Revised Lead Monitoring Network

As part of implementation of the newly revised 2008 lead standard, the lead monitoring network will be revised and expanded beginning in 2010. Facilities with emissions of lead greater than one ton per year (tpy) are required to be monitored. Facilities with emissions of lead greater than 0.7 tpy are required to be modeled to determine if they impact 50% of the new lead standard. The new lead standard was set at 0.15 ug/m3. The new lead standard also requires monitoring of larger metropolitan areas; however this aspect of the network is not addressed until the 2010 review of Ohio's 2011 monitoring network. This section will discuss Ohio EPA's proposed revised lead monitoring network, