

## Granite City, Illinois Technical Support Document

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### *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.

**ILLINOIS  
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 Illinois that EPA intends to designate “nonattainment” for the 2008 lead National Ambient Air Quality Standard (2008 lead NAAQS).

Area (listed alphabetically)	Illinois Recommended Nonattainment County	EPA’s Designated Nonattainment County	Nonattainment Area for 1978 Lead NAAQS
Granite City	Madison (partial)	Madison (partial)	NA

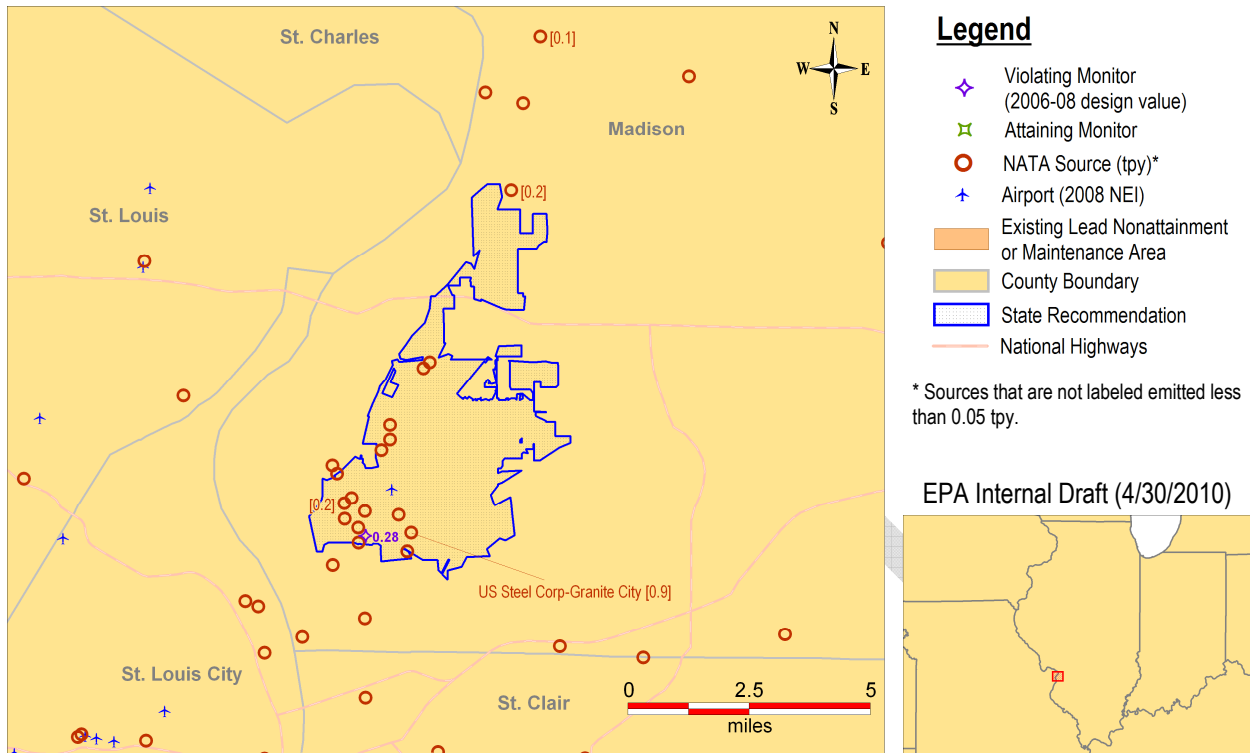
**Table 1: Illinois Nonattainment Area for the 2008 Lead NAAQS**

**Technical Analysis for Granite City**

**Introduction**

This technical analysis for Granite City 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:

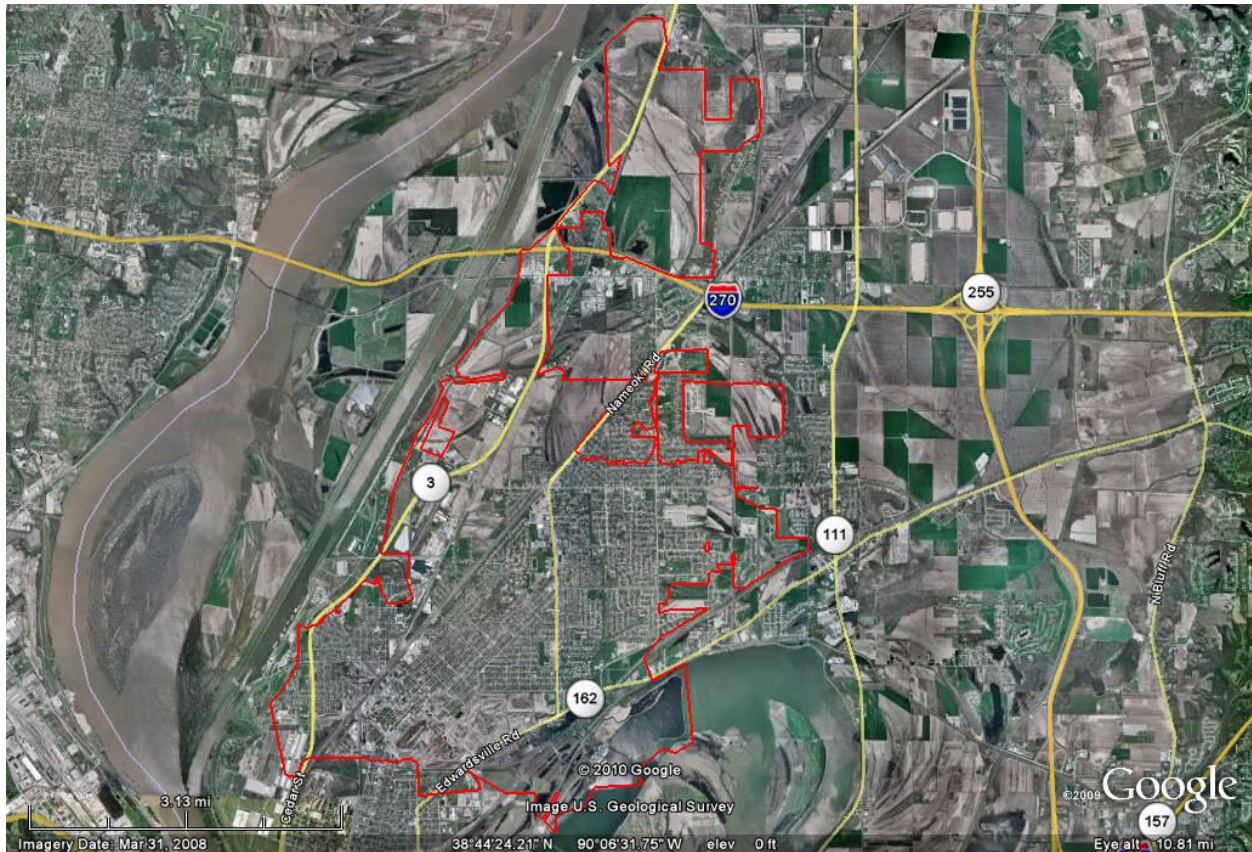
- Air quality in potentially included versus excluded areas;
- Emissions and emissions-related data in areas potentially included versus excluded from the nonattainment area, including population data, growth rates, patterns, and emissions controls;
- Meteorology (weather/transport patterns);
- Geography/topography (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: Granite City State Recommended Nonattainment Area (Office of Air Quality and Standards Planning - 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.<sup>1</sup> Emissions in Granite City and the surrounding areas will be discussed in the section addressing emissions in Madison 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.

<sup>1</sup>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: Granite City, Illinois State Recommended Nonattainment Area (OAQPS and Google Earth)**

Figure 2 shows the State recommended nonattainment area boundary for Granite City, Illinois. The boundary is shown with the red outline, and encompasses the city limit of Granite City.

In October 2009, Illinois recommended that a portion of Madison 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. Douglas Scott, Director of Illinois EPA (Illinois 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 Madison County in Illinois as nonattainment for the 2008 lead NAAQS as part of the Granite City 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 Madison County in Granite City 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.

The 2008 lead NAAQS design values for Madison County in Granite City and the surrounding area are shown in Table 2.

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>Madison, Illinois</b>	<b>Yes</b>	<b>Granite City</b>	<b>171190010</b>	<b>15<sup>th</sup> and Madison St.</b>	<b>0.28</b>	<b>0.28</b>
Madison, Illinois	No*	Wood River	171193007	54 N. Walcott St.	0.04	0.04

Monitor in bold has the highest 2006-2008 and 2007-2009 design value in the respective county. \* This monitor is in Madison County, but is in the city of Wood River (and therefore not in the State recommended nonattainment area).

**Table 2: Granite City, Illinois and Surrounding Areas Air Quality Data**

Madison 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,<sup>2</sup> the monitor located at 15<sup>th</sup> and Madison St. (AQS ID 171190010) has an objective of determining the highest concentration for lead. This monitor is in very close proximity to US Steel Granite City Works (US Steel). The location of this monitor will be discussed in the section addressing emissions for Madison County.

<sup>2</sup> <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. Illinois provided estimated emissions inventory data for Madison County in their submittal, which will also be considered in this analysis. Emissions data are provided in Table 3 and Table 4 below.

Table 3 shows total emissions of lead given in tons per year (tpy) for violating and potentially contributing counties in and around Granite City 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 Granite City nonattainment area for the 2008 lead NAAQS is shown in **boldface**. Table 4 shows total emissions of lead given in tons per year for violating and potentially contributing counties in and around Granite City for all sources. This table is based on 2006-2008 estimated emissions, and was provided by Illinois EPA in its October 2009 submittal.

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 5, 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
<b>Madison County</b>	Yes	US Steel Corporation – Granite City	0.9	1520 20 <sup>th</sup> St.	Granite City
<b>Madison County</b>	Yes	ASF-Keystone, Inc	0.2	1700 Walnut St.	Granite City
<b>Madison County</b>	No	Chemetco Inc	0.2	3754 Chemetco Ln.	Hartford
<b>Madison County</b>	No	Stein Steel Mill Services Inc	0.2	5 Cut St.	Alton
<b>Madison County</b>	No	Olin Corp	0.1	427 N Shamrock St.	East Alton
<b>Madison County</b>	No	BP Products North America, Inc: Wood River Terminal	0.1	335 S Old St. Louis Rd.	Wood River
Total Lead Emissions for Madison County			2.0*		

**Table 3: Granite City, Illinois and Surrounding Areas Lead Emissions for Stationary Sources**

\* Total lead emissions for Madison 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.

Name	City	2006 Estimated Emissions (tons/year)	2007 Estimated Emissions (tons/year)	2008 Estimated Emissions (tons/year)
US Steel Granite City Works	Granite City	0.92	1.33	1.54
Alton Steel Inc	Alton	0.402	0.399	0.469
Olin Corp	East Alton	0.18	0.18	0.1731
Amsted Rail Co Inc*	Granite City	0.188	0.154	0.154
Dynegy Midwest Generation Inc	East Alton	0.0119	0.0519	0.114
GBC Metals LLC DBA Olin Brass	East Alton		0.00157	0.025
ConocoPhillips Co	Roxana	0.01	0.01	0.013
Mayco Industries LLC	Granite City	0.006	0.01	0.000227
Richards Brick Co	Edwardsville	0.000393	0.00026	0.00027
Christ Bros Products LLC	South Roxana		0.000009	0.000019
Anderson Hospital	Maryville			0.000009
Owens Corning Roofing & Asphalt LLC	Granite City	0.000007	0.000008	0.000009
Magnesium Elektron North America	Madison		0.00004	0
Gateway Regional Medical Center	Granite City		0	0
St Anthonys Hospital	Alton	0	0	0
Conoco Phillips Hartford Lubricant Plant	Hartford	0	0	0
St Clares Hospital	Alton	0	0	0
Union Electric Co	Venice	0	0	0
Alton Memorial Hospital	Alton	0.000054		0
Kinder Morgan Transmix Co LLC	Hartford		0	0
American Colloid Co*	Granite City	0		0.125
Precoat Metals*	Granite City	0	0	0.0125
<b>Total</b>		<b>1.71835</b>	<b>2.13679</b>	<b>2.62613</b>

