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## Technical Support Document

### *Definition of important terms used in this document:*

- 1) **Designated “unclassifiable”** – an area where EPA could not determine if there was a violation of the 2008 Lead national ambient air quality standard (NAAQS) or a contribution to a violation in a nearby area, because there was insufficient air quality data for both 2006-2008 and 2007-2009 and where additional monitoring data for 2010 could not result in a different designation.
- 2) **Designated “attainment”** – an area which EPA has determined, based on the most recent 3 years of certified air quality data from 2006-2008 or 2007-2009, has no violations of the 2008 Lead NAAQS during 36 consecutive valid 3-month site means; and which EPA has further determined does not contribute to a violation of the 2008 Lead NAAQS in a nearby area and that additional monitoring data from 2010 could not result in a different designation.
- 3) **Designated nonattainment area** – an area which EPA has determined, based on a State recommendation and/or on the technical analysis included in this document, has a violation of the 2008 Lead NAAQS during the most recent three consecutive years of quality-assured, certified air quality data.
- 4) **Prior nonattainment area** – an area that is currently designated as nonattainment or maintenance for the 1978 Lead NAAQS (including both current nonattainment areas and maintenance areas).
- 5) **Recommended nonattainment area** – an area a State or Tribe has recommended to EPA be designated as nonattainment.
- 6) **Violating monitor** – an ambient air monitor whose design value exceeds 0.15 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). As described in Appendix R of part 50, a violation can be based on either lead-total suspended particles (Pb-TSP) or Pb-PM<sub>10</sub> data and only three months of data are necessary to produce a valid violating design value.
- 7) **1978 Lead NAAQS** – 1.5  $\mu\text{g}/\text{m}^3$ , National Ambient Air Quality Standard for lead promulgated in 1978. Based on Pb-TSP indicator and averaged over a calendar quarter.
- 8) **2008 Lead NAAQS** - 0.15  $\mu\text{g}/\text{m}^3$ , National Ambient Air Quality Standard for lead promulgated in 2008. Based on Pb-TSP indicator and a three-month rolling average. Pb-PM<sub>10</sub> data may be used in limited instances, including to show nonattainment.

**Alabama  
Area Designations For the  
2008 Lead National Ambient Air Quality Standards**

*EPA has revised the level of the primary (health-based) standard from 1.5 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) to 0.15  $\mu\text{g}/\text{m}^3$  measured as total suspended particles (TSP). EPA has revised the secondary (welfare-based) standard to be identical in all respects to the primary standard.*

**Pursuant to section 107(d) of the Clean Air Act, EPA must designate as “nonattainment” those areas that violate the national ambient air quality standard (NAAQS) and those nearby areas that contribute to violations.** The table below identifies the counties or portions of counties (or tribal areas) in Alabama that EPA intends to designate “nonattainment” for the 2008 lead national ambient air quality standard (2008 Lead NAAQS).

Table 1: Area Designation

Area (listed alphabetically)	Alabama Recommended Nonattainment Counties	EPA’s Designated Nonattainment Counties	Nonattainment area for 1978 Lead NAAQS
Troy, Alabama	None <sup>1</sup>	Pike (partial)	No

**Technical analysis for Troy**

**Introduction**

This technical analysis for the Troy Area identifies the partial county with a monitor that violates the 2008 Lead NAAQS for contributions to lead concentrations in the area. EPA has evaluated Troy, Alabama based on the weight of evidence of the following factors recommended in previous EPA guidance:

- Air quality in potentially included versus excluded areas;
- Emissions and emissions-related data in areas potentially included versus excluded from the nonattainment area, including population data, growth rates and patterns and emissions controls;
- Meteorology (weather/transport patterns);
- Geography/topography (mountain ranges or other air basin boundaries);
- Jurisdictional boundaries (e.g., counties, air districts, reservations, etc.); and
- Any other relevant information submitted to or collected by EPA (e.g., modeling where done appropriately).

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<sup>1</sup> In Alabama’s October 26, 2009, revised letter of recommendation, the State requested a portion of Pike County, within a 0.8 mile (or 1.3 kilometers (km)) radius from a center point at latitude 31.78627106 and longitude 85.97862228, which fully includes the Sanders Lead Facility, be designated as “unclassifiable.” However, if EPA determines this request to be unfeasible, Alabama requests for the portion of Pike County within a 0.8 mile (or 1.3 km) radius from a center point at latitude 31.78627106 and longitude 85.97862228, which fully includes the Sanders Lead Facility, be designated as “nonattainment.”

