

Bellefontaine, Ohio 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 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 3 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 Pb-TSP or Pb-PM10 data and only 3 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 3-month rolling average. Pb-PM10 data may be used in limited instances, including to show nonattainment.

OHIO
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 NAAQS and those nearby areas that contribute to violations. The table below identifies the partial county in Ohio that EPA intends to designate “nonattainment” for the 2008 National Ambient Air Quality Standard for lead (2008 lead NAAQS).

Area (listed alphabetically)	Ohio Recommended Nonattainment Counties	EPA’s Designated Nonattainment Counties	Nonattainment Area for 1978 Lead NAAQS
Bellefontaine	Logan (partial)	Logan (partial)	NA

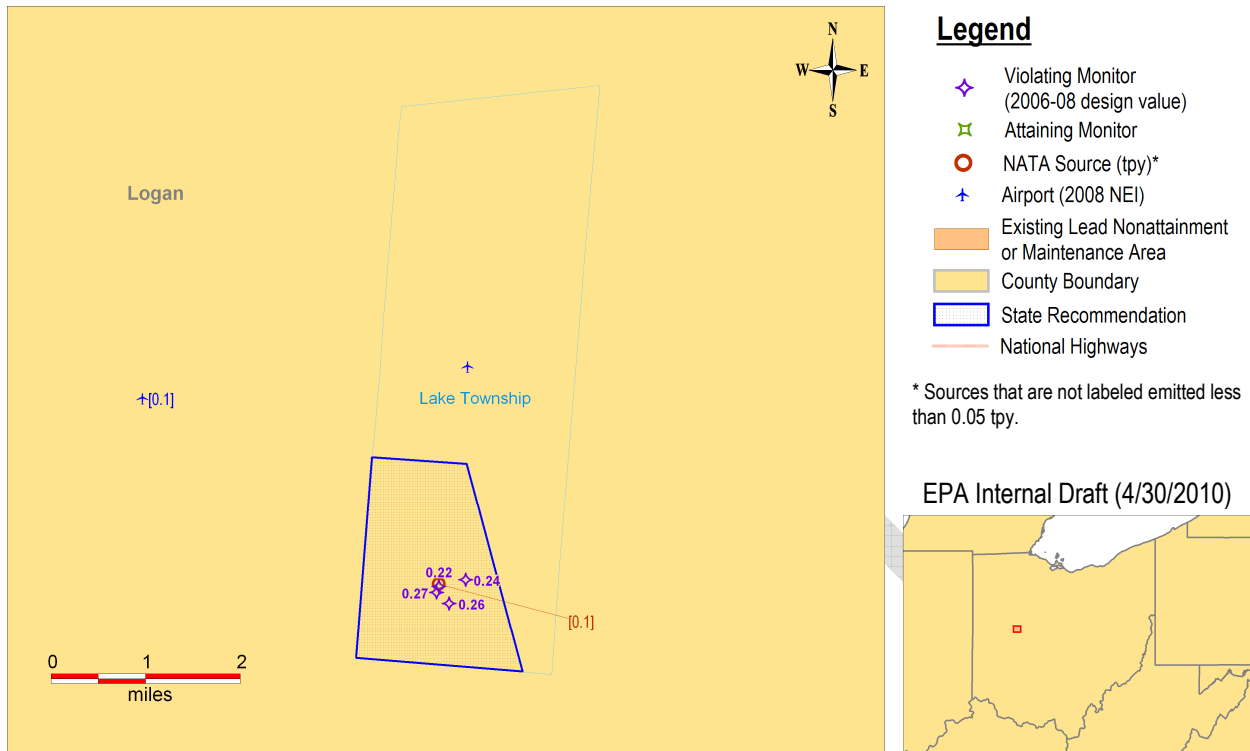
Table 1: Ohio Nonattainment Areas for the 2008 Lead NAAQS

Technical Analysis for Bellefontaine

Introduction

This technical analysis for Bellefontaine identifies the partial county with a monitor that violates the 2008 lead NAAQS and evaluates nearby counties for contributions to lead concentrations in the area. EPA has evaluated these counties 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, 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).



**Figure 1: Bellefontaine, Ohio State Recommended Nonattainment Area
(Office of Air Quality and Planning Standards - OAQPS)**

Figure 1 is a map of the area analyzed showing the locations and design values of air quality monitors in the area, and the counties surrounding any violating air quality monitors. Source data is also labeled in Figure 1 with the following guidelines: if the source emitted 0.5 or more tons, the symbol, name of the facility, and emissions are labeled; if the source emitted 0.1 – 0.5 tons, only the symbol and emissions are labeled; and if the source emitted less than 0.05 tons, only the symbol is shown.¹ Emissions in Bellefontaine and the surrounding areas will be discussed in the section addressing emissions in Logan County. The location of the detailed area in relation to the remainder of the State is shown in the bottom right corner of the figure.

¹ Emissions greater than 0.05 tpy round up to 0.1 tpy, and they are marked with the symbol and the emissions value.