\*TRI Reported Values

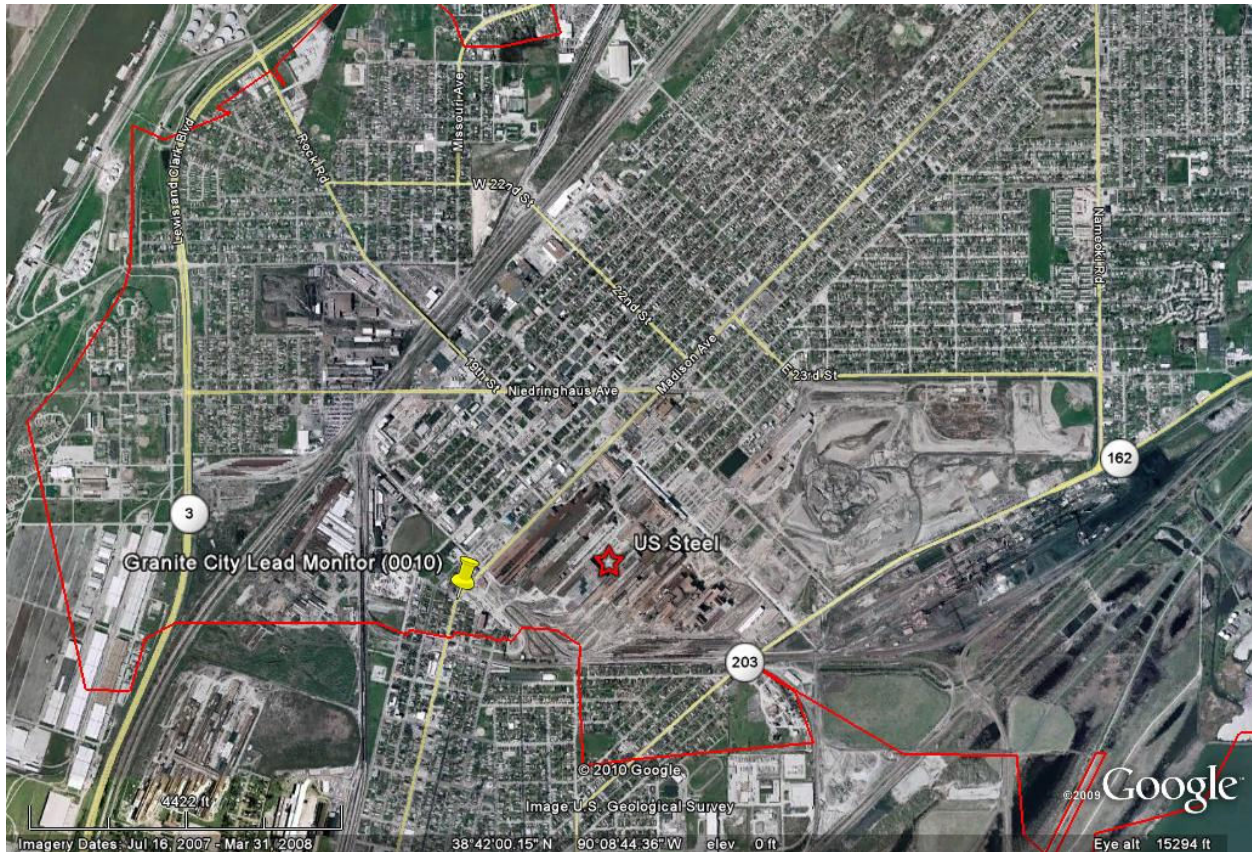
**Table 4: Granite City, Illinois and Surrounding Areas 2006-2008  
Lead Emissions for Stationary Sources (Illinois EPA)**

There are 2 facilities using leaded aviation gasoline in the Granite City area that have a 2008 Draft NEI value of at, or greater, than 0.1 tpy. These facilities are located below in Table 5.

City	Facility Name	Type	2008 Draft NEI (tpy)
Alton/St. Louis	St. Louis Regional	Airport	0.2
St. Jacob	St. Louis Metro-East/Shafer Field	Airport	0.1

**Table 5: Granite City, Illinois and Surrounding Areas Lead Emissions for Leaded Aviation Gas Facilities**





**Figure 3: Granite City Lead Monitor Location**

According to the 2005 NEI and the estimated emissions for 2006 – 2008 from Illinois EPA, US Steel is the largest contributor of lead emissions in Madison County. In Figure 3 above, US Steel is depicted by the red star, and the Granite City monitor is depicted by the yellow pin. The last 4 digits of the AQS ID have been included on the map, and the monitor location was derived from the information in Table 2. The distance from US Steel to the Granite City monitor is approximately 0.4 miles.

Using 2.0 tons per year as the total lead emissions for Madison County (refer to Table 3), EPA observes that the emissions from US Steel account for 45 percent of all lead emissions in the county. Using the data that Illinois EPA provided for estimated emissions in 2008, stationary resources were responsible for ~2.6 tpy (refer to Table 4). The Draft 2008 NEI data for all leaded aviation gas facilities indicates 0.4 tpy for Madison County; using 3.0 tpy as the total lead emissions for Madison County, US Steel emissions account for approximately 51 percent of 2008 emissions (refer to Table 4). Both sets of lead emissions calculations for Madison County indicate that the largest emitter of lead in the county is US Steel. In conjunction with the monitored elevated concentrations of lead, the nonattainment area should encompass at least the US Steel facility in its entirety.

Monitoring at the Granite City site will continue, and 6 new source oriented sites in Illinois were operational as of January 2010. The sites are H. Kramer and Company (Cook County), Mueller Company Plant #4 (Macon County), Caterpillar, Inc (Peoria County), Keystone Steel and Wire Company (Peoria County), Sterling Steel Company (Whiteside County), and Gunit Corporation

(Winnebago County). Additionally, monitoring at Johnson Controls Battery Group (Kane County) will be necessary if a permit is issued to expand operations beyond 1.0 ton per year.

Population Data, Growth Rates, and Patterns

Table 6 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
Madison	Yes	268,078	362	8,961	3

**Table 6: Population Data for Madison County, Illinois**

[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.