Figure 1: Pike County Area of Troy, Alabama

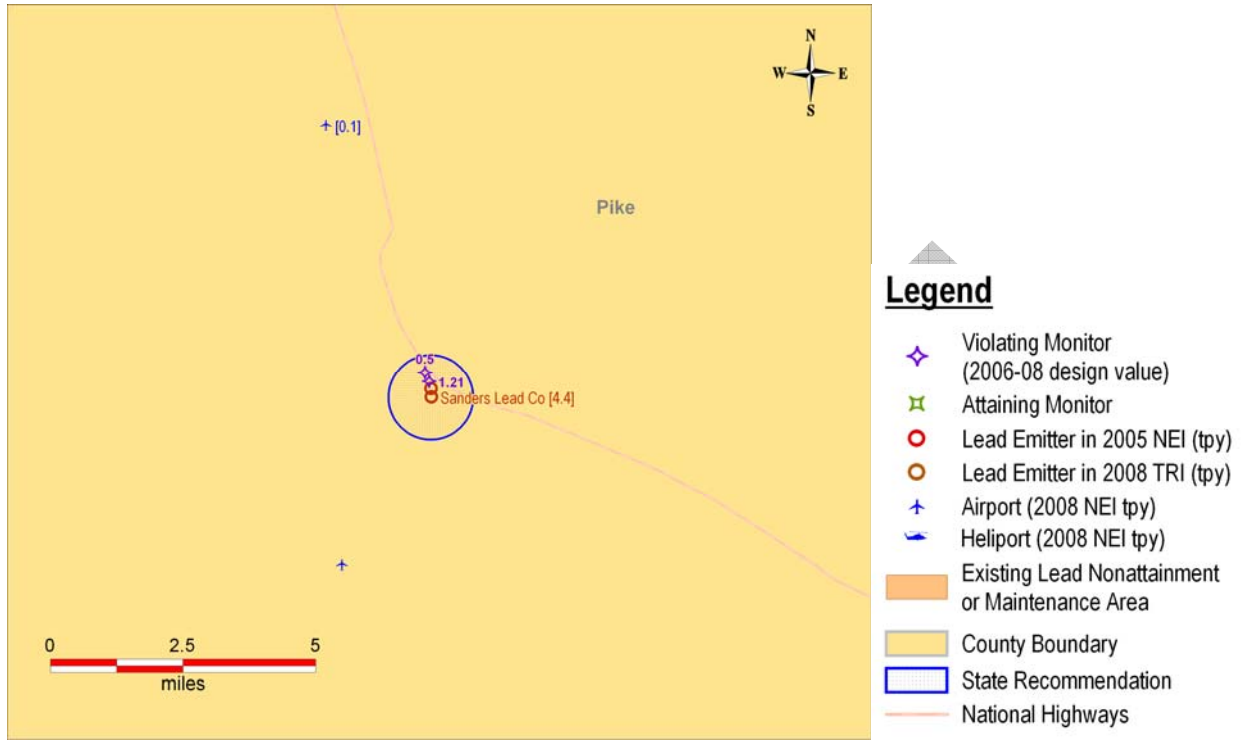
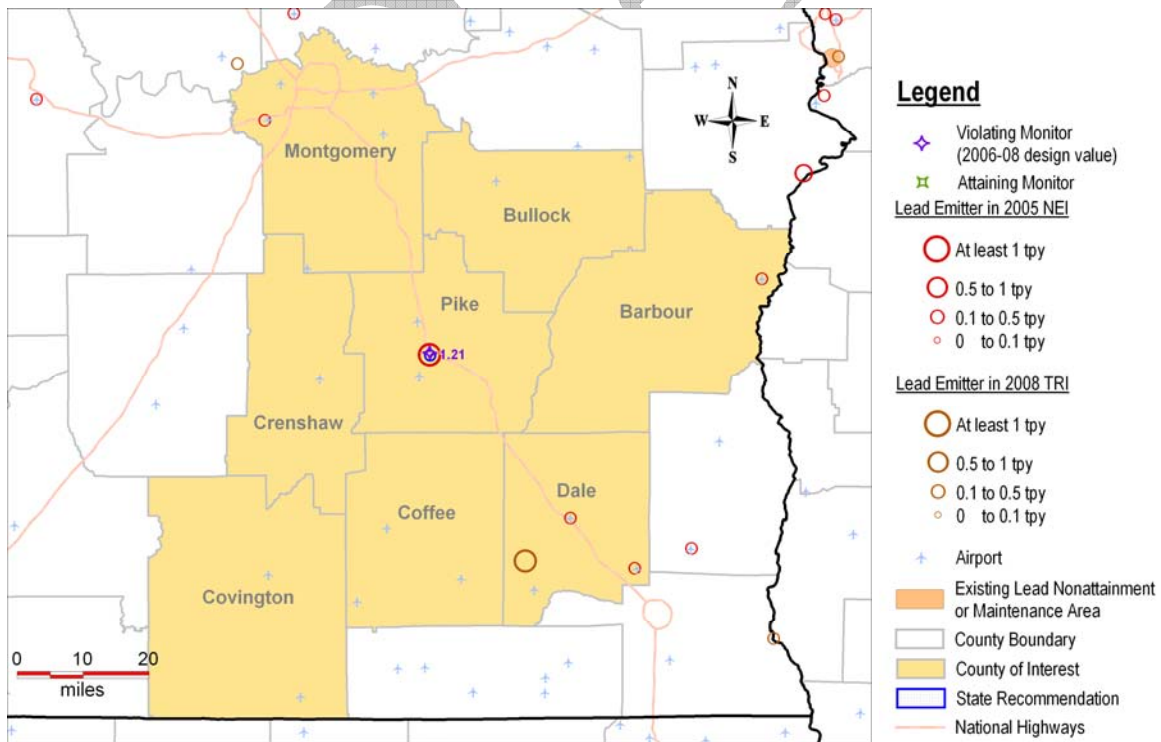


Figure 2: Troy, Alabama Area and Surrounding Counties



Figures 1 and 2 are maps of the area analyzed showing the location and design value of the air quality monitor in the area, the counties surrounding the violating air quality monitor, and the state's recommended area to be designated. The violating monitor in the Troy Area is located in Pike County, in close proximity to Sanders Lead Company, shown in Figure 1.

The Troy Area was not designated nonattainment for the 1978 Lead NAAQS. For each revision to a NAAQS EPA is required to conduct a separate designation action, which may result in the same or a different nonattainment boundary.

On October 1, 2009, Alabama recommended that a portion of Pike County be designated as "nonattainment" for the 2008 Lead NAAQS based on air quality data from 2006-2008. Their recommendation was based on data from Federal Reference Method monitors located in the state, as well as their own analyses of the recommended factors and air quality modeling. Subsequently, on October 26, 2009, EPA received a revised letter of recommendation from Alabama with a request to designate a portion of Pike County as "unclassifiable."

Based on EPA's technical analysis described below, EPA is intending to designate the entire portion of Pike County, Alabama, within a 0.8 mile (1.3 km) radius from a center point at latitude 31.78627106 and longitude 85.97862228, which fully includes the Sanders Lead Facility, as nonattainment for the 2008 Lead NAAQS as the Troy nonattainment area, based upon currently available information. This county is listed above in Table 1.