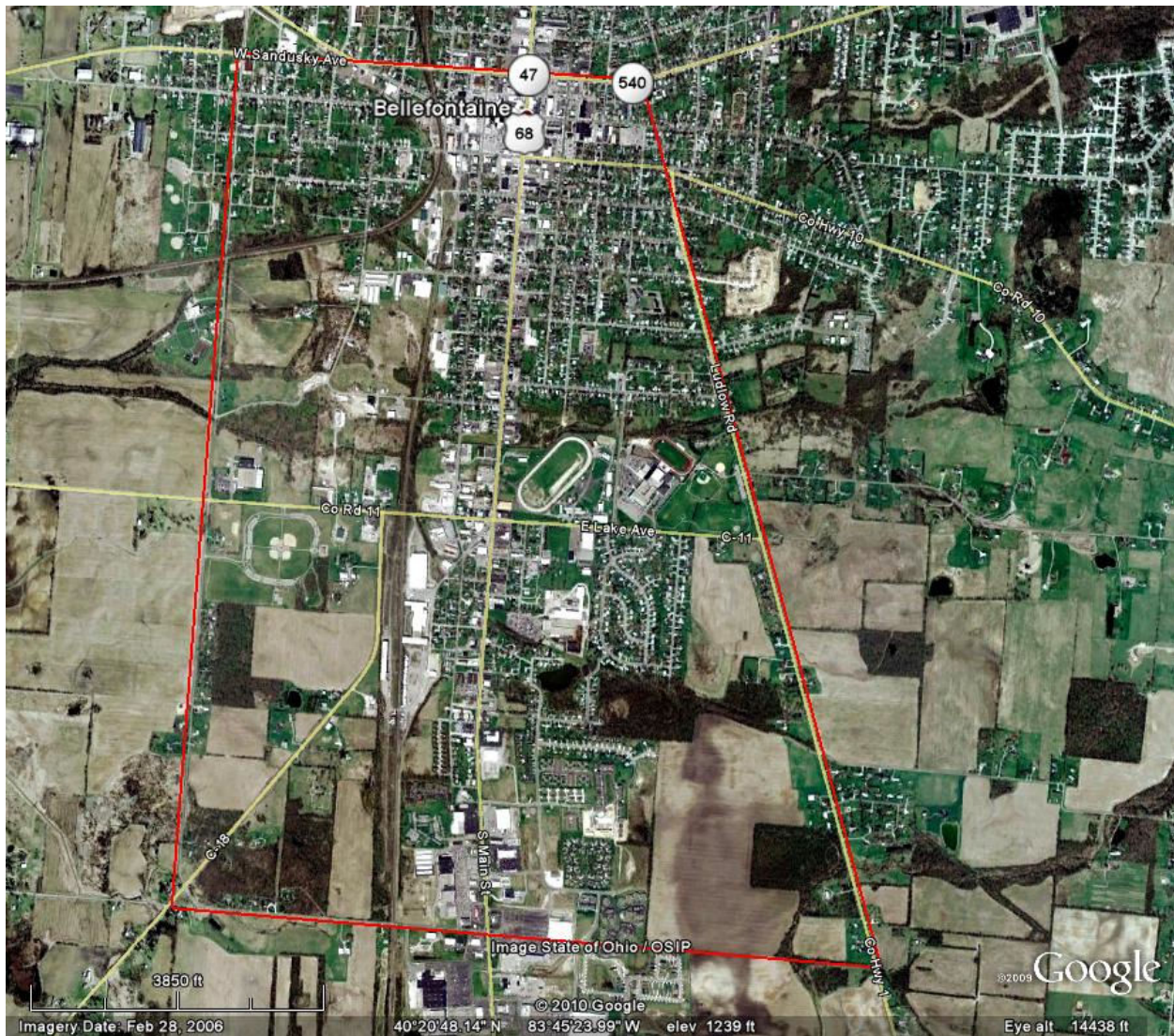


Figure 2: Bellefontaine, Ohio State Recommended Nonattainment Area (OAQPS and Google Earth)

Figure 2 shows the State recommended nonattainment area boundary for Bellefontaine, Ohio. The boundary is shown with the red outline, and encompasses the following: sections 27, 28, 33, and 34 of Lake Township.

In October 2009, Ohio recommended that a portion of Logan 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 (FRM) or Federal Equivalent Method (FEM) monitors located in the State. Chris Korleski, Director of the Ohio Environmental Protection Agency (Ohio EPA), submitted the State’s recommendation to EPA in a letter dated October 5, 2009.

Based on EPA’s technical analysis described below, EPA is intending to designate portions of Logan County in Ohio as nonattainment for the 2008 lead NAAQS as part of the Bellefontaine 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 air quality monitors in Logan County in Bellefontaine and the surrounding area based on data for the 2006-2008 and 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 2 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 3 full calendar years in order to have a valid violating design value; a site could monitor just 3 months and still produce a valid (violating) design value.

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 ($\mu\text{g}/\text{m}^3$)
Logan, Ohio	Yes	Main St. – Daido Facility Bellefontaine	390910005	1229 S Main St. (40.34278, -83.76028)	0.27	NA*
Logan, Ohio	Yes	Greenwood - Daido Facility Bellefontaine	390910008	1215 Greenwood St.	0.18	0.18
Logan, Ohio	Yes	Superior – Daido Facility Bellefontaine	390910003	1222 Superior St. (40.34394, -83.75610)	0.12	0.12
Logan, Ohio	Yes	Superior – Daido Facility Bellefontaine	390910007	1205 Superior St. (40.34394, -83.75610)	0.24	0.24
Logan, Ohio	Yes	Richard Ave. – Daido Facility Bellefontaine	390910006	320 Richard Ave. (40.34147, -83.75868)	0.26	0.26

Monitors in bold have the highest 2006-2008 and/or 2007-2009 design value in the respective county. Latitudes and longitudes have been provided at the sites where the AQS provided addresses are incorrect. *This monitor was replaced by the Greenwood St monitor in November of 2006.

Table 2: Bellefontaine, Ohio and Surrounding Areas Air Quality Data

The 2008 lead NAAQS design values for Logan County in Bellefontaine and the surrounding area are shown in Table 2, and Logan County shows a violation of the 2008 lead NAAQS. Therefore some area in this county and possibly additional areas in surrounding counties must be

designated nonattainment. It should be noted that the monitor on Main St. (AQS ID 390910005) was replaced by the monitor at 1215 Greenwood St. in November of 2006. This re-siting has no effect on the presence of violations at other nearby monitors or violations that occurred after the re-siting occurred.

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 these factors and other relevant information.

According to EPA's monitor locator,² the monitor located at 1229 Main St. (AQS ID 390910005) has an objective of determining the highest concentration for lead. This monitor is in very close proximity to Daido Metal Bellefontaine LLC (Daido Metal). As previously mentioned, this monitor was replaced by the monitor located at 1215 Greenwood St. (AQS ID 390910008) in November of 2006. In addition, there were 3 other monitors in operation between 2006 and 2008 in close proximity to Daido Metal. The locations of these monitors will be discussed in the section addressing emissions for Logan County.

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.

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. Ohio did not provide updated emissions information, 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 and around Bellefontaine and sources emitting (or anticipate to contribute) 0.1 ton per year or greater of lead according to the 2005 NEI. The county that is part of the Bellefontaine nonattainment area for the 2008 lead NAAQS is shown in **boldface**.

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. These data are provided in Table 4, and contain the facilities emitting (or anticipate to contribute) 0.1 ton per year or greater of lead according to the draft 2008 NEI.

² <http://www.epa.gov/air/data/geosel.html>.

County	Facility in State Recommended Nonattainment Area?	Facility Name	2005 NEI (tpy)	Location	City
Logan County, Ohio	Yes	Daido Metal Bellefontaine LLC	0.1	1215 Greenwood St.	Bellefontaine
		Logan County Total Lead Emissions	0.2*		

Table 3: Bellefontaine, Ohio and Surrounding Areas Lead Emissions for Stationary Sources

* Total lead emissions for Logan County were calculated by adding the 2005 NEI data for facilities not using leaded aviation gas (stationary sources) to the 2008 Draft NEI data for facilities using aviation gas. Sources with emissions below 0.1 tpy were included in this final calculation.

City	Facility Name	Type	2008 Draft NEI (tpy)	Distance to NA area (km)
NA	NA	NA	NA	NA

Table 4: Bellefontaine, Ohio and Surrounding Areas Lead Emissions for Leaded Aviation Gas Facilities

There are no individual facilities using leaded aviation gasoline in or around Bellefontaine that have emissions of, or greater than, 0.1 ton per year. Additionally, there are no facilities using leaded aviation gasoline in the entirety of Logan County, Ohio that have emissions of, or greater than, 0.1 ton per year.

Using 0.2 ton per year as the total lead emissions for Logan County, EPA observes that the emissions from Daido Metal account for 50 percent of all lead emissions in the county. Although the facility has shut down as of June 2009, Ohio EPA will continue to monitor for lead at the Richard Ave. site (AQS Site ID 390910006). In addition to the existing source oriented monitoring network, 4 new source oriented sites in Ohio were operational as of January 2010: American Spring Wire (Cuyahoga County), Nucor Steel (Marion County), Timken Company Canton Bearing (Canton County), and Ellwood Engineering Castings (Hubbard, County).

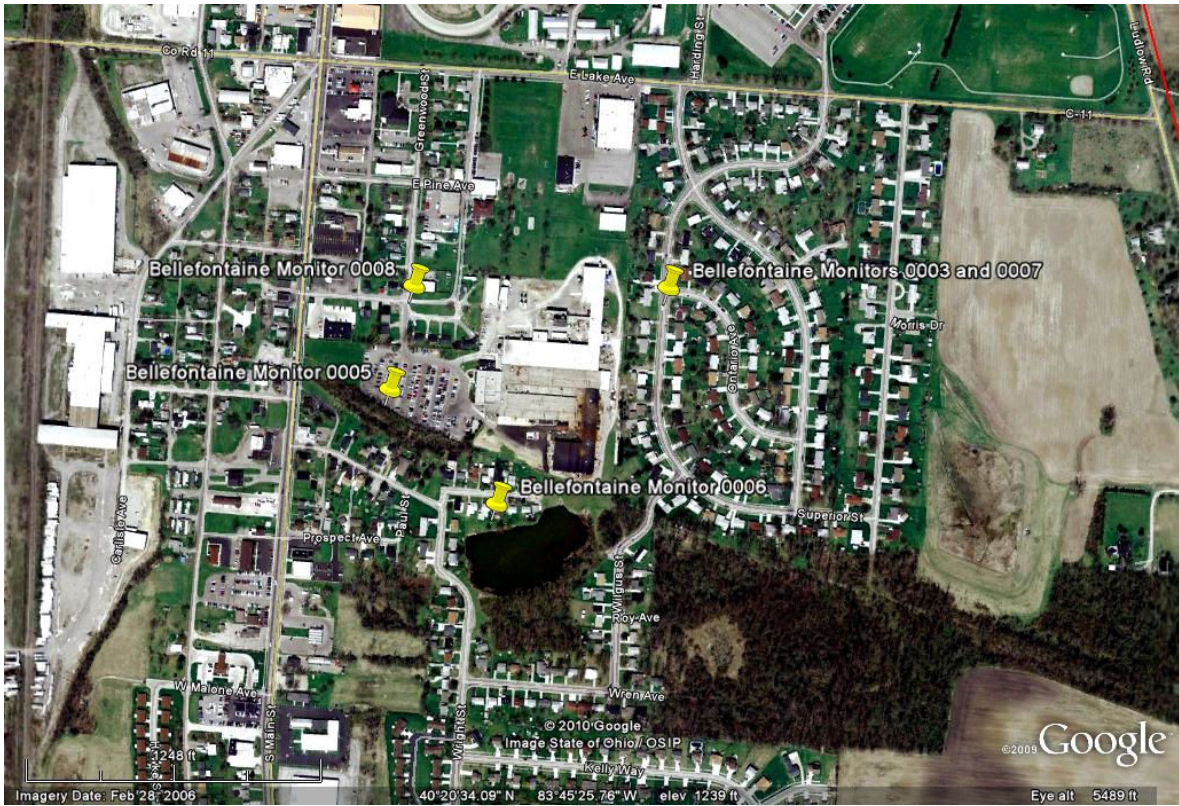


Figure 3: Daido Metals Monitor Locations (Google Earth)