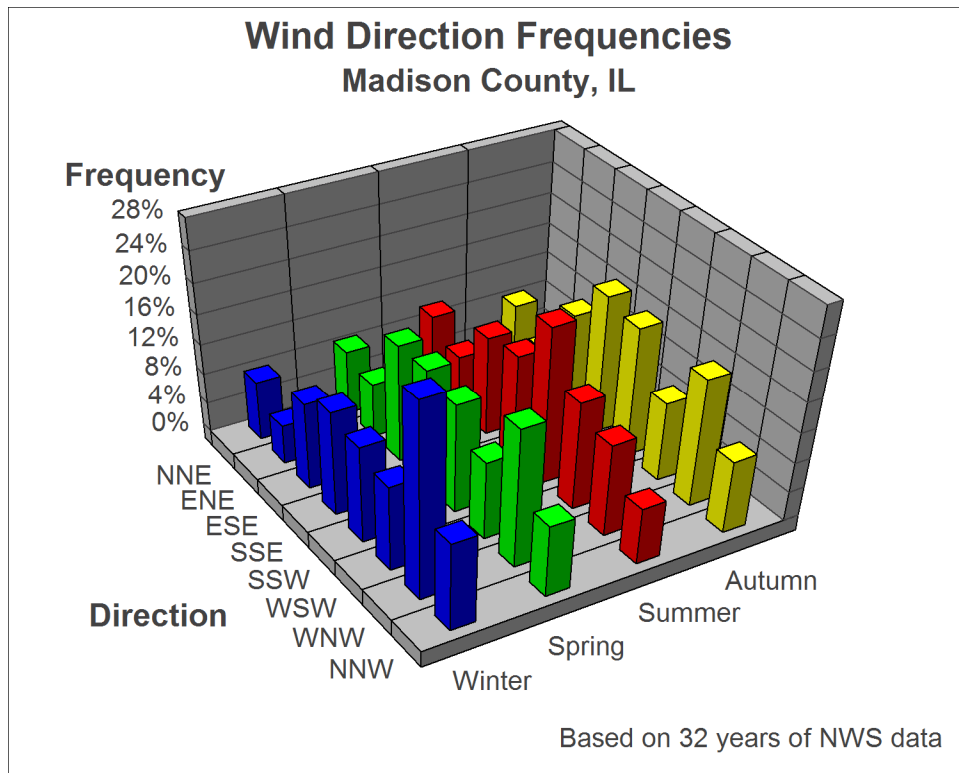
Emissions Controls

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 Granite City before 2005 on stationary sources. EPA has not received detailed information on emissions reductions resulting from controls put into place at US Steel Corporation since 2005, but Illinois included emissions reductions measures that have assisted in impacted emissions levels from a wide spectrum of sectors in the Metro-East/St. Louis area. These measures include: MACT for Iron and Steel Manufacturing and Foundries; promulgation of the St. Louis nonattainment area for PM<sub>2.5</sub>, NESHAPS limits; and NSPS limits. Additionally, Illinois EPA has cited new locomotive engine standards that have assisted with emissions reductions.

***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 7. 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. Illinois EPA provided a wind rose for Madison

County based on data collected between 1961 and 1990 at St. Louis/Lambert International Airport. The graphical representation is shown in Figure 5.



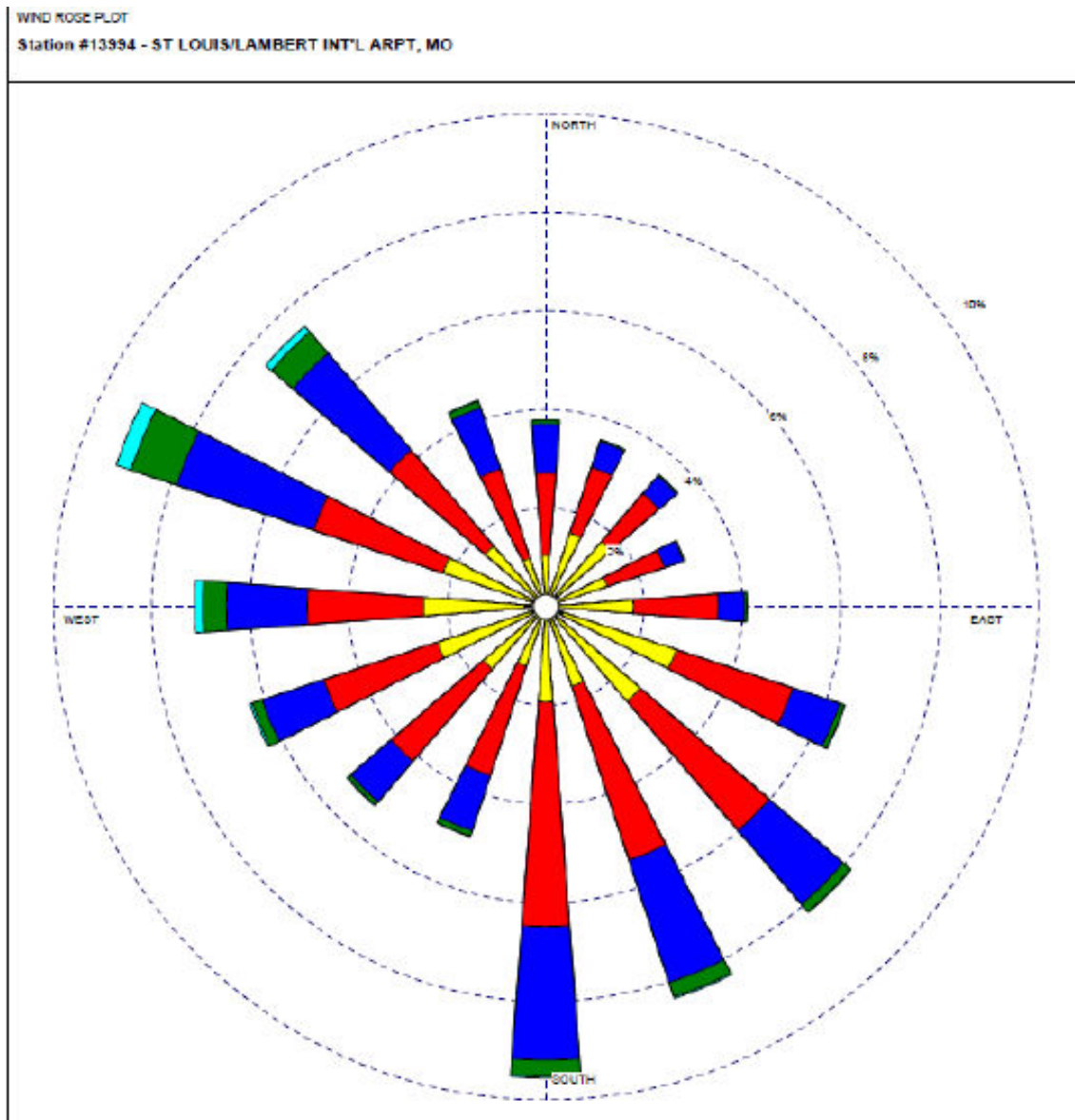
**Figure 4: Historical Wind Direction Frequencies for Madison County, Illinois**

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.

<b>Madison County Wind Frequencies</b>	
Frequency as a %	Seasonal Wind Directions
7.90	WINWINDFNNE
5.21	WINWINDFENE
11.62	WINWINDFESE
13.87	WINWINDFSSE
12.75	WINWINDFSSW
11.34	WINWINDFWSW
25.62	WINWINDFWNW
11.69	WINWINDFNNW
8.62	SPRWINDFNNE
7.28	SPRWINDFENE
15.73	SPRWINDFESE
15.74	SPRWINDFSSE
14.52	SPRWINDFSSW
10.35	SPRWINDFWSW
18.26	SPRWINDFWNW
9.50	SPRWINDFNNW
10.08	SUMWINDFNNE
7.59	SUMWINDFENE
13.27	SUMWINDFESE
13.95	SUMWINDFSSE
20.88	SUMWINDFSSW
14.40	SUMWINDFWSW
12.34	SUMWINDFWNW
7.48	SUMWINDFNNW
8.45	AUTWINDFNNE
5.27	AUTWINDFENE
12.99	AUTWINDFESE
18.51	AUTWINDFSSE
17.36	AUTWINDFSSW
10.63	AUTWINDFWSW
17.08	AUTWINDFWNW
9.70	AUTWINDFNNW

**Table 7: Historical Wind Frequency Data as Percents for Madison County, Illinois**

As shown in Figure 4 and Table 7, the period with the highest wind frequency occurs in the winter months, with winds blowing from the west northwest. There is also a strong representation of winds from any variation of the south.



**Figure 5: Wind Rose for Madison County (Illinois EPA)**

The wind rose for Madison County based on data collected between 1961 and 1990 at St. Louis/Lambert International Airport provided by Illinois EPA corroborates the bar graph representation provided in Figure 4. The wind rose shows the winds blowing from the west northwest, as well as the strong consistent representation of winds from the south and southeast.

***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 Granite City and the surrounding area.

The Granite City 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***

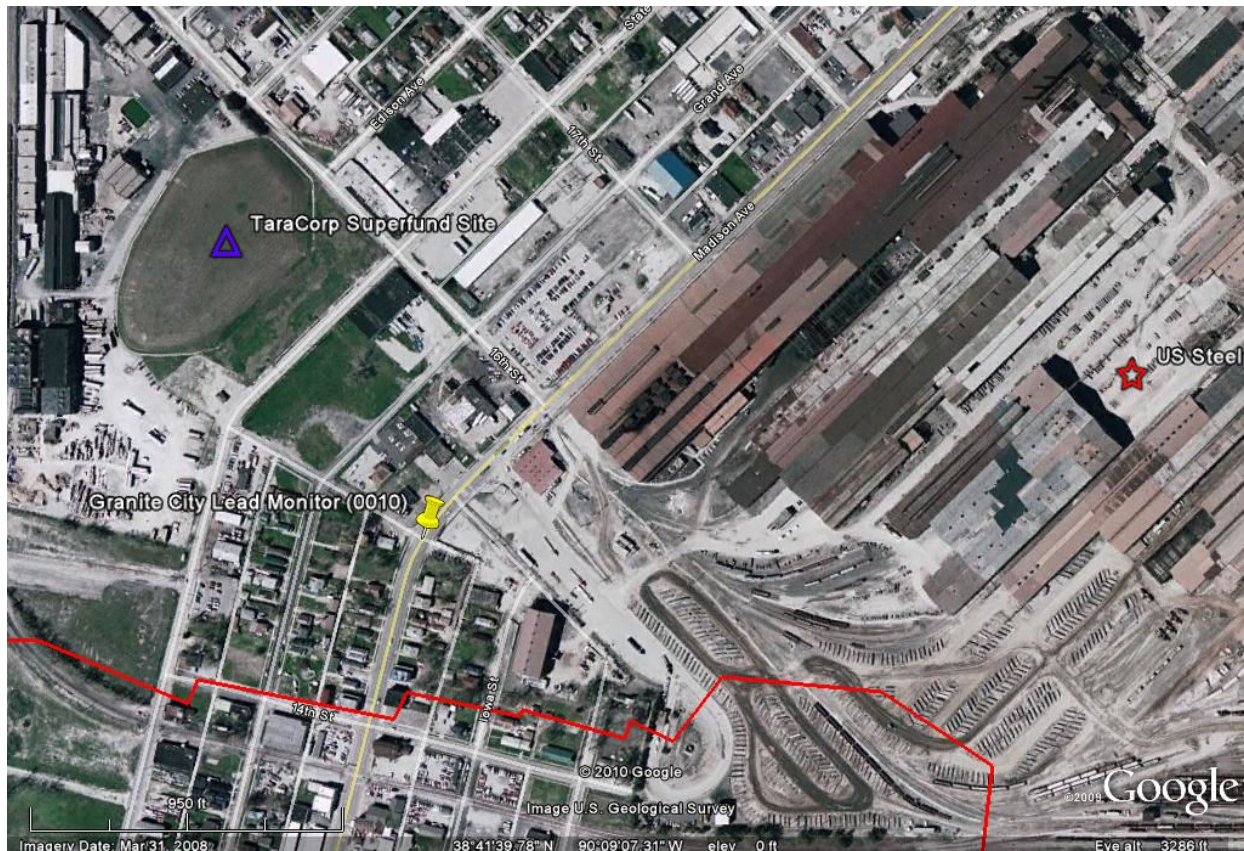
Existing jurisdictional boundaries may be helpful in articulating a boundary for purposes of nonattainment designations, and for purposes of carrying out the governmental responsibilities of planning for attainment of the lead NAAQS and implementing control measures. These existing boundaries may include 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 Granite City nonattainment area, there are several jurisdictional boundaries that can be considered. Madison County is located within the East-West Gateway Council of Governments study area, and Illinois EPA is responsible for all air quality regulatory programs in every county in the State. As a result, air quality planning efforts to address the impending lead nonattainment area in Granite City 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." The recommended nonattainment area is easily defined by the city limit of Granite City.

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

EPA received additional relevant information from Illinois for establishing the nonattainment area boundary for Granite City. This information will be discussed below.

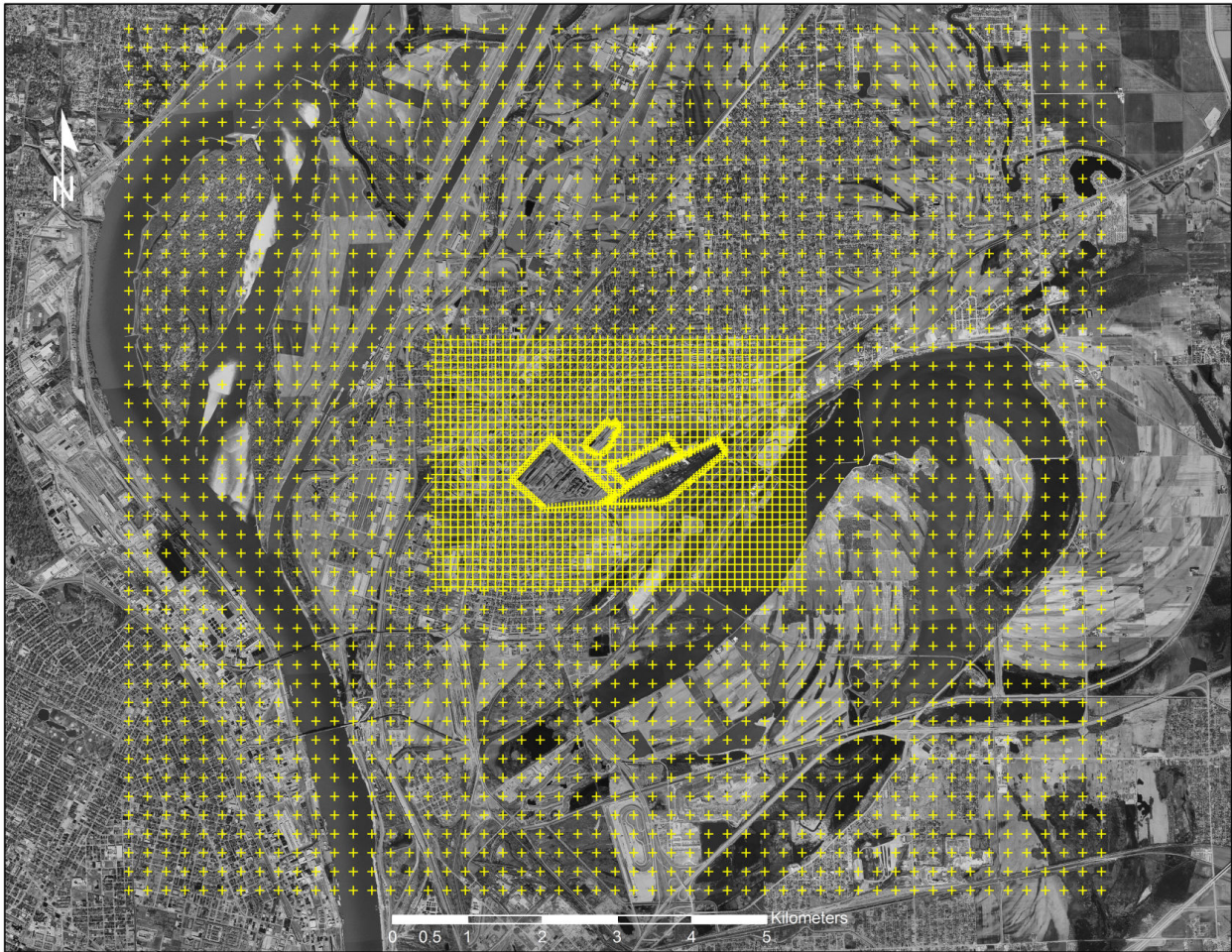


**Figure 6: Relationship between TaraCorp Superfund Site, Granite City Monitor, and US Steel**

The NL Industries/Taracorp Corporation Superfund site is located in Granite City just blocks from the monitor (see Figure 6). NL Industries and Taracorp operated a secondary lead smelter from the early 1900's until 1983. The site has a documented risk to public health from exposure to lead. Contamination from the site affected portions of Granite City and Venice Township, both of which are in Madison County. Lead contaminated soils and crushed battery case materials were deposited into a large slag pile, and the cleanup of this facility, under U.S. EPA's Superfund Program, was initiated in 1991 by the U.S. Army Corps of Engineers. The project consisted of the cleanup of residential properties, as well as the consolidation and capping of a 250,000 ton slag pile within the main industrial site. The residential cleanup and capping of the Taracorp pile was completed in May of 2000. Information about the remediation efforts can be found at the following site: <http://cfpub.epa.gov/supercpad/cursites/csitinfo.cfm?id=0500507>. In its most recent 5-year report for this site completed in March 2009, EPA states that "the remedy at the Site is protective of human health and the environment in the short term..."<sup>3</sup>

<sup>3</sup> <http://www.epa.gov/superfund/sites/fiveyear/f2009050002969.pdf>.