### **Detailed Assessment**

#### ***Air Quality Data***

This factor considers the Lead design values (in  $\mu\text{g}/\text{m}^3$ ) for the air quality monitor in Pike County in the Troy Area, and the surrounding area based on data for the 2007-2009 period. A monitor's design value indicates whether that monitor attains a specified air quality standard. The 2008 Lead NAAQS are met at a monitoring site when the identified design value is valid and less than or equal to  $0.15 \mu\text{g}/\text{m}^3$ . A design value is only valid if minimum data completeness criteria are met. A Lead design value that meets the NAAQS is generally considered valid if it encompasses 36 consecutive valid 3-month site means (specifically for a 3-year calendar period and the two previous months). For this purpose, a 3-month site mean is valid if valid data were obtained for at least 75 percent of the scheduled monitoring days in the 3-month period. A Lead design value that does not meet the NAAQS is considered valid if at least one 3-month mean that meets the same 75 percent requirement is above the NAAQS. That is, a site does not have to monitor for three full calendar years in order to have a valid violating design value; a site could monitor just three months and still produce a valid (violating) design value.

The 2008 Lead NAAQS design values for Pike County in the Troy Area are shown in Table 2.

Table 2. Air Quality Data

County	State Recommended Nonattainment	Monitor Name	Monitor Air Quality System ID	Monitor Location	Lead Design Value, 2006 - 2008 ( $\mu\text{g}/\text{m}^3$ )	Lead Design Value, 2007-2009 ( $\mu\text{g}/\text{m}^3$ )
<b>Pike County, AL</b>	<b>No<sup>2</sup></b>		011090003	Henderson Road	<b>1.35</b>	<b>1.35</b>
			011090006	Henderson Road	0.50 <sup>3</sup>	0.31

Monitors in Bold have the highest design value in the respective county.

Pike County shows two monitors violating the 2008 Lead NAAQS. Therefore some area in this County and possibly additional areas in surrounding counties must be designated nonattainment. However, the absence of a violating monitor alone is not a sufficient reason to eliminate nearby counties as candidates for nonattainment status. Each area has been evaluated based on the weight of evidence of the eight factors and other relevant information.

The violating monitors located in Pike County are in close proximity to Sanders Lead Company, Sanders Road, Troy, Alabama. The monitoring objective, according to the EPA monitor locator, is to determine the highest concentration of lead. The emissions from Sanders Lead Company and other area lead emitters will be discussed in the corresponding section.

The State of Alabama provided similar information from these monitors in their October 2009 letter. The State information is consistent with the data provided EPA, although the reported results are slightly different because of different reporting periods used. In addition, Alabama provided data from monitors owned by Sanders Lead Company sited near this facility. These monitors (Anderson and Murphree) are at a slightly greater distance from the facility and located to the southwest and northwest of the facility. The reported maximum rolling three month average lead concentrations from these sites are  $0.31\mu\text{g}/\text{m}^3$  and  $0.19\mu\text{g}/\text{m}^3$  for the period from November 2005 to August 2009. These values are also in excess of the new Lead NAAQS of  $0.15\mu\text{g}/\text{m}^3$ .

### ***Emissions and Emissions-Related Data***

Evidence of lead emissions sources surrounding a violating monitor are an important factor for determining whether a nearby area is contributing to a monitored violation. For this factor, EPA evaluated county level emission data for lead and population data.

<sup>2</sup> In Alabama's October 26, 2009, revised letter of recommendation, the State requested a portion of Pike County, within a 0.8 mile (or 1.3 km) radius from a center point at latitude 31.78627106 and longitude 85.97862228, which fully includes the Sanders Lead Facility, be designated as "unclassifiable." However, if EPA determines this request to be unfeasible, Alabama requests for the portion of Pike County within a 0.8 mile (or 1.3 km) radius from a center point at latitude 31.78627106 and longitude 85.97862228, which fully includes the Sanders Lead Facility, be designated as "nonattainment." Both monitors are within the state's recommended boundaries.

<sup>3</sup> This monitor ceased operation in August of 2007. The maximum 3-month rolling average was calculated using data for the three month periods ending from January 2006 through August 2007.

## Emissions

Emissions data were derived from the 2005 National Emissions Inventory (NEI), version 2, which is the most up-to-date version of the national inventory available when these data were compiled for the designations process in 2009. See <http://www.epa.gov/ttnchie1/net/2005inventory.html>. EPA recognizes that for certain counties, emissions may have changed since 2005. For example, certain large sources of emissions in or near this area may have installed emission controls or otherwise significantly reduced emissions since 2005. Some States provided updated information on emissions and emission controls in their comments to EPA. Alabama provided emissions information for the Troy Area from the 2005 NEI, therefore EPA relied on the 2005 NEI emissions data. These data are provided in Table 3.

Table 3 shows total emissions of Lead (given in tons per year (tpy)) for violating and potentially contributing counties in the Troy Area with sources emitting (or anticipate to contribute) greater than 0.1 tpy of lead according to the 2005 NEI.

There are approximately 20,000 airport facilities in the U.S. at which leaded aviation gasoline is consumed. To evaluate the potential impact of emissions at and near these facilities, EPA recommends that States use the draft 2008 NEI.

Table 3. Lead Emissions

County	Facility in State Recommended Nonattainment Area?	Facility Name	Facility Location	Total Lead Emissions (tpy)
Pike County	No*	Sanders Lead Company	100 Sanders Road, Troy	4.44

\* In Alabama's October 26, 2009, revised letter of recommendation, the State requested a portion of Pike County, within a 0.8 mile (or 1.3 km) radius from a center point at latitude 31.78627106 and longitude 85.97862228, which fully includes the Sanders Lead Facility, be designated as "unclassifiable." However, if EPA determines this request to be unfeasible, Alabama requests for the portion of Pike County within a 0.8 mile (or 1.3 km) radius from a center point at latitude 31.78627106 and longitude 85.97862228, which fully includes the Sanders Lead Facility, be designated as "nonattainment." The facility is within the state's recommended boundary.

According to the 2005 NEI data, Pike County has one source (Sanders Lead Company) emitting at or above 0.1 ton per year. There are no other stationary sources emitting greater than 0.1 tpy located within Pike County, nor any major sources of lead in the counties surrounding Pike County.

