Delta, 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 (ug/m3). 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 $\mu g/m^3$, 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 $\mu g/m^3$, 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 (μg/m³) to 0.15 μg/m³ 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 lead National Ambient Air Quality Standard (2008 lead NAAQS).

Area (listed alphabetically)	Ohio Recommended Nonattainment Counties	EPA's Designated Nonattainment Counties	Nonattainment Area for 1978 Lead NAAQS
Delta	Fulton (partial)	Fulton (partial)	NA

Table 1: Ohio Nonattainment Area for the 2008 Lead NAAQS

Technical Analysis for Delta

Introduction

This technical analysis for Delta 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, 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).

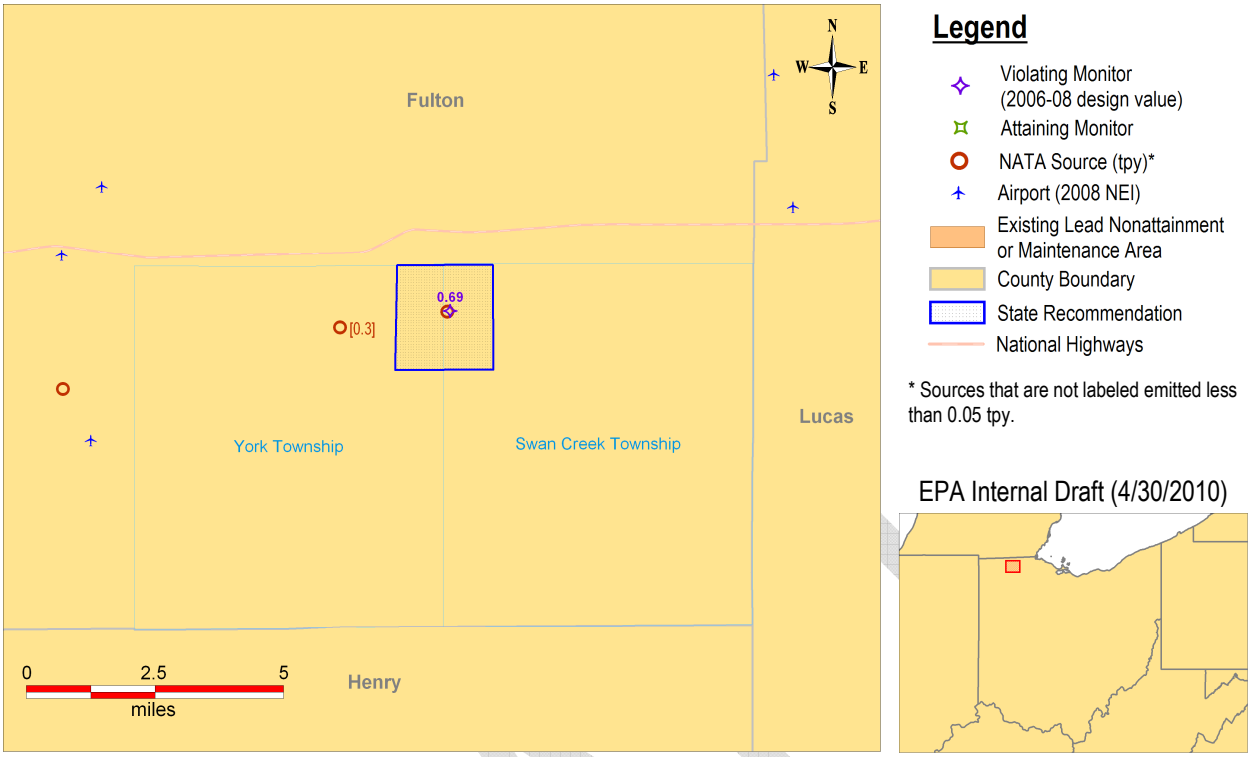

Figure 1: Delta, Ohio State Recommended Nonattainment Area
(Office of Air Quality and Planning Standards - OAQPS)

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 Delta and the surrounding areas will be discussed in the section addressing emissions in Fulton 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.