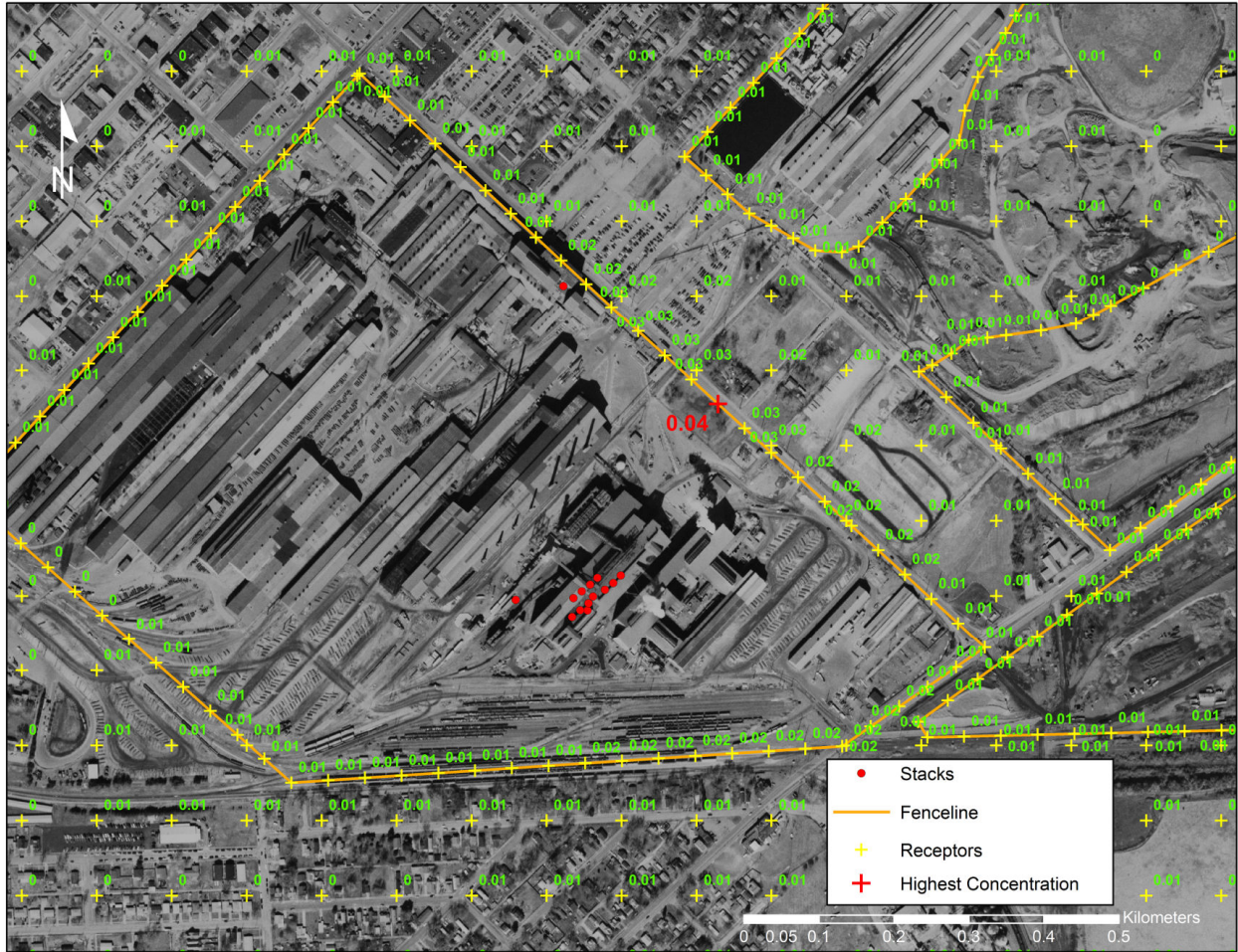
Although not included with the October 2009 submittal, Illinois EPA performed modeling analysis for US Steel as part of the agency’s “Illinois Ambient Air Lead Monitoring Plan.” The supporting documents for the monitoring plan were submitted to EPA in a letter dated July 30, 2009 from Robert Kaleel, Manager of the Air Quality Planning Section, Bureau of Air. The receptor grid that Illinois EPA to construct the modeling and the results from this modeling analysis are shown below in Figure 7 and Figure 8 below.



**Figure 7: Air Dispersion Modeling Receptor Grid for Granite City, Illinois (Illinois EPA)**

Although the receptor grid was included in this image provided by Illinois EPA, no additional information about the receptor resolution was provided.





**Figure 8: Modeling Analysis Results for Granite City (Illinois EPA)**

The modeling performed for US Steel was performed for a 5 year period between 2003 and 2007 based on actual emissions. Illinois EPA determined that the St. Louis surface meteorological data and Lincoln upper air meteorological data were representative of the Granite City area. Downwash parameters were developed based on detailed aerial photography information for buildings. Modeled fugitive lead emission sources included uncaptured basic oxygen furnace roof monitor emissions and coke battery door emissions. They were treated as 17 discrete volume sources. In addition, 5 point sources were included in the modeling, though emission estimates from re-entrainment of dust from roadways, stockpiles, or other traditional fugitive sources were not available for this facility, and thus not modeled. The point of maximum impact was modeled to be  $0.04 \mu\text{g}/\text{m}^3$  along the northeast fenceline.

## 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 Granite City nonattainment area for the 2008 lead NAAQS. US Steel is located in Granite City, and is the largest lead emitter in the county. The air quality monitor in Madison County shows a violation of the 2008 lead NAAQS, based on 2006-2008 and 2007-2009 air quality data, and EPA finds it appropriate to designate portions of this county as nonattainment for the 2008 lead NAAQS.

EPA observes that the location of the Granite City monitor has been modeled to show attainment of the 2008 lead NAAQS. This monitor has shown multiple violations of the NAAQS between 2007 and 2009; EPA therefore concludes that the modeling provided by Illinois EPA is under-predicting the actual impacts. This is of particular concern to the community immediately south southwest of the facility; the distance from the facility to the city limit is only ~0.20 miles at some locations. Although the wind frequency data suggests that most of the wind blows from the south or some variation of the northwest, there are still instances when the wind does blow from a variation of the northeast. As the Granite City monitor, located approximately 0.10 miles north of the city limit, has shown multiple violations of the NAAQS – the nonattainment boundary along 14<sup>th</sup> Street should be extended south in order to capture all negative impacts of lead emissions from US Steel.