Table 4: Airport Facilities Using Leaded Aviation Gas in Pike County

City	Facility Name	Type	2008 draft NEI (tpy)	Distance to Violating Monitor (km)
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Pike County	Troy Municipal	Airport	0.1	8.83
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There is one airport facility with aircraft using leaded aviation gas in Pike County that emits at or above 0.1 ton per year. Troy Municipal Airport is located approximately 8.83 km from Sanders Lead Company.

### Population Data

Table 5 shows the 2008 population for each county in the area being evaluated, as well as the population density for each county in that area. These data help assess the extent to which the concentration of human activities in the area and concentration of population-oriented commercial development may indicate emissions-based activity contributing to elevated ambient Lead levels. This may include ambient lead contributions from activities that would disturb lead that has been deposited on the ground or on other surfaces. Reentrainment of historically deposited Lead is not reflected in the emissions inventory.

Table 5: Population Data

County	State Recommended Nonattainment?	2008 Population	2008 Population Density (pop/sq mi)	Population Change 2000-2008	Population % Change 2000-2008
Pike County	No <sup>4</sup>	30,381	45	647	2

[Source of data: U.S. Census Bureau estimates for 2008 (<http://www.census.gov/popest/datasets.html>) and estimation of the area of U.S. Counties]

### Growth rates and patterns

Pike County shows a population change of two percent between 2000 and 2008. EPA has considered the population growth rate for this area and does not believe that it affects the boundary recommendation.

### Emissions Controls

Under this factor, the existing level of control of emission sources is taken into consideration. The emissions data used by EPA in this technical analysis and provided in Table 3 represent emissions levels taking into account any control strategies implemented in the Troy area before 2005 on stationary sources. As mentioned above, on October 26, 2009, EPA received a revised

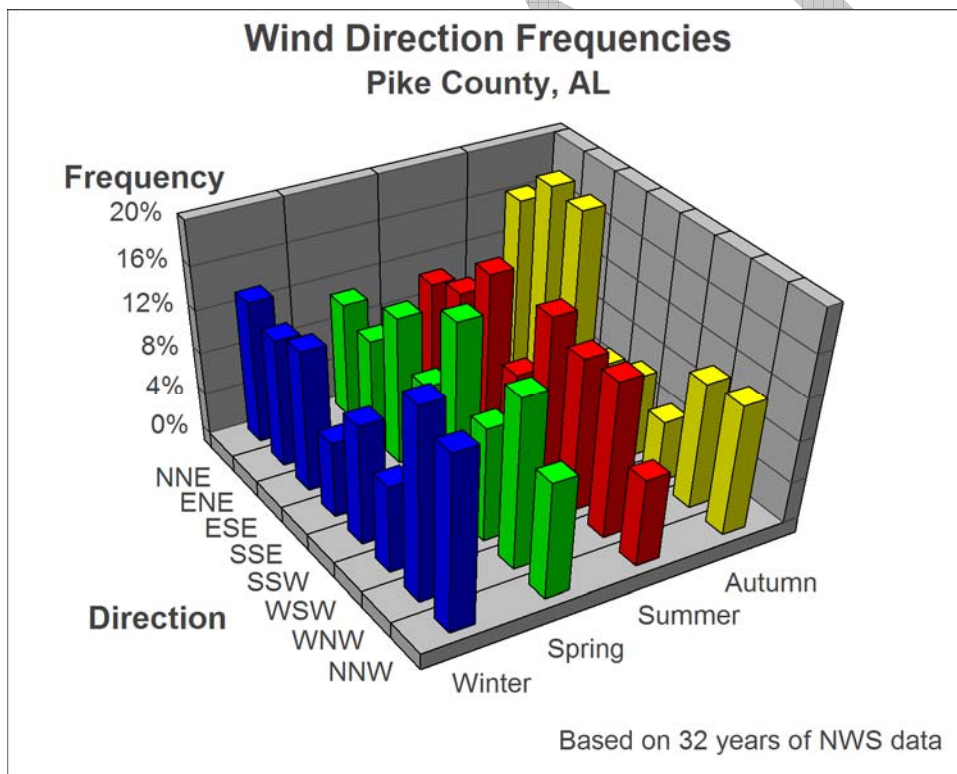
<sup>4</sup> In Alabama's October 26, 2009, revised letter of recommendation, the State requested a portion of Pike County, within a 0.8 mile (or 1.3 km) radius from a center point at latitude 31.78627106 and longitude 85.97862228, which fully includes the Sanders Lead Facility, be designated as "unclassifiable." However, if EPA determines this request to be unfeasible, Alabama requests for the portion of Pike County within a 0.8 mile (or 1.3 km) radius from a center point at latitude 31.78627106 and longitude 85.97862228, which fully includes the Sanders Lead Facility, be designated as "nonattainment."

letter of recommendation from Alabama with a request to designate a portion of Pike County as “unclassifiable.” This letter stated that the Alabama Department of Environmental Management (ADEM) has met with the source in Pike County to discuss potential mitigation measures for achieving compliance with the new lead standard. According to Alabama’s letter, the source has shown willingness to enclose the processes at the facility in order to abate Lead emissions. This method has proven successful when used at other similar facilities, and should greatly reduce ambient Lead concentrations if implemented at Sanders Lead in Pike County, Alabama.

***Meteorology (weather/transport patterns)***

For this factor, EPA considered data from National Weather Service (NWS) instruments and other meteorological monitoring sites in the area, usually associated with major airport operation. A three-dimensional bar chart shows the wind frequencies in eight directions, for the four seasons, based on thirty two years of historical data<sup>5</sup> for the Troy Area. These historical data may provide evidence of the potential for lead emissions sources located upwind of a violating monitor to contribute to ambient lead levels at the violating monitor location, in the season of the violation.