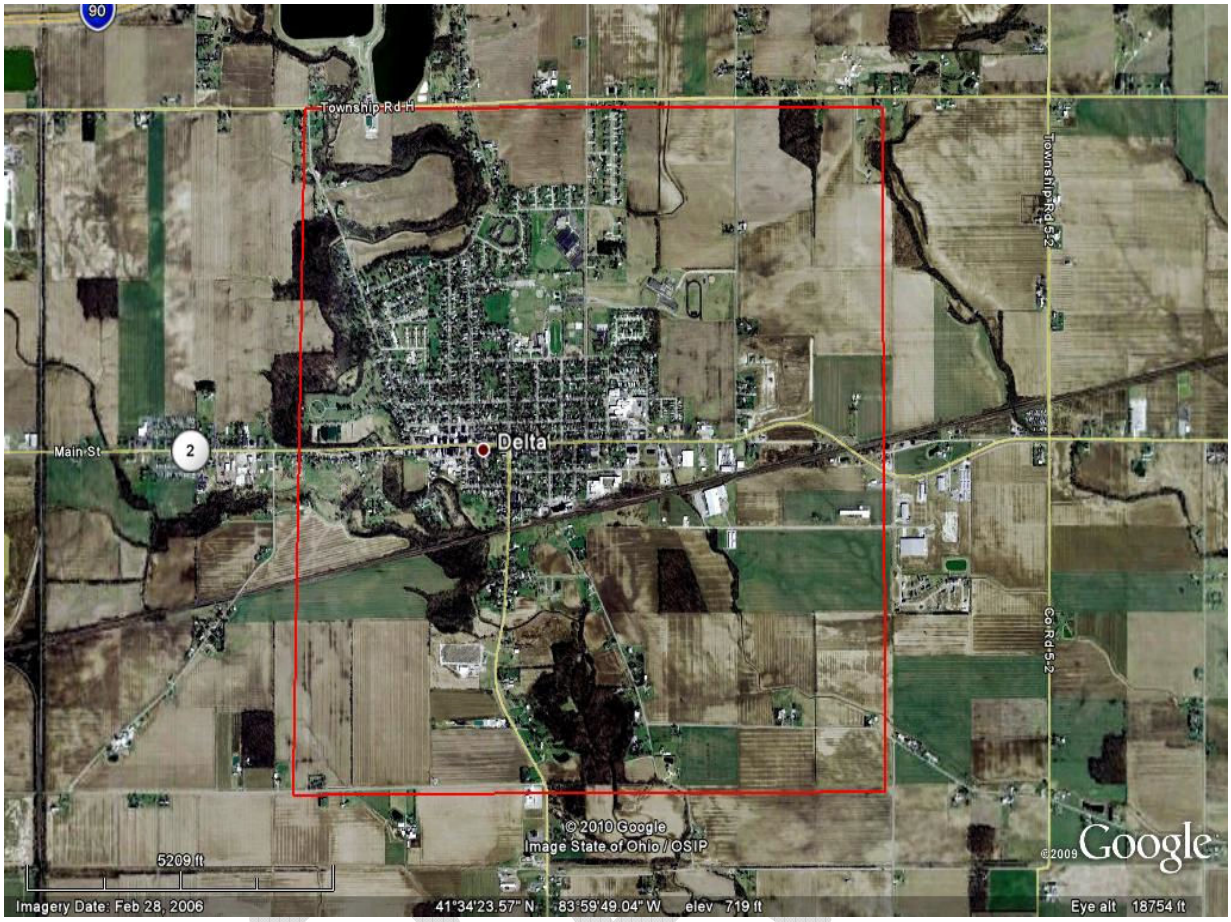

Figure 2: Delta, Ohio State Recommended Nonattainment Area (OAQPS and Google Earth)

Figure 2 shows the State recommended nonattainment area boundary for Delta, Ohio. The boundary is shown with the red outline, and is enclosed by sections 12 and 13 of York Township and sections 7 and 18 of Swan Creek Township.

In October 2009, Ohio recommended that a portion of Fulton 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 Fulton County in Ohio as nonattainment for the 2008 lead NAAQS as part of the Delta 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 $\mu g/m^3$) for air quality monitors in Fulton County in Delta 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 $\mu g/m^3$. 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 ($\mu g/m^3$)	Lead Design Value, 2007-2009 ($\mu g/m^3$)
Fulton, Ohio	**Yes**	**Bunting Bearing Facility Delta**	**390510001**	**200 Van Buren St. (41.57598, -83.99571)**	**0.69**	**0.69**

Monitor in bold has the highest 2006-2008 and 2007-2009 design value in the respective county. Latitudes and longitudes have been provided at the monitoring site; the coordinates in AQS are slightly mis-located. The design value of 0.69 $\mu g/m^3$ was obtained using data from January of 2007; the data for November of 2006 and December of 2006 was non-reference, and could not be used for the design value calculation.