Figure 3 shows that the lead monitors in Logan County. The Main St. site was replaced in November 2006 with the Greenwood St. site. For reference, please refer to Table 2 for the addresses of the monitors. The last 4 digits of the AQS ID have been included in the map. The corrected coordinates provided by Ohio EPA were used to construct this map. All monitors in Logan County are within 1000' of Daido Metal.

Population Data, Growth Rates, and Patterns

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. Re-entrainment of historically deposited lead is not reflected in the emissions inventory.

County	State Recommended Nonattainment?	2008 Population	2008 Population Density (pop/sq mi)	Population Change 2000-2008	Population % Change 2000-2008
Logan, Ohio	Yes	46,220	99	204	0

Table 5: Population Data for Logan County, Ohio

[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]

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 Bellefontaine before 2005 on stationary sources. EPA has received additional information on emissions reductions resulting from controls put into place since 2005.

Ohio EPA highlighted several regulations that apply to the entire State that assist in reducing the potential impact on lead concentrations. These rules include restriction of emissions of fugitive dust, control of visible particulate emissions from stationary sources, and restrictions on particulate emissions from industrial processes. Additionally, Daido Metal has permanently shut down as of June 2009. The facility started decreasing its overall production in the summer of 2008 due to the declining automotive industry, and there have been no violations of the 2008 lead NAAQS since the 3 month time period ending in May 2007. With the shutdown of the Daido Metal, lead emissions and monitored concentrations in Logan County are not expected to increase. Ohio EPA will continue to monitor for lead at the Richard Ave. site.

Meteorology (weather/transport patterns)

For this factor, EPA considered data from National Weather Service instruments and other meteorological monitoring sites in the area. Historical wind direction frequencies collected between 1960 and 1992 are included in Figure 4 and Table 6. These 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 violation location. Ohio EPA provided wind roses for Logan County in their submittal, and they are shown in Figure 5 and Figure 6. The graphical representations from these figures corroborate the data from the National Weather Service.

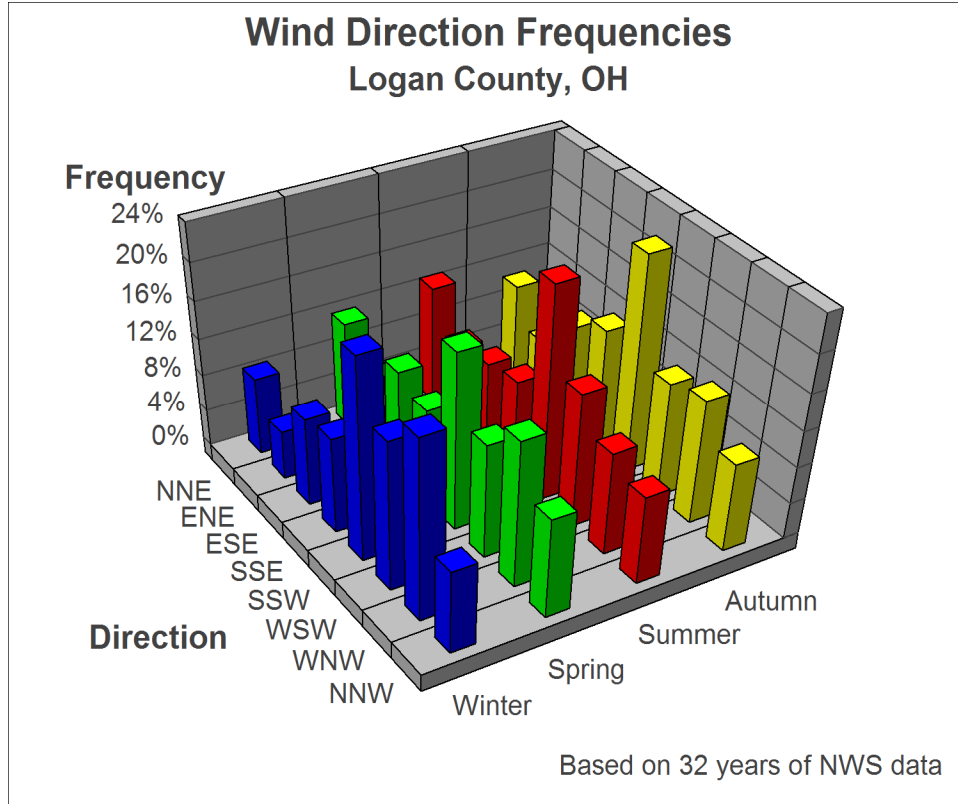


Figure 4: Historical Wind Direction Frequencies for Logan County, Ohio

Figure 4 is a 3-dimensional bar chart that shows the wind frequencies in 8 directions for the 4 seasons. These data are 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. The chart frequencies reflect the directions from which the winds come.