Figure 3: Pike County Historical Wind Direction Frequency



<sup>5</sup> This data was taken from 1960-1992 Solar and Meteorological Surface Observation Network information issued jointly by the U.S. Department of Commerce: National Climatic Data Center and the U.S. Department of Energy: National Renewable Energy Laboratory.



As seen in Figure 3 above, the predominant wind direction in the Winter season is originating from the West/Northwest (WNW), while in the Spring season it is from the South/Southwest (SSW), in the Summer it is from the East/Southeast (ESE), and in the Autumn it is from the East/Northeast (ENE), indicating that lead sources located in any direction from the monitoring site in Troy could influence the monitored ambient air concentrations during different time periods.

For each air quality monitoring site, EPA also developed a “wind rose,” which provides information about how wind speed and direction are distributed at the NWS monitoring station during the 30-year time period. The “spokes” on the diagram indicate the frequency of winds blowing FROM a particular direction. The length of a spoke shows the amount of time (in percentage) that the wind blows from that direction. Each concentric dotted-line circle on the diagram represents increasing frequencies as you move out from the center. The spokes also provide information about the speed of the winds blowing from that direction. Each spoke is broken into discrete frequency categories that are color-coded to indicate the percentage of time that wind speeds are within that category (e.g., for winds blowing from the East, approximately three percent of the time the wind speeds are between 2.1 – 3.6 meters/second (m/s)).

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Figure 4: Troy Wind Rose; Montgomery Airport

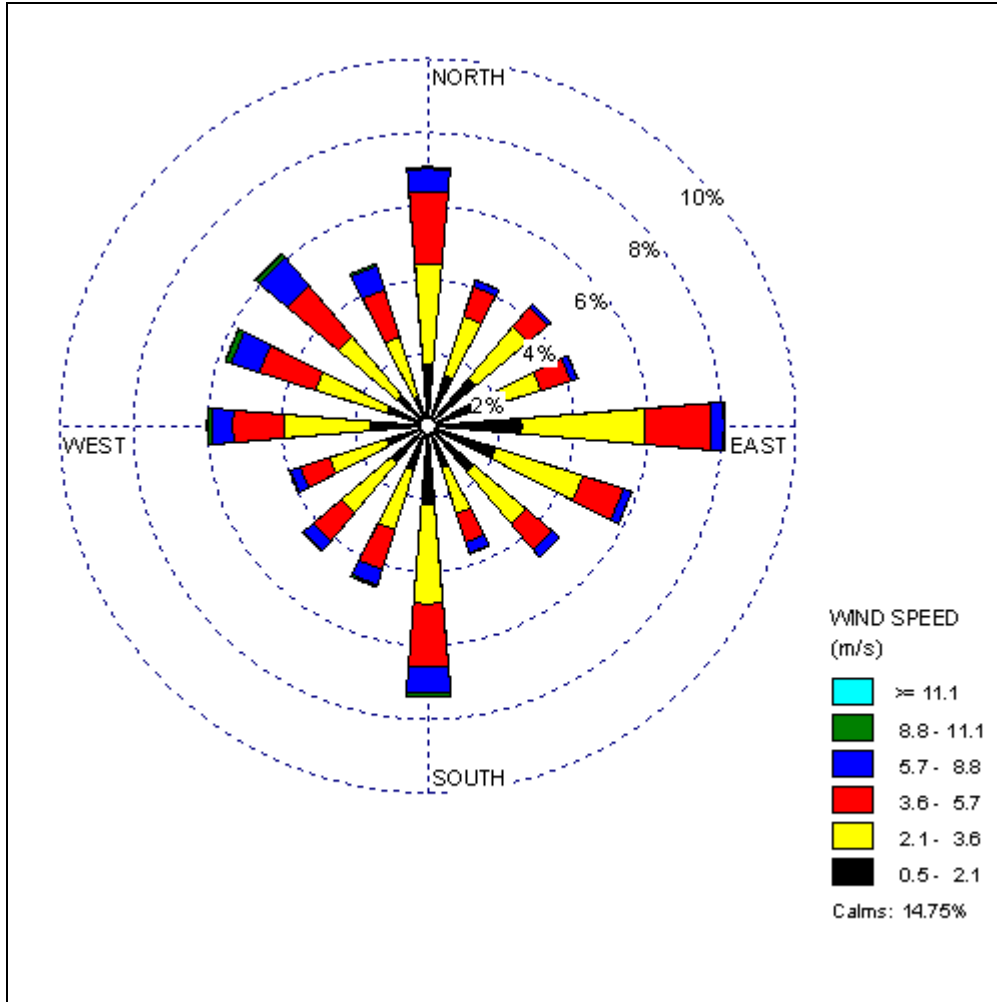


Figure 4 provides an annual wind rose diagram for the Troy Area. The wind rose was generated from 30 years (1961-1990) of wind speed and wind direction data collected at the NWS meteorological monitoring station located at the Montgomery Airport (NWS Station No. 13895). This station has the most representative long-term record of wind data for area near Montgomery, including the lead monitoring site located in the Troy Area.

The Troy Area wind rose is consistent with the wind direction bar chart in Figure 3 above and indicates that the wind does not blow from a strongly predominant wind direction. The winds blow from each direction at least three percent of the time, and from most directions more than five percent of the time. The highest frequencies of winds are from due East (approx eight percent), due North (approx seven percent), and due South (approximately seven percent). The wind speeds also vary with no strongly predominate speed category either. However, more than 50 percent of the time, the wind speeds are less than 3.6 m/s. It is also important to note that winds are classified as calm (less than 0.5 m/s) approximately 15 percent of the time. The wind rose indicates that lead sources located in any direction from the monitoring site in the Troy Area