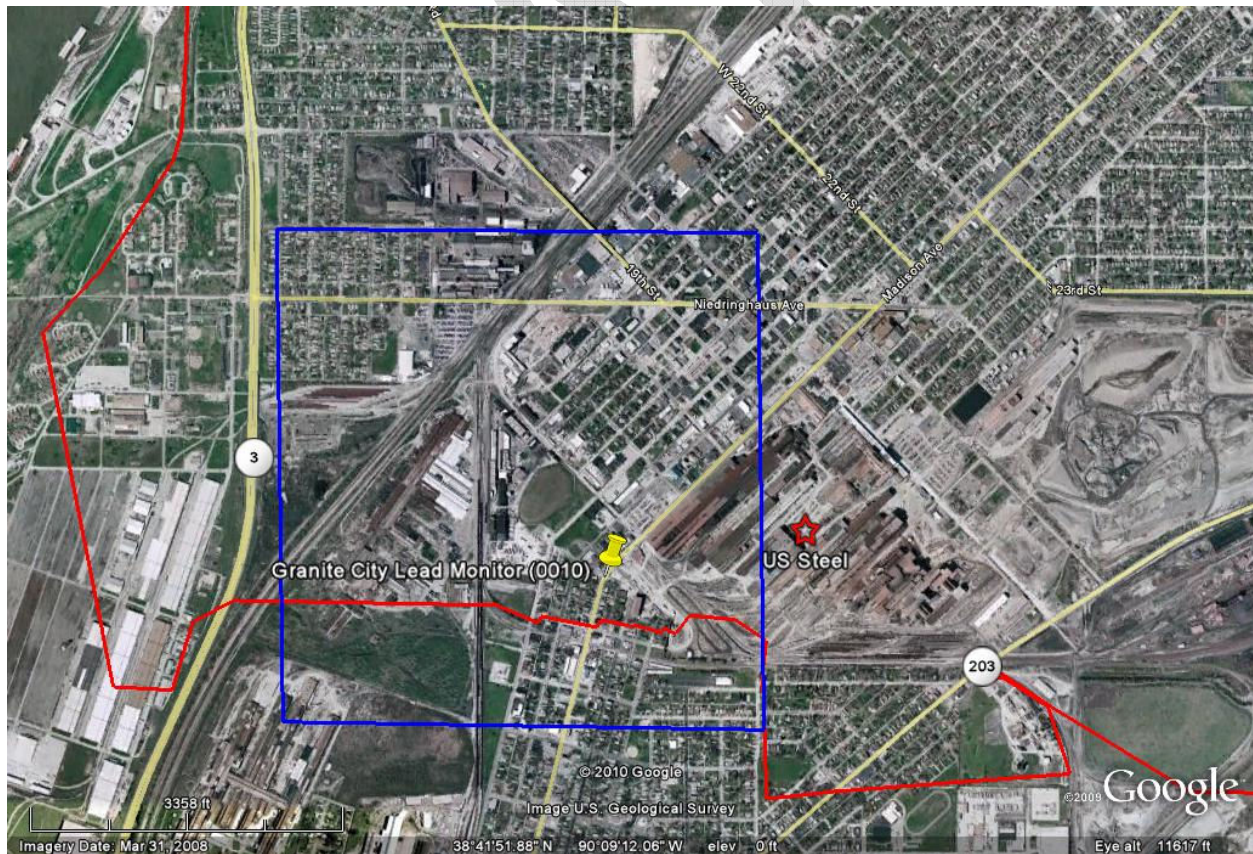
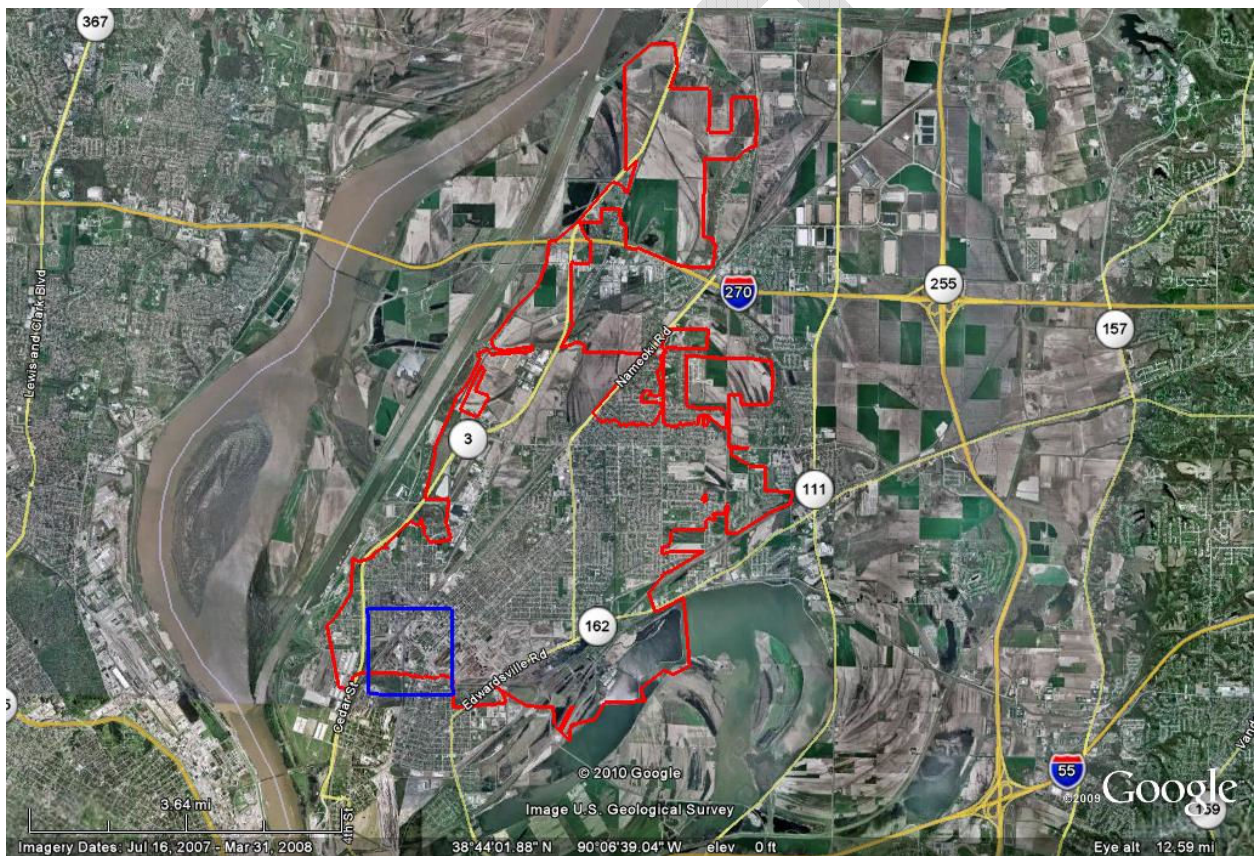


Figure 9: Granite City Nonattainment Area Extension

The blue box in Figure 9 represents Section 24 of Madison County; part of this section is encompassed by the Granite City city limit already. EPA concludes that extending the nonattainment boundary directly south of the Granite City monitor from the Granite City city limit to the southern boundary of Section 24 of Madison County is appropriate in order to capture all likely negative impacts from the lead emissions at US Steel based on some meteorological data and the under-predicting tendency of Illinois EPA's air dispersion modeling. The revised Granite City nonattainment area consists of the State recommended city limit of Granite City in addition to Section 24 of Madison County as shown below in Figure 10. 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.



**Figure 10: Granite City, Illinois Revised Nonattainment Area**