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

The 2008 lead NAAQS design values for Fulton County in Delta and the surrounding area are shown in Table 2, and Fulton 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. 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 200 Van Buren St. (AQS ID 390510001) has an objective of determining the highest concentration for lead. This monitor is in very close proximity to Bunting Bearings LLC (Bunting Bearings). The location of this monitor will be discussed in the section addressing emissions for Fulton County.

[2] http://www.epa.gov/air/data/geosel.html.

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 Delta 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 Delta 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.

County	Facility in State Recommended Nonattainment Area?	Facility Name	2005 NEI (tpy)	Location	City
Fulton County, Ohio	No	Northstar Bluescope Steel, LLC	0.3	6767 County Road 9	Delta
		Fulton County Total Lead Emissions	0.3*		

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

* Total lead emissions for Fulton 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: Delta, Ohio and Surrounding Areas Lead Emissions for Leaded Aviation Gas Facilities

There are no individual facilities using leaded aviation gasoline in or around Delta that have emissions of 0.1 tpy or greater. The facility with the largest 2008 draft NEI data is Fulton County Airport in Wauseon, Ohio. The 2008 emissions data from this facility is .03 tpy.

Figure 3: Bunting Bearings Monitor Location (Google Earth)

In addition to Northstar Bluescope Steel, LLC, there are 3 sources in Fulton County listed in the 2005 NEI database: Multi-Cast Corp, Sauder Woodworking Cogeneration Facility, and Bunting Bearings. Bunting Bearings is the most likely source of the elevated lead concentrations in Fulton County, and Figure 3 above shows the location of the monitor for which the last 4 digits

of the AQS have been included. For reference, please refer to Table 2 for the coordinates of this monitor; the corrected coordinates provided by Ohio EPA were used to construct this map. The monitor is approximately 270' away from the center of the facility. Both points have been marked in Figure 3 by a yellow pin and red star, respectively.

Although Bunting Bearings is thought to be responsible for the elevated monitored lead readings in the Delta area, EPA observes that discussion about Northstar Bluescope Steel, LLC, is appropriate in this section, as well as the section addressing other relevant information. There is not a monitor in close proximity to Northstar Bluescope Steel, LLC, nor are there immediate plans to place a monitor in close proximity to the facility; current monitoring requirements mandate source oriented monitors to be placed at facilities emitting 1.0 tpy or greater. EPA has taken comment on a proposal to lower the emissions threshold for monitoring requirements from 1.0 ton per year to 0.5 ton per year (74 FR 69050). If the final rulemaking requires monitors at sites that emit 0.5 ton per year or greater of lead, Northstar Steel, LLC may still not exceed the threshold required for monitoring. EPA discusses below the available information regarding whether the nonattainment area surrounding the Bunting Bearings facility should be extended to encompass Northstar Bluescope Steel, LLC.

The existing source oriented monitoring network[3] in Ohio was expanded in January 2010 with the addition of 4 new source oriented sites: American Spring Wire (Cuyahoga County), Nucor Steel (Marion County), Timken Company Canton Bearing (Canton County), and Ellwood Engineering Castings (Hubbard, County).

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
Fulton, Ohio	Yes	42,485	104	351	1

Table 5: Population Data for Fulton 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.

[3] Daido Metal Bellefontaine in Logan County shut down in June 2009, but Ohio EPA will continue to monitor for lead at the Richard Ave. site (AQS 390910006).

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 Delta 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.

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 a wind rose for Fulton County in their submittal, and it is shown in Figure 5. The graphical representation from this figure corroborates the data from the National Weather Service.