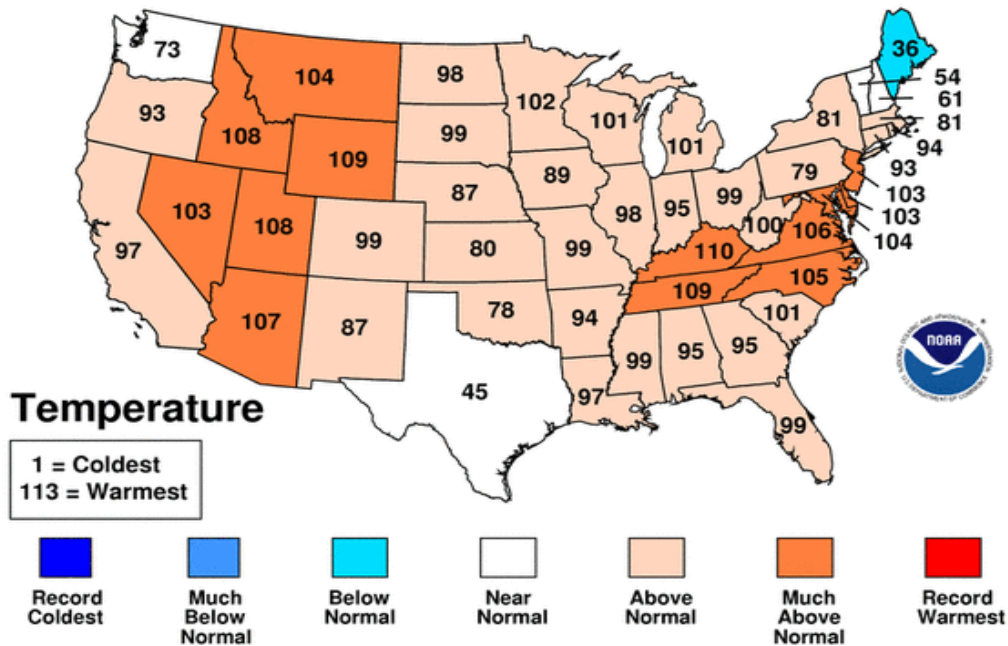
could influence the monitored ambient air concentrations during different time periods. Also, the higher frequency of low to moderate wind speeds would indicate that air emissions sources located closer to the monitor have a larger influence than those located more distant from the monitor.

EPA considered this historical wind direction and wind speed data to show evidence of the potential transport patterns for lead emissions sources located upwind and/or in close proximity to that of a violating monitor to contribute to ambient Lead levels at the violating monitor.

Additionally, in evaluating the Alabama climatological data for 2007, the statewide temperatures for the year were above normal and the statewide precipitation for the year was much below normal (see attached charts). In fact, Alabama was ranked as the 3<sup>rd</sup> driest for 2007 according to the rankings from the National Oceanic and Atmospheric Administration (NOAA). See the follow figures for more detail. Alabama attributes the prolonged warm and dry weather that lasted throughout the year as a factor in elevating emissions from soils in 2007 and resulting in monitored Lead concentrations for that time period that were higher than other years.

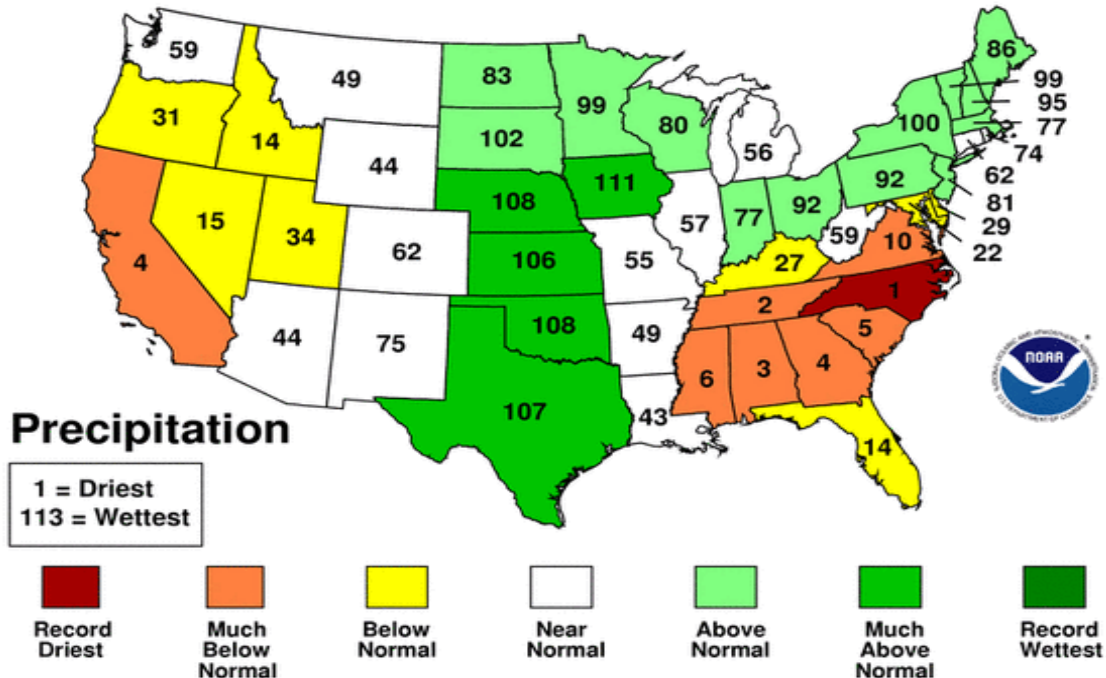
## Statewide Ranks Jan-Dec 2007

National Climatic Data Center/NESDIS/NOAA



# Statewide Ranks Jan-Dec 2007

National Climatic Data Center/NESDIS/NOAA



Alabama attributes the prolonged warm and dry weather that lasted throughout the year to exacerbate Lead concentrations in the soil. As a result, monitored Lead concentrations for that time period were higher than previous years. EPA's evaluation of the monitoring data during and just after this period of time, revealed the highest level of monitored values. The highest value of all of the 3-month rolling average for the 2007-2009 period occurs in December of 2007 at a level of  $1.35 \mu\text{g}/\text{m}^3$ . Other monitoring values in that time period include  $1.07 \mu\text{g}/\text{m}^3$  for the November 2007 3-month rolling average;  $1.18 \mu\text{g}/\text{m}^3$  for January 2008;  $1.15 \mu\text{g}/\text{m}^3$  for February 2008;  $1.02 \mu\text{g}/\text{m}^3$  for March 2008; and  $1.05 \mu\text{g}/\text{m}^3$  for April 2008. The 3-month rolling averages, excluding the period of November 2007 through April 2008, range from  $0.10 \mu\text{g}/\text{m}^3$  to  $0.78 \mu\text{g}/\text{m}^3$ .