Logan County Wind Frequencies	
Frequency as a %	Seasonal Wind Directions
8.36	WINWINDFNNE
5.34	WINWINDFENE
9.56	WINWINDFESE
10.41	WINWINDFSSE
21.78	WINWINDFSSW
16.09	WINWINDFWSW
19.48	WINWINDFNNW
8.99	WINWINDFNNE
11.60	SPRWINDFNNE
8.23	SPRWINDFENE
11.71	SPRWINDFESE
10.30	SPRWINDFSSE
19.24	SPRWINDFSSW
12.36	SPRWINDFWSW
15.82	SPRWINDFNNW
10.75	SPRWINDFNNE
12.80	SUMWINDFNNE
8.84	SUMWINDFENE
9.62	SUMWINDFESE
10.30	SUMWINDFSSE
23.05	SUMWINDFSSW
14.56	SUMWINDFWSW
11.24	SUMWINDFNNW
9.58	SUMWINDFNNE
10.27	AUTWINDFNNE
6.48	AUTWINDFENE
10.80	AUTWINDFESE
13.04	AUTWINDFSSE
23.44	AUTWINDFSSW
12.59	AUTWINDFWSW
13.65	AUTWINDFNNW
9.73	AUTWINDFNNE

Table 6: Historical Wind Frequency Data as Percents for Logan County, Ohio

As shown in Figure 4 and Table 6, the period with the highest wind frequency occurs in the autumn months, with winds blowing from the south southwest. With the consistently strong representation of winds from a variation of the west in all seasons, special care must be made when determining the nonattainment boundary to the east of the violating monitor.

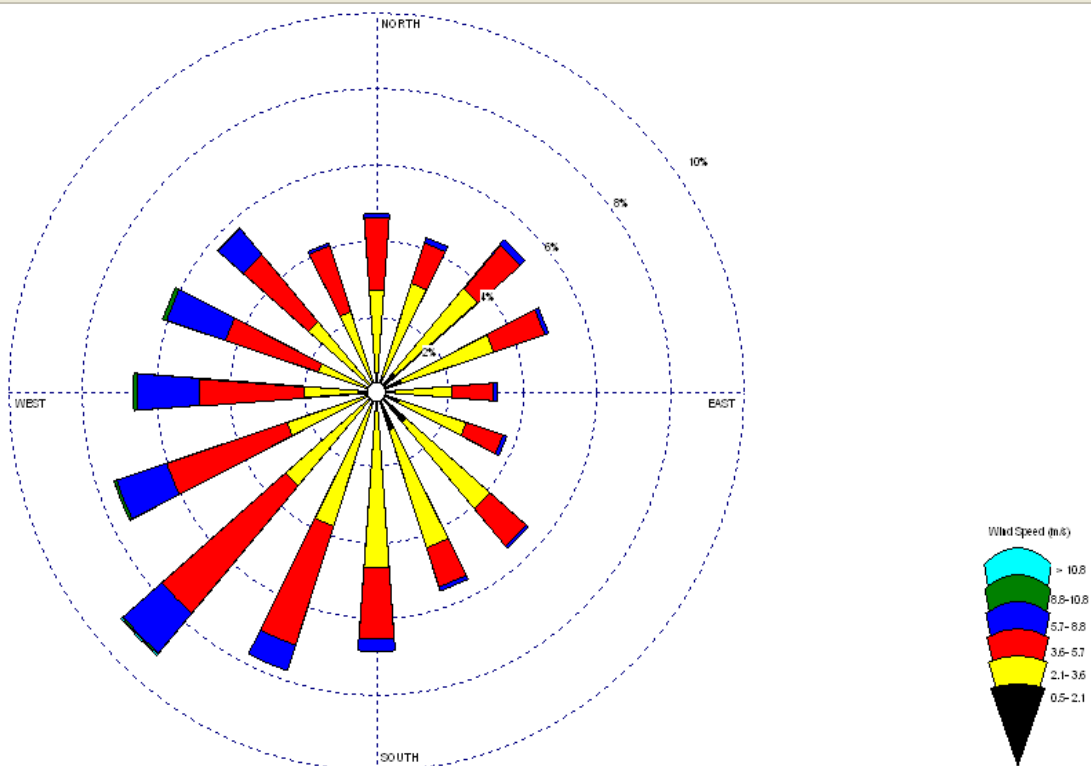


Figure 5: Wind Rose at Columbus International Airport (Ohio EPA)

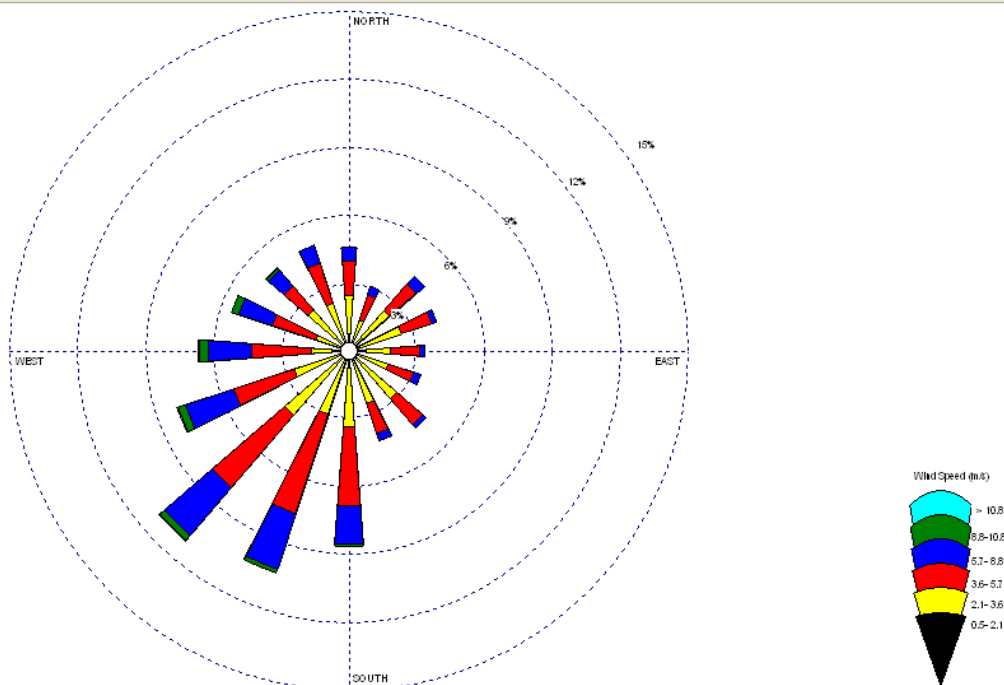


Figure 6: Wind Rose at Dayton International Airport (Ohio EPA)