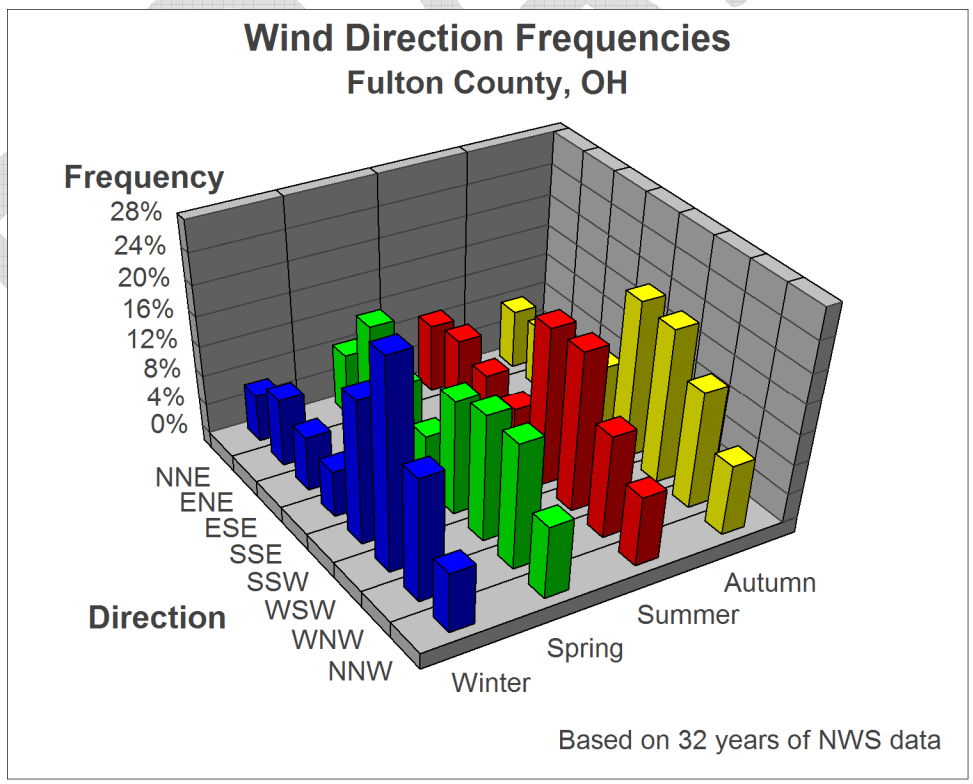

Figure 4: Historical Wind Direction Frequencies for Fulton County, Ohio

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.

Fulton County Wind Frequencies	
Frequency as a %	Seasonal Wind Directions
6.27	WINWINDFNNE
8.97	WINWINDFENE
7.28	WINWINDFESE
6.22	WINWINDFSSE
19.02	WINWINDFSSW
27.73	WINWINDFWSW
16.40	WINWINDFWNW
8.11	WINWINDFNNW
8.38	SPRWINDFNNE
15.35	SPRWINDFENE
10.74	SPRWINDFESE
7.14	SPRWINDFSSE
15.24	SPRWINDFSSW
16.76	SPRWINDFWSW
16.73	SPRWINDFWNW
9.65	SPRWINDFNNW
9.08	SUMWINDFNNE
10.10	SUMWINDFENE
8.47	SUMWINDFESE
7.13	SUMWINDFSSE
21.01	SUMWINDFSSW
21.17	SUMWINDFWSW
13.73	SUMWINDFWNW
9.30	SUMWINDFNNW
7.79	AUTWINDFNNE
8.21	AUTWINDFENE
8.09	AUTWINDFESE
9.16	AUTWINDFSSE
21.05	AUTWINDFSSW
20.61	AUTWINDFWSW
15.72	AUTWINDFWNW
9.36	AUTWINDFNNW

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

As shown in Figure 4 and Table 6, the period with the highest wind frequency occurs in the winter months, with winds blowing from the west 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.

