	0	2	0	0	0	0	1

(e) Emergency Episode Monitor

(I) Air Quality Index Monitor

(t) Continuous PM Monitor

(Rev.5/20/12)

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: 37.780833, -87.075556 (NAD 83)
Date Established: December 1, 1970
Inspection Date: September 22, 2011
Inspection By: Jennifer F. Miller
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 48 meters from the nearest road. The most recent site inspection was conducted on September 22, 2011. Upon inspection, the sample lines and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices 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; and to provide levels of pollutants for daily index reporting.

Monitors:

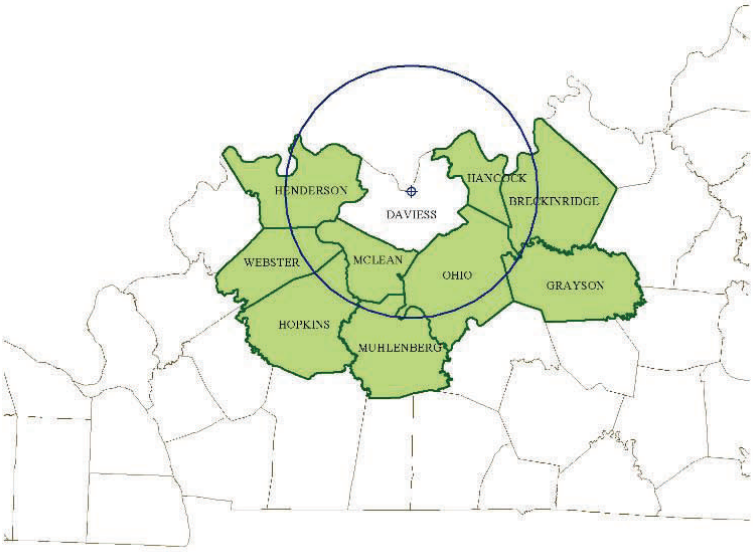
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Nitrogen Dioxide	3.5	SLAMS EPISODE	Chemiluminescence	Continuously
AEM Ozone	3.5	SLAMS EPISODE AQI	UV photometry	Continuously March 1 – October 31
FEM $PM_{2.5}$	2.2	SLAMS EPISODE AQI	Gravimetric	24-hours every third day
$PM_{2.5}$ TEOM	4.6	SPM	Tapered element oscillating microbalance, gravimetric	Continuously
AEM Sulfur Dioxide	3.5	SLAMS EPISODE AQI	UV fluorescence	Continuously
Meteorological	7.5	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.

Neighborhood Scale: Ozone, Sulfur Dioxide, Particulates

Urban Scale: 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: Second and Caroline Streets, Lewisport Elementary School, Lewisport, KY 42351
County: Hancock
GPS Coordinates: 37.93829, -86.89719 (NAD 83)
Date Established: September 5, 1980
Inspection Date: September 22, 2011
Inspection By: Jennifer F. Miller
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 Lewisport Elementary School in Lewisport, Kentucky. The sample inlet is 57 meters from the nearest road. The most recent site inspection was conducted on September 22, 2011. 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, E and G.

Monitoring Objective:
The monitoring objectives are to determine compliance with National Ambient Air Quality Standards and to provide levels of ozone for daily index reporting.

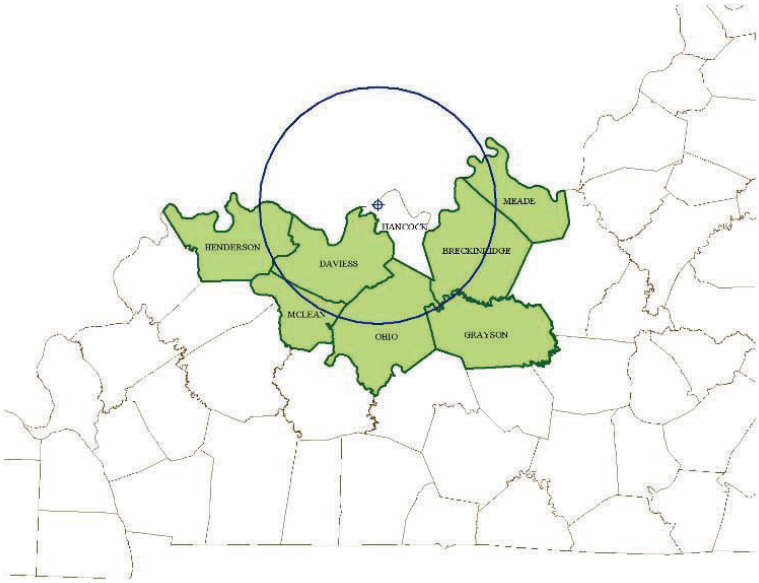
Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	4.9	SLAMS AQI	UV photometry	Continuously March 1 – October 31

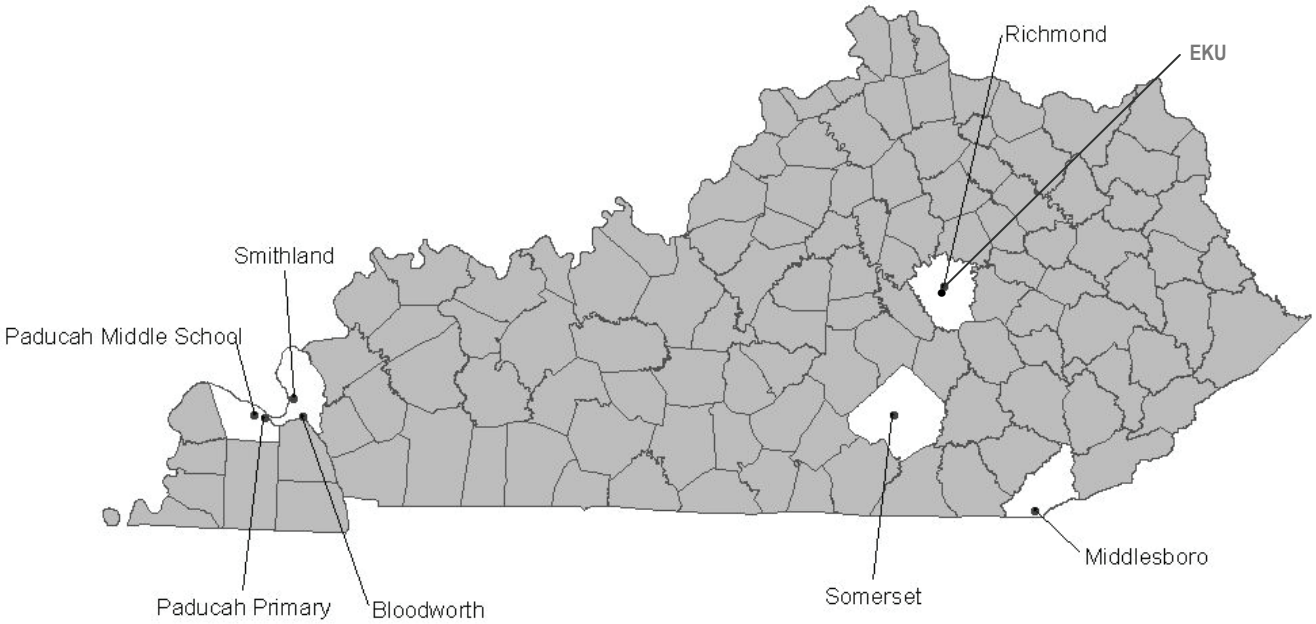
Quality Assurance Status:
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

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

Urban Scale



Micropolitan Statistical Areas



AQS ID	ADDRESS	PM2.5	PM10	SO2	NO2	CO	O3	Lead	VOC	Carbonyl	Speciation	MET
21-013-0002	Airport, 34th & Dorchester Middlesboro (Bell)	X					X(s)					X
21-139-0003	DOT Garage, 811 Hwy 60 East Smithland (Livingston)						X					
21-139-0004	763 Bloodworth Road Livingston County								X			X
21-145-1004	Paducah Middle School, 342 Lone Oak Rd Paducah (McCracken)	X	X									
21-145-1024	JPRECC, 2901 Powell Street Paducah (McCracken)	X(tIe)		X(eI)	X(e)		X(eI)					
21-151-0003	Mayfield Elementary, Bond St. Richmond (Madison)	X						X(c)				
21-151-0005	EKU, Van Hoose Drive Richmond (Madison)							X				
21-199-0003	Somerset Gas Co., Clifty Street Somerset (Pulaski)	X(s)					X(s)					
	TOTAL	5	1	1	1	0	4	3	1	0	0	2

(c) Collocated Monitor
(e) Emergency Episode Monitor
(I) Air Quality Index Monitor
(t) Continuous PM Monitor
(s) Special Purpose Monitor

(Rev.5/20/12)

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, Middlesboro, KY 40965
County: Bell
GPS Coordinates: 36.60843, -83.73694 (NAD 83)
Date Established: February 14, 1992
Inspection Date: October 18, 2011
Inspection By: Jennifer F. Miller
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 92 meters from the nearest road. The most recent site inspection was conducted on October 18, 2011. Upon inspection the sample lines and monitors were found to be in good condition. Even though this site is for special purpose monitoring, the site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

Monitoring Objective:
The monitoring objectives are to determine compliance with National Ambient Air Quality Standards; to provide pollutant levels for daily index reporting; and to provide information on the transport of ozone into the region.

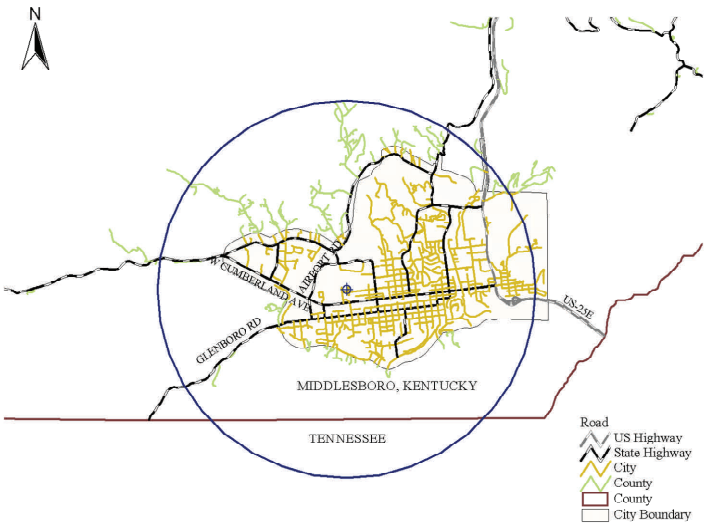
Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	4.1	SPM AQI	UV photometry	Continuously March 1 – October 31
FRM $PM_{2.5}$	4.6	SPM	Gravimetric	24-hours every sixth day
Meteorological	5.7	Other	AQM grade instruments for wind speed, wind direction, humidity, barometric pressure and temperature	Continuously

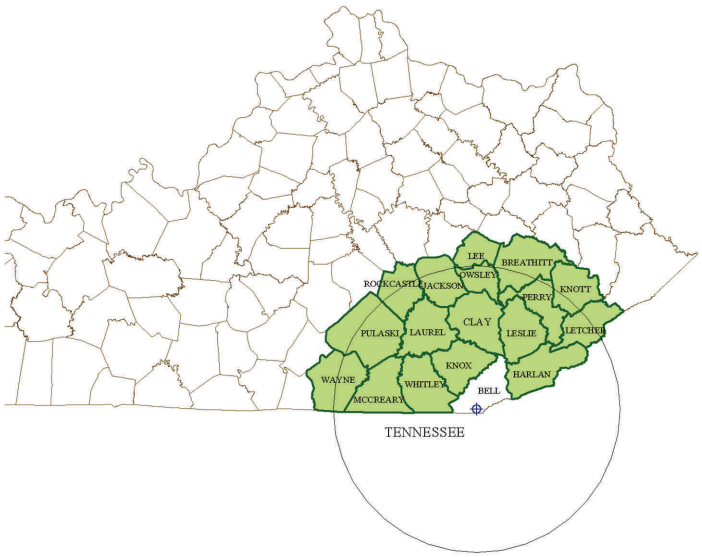
Quality Assurance Status:
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

Area Representativeness:
The site represents population exposure on a neighborhood scale for particulates. This site also represents transport on a regional scale for ozone.

Neighborhood Scale: Particulates



Regional Scale: 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: KY DOT Garage, 811 HWY 60 East, Smithland, KY 42081
County: Livingston
GPS Coordinates: 37.155392, -88.394024 (NAD 83)
Date Established: April 1, 1988
Inspection Date: December 1, 2011
Inspection By: Jennifer F. Miller
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 KY DOT Highway Garage in Smithland, Kentucky. The sample inlets are 139 meters from the nearest road. The most recent site inspection was conducted on December 1, 2011. Upon inspection, the sample lines and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices C, D, E and G.

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

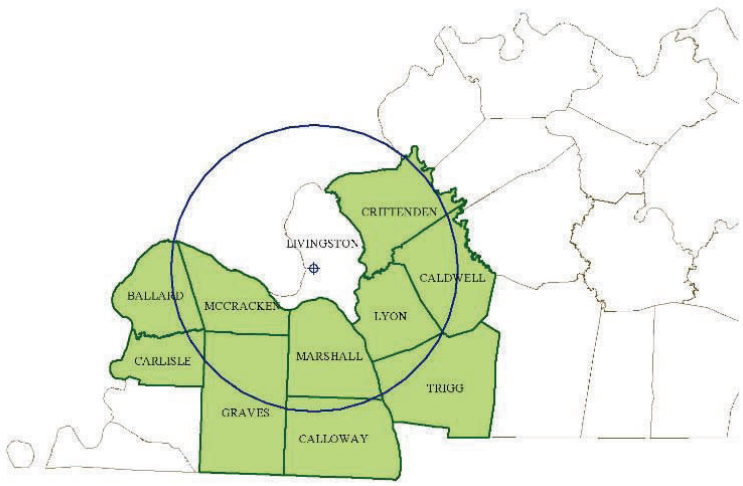
Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.3	SLAMS AQI	UV photometry	Continuously 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 concentration on an urban scale.

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 1, 2011
Inspection By: Jennifer F. Miller
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. The most recent site inspection was conducted on December 1, 2011. Upon inspection, the sample lines and samplers were found to be in good condition.

Monitoring Objective:
The monitoring objectives are to determine if air toxics are present in the ambient air and to quantify them.

Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
Volatile Organic Compounds	4.6	SPM	EPA method TO-15	24-hours every sixth day
Meteorological	7.5	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 impact on a neighborhood scale.

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: Paducah Middle School
AQS Site ID: 21-145-1004
Location: Paducah Middle School, 342 Lone Oak, Paducah, KY 42001
County: McCracken
GPS Coordinates: 37.06636, -88.63774 (NAD 83)
Date Established: July 1, 1969
Inspection Date: December 1, 2011
Inspection By: Jennifer F. Miller
Site Approval Status: Site and monitors meet all design criteria for the monitoring network.

The monitoring site is located on the roof of the Paducah Middle School in Paducah, Kentucky. The sample inlets are 60 meters from the nearest road. The most recent site inspection was conducted on December 1, 2011. Upon inspection, the sample inlets and monitors 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 objective is to determine compliance with National Ambient Air Quality standards.

Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
FEM $PM_{2.5}$	10.1	SLAMS	Gravimetric	24-hours every third day
FRM PM_{10}	9.9	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.

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 1, 2011
Inspection By: Jennifer F. Miller
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 Jackson Purchase RECC in Paducah, Kentucky. The sample inlets are 9 meters from the nearest road. The most recent site inspection was conducted on December 1, 2011. Upon inspection, the sample inlets and monitors were found to be in good condition. The site meets the requirements of 40 CFR 58, Appendices 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.

Monitors:

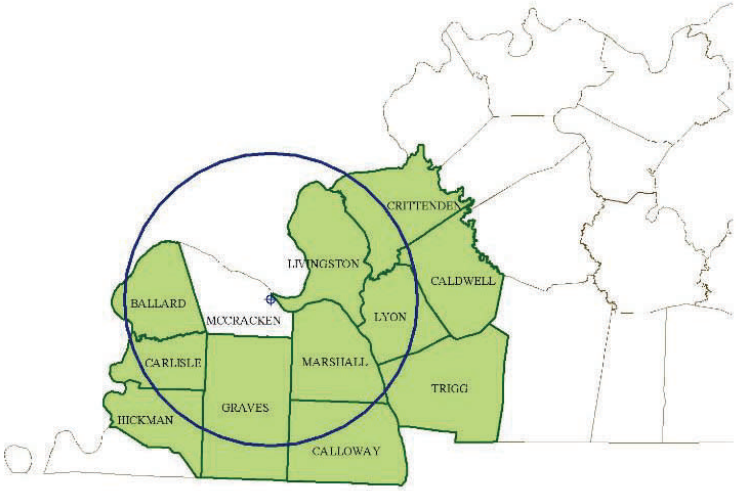
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Nitrogen Dioxide	3.7	SLAMS EPISODE	Chemiluminescence	Continuously
AEM Ozone	3.7	SLAMS AQI EPISODE	UV photometry	Continuously March 1 – October 31
$PM_{2.5}$ TEOM	4.8	SPM AQI	Tapered element oscillating microbalance, gravimetric	Continuously
AEM Sulfur Dioxide	3.7	SLAMS (PWEI) AQI EPISODE	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 on a neighborhood scale for ozone, particulates, and sulfur dioxide. This site also represents population exposure on an urban scale for nitrogen dioxide.

Neighborhood Scale: Ozone, Particulates, Sulfur Dioxide

Urban Scale: Nitrogen Dioxide



CSA/MSA: Lexington-Fayette-Frankfort-Richmond, KY CSA / Richmond-Berea, KY Micropolitan Statistical Area
401 KAR 50:020 Air Quality Region: Bluegrass Intrastate (102)
Site Name: Richmond
AQS Site ID: 21-151-0003
Location: Mayfield School, Bond Street, Richmond, KY 40475
County: Madison
GPS Coordinates: 37.73846, -84.28484 (NAD 83)
Date Established: January 1, 1999
Inspection Date: September 16, 2011
Inspection By: Jennifer F. Miller
Site Approval Status: Site and $PM_{2.5}$ monitors meet all design criteria for the monitoring network. Siting criteria for the lead samplers has not been approved by the EPA.

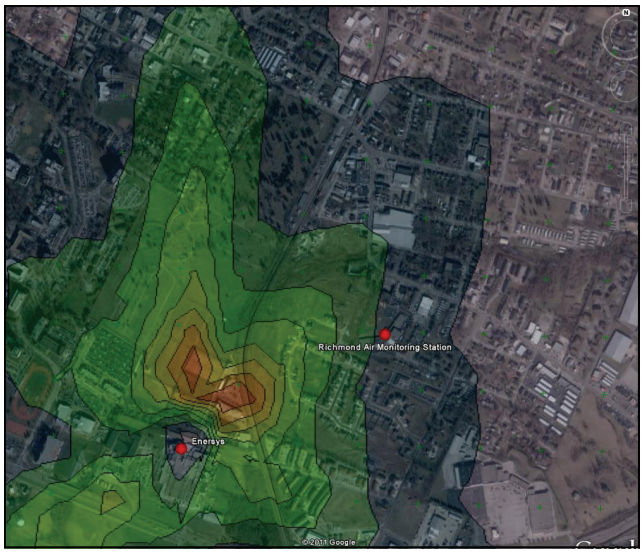
The monitoring site is located on the roof of the Mayfield Elementary School in Richmond, Kentucky. The sample inlets are 65 meters from the nearest road. The most recent site inspection was conducted on September 16, 2011. Upon inspection, the sample inlet and monitor were found to be in good condition. 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 $PM_{2.5}$	5.5	SLAMS	Gravimetric	24-hours every third day
FRM Lead	4.5	SLAMS	High volume air sampler. Analysis via ICP-MS.	24-hours every sixth day
Collocated FRM Lead	4.5	SLAMS	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 population exposure on a neighborhood scale for particulates. This site also represents source impact on a neighborhood scale for lead.

Neighborhood Scale: Particulates

Neighborhood Scale: Lead (1 km)

CSA/MSA: Lexington-Fayette-Frankfort-Richmond, 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: March 12, 2012
Inspection By: Jennifer F. Miller
Site Approval Status: Site and monitors meet all design criteria for the monitoring network.

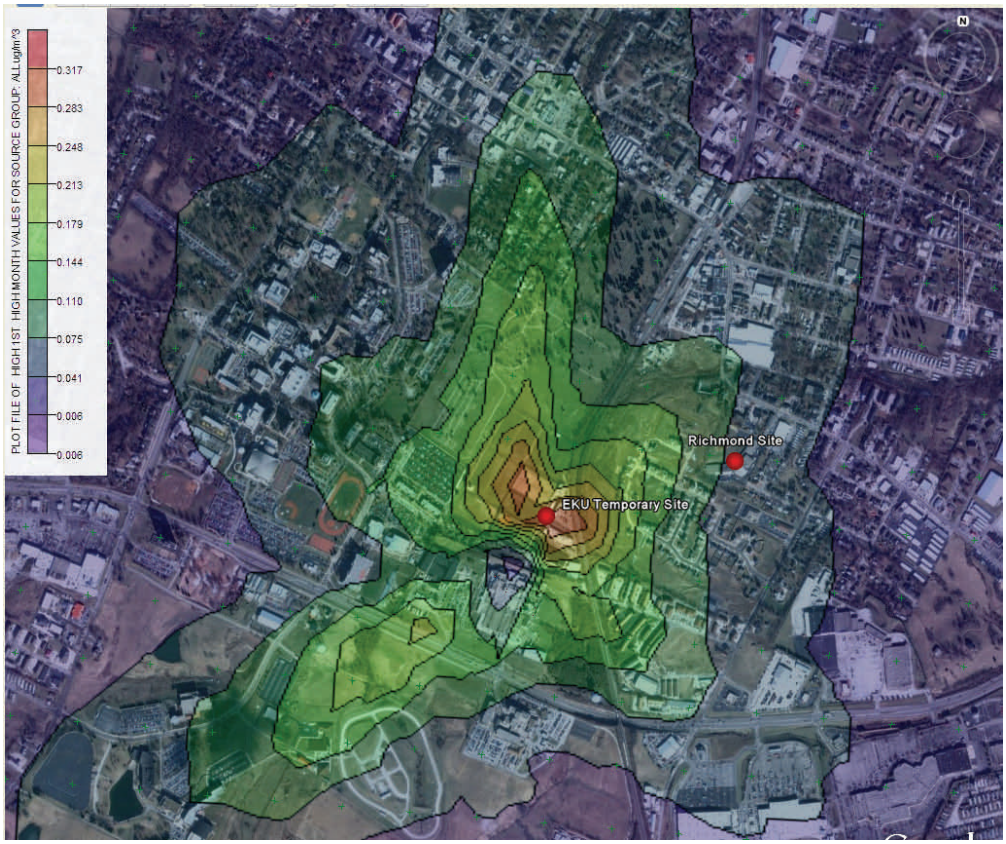
The EKU site was established as a temporary lead monitoring location to evaluate the adequacy of the Mayfield Elementary (21-151-0003) lead site, which is 0.64 km away. The monitoring site is located behind the Gentry Facilities Services building and is adjacent to Eastern Kentucky University's athletic fields. The sample inlets are 4.5 meters from the nearest road. The most recent site inspection was conducted on March 12, 2012. 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:

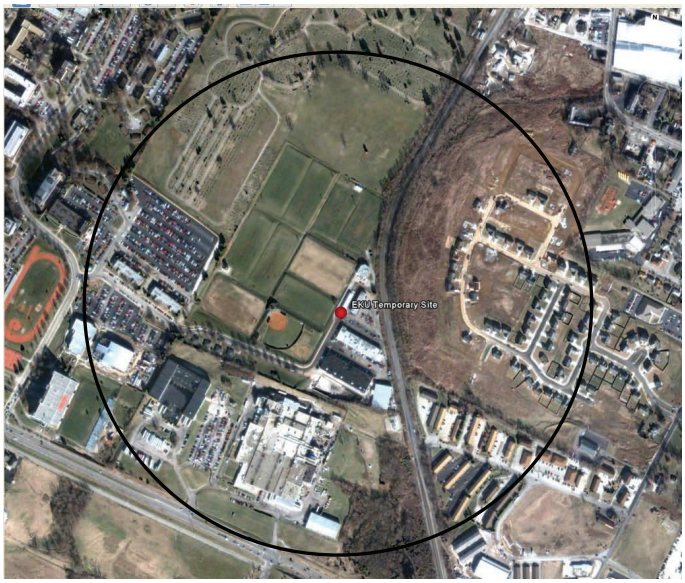
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
FRM Lead	2.3	SPM	High volume air sampler. Analysis via ICP-MS.	24-hours every sixth day

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



Area Representativeness:
This site represents source impacts on a middle scale for lead.

Middle Scale: Lead (0.5 km)



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, Clifty Street, Somerset, KY 42501
County: Pulaski
GPS Coordinates: 37.09798, -84.61152 (NAD 83)
Date Established: February 14, 1992
Inspection Date: October 18, 2011
Inspection By: Jennifer F. Miller
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. The most recent site inspection was conducted on November 30, 2010. Upon inspection the sample line and monitors 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 and to provide levels of ozone for daily index reporting.

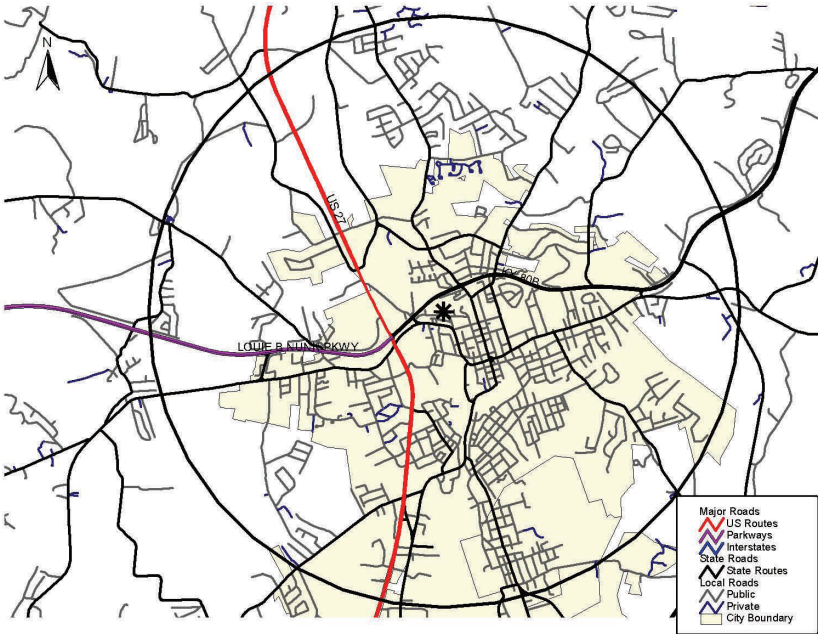
Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	4.4	SPM AQI	UV photometry	Continuously March 1 – October 31
FEM $PM_{2.5}$	4.6	SPM	Gravimetric	24-hours every third day

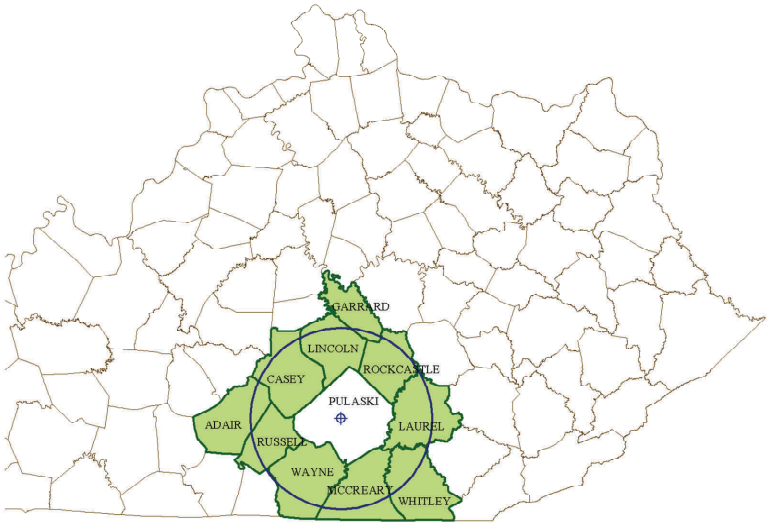
Quality Assurance Status:
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

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.

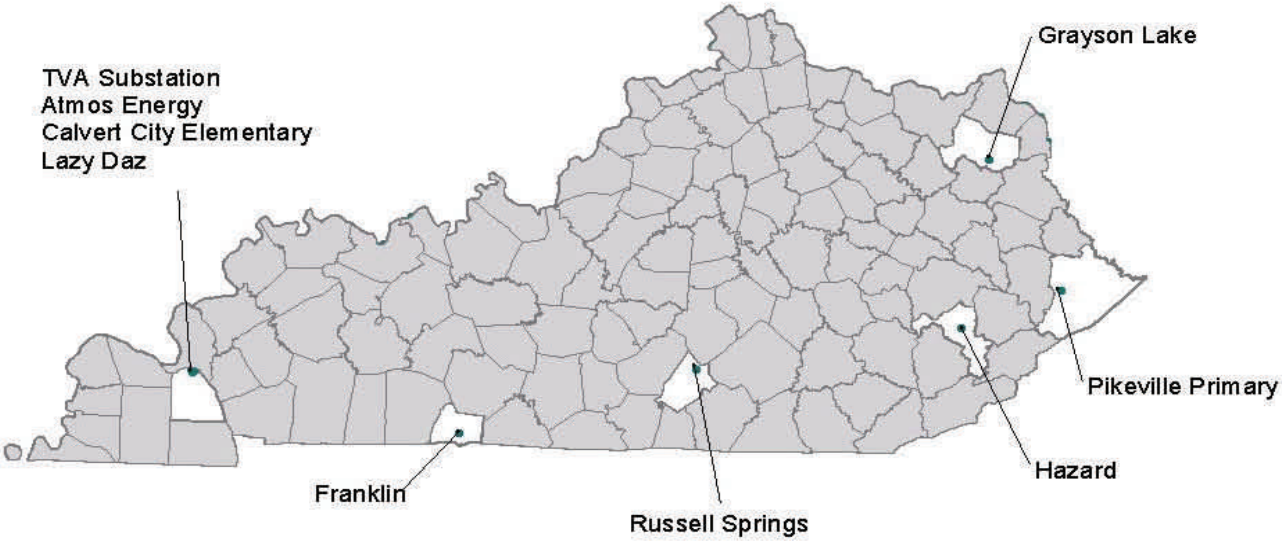
Neighborhood Scale: Particulates



Urban Scale: Ozone



Not in a Metropolitan or Micropolitan Statistical Area



AQS ID	ADDRESS	PM2.5	PM10	SO2	NO2	CO	O3	Lead	VOC	Carbonyl	Speciation	MET
21-043-0500	Camp Webb, Grayson Lake Grayson (Carter)	X	X(cm)				X(s)		X(d)	X(d)	X	X
21-157-0014	TVA Substation Calvert City (Marshall)								X(c)			
21-157-0016	Atmos Energy Calvert City (Marshall)								X			
21-157-0018	Calvert City Elementary Calvert City (Marshall)		X(sm)						X			
21-157-0019	4237 Gilbertsville Hwy Calvert City (Marshall)								X			
21-193-0003	Perry County Horse Park Hazard (Perry)	X(t)					X(s)					X
21-195-0002	101 N. Mayo Trail, DOT Office Pikeville (Pike)	X(cb)					X(s)					
21-213-0004	KY DOT Garage, KY 1008 Franklin (Simpson)						X(s)					X
21-207-0001	Salem Elementary Russell Springs (Russell)							X				
	TOTAL	5	3	0	0	0	4	1	7	2	1	3

(c) Collocated Monitors
(d) Duplicate Monitor
(s) Special Purpose Monitor
(t) Continuous PM Monitor
(m) Metals

(Rev.5/20/12)

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 Webb at Grayson Lake Grayson Lake, KY 41143
County: Carter
GPS Coordinates: 38.23887, -82.98810 (NAD 83)
Date Established: May 13, 1981
Inspection Date: October 26, 2011
Inspection By: Jennifer F. Miller
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 98 meters from the site. The most recent site inspection was conducted on October 26, 2011. 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 national assessment.

Monitors:

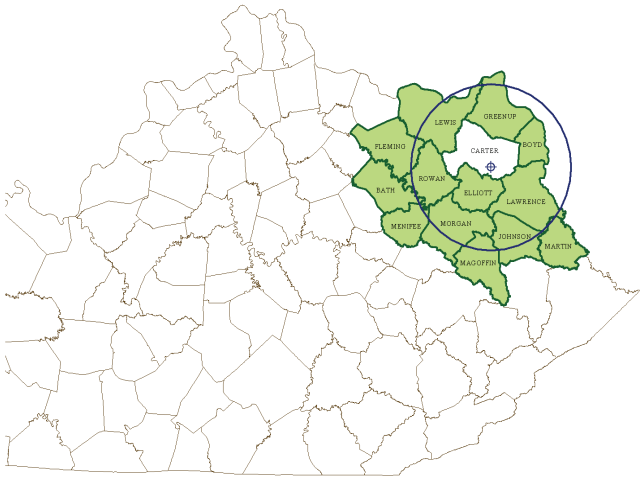
Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	4.0	SPM AQI	UV photometry	Continuously March 1 – October 31
FEM $PM_{2.5}$	3.2	SLAMS	Gravimetric	24-hours every third day
$PM_{2.5}$ Speciation	4.5	SLAMS	Ion chromatography and X-ray fluorescence	24-hours every sixth day
Carbon Speciation	4.0	SLAMS	Thermal-optical	24-hours every sixth day
FRM PM_{10}	3.2	SLAMS	Gravimetric	24-hours every sixth day
- Metals PM_{10}		NATTS	Determined from the PM_{10} samples using EPA method IO 3.5	Same as PM_{10}
Collocated PM_{10}	3.2	SLAMS	Gravimetric	24-hours every twelfth day
- Collocated metals PM_{10}		NATTS	Determined from the PM_{10} samples using EPA method IO 3.5	24-hours; six samples per year

Volatile Organic Compounds	4.2	NATTS	EPA method TO-15.	24-hours every sixth day
- Duplicate Volatile Organic Compounds		NATTS	EPA method TO-15. Collected via same sampling system as primary VOCs.	24-hours; six samples per year
Polycyclic Aromatic Hydrocarbons	1.7	NATTS	EPA method TO-13A	24-hours every sixth day
Carbonyls	3.9	NATTS	EPA method TO-11A	24-hours every sixth day
- Duplicate Carbonyls		NATTS	EPA method TO-11A. Collected via same sampling system as primary carbonyls.	24-hours; six samples per year
$Chrome_{VI}$	3.4	NATTS	SOP for the Determination of Hexavalent Chromium in Ambient Air Analyzed by Ion Chromatography (IC)	24-hours every sixth day
Collocated $Chrome_{VI}$	3.3	NATTS	SOP for the Determination of Hexavalent Chromium in Ambient Air Analyzed by Ion Chromatography (IC)	24-hours; six samples per year
Meteorological	7.5 4.7	Other	AQM grade instruments for wind speed, wind direction, relative humidity, and temperature Solar Radiation	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 urban scale for ozone.

Urban Scale



CSA/MSA: Not in a MSA - Rural
401 KAR 50:020 Air Quality Control Region: Paducah – Cairo Interstate (072)
Site Name: TVA Calvert City
AQS Site ID: 21-157-0014
Location: Ballpark Road, Calvert City, KY 42029
County: Marshall
GPS Coordinates: 37.04520, -88.33087 (NAD 83)
Date Established: January 1, 2005
Inspection Date: December 1, 2011
Inspection By: Jennifer F. Miller
Site Approval Status: Site and monitors meet all design criteria for the monitoring network.

The monitoring site is an air toxics monitor location off Ballpark Road in Calvert City, Kentucky. The sample inlets are 2 meters above ground level. The inlets are 230 meters from the nearest road. The most recent site inspection was conducted on December 1, 2011. Upon inspection, the sample inlets and monitors were found to be in good condition.

Monitoring Objective:
The monitoring objectives are to detect and quantify air toxic pollutants.

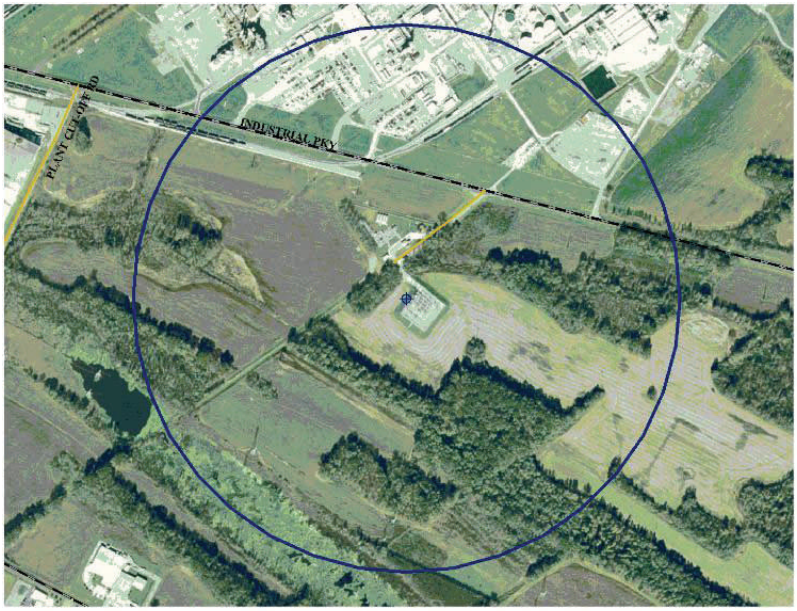
Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
Volatile Organic Compounds	2.1	SPM	EPA method TO-15	24-hours every sixth day
Collocated Volatile Organic Compounds	2.0	SPM	EPA method TO-15	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 oriented exposure on a middle scale.

Middle Scale



CSA/MSA: Not in a MSA - Rural
401 KAR 50:020 Air Quality Control Region: Paducah – Cairo Interstate (072)
Site Name: Atmos Calvert City
AQS Site ID: 21-157-0016
Location: KY95, Calvert City, KY 42029
County: Marshall
GPS Coordinates: 37.04176, -88.35407 (NAD 83)
Date Established: January 1, 2005
Inspection Date: December 1, 2011
Inspection By: Jennifer F. Miller
Site Approval Status: Site and monitor meet all design criteria for the monitoring network.

The monitoring site is an air toxics monitor location off KY95 in Calvert City, Kentucky. The sample inlet is 2 meters above ground level and 43 meters from the nearest road. The most recent site inspection was conducted on December 1, 2011. Upon inspection, the sample inlet and monitor were found to be in good condition.

Monitoring Objective:
The monitoring objectives are to detect and quantify air toxic pollutants.

Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
Volatile Organic Compounds	1.9	SPM	EPA method TO-15	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 source oriented exposure on a neighborhood scale.

Neighborhood Scale

CSA/MSA: Not in a MSA - Rural
401 KAR 50:020 Air Quality Control Region: Paducah – Cairo Interstate (072)
Site Name: Calvert City Elementary
AQS Site ID: 21-157-0018
Location: Calvert City Elementary, 623 5th Avenue, Calvert City, KY 42029
County: Marshall
GPS Coordinates: 37.02702, -88.34387(NAD 83)
Date Established: May 1, 2005
Inspection Date: December 1, 2011
Inspection By: Jennifer F. Miller
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 Calvert City Elementary in Calvert City, Kentucky. The sample inlets are 128 meters from the nearest road. The most recent site inspection was conducted on December 1, 2011. Upon inspection, the sample inlets and monitors 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 detect and quantify air toxic pollutants, and to provide meteorological data for air toxics analysis.

Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
FRM PM_{10}	4.4	SPM	Gravimetric	24-hours every sixth day
- Metals PM_{10}		SPM	Determined from the PM_{10} sample using EPA method IO 3.5	Same as PM_{10}
Volatile Organic Compounds	4.4	SPM	EPA method TO-15	24-hours every sixth day
Meteorological	7.5	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.

Neighborhood Scale

CSA/MSA: Not in a MSA - Rural
401 KAR 50:020 Air Quality Control Region: Paducah – Cairo Interstate (072)
Site Name: Lazy Daz
AQS Site ID: 21-157-0019
Location: 4237 Gilbertsville Highway, Calvert City, KY 42029
County: Marshall
GPS Coordinates: 37.03718, -88.33411 (NAD 83)
Date Established: September 15, 2007
Inspection Date: December 1, 2011
Inspection By: Jennifer F. Miller
Site Approval Status: Site and monitor meet all design criteria for the monitoring network.

The monitoring site consists of a solar-powered, battery-charged air toxics monitor located on the Brady property of the Lazy Daz mobile home park, in Calvert City, Kentucky. The sample inlet is 28 meters from the nearest road. The most recent site inspection was conducted on December 1, 2011. Upon inspection, the sample inlet and monitor were found to be in good condition.

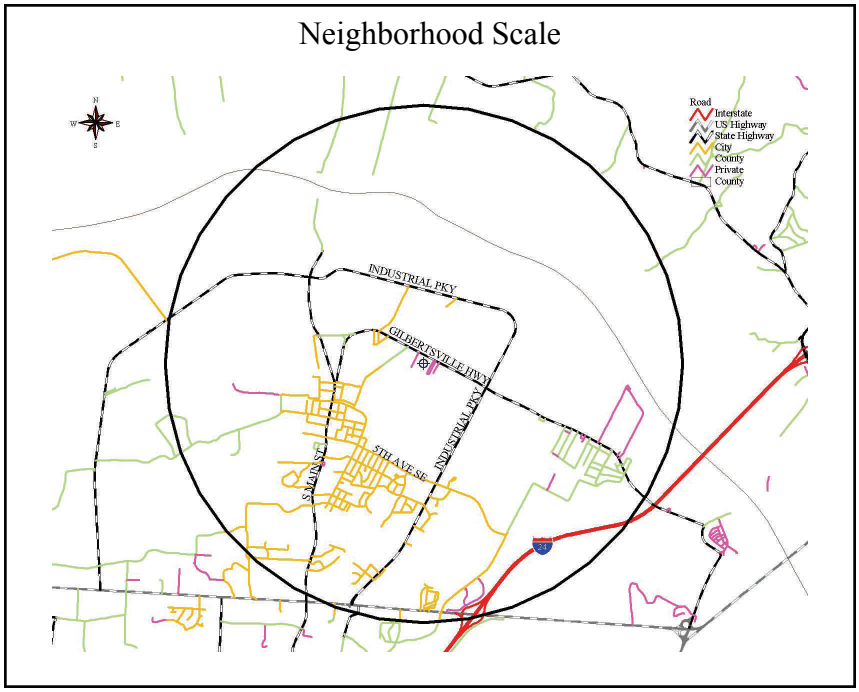
Monitoring Objectives:
The monitoring objectives are to detect and quantify air toxic pollutants.

Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
Volatile Organic Compounds	2.0	SPM	EPA method TO-15	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 source oriented 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: Hazard
AQS Site ID: 21-193-0003
Location: Perry County Horse Park, Hazard, KY 41701
County: Perry
GPS Coordinates: 37.28329, -83.20932 (WGS 84)
Date Established: April 1, 2000
Inspection Date: December 8, 2010
Inspection By: Jennifer F. Miller
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 33 meters from the nearest road. The most recent site inspection was conducted on December 8, 2010. Upon inspection the sample lines and monitors were found to be in good condition. This site meets the requirements of 40 CFR 58, Appendices 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 ozone; and to provide pollutant levels for daily index reporting.

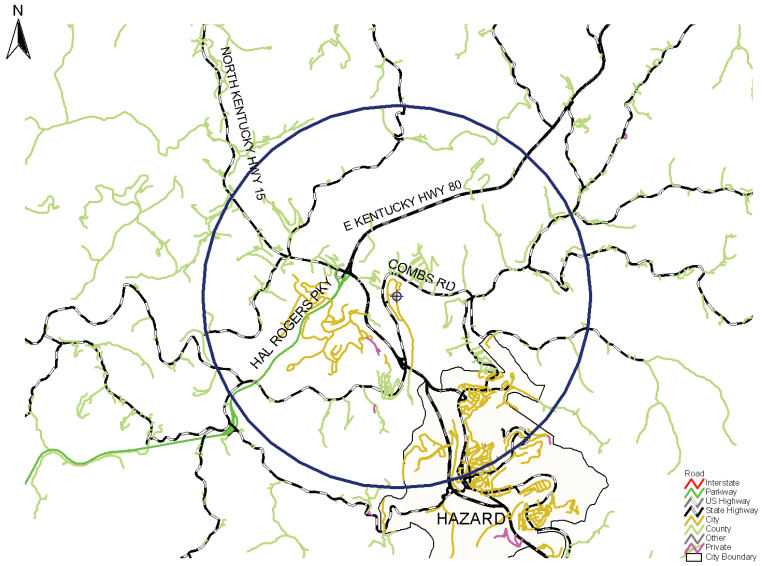
Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	4.6	SPM EPISODE AQI	UV photometry	Continuously March 1 – October 31
$PM_{2.5}$ TEOM	5.3	SPM AQI	Tapered element oscillating microbalance, gravimetric	Continuously
Meteorological	13	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.

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: DOT District Office, 101 North Mayo Trail, Pikeville, KY 41501
County: Pike
GPS Coordinates: 37.48260, 82.53532 (NAD 83)
Date Established: May 1, 1994
Inspection Date: October 25, 2011
Inspection By: Jennifer F. Miller
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 DOT District Office building at 101 North Mayo Trail in Pikeville, KY. The sample inlets are 88 meters from the nearest road. The most recent site inspection was conducted on October 25, 2011. 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, and to provide pollutant levels for daily index reporting.

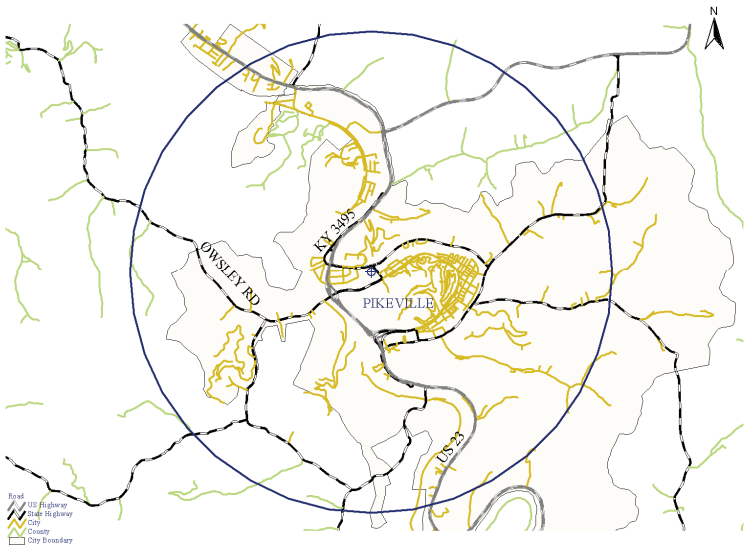
Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	3.7	SPM AQI	UV photometry	Continuously March 1 – October 31
FRM $PM_{2.5}$	4.7	SLAMS	Gravimetric	24-hours every third day
Collocated FRM $PM_{2.5}$	4.7	SLAMS	Gravimetric	24-hours every sixth day
FEM $PM_{2.5}$ BAM	4.7	NR-SPM AQI	Beta Attenuation Mass Monitor	Continuously

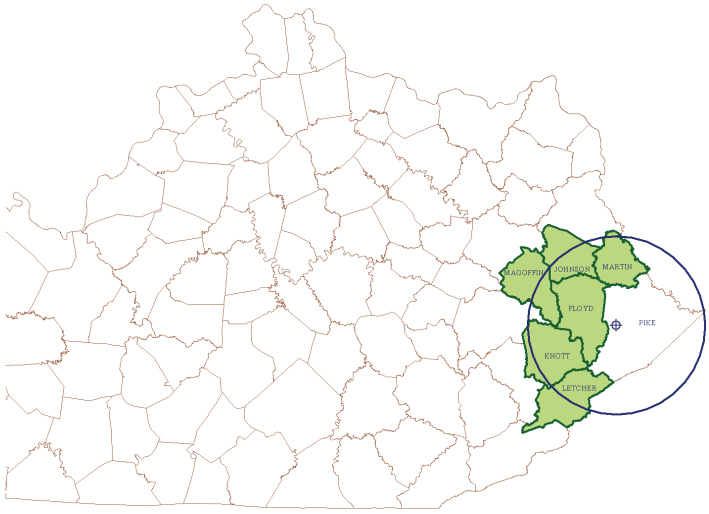
Quality Assurance Status:
All Quality Assurance procedures have been implemented in accordance with 40 CFR 58, Appendix A.

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.

Neighborhood Scale: Particulates



Urban Scale: 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: DOT Garage, KY 1008, Franklin, KY 42134
County: Simpson
GPS Coordinates: 36.708607, -86.566284 (NAD 83)
Date Established: June 19, 1991
Inspection Date: August 29, 2011
Inspection By: Jennifer F. Miller
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 DOT Garage on KY1008 in Franklin, Kentucky. The sample inlet is 39 meters from the nearest road. The most recent site inspection was conducted on August 29, 2011. 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, E and G.

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.

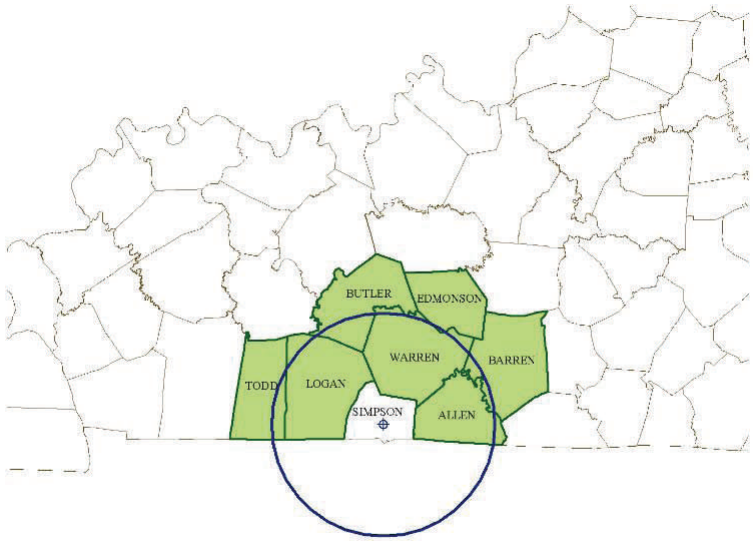
Monitors:

Monitor Type	Inlet Height (meters)	Designation	Analysis Method	Frequency of Sampling
AEM Ozone	4.3	SPM AQI	UV photometry	Continuously March 1 – October 31
Meteorological	7.5	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 an urban scale.

Urban Scale



CSA/MSA: Not in a MSA - Rural
401 KAR 50:020 Air Quality Control Region: South Central Kentucky Intrastate (105)
Site Name: Salem Elementary
AQS Site ID: 21-207-0001
Location: Salem Elementary School, 1409 S. Highway 76, Russell Springs, KY 42642
County: Russell
GPS Coordinates: 37.06944; -84.98925 (NAD 83)
Date Established: January 1, 2010
Inspection Date: October 18, 2011
Inspection By: Jennifer F. Miller
Site Approval Status: Site and monitors meet all design criteria for the monitoring network.

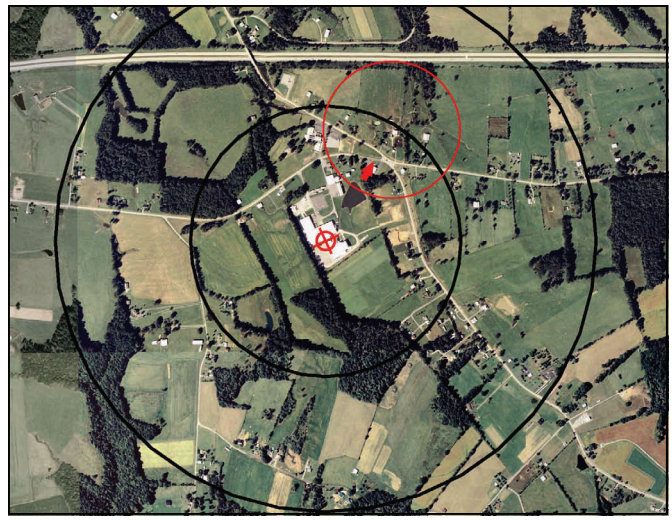
Superior Battery, located in Russell Springs, Kentucky, was identified as a lead source emitting over 1 tons per year of actual reported emissions in 2006. In accordance with 40 CFR Part 58 Appendix D, a lead source monitoring site is located at the Salem Elementary School in Russell Springs, Kentucky. The location of this source-oriented lead monitor was determined through the use of AERMOD modeling analysis. The sample inlet is 8.5 meters from the nearest road. The most recent site inspection was conducted on October 18, 2011. The site was found to be in accordance with 40 CFR Part 58, Appendices 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
FRM Lead	2.0	SLAMS	High volume air sampler. Analysis via ICP-MS.	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:
The site represents maximum concentrations, from a source, on a micro scale for lead.

Micro Scale

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APPENDIX A

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	0	0	0
Ohio County, IN **IDEM**	0	0	0	0

Criteria Air Pollutant MSA monitoring network includes:

County	PM10	O_3	NO_x/NO/NO2	CO	SO_2
Campbell County, KY **KDEP**	0	1	1	0	1
Boone County, KY **KDEP**	0	1	0	0	0
Hamilton County, OH **HCDOES**	3	3	1	1	1
Butler County, OH **HCDOES**	2	2	0	0	0
Clermont County, OH **HCDOES**	0	1	0	0	0
Warren County, OH **HCDOES**	0	1	0	0	0
Franklin County, IN **IDEM**	0	0	0	0	0
Dearborn County, IN **IDEM**	0	0	0	0	0
Ohio County, IN **IDEM**	0	0	0	0	0

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 John S. Lyons

TITLE: Director, Division for Air Quality

DATE: 5/13/10

Hamilton County Department of Environmental Services

BY: Cory Chadwick Cory R. Chadwick

TITLE: Director

DATE: 5/13/10

Indiana Department of Environmental Management
Office of Air Quality

BY: Keith Baugues Keith Baugues

TITLE: Assistant Commissioner, Office of Air Quality

DATE: 5/14/10

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APPENDIX B

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:

County	Federal Reference Method PM2.5	Continuous PM2.5	Speciation PM2.5	Collocated PM2.5
Henderson County, KY **KDEP**	1	1	0	0
Vanderburgh County, IN **IDEM**	3	1	1	1

Criteria Air Pollutant MSA monitoring network includes:

County	PM10	O_3	$NO_x/NO/NO_2$	CO	SO_2
Henderson County, KY **KDEP**	1	1	0	0	1
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.

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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

TITLE: Director, Division for Air Quality

DATE: 5/14/10

Indiana Department of Environmental Management
Office of Air Quality

BY: Keith Baugues

TITLE: Assistant Commissioner, Office of Air Quality

DATE: 5/24/10

APPENDIX C

MEMORANDA OF AGREEMENT
CLARKSVILLE, TN-KY MSA

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

DIVISION OF AIR POLLUTION CONTROL
9TH FLOOR, L & C ANNEX
401 CHURCH STREET
NASHVILLE, TN 37243-1531

RECEIVED
OCT 31 2007
DIRECTOR'S OFFICE
DIVISION FOR AIR QUALITY

October 25, 2007

John S. Lyons, Director
Kentucky Division for Air Quality
Kentucky Department for Environmental Protection
803 Schenkel Lane
Frankfort, KY 40601

Dear Mr. Lyons:

The United States Environmental Protection Agency (EPA) revised monitoring regulations promulgated in Federal Register / Vol. 71, No. 200 / Tuesday, October 17, 2006 / Rules and Regulations, 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 Stewart and Montgomery counties in Tennessee. The US Census Bureau lists this area as containing a population in excess of 230,000:

CBSA Code	Geographic area	Legal/statistical area description	July 1, 2005 Estimate	2000 Census
17300	Clarksville, TN-KY	Metropolitan Statistical Area	243,665	232,000

The Tennessee Division of Air Pollution Control (TDAPC) currently operates one (1) PM 2.5 FRM monitor and one (1) speciation monitor in Montgomery county and is installing a new continuous PM 2.5 monitor in this area. The TDAPC believes the operation of the existing PM 2.5 monitors; (FRM, speciation and new 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 FR Vol. 71, No. 200 / Tuesday, October 17, 2006 p. 61321, "Table D-5" and FR Vol. 71, No. 200 / Tuesday, October 17, 2006 p. 61322, "4.7.2 Requirement for Continuous PM2.5 Monitoring". The TDAPC would like to invite the 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/erb
cc: Beverly Banister, US EPA Region IV

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

DIVISION OF AIR POLLUTION CONTROL
9TH FLOOR, L & C ANNEX
401 CHURCH STREET
NASHVILLE, TN 37243-1531

RECEIVED
OCT 31 2007
DIRECTOR'S OFFICE
DIVISION FOR AIR QUALITY

October 25, 2007

John S. Lyons, Director
Kentucky Division for Air Quality
Kentucky Department for Environmental Protection
803 Schenkel Lane
Frankfort, KY 40601

Dear Mr. Lyons:

The United States Environmental Protection Agency (EPA) revised monitoring regulations promulgated in Federal Register / Vol. 71, No. 200 / Tuesday, October 17, 2006 / Rules and Regulations, 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 Stewart and Montgomery counties in Tennessee. The US Census Bureau lists this area as containing a population in excess of 230,000:

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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/erb
cc: Beverly Banister, US EPA Region IV

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APPENDIX D

NO_2 NEAR-ROAD MONITORING

Appendix D
NO_2 Near-Road Monitoring

On February 9, 2010, the EPA released a new NO_2 Final Rule and a new set of monitoring requirements. Under the new monitoring requirements, state and local agencies are required to establish NO_2 near-road monitoring stations based upon core based statistical area (CBSA) populations and traffic metrics.

Specifically, the final rule requires:

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

Additionally, the final rule requires:

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

NO_2 near-road monitors must be established in the 2012 Network Plan, which must be submitted to the EPA Regional Administrator no later than July 1, 2012. Based upon current population estimates and AADT counts, near-road monitors will be required in the following CBSAs:

CBSA Name (500,000 or more people)	2011 CBSA Population Estimate*	Highest Road Segment 2-Way AADT for CBSA**	Number of Monitors Required in CBSA
Cincinnati-Middletown, OH-KY-IN	2,138,038	163,000	1
Louisville/Jefferson County, KY-IN	1,294,849	171,000	1

*Source: US Census Bureau, 2011 Population Estimates (Last accessed: May 22, 2012)

**Sources: Ohio-Kentucky-Indiana Regional Council of Governments; Kentuckiana Regional Planning Development Agency

Determination of the final locations of near-road monitoring locations will be a cooperative effort between multiple state and local agencies, and the requirements may be fulfilled via Memorandums of Agreements (MOAs). Ultimately, state and local agencies must consider the following additional criteria when evaluating potential near-road monitoring locations:

- Fleet mix
- Roadway design
- Traffic congestion patterns
- Local topography
- Meteorology
- Population Exposure
- Employee and public safety
- Site logistics

APPENDIX E

WEST JEFFERSON COUNTY AIR TOXICS MONITORING STATIONS

APPENDIX E

West Jefferson County Air Toxics Monitoring Stations

Volatile Organic Compounds (Method TO-15)

AIRS ID	Established	Location	Purpose	Frequency of Sampling
21-111-1041	1999	4201 Algonquin Parkway	Maximum Impact	24-hrs every twelfth day
21-111-0054	1999	4211 Campground Road	Maximum Impact	24-hrs every twelfth day
21-111-0058	1999	Farnsley Middle School, 3400 Lees Lane	Neighborhood Exposure	24-hrs every twelfth day
21-111-0060	1999	Chickasaw Park	Neighborhood Exposure	24-hrs every twelfth day
21-111-0062	1999	Cane Run Elementary	Neighborhood Exposure	24-hrs every twelfth day
21-111-0067	2009	Cannons Lane	Neighborhood Exposure	24-hrs every twelfth day

APPENDIX F

PUBLIC COMMENT

KENTUCKY DIVISION FOR AIR QUALITY
AMBIENT AIR MONITORING NETWORK
Comments Received 6/24/2012

Energy and Environment Cabinet
Department for Environmental Protection
Division for Air Quality

(1) A public comment period on the KENTUCKY DIVISION FOR AIR QUALITY AMBIENT AIR MONITORING NETWORK PLAN 2012 was held from May 25, 2012, through June 24, 2012.

(2) The following groups submitted comments during the public comment period:

Name

Paducah Area Chamber of Commerce

Summary of Comments

(1) Subject: Construction Activities at the Paducah Middle School Air Monitoring Station

Comment: The Paducah Area Chamber of Commerce commented that construction of a new Paducah Middle School is underway directly adjacent to the current school building, located at 342 Lone Oak Road, Paducah, KY. The new construction will consist of a 100,000 square foot school building and athletic facilities encompassing a 17-acre site. Students are expected to move into the new building in fall 2013. The old school building will be subsequently demolished, necessitating the relocation of the air monitoring station.

Response: The Division acknowledges the comment. The Division is aware of construction activities at the Paducah Middle School and the planned demolition of the current building in 2013. The Division has one $PM_{2.5}$ sampler and one PM_{10} sampler located on the roof of the current school building. Demolition of the building will require that the ambient air monitoring site be relocated to the roof of the newly constructed school building, or may require that the samplers be relocated to an entirely new site.

(2) Subject: Construction Activities at the Paducah Middle School Air Monitoring Station

Comment: The Paducah Area Chamber of Commerce is concerned that on-going construction activities have the potential to adversely impact the equipment and the data collected at the Paducah Middle School site. The Paducah Area Chamber of Commerce suggested that the $PM_{2.5}$ and PM_{10} monitors located on the roof of the current Paducah Middle School building be relocated to the Jackson Purchase RECC air monitoring site, located at 2901 Powell Street, Paducah, KY, in order to avoid the potentially misleading influence of localized construction sources.

Response: The Division acknowledges, but does not concur, with the comment. The Division is aware of construction activities at the Paducah Middle School and the planned demolition of the current building in 2013. However, construction is generally not considered to be an Exceptional Event, as defined by the EPA; reasonable and appropriate controls capable of preventing localized NAAQS exceedances are expected to be available during most construction events. More importantly, the data collected during construction of the new school building is considered to be representative of population impacts on both students and local residents; thus, the air monitoring station should remain on the roof of the current Paducah Middle School building until demolition. The Division will re-evaluate the suitability of the new school building for relocation of the air monitoring station prior to demolition of the old building.

Both the EPA and the Division do recognize that construction activities may occasionally involve very high-energy, emissions-generating physical processes, such as explosive excavation. Available dust control measures may not be adequate to prevent exceedances in the vicinity of this type of activity. Additionally, the EPA and the Division recognize that control measures may not be able to prevent exceedances during periods of demolition. The Division respectfully requests notification prior to these activities.

All public comments are maintained at the Kentucky Division for Air Quality headquarters in Frankfort, Kentucky. These documents are available for review upon request.

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INDEX

KY DAQ AIR MONITORING STATIONS
BY
REGIONAL OFFICE

KY DAQ MONITORING STATIONS BY REGIONAL OFFICE

AQS ID	SITE NAME	COUNTY	PAGE NUMBER
Region 1 - Hazard Regional Office			
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21-195-0002	Pikeville Primary	Pike	102
Region 2 - Frankfort Regional Office (Bluegrass Area)			
21-067-0012	Lexington Primary, Newtown	Fayette	42
21-113-0001	Nicholasville	Jessamine	44
21-151-0003	Richmond	Madison	83
21-151-0005	EKU	Madison	85
Region 3 - Florence Regional Office			
21-015-0003	East Bend	Boone	19
21-037-3002	NKU	Campbell	21
Region 4 - Owensboro Regional Office			
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21-091-0012	Lewisport	Hancock	70
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Region 5 - Ashland Regional Office			
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21-145-1024	Jackson Purchase	McCracken	81
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21-157-0014	TVA Substation	Marshall	92
21-157-0019	Lazy Daz RV Park	Marshall	98
21-157-0016	Atmos Energy	Marshall	94
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21-227-0009	Ed Spear Park, Smiths Grove	Warren	16
Region 10 - London Regional Office			
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21-207-0001	Salem Elementary, Russell Springs	Russell	106