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 Bellefontaine and the surrounding area.

The Bellefontaine 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 2008 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.

In EPA's August 21, 2009 guidance memorandum, "Area Designations for the 2008 revised Lead National Ambient Air Quality Standard," EPA reiterated that the presumptive boundary for each nonattainment area should be the county containing the violating monitor. This concept was first introduced in the guidance for the 1978 lead NAAQS designations, and is described in the 1992 General Preamble (57 FR 13549). This same presumptive boundary guidance was addressed most recently in the final rulemaking for the 2008 lead NAAQS (73 FR 66964). EPA observed, however, that States have the flexibility in their recommendations to deviate from the presumptive county boundary to portions of the county containing the violating monitor, stating that any "nonattainment area boundaries that deviate from presumptive county boundaries should be supported by an assessment of several factors..." all of which have been discussed already in this document, except for jurisdictional boundaries.

For the Bellefontaine area, there are several jurisdictional boundaries that can be considered. Logan County belongs to the Bellefontaine micropolitan statistical area, and the Ohio EPA Central Office and Ohio EPA Southwest District Office are responsible for air quality planning within all areas of Logan County. As a result, air quality planning efforts to address the impending lead nonattainment area in Bellefontaine should not be problematic; it should be noted that the final rulemaking for the 2008 lead NAAQS (73 FR 66964) specifically addressed transportation conformity by stating, "In light of the elimination of lead additives from gasoline, transportation conformity does not apply to the lead NAAQS." Lastly, Ohio EPA has recommended that the nonattainment area be defined by well-known and major roads which coincide with sections 27, 28, 33, and 34 of Lake Township.

Other Relevant Information

EPA received additional relevant information from Ohio for establishing the nonattainment area boundary for Bellefontaine. This information will be discussed below.

The procedure for defining the perimeter of the nonattainment boundary which involves spatial interpolation of historic monitor data was found to be inapplicable for Bellefontaine due to the unsuitable number and distribution of monitors showing exceedances of the standard. Instead, Ohio EPA took a hybrid approach, using the AERMOD dispersion model in conjunction with historic data. Ohio EPA used the modeling output from AERMOD to generate concentration gradients throughout the area, while the monitored data was used to generate the ratio of actual/modeled concentration values. These ratios can serve as “correction factors” to adjust for any systematic tendency of the model to over, or under, predict the monitored values. Ohio EPA applied the Krige algorithm for spatial interpolation of modeled concentrations and drawing of isopleths. Ohio EPA used $0.145 \mu\text{g}/\text{m}^3$ as the “pre-correction factor” bounding isopleth, as this value shows attainment of the NAAQS. The process of expanding the nonattainment area boundary using the “correction factor” follows.

Daido Metal is believed to be the predominantly responsible source for elevated lead concentrations in Bellefontaine; however, source information from lead sources at the facility were not provided to Ohio EPA due to the shutdown of the facility. Ohio EPA therefore modeled the entire facility as an area source, and the property dimensions were used as the size of the area source. The Honda East Liberty Plant and Honda Transmission Manufacturing facilities were modeled as single point sources using data from the 2005 NEI. Stack information from lead sources were provided to Ohio EPA by the Honda East Liberty facility, and this information was averaged to create a single lead emission source. As the Honda Transmission Manufacturing facility did not provide stack information to Ohio EPA, Ohio EPA used the averaged source parameters for the East Liberty facility for the Honda Transmission Manufacturing Facility. Lead source information for Quincy Castings was not provided to Ohio EPA, but it is believed that it is an area source and it was modeled as such. Building dimensions provided to Ohio EPA served as the size of the area source.³ Emissions data used for the modeling analysis is included in Table 7. Surface meteorological data from Columbus, Ohio and upper air data from Dayton, Ohio were determined to be representative of Logan County.

³ It should be noted, however, that the Honda and Quincy Castings facilities were not included in the table addressing lead emissions in Logan County because the numbers for these facilities were well under 0.1 tpy.

Longitude	Latitude	Facility Name	2005 NEI Emissions (tpy)	TRI2005 TRI Emissions (tpy)	Maximum Modeled Value (tpy)
-83.7598	40.34411	QUINCY CASTINGS INC.	0.035	0.035	0.035
-83.5664	40.33883	HONDA OF AMERICA, EAST LIBERTY PLANT	0.0075	0.0075	0.0075
-83.88	40.46	HONDA TRANSMISSION MANUFACTURING OF AMERICA INC	0.0075	0.0075	0.0075
-83.9726	40.29898	DAIDO METAL BELLEFONTAINE LLC	0.121	0.121	0.1447

Table 7: Bellefontaine and Surrounding Area Emissions Data Used by Ohio EPA for Modeling Analysis

Correspondence with Ohio EPA between May 5-6, 2010, confirmed that in Table 7, the coordinates for Quincy Castings, Inc. and Daido Metal Bellefontaine LLC are reversed. The correct coordinates for Quincy Castings, Inc. are -83.9726, 40.29898, and the correct coordinates for Daido Metal Bellefontaine LLC are -83.7598, 40.34411. Ohio EPA ascertained that the errors associated with the coordinates were purely typographical; the modeling was performed for the right facilities. EPA observed that although the 2005 NEI and 2005 TRI emissions data for Daido Metal Bellefontaine LLC are listed as 0.121 tpy, the maximum modeled value is listed at 0.1447 tpy. Ohio EPA clarified this discrepancy on May 7, 2010, by explaining that it relies on a fee emissions report (FER) to populate the NEI; however, data in the FER has been found to change after even after reporting to NEI. Ohio EPA stated that it works extensively with the companies, EPA, and others to develop the most accurate emissions for each facility; but in the end, analysis of monitor placement and modeled facilities was based on worst case emissions. As a result, the modeling performed for Daido Metal Bellefontaine LLC was conducted based on these worst case emissions; this approach was found to be the more conservative, i.e., it results in a larger nonattainment boundary due to the correction factor calculations.

As previously mentioned, Ohio EPA used a correction factor to account for any under or over reporting from the modeled concentrations. Ohio chose to examine the months listed below in Table 8 because they represented the highest modeled concentration over a 3-year period.

Site name	August, 2005	July, 2006	August, 2006	modeled conc.	monitor/model factor
1222 Superior	0.073	0.088	0.086	0.1167	0.754
S. Main	0.120	0.128	0.100	0.0586	2.184
Richard Ave.	0.253	0.173	0.220	0.1159	2.183
1205 Superior	0.163	0.237	0.207	0.1167	2.031

Table 8: Correction Factors for Logan County (Ohio EPA)

As shown in Table 8, the highest correction factor is 2.184; this correction factor is unitless because both the monitored and modeled concentrations are expressed as $\mu\text{g}/\text{m}^3$, and dividing eliminates the units in both the dividend and divisor. As $0.145\mu\text{g}/\text{m}^3$ is the pre-correction factor isopleth, $0.145\mu\text{g}/\text{m}^3 / 2.184$ yields $0.0664\mu\text{g}/\text{m}^3$; this can be more easily represented as 66.4 nanograms/ m^3 , or $66.4\text{ ng}/\text{m}^3$. Therefore, the final isopleth defining the proposed nonattainment area is $66.4\text{ ng}/\text{m}^3$.

The area encompassed by this isopleth is shown by the yellow box in Figure 7. All areas outside of the yellow box have been modeled to show a lead impact of less than $66.4\text{ ng}/\text{m}^3$. Ohio EPA has added an additional buffer between the nonattainment area obtained by performing the isopleth analysis and the final State recommended nonattainment area. The final State recommended nonattainment area is shown by the red outline, and once again, encompasses sections 27, 28, 33, and 34 of Lake Township.

DRAFT

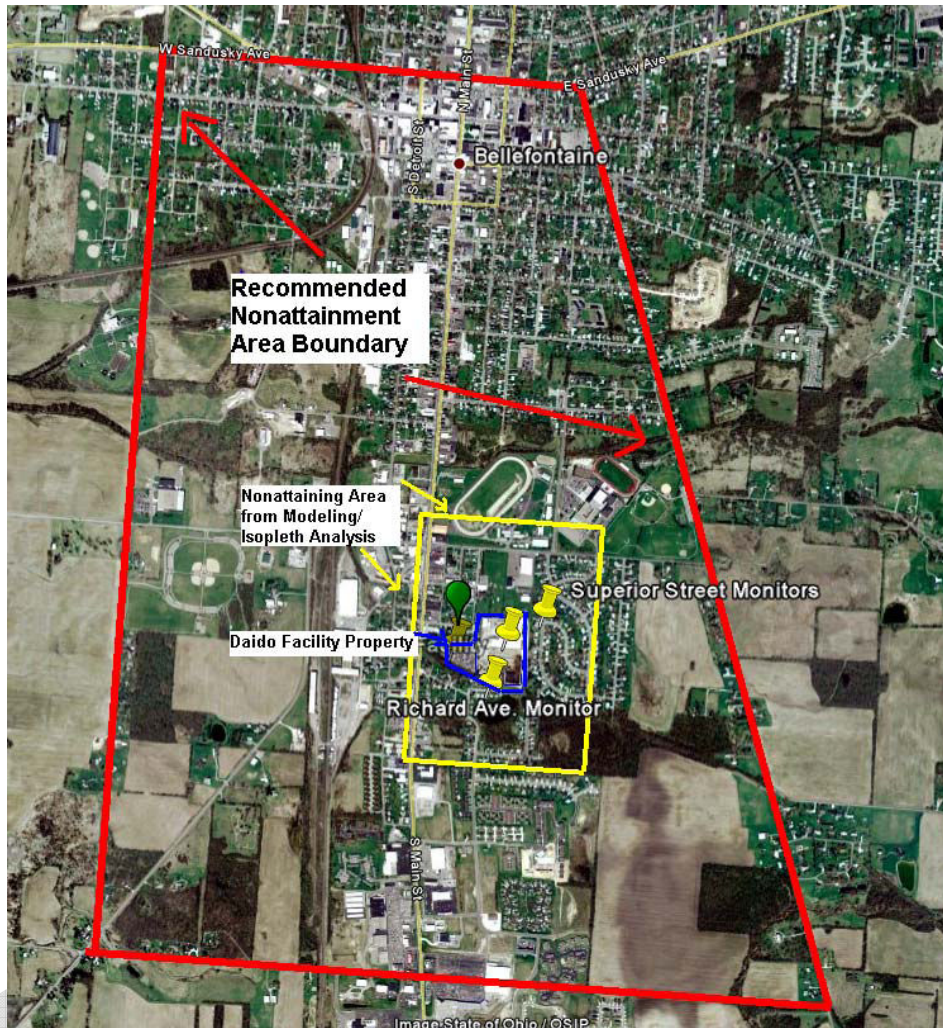


Figure 7: Isopleth Analysis for Logan County (Ohio EPA)

Information supporting Ohio EPA’s modeling analysis is provided in Table 9 and Table 10. Some of this information has been previously explained in detail.

Source	Characterization	Fugitives Modeled?	Stack Parameters	Comments
Daido Metal	Area	No	Area Source	
Quincy Castings	Area	No	Area Source	
Honda Transmission	Point	No	Averaged from Honda East Liberty	Facility did not provide info to Ohio EPA; 2005 NEI data identical to Honda East Liberty
Honda East Liberty	Point	No	Averaged Point	

Table 9: Bellefontaine Area Source Characterization (Ohio EPA)

Source	Emissions Used	Emissions Type	Multiple Sources?	Meteorological Data	Receptors	Terrain	Comments
Daido Metal	2005 NEI	Actual	Yes	2 Sites, 1 Sector/ 4 Seasons	Adequate, 200 m spacing	Not significant	
Quincy Castings	2005 NEI	Actual	Yes	2 Sites, 1 Sector/ 4 Seasons	Adequate, 200 m spacing	Not significant	
Honda Transmission	2005 NEI	Actual	Yes	2 Sites, 1 Sector/ 4 Seasons	Adequate, 200 m spacing	Not significant	
Honda East Liberty	2005 NEI	Actual	Yes	2 Sites, 1 Sector/ 4 Seasons	Adequate, 200 m spacing	Not significant	

Table 10: Bellefontaine Area Source Modeling Parameters (Ohio EPA)

EPA modelers have reviewed the analysis for the Bellefontaine area and have the following observations:

- Ohio EPA had little detailed information about the sources.
- The concept of using a correction factor to expand the nonattainment boundary is unusual, but it is possible that more comprehensive source data might have resulted in the same outcome.
- Although the NEI data for the 2 Honda facilities is identical, averaging the parameters from 1 facility to represent the parameters for the other could be unrealistic.
- Ohio EPA used building dimensions or property dimensions as the basis for area source modeling.
- The receptor spacing used by Ohio EPA differs slightly from the guidance which suggests 100 meters.
- No background concentration was added to the modeling; Ohio EPA stated that adding a background concentration was not added because all surrounding sources were included in the modeling.

On May 7, 2010, Ohio EPA responded to EPA’s observations by providing the following points:

- Ohio EPA pointed out that Quincy Castings, located nearly 12 miles west of Daido Metal, has very small amounts of lead emissions; of these emissions, 95 percent are fugitive. Additionally, Quincy Castings is “inactive” as of March 5, 2010, but is choosing not to permanently shut down. The facility would have to re-contact Ohio EPA prior to resuming operations or selling the company.
- Regarding the 2 Honda facilities, Ohio EPA relied on its own internal databases and internal contact with the facilities for the emission source information. The agency did not realize stack information was available in the NEI. Recently reported information shows that for the Honda Transmission facility the stack is 45’ (NEI showed 42’) and account for about 54 percent of the NEI emissions (remaining fugitive). For the Honda East Liberty plant the stacks are between 85’ to 90’ (NEI showed 70’) and account for about 27 percent of the NEI emissions. Ohio EPA used 88’ as the stack height for both facilities because that was the average of the East Liberty stacks for which it had available information at that time. The Honda Transmission facility is about 10 miles northwest of Daido Metal while Honda East Liberty is about 10 miles east of Daido

Metal. Winds are predominantly out of the southwest, and in conjunction with the distance and low emissions of the 2 Honda sources, it is extremely unlikely any changes to stack heights would change any impact, also considering the offsetting effect of applying 75 percent of the Honda East Liberty emissions as fugitive area source emissions. The lead emissions from these facilities were not averaged.

- To clarify the AERSURFACE run of 1 sector/4 seasons, Ohio EPA stated that the same AERSURFACE file was used in the monitor siting analysis and that the meteorological data were from 1984-1988.
- Regarding the receptor resolution, Ohio EPA observed that 200m was adequate to model the maximum impact from the facilities in question. Specifically, Daido Metals appeared to contribute over 99.9 percent of the maximum modeled concentration, with Quincy Castings contributing 0.05 percent of the maximum modeled concentration.

EPA concludes that although the modeling performed by Ohio EPA may not meet the requirements for an attainment demonstration, the air dispersion modeling performed for Fulton County showing the 66.4 ng/m³ isopleth obtained from the correction factor calculation in relationship to the entire State recommended nonattainment area results in a reasonable boundary for the nonattainment area.

Conclusion

After considering the factors described above, EPA has determined that it is appropriate to include the portion of the county listed in Table 1 in the Bellefontaine nonattainment area for the 2008 lead NAAQS.

The air quality monitor in Logan County shows a violation of the 2008 lead NAAQS, based on 2006-2008 and 2007-2009 air quality data. Daido Metal is located in Bellefontaine, and accounts for 50 percent of all lead emissions in Logan County. The cumulative process of this factors analysis in conjunction with the relevant air dispersion modeling that Ohio EPA provided ultimately leads to the final nonattainment area. EPA finds it appropriate to designate the portions of Logan County that are encompassed by: sections 27, 28, 33, and 34 of Lake Township as nonattainment for the 2008 lead NAAQS. Based on the 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.