## ***Geography/topography (mountain ranges or other air basin boundaries)***

The geography/topography analysis evaluates the physical features of the land that might have an effect on the air shed and, therefore, on the distribution of Lead over the Troy Area.

The Troy Area does not have any geographical or topographical barriers significantly limiting air-pollution transport within its air shed. Therefore, this factor did not play a significant role in determining the nonattainment boundary.

### ***Jurisdictional boundaries***

Existing jurisdictional boundaries may be helpful in articulating a boundary for purposes of nonattainment designations, and for purposes of carrying out the governmental responsibilities of planning for attainment of the lead NAAQS and implementing control measures. These existing boundaries may include an existing nonattainment or maintenance area boundary, a county or township boundary, a metropolitan area boundary, an air management district, or an urban planning boundary established for coordinating business development or transportation activities.

The Troy Area does not have any jurisdictional boundaries that affect this analysis. Therefore, this factor did not play a significant role in determining the nonattainment boundary.

### ***Other Relevant Information***

EPA received additional information relevant to designating this area pertaining to modeling that was performed by the State of Alabama. The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) modeling system was used in the lead designation boundary modeling. The AERSURFACE tool was also used to generate the surface characteristics. Only emission sources from Sanders Lead were modeled using Title V permit and facility data. However, other sources that may locally impact the state monitors were not modeled. These less than 0.1 tpy sources, which are all well within the State's recommended boundary, include K W Plastics (a recycling facility), and reentrained lead emissions from a railroad and major roadway that borders the Sanders Lead facility.

Downwash was considered for all Sanders Lead stacks in the modeling. The AERMOD system was simulated twice, using both Montgomery NWS Airport site and the Sanders Lead facility surface characteristics, since site specific meteorological data at Sanders Lead was unavailable. The model was simulated twice in this manner because the State conservatively decided to utilize the surface characteristics around both sites in all modeling and reported the highest concentrations between the two.

As required by EPA modeling guidance in 40 CFR Part 51 Appendix W: Guideline on Air Quality Models, the State included five years (i.e., 2001-2005) of meteorological data. The AMS/EPA Regulatory Model Terrain Pre-processor AERMAP program inputs were developed with National Elevation Data. AERMOD was simulated using default modeling inputs. A 10 km by 10 km discrete Cartesian receptor grid was used in the modeling analysis with grid spacings of 100 meters. The maximum 3-month rolling concentration of  $0.779 \mu\text{g}/\text{m}^3$  was modeled near the location of the Sanders Lead stacks. As mentioned above, excluding the November 2007 through April 2008 time period, the monitored 3-month rolling concentrations ranged from  $0.10 \mu\text{g}/\text{m}^3$  to  $0.78 \mu\text{g}/\text{m}^3$ , which is in line with the modeled values. As noted above, Alabama attributes the highest design values to a period of time where there was unusually dry weather and many areas in the state were under drought conditions. Despite the fact that these sources were not modeled from the facility, the southwest yellow contours shown in the following plots from the State modeling agree with design value of  $0.19 \mu\text{g}/\text{m}^3$  from the Sanders Lead-owned Murphee monitor. The modeling contours and the data from the second state monitor indicate that the Lead concentrations rapidly decrease with distance from the

industrial area, railroad and roadway such that predicted quarterly Lead concentrations would be below the NAAQS (i.e.,  $>0.15 \mu\text{g}/\text{m}^3$ ) well within the recommended boundary of 0.8 mile (or 1.3 km) radius from a center point at latitude 31.78627106 and longitude 85.97862228, which fully includes the Sanders Lead Facility. The maximum predicted concentration at the outer edge of the State's recommended nonattainment boundary is less than 50 percent of the NAAQS ( $0.072 \mu\text{g}/\text{m}^3$ ).

EPA reviewed the modeling analysis included in Alabama's demonstration. The results of that review are summarized below:

**Sanders Lead, Troy, Alabama – Pike County**

**AERMOD Modeling**

**1. Source characterization**

- a. If any fugitives, how were they characterized? **No**
- b. Did stacks use defaults or actual parameters? **Used data from Sanders Lead and considered downwash**
- c. What is the emissions year? **There is no emissions year. The emissions used in the Sanders Lead Designation modeling performed by ADEM represent the allowable emissions for the units, not the actuals. This allows for additional conservatism in the modeling.**
- d. What is the source of the emissions (NEI or other)? **Title V permit emissions**

	Emission rate (g/s)	X (meters)	Y (meters)	Base elev (meters)	Stack height (meters)	Stack Temp (K)	Stack exit vel (m/s)	Stack diameter (m)
STACK22	0.60000E-01	596668.6	3517149.0	162.0	54.86	366	36.27	1.20
STACK22	0.60000E-01	596701.9	3517158.2	161.2	54.86	366	36.27	1.20
STACK24A	0.30000E-01	596744.4	3517284.0	161.7	27.43	339	32.31	0.90
Stack24B	0.30000E-01	596648.4	3517188.2	161.2	27.43	339.	32.31	0.90
STACK27	0.20000E-01	596754.1	3517148.0	156.4	9.14	294.	18.29	1.10

- e. Were actual emissions used or potential emissions - **assumed potential emissions**
- f. Were multiple sources modeled or single source modeling done? **Only emission sources from Sanders Lead were modeled.**

**2. Meteorology**

- a. Years and stations used- **2001-2005 Montgomery (MGM) AL NWS (72226)(sfc); Alabaster (53823) (upper air)**
- b. Was meteorological data representative of source(s), temporally and spatially (surface characteristics) - **The AERMOD system was simulated twice using both Montgomery NWS Airport site and the Sanders Lead facility surface characteristics since site specific meteorological data at Sanders Lead was unavailable.**

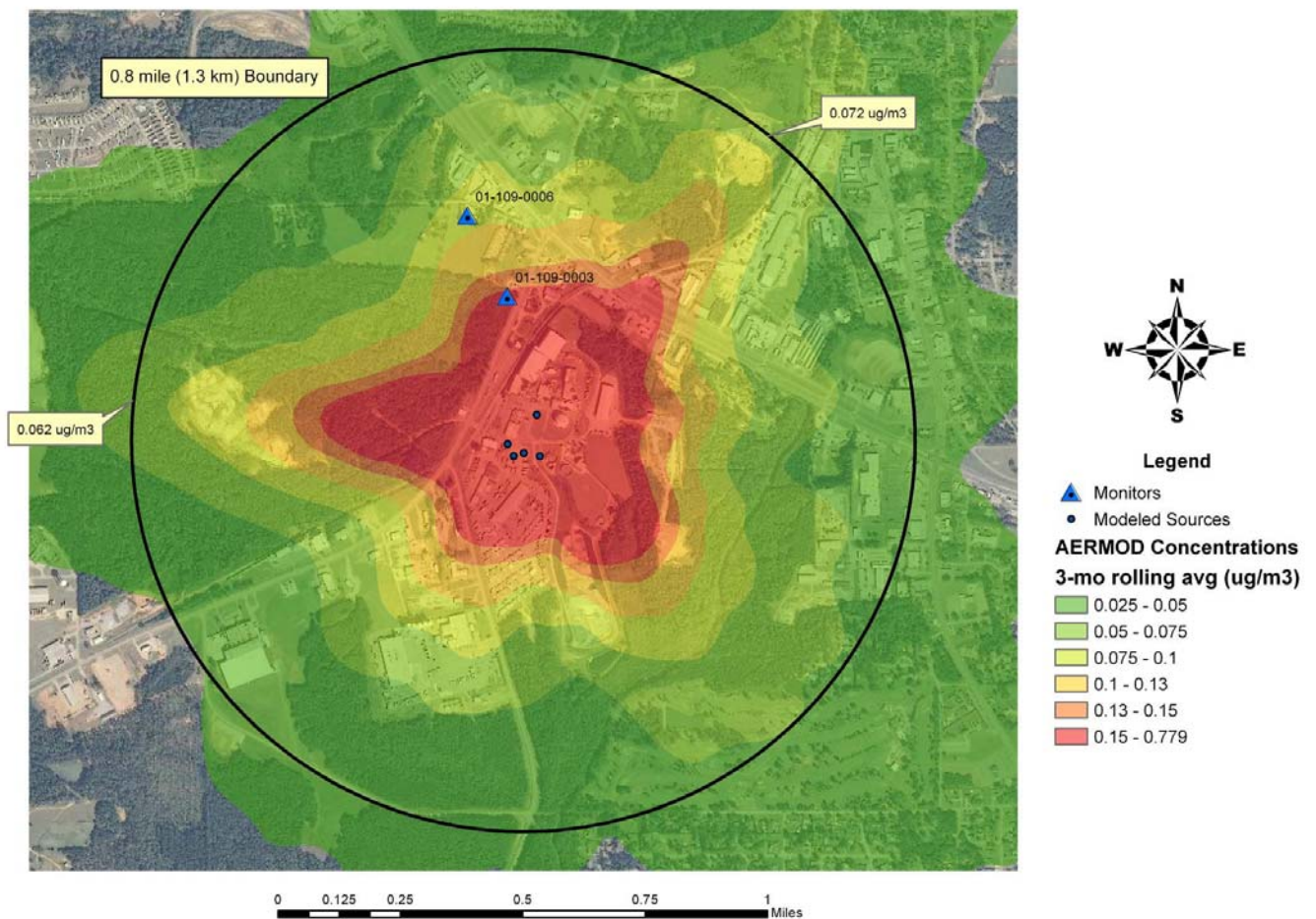
**3. Receptor network**

- a. Adequate spatial coverage and adequate receptor spacing? **A 10 km by 10 km discrete Cartesian receptor grid was used in the modeling analysis with grid spacing of 100 meters.**
  - b. Receptors placed in ambient air locations
  - c. Terrain included in modeling – **Yes, terrain elevations generated using National Elevation Data.**
4. Output
- a. 3-month rolling average contours. Highest concentration located at on the facility property.
  - b. 1<sup>st</sup> highest modeled concentrations ( $\mu\text{g}/\text{m}^3$ )

Year	Facility surface characteristics	MGM NWS surface characteristics
2001	0.835	0.365
2002	0.705	0.416
2003	0.777	0.411
2004	1.079	0.5238
2005	0.976	0.396



# Sanders Lead AERMOD Modeling



## Conclusion

After considering the factors described above, EPA has preliminarily determined that it is appropriate to include the portion of Pike County as the Troy nonattainment area for the 2008 Lead NAAQS. This area is located within a 0.8 mile (or 1.3 km) radius from a center point at latitude 31.78627106 and longitude 85.97862228, which fully includes the Sanders Lead Facility.

EPA is basing this preliminary nonattainment designation determination and boundary on the fact that Pike County contains two air quality monitors that show violations of the 2008 Lead NAAQS, based on 2007-2009 air quality data. Additionally, the Sanders Lead facility emits relatively large quantities of lead that EPA believes cause the violations of the Lead NAAQS at those air quality monitor for this period. Available modeling and monitoring data indicates that a boundary within a 0.8 mile (or 1.3 km) radius from a center point at latitude 31.78627106 and longitude 85.97862228, which fully includes the Sanders Lead Facility, is a sufficient distance to encompass the area that exceeds the Lead NAAQS.



Based on its consideration of all the relevant, available information, as described above, EPA believes that the boundaries described herein encompass the entire area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the 2008 Lead NAAQS.

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