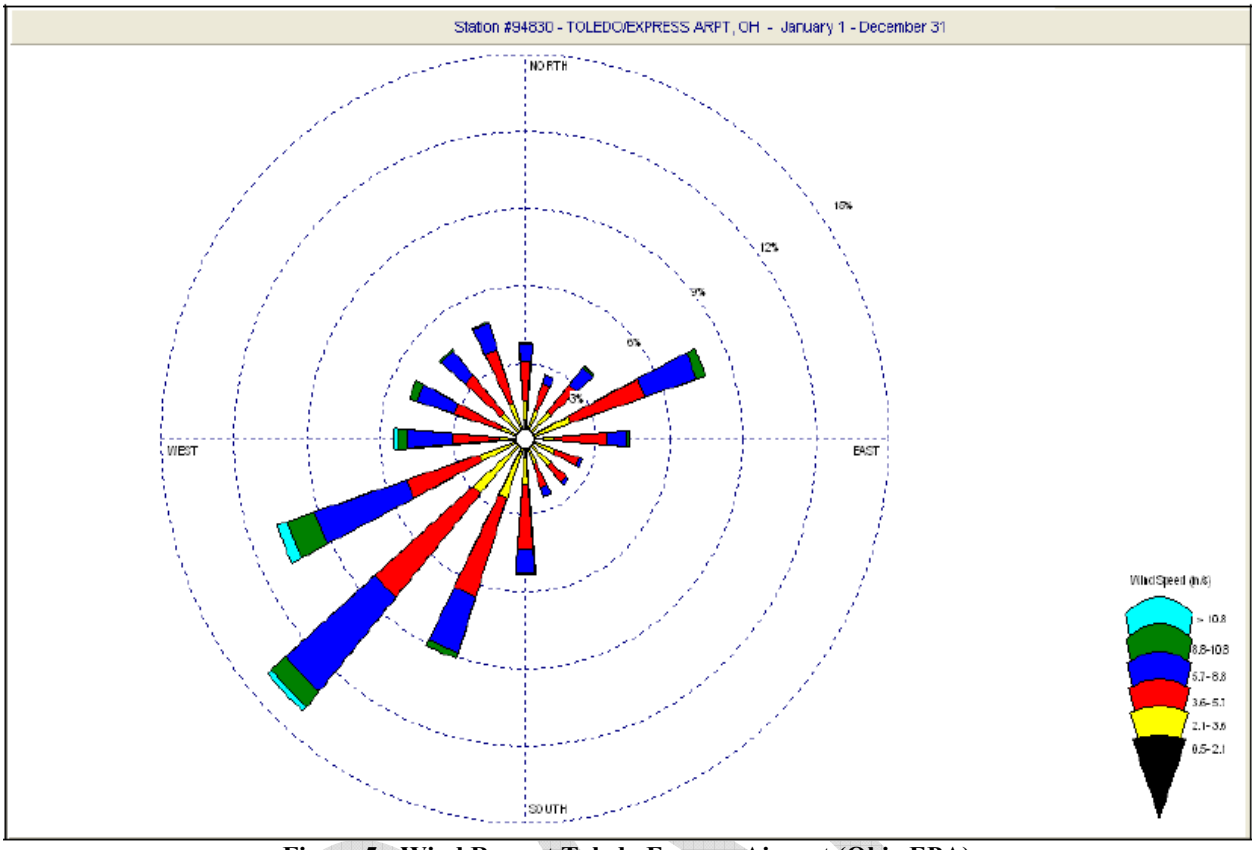

Figure 5: Wind Rose at Toledo Express Airport (Ohio EPA)

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 Delta and the surrounding area.

The Delta 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.

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 Delta area, there are several jurisdictional boundaries that can be considered. Fulton County is part of the Toledo micropolitan statistical area, and the Ohio EPA Central Office and Ohio EPA Northwest District Office are responsible for air quality planning within all areas of Fulton County. As a result, air quality planning efforts to address the impending lead nonattainment area in Delta 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 12 and 13 of York Township and sections 7 and 18 of Swan Creek Township.

Other Relevant Information

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

The technique of spatial interpolation for defining the perimeter of the nonattainment boundary was found to be inapplicable for Delta due to presence of only 1 monitor. 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 $\mu g/m^3$ 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.

Bunting Bearings is believed to be the predominantly responsible source for the elevated lead concentrations in Delta, and all sources at this facility were modeled individually. The source parameters for this modeling are identical to the ones used by Ohio EPA as part of their proposed lead monitoring network plan, and building downwash from the facility was included in the modeling.[4]

[4] http://www.epa.state.oh.us/dapc/ams/plans/OhioLeadMonitoring.pdf.

The Multi-Cast Corporation, Northstar Bluescope Steel, and Sauder Woodworking Cogeneration facilities were modeled as single point sources using the emissions from Table 7 below. Stack information from lead sources provided to Ohio EPA by the Northstar Bluescope Steel facility were averaged to create a single lead emission source. Stack information from lead sources provided to Ohio EPA by the Sauder Woodworking Cogeneration facility were also averaged to create a single lead emission source; however, the stack height itself for the lead source was not provided. Ohio EPA employed a conservative stack height for similar sources at the facility. Stack information from lead sources for the Multi-Cast facility was not provided to Ohio EPA; the averaged source parameters for the Bunting Bearings facility were used because it was determined that they were the most conservative.

Longitude	Latitude	Facility Name	2005 NEI Emissions (tpy)	TRI2005 TRI Emissions (tpy)	Maximum Modeled Value (tpy)
-84.0377	41.57077	NORTHSTAR BLUESCOPE STEEL, LLC	0.2545	0.2545	0.2545
-84.1417	41.55333	MULTI-CAST CORP	0.03	0.0766	0.0766
-83.9975	41.57508	SAUDER WOODWORKING COGENERATION FACILITY	0.0003	0.048	0.048
-84.2942	41.51237	BUNTING BEARINGS LLC	0.0035	0.0035	0.54

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

Meteorological data was considered by examining surface data from Toledo, Ohio National Weather Site 94830 and Upper Air data from the Flint, Michigan National Weather Service Site 14826. Ohio EPA determined that the data from these 2 sites were determined to be representative of Fulton County.

Correspondence with Ohio EPA on May 5-6, 2010, confirmed that in Table 7, the coordinates for Bunting Bearings LLC and Sauder Woodworking Cogeneration Facility are slightly inaccurate. The correct coordinates for Bunting Bearings LLC are -83.9975, 41.57508, and the correct coordinates for Sauder Woodworking Cogeneration Facility are -84.2942, 41.51237. 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 Bunting Bearings, LLC are listed as 0.0035 tpy, the maximum modeled value is listed at 0.54 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 Bunting Bearings, 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. This ratio was computed to be 5.729, and this factor is unitless because both the monitored and modeled concentrations are expressed as $\mu g/m^3$, and dividing eliminates the units in both the dividend and divisor. It was calculated by 0.567 $\mu g/m^3$ (the design value) / 0.09897 $\mu g/m^3$ (modeled value at the same point in time). As 0.145$\mu g/m^3$ is the pre-correction factor ispoleth, 0.145 $\mu g/m^3$ / 5.729 yields 0.02531 $\mu g/m^3$; this can be more easily represented as 25.31 nanograms/m^3, or 25.31 ng/m^3. Therefore, the final isopleth defining the proposed nonattainment area is 25.31 ng/m^3.

The nonattainment boundary based on the 25.31 ng/m^3 isopleth analysis is depicted by the yellow pentagon in below in Figure 6. All areas outside of the yellow pentagon have been modeled to show a lead impact of less than 25.31 ng/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 12 and 13 of York Township and sections 7 and 18 of Swan Creek Township.

The distance from the center of the Bunting Bearings facility to the western edge of the recommended nonattainment area is approximately 1.10 miles, and the distance to the eastern edge of the recommended nonattainment area from the center of the facility is approximately 0.8 miles. EPA observes that the distance between the center of the Northstar Bluescope Steel, LLC facility and the closest edge of the State recommended nonattainment area (the western edge) is approximately 1.6 miles. The distance between Northstar Bluescope Steel, LLC and the monitor at Bunting Bearings is approximately 2.75 miles. EPA believes that it is unlikely that lead emissions from the Northstar Bluescope Steel, LLC facility contribute enough to the monitored violations at Bunting Bearings to warrant including Northstar Bluescope Steel, LLC as part of the Delta nonattainment area. Ohio EPA included the parameters for Northstar Bluescope Steel, LLC as an averaged point source in the air dispersion modeling for the Delta area, and the emissions data were included in their entirety as coming from the stack; this method presented a worst case scenario for the transport of lead because fugitives would not travel as far. The isopleth analysis indicates that the expected impact in the western portion of the nonattainment area is less than 5.0 ng/m^3, or 0.005 $\mu g/m^3$. This concentration is less than 1 percent of the monitor design value for this nonattainment area.

Figure 6: Isopleth Analysis for Fulton County (Ohio EPA)

Information supporting Ohio EPA's modeling analysis is provided in Table 8 and Table 9. Some of this information has been previously explained in detail.

Source	Characterization	Fugitives Modeled?	Stack Parameters	Comments
Northstar Bluescope Steel, LLC	Point	No	Averaged Point	
Multi-Cast Corp	Point	No	Bunting Bearings Parameters	Info not provided to Ohio EPA; Parameters for Bunting were used
Sauder Woodworking Cogen Facility	Point	No	Averaged Point	Stack height not provided; Ohio EPA chose conservative stack height based on similar sources
Bunting Bearings	Point	No	Individual Points	

Table 8: Delta Area Source Characterization (Ohio EPA)

Source	Emissions Used	Emissions Type	Multiple Sources?	Meteorological Data	Receptors	Terrain	Comments
Northstar Bluescope Steel, LLC	2005 NEI	Actual	Yes	2 Sites, 1 Sector/ 4 Seasons	Small but adequate, 150 m spacing	Not significant	
Multi-Cast Corp	2005 NEI	Actual	Yes	2 Sites, 1 Sector/ 4 Seasons	Small but adequate, 150 m spacing	Not significant	
Sauder Woodworking Cogen Facility	2005 NEI	Actual	Yes	2 Sites, 1 Sector/ 4 Seasons	Small but adequate, 150 m spacing	Not significant	
Bunting Bearings	2005 NEI	Actual	Yes	2 Sites 1 Sector/ 4 Seasons	Small but adequate, 150 m spacing	Not significant	

Table 9: Delta Area Source Modeling Parameters (Ohio EPA)

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

- Ohio EPA had little detailed information about the sources.
- Ohio EPA substituted stack data from 1 facility for another.
- 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.
- 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 informed us that Northstar Bluescope Steel, LLC has a stack height of 89', and for the purposes of the air dispersion modeling, all emissions were assumed to come from the stack.

- Ohio EPA informed us that for the Multi-Cast Corp, the stack height is 48', and 50 percent of the emissions are coming from the stack, with the remaining 50 percent as fugitives.
- Ohio EPA informed us that for Sauder Woodworking, 2 stacks are 80' and they account for 90 percent of the emissions; there is also a 40' stack. Upon review, it was discovered that a mistake was made when converting the latitude and longitude into UTMs for Sauder Woodworking. Ohio EPA believes that this error occurred because this modeling includes some sources in UTM zone 16 and some in UTM zone 17. The inventory was converted to a single zone so that modeling could be performed. As a result of this error, Sauder Woodworking was actually modeled much closer to the Bunting Bearings facility, and thus the monitor itself. Because this source was moved closer to the monitor, it should be considered a conservative modeling approach. Even with Sauder Woodworking moving closer to the monitor, it still showed very little modeled impact.
- Ohio EPA observed that emissions from Multi-Cast and Sauder are inconsequential considering their distance and low levels; however all emissions were modeled as stack so as to provide the most conservative estimate of potential impact (fugitive lead emissions are less likely to transport such great distances and we had no record (just like the NEI) of fugitive sources). Northstar Bluescope Steel emissions were modeled at about 1/2 that of Bunting and all stack (fugitive emissions added into the stack) - this is conservative as if they were modeled as fugitive they would have even less opportunity to be transported east (winds predominantly out of the southwest).
- Regarding the emissions rates, Ohio informed us that the rates were not averaged.
- Regarding the AERSURFACE, Ohio EPA clarified that it was run using 1 sector/4 seasons for Fulton County. The same file was used to perform the monitor siting analysis. Meteorological data were from 1984 – 1988.
- Regarding the receptor resolution, Ohio EPA observed that 150m spacing was sufficient to model the maximum impact from the facilities in question. Specifically, Bunting Bearings contributed 99.6 percent of the maximum modeled concentration, and the next largest contributor was from Sauder at 0.66 percent of the maximum modeled concentration. Northstar and Multicast had little to no impact on 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 25.31 ng/m^3 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 Delta nonattainment area for the 2008 lead NAAQS.

The air quality monitor in Fulton County shows a violation of the 2008 lead NAAQS, based on 2006-2008 and 2007-2009 air quality data. Bunting Bearings is located in Delta, and although has very small reported emissions, is thought to be responsible for the elevated lead concentrations in Fulton County. There are no other major sources of lead emissions in the State recommended nonattainment area, and 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 Fulton County that are encompassed by: sections 12 and 13 of York Township and sections 7 and 18 of Swan Creek Township. Based on the consideration of all the relevant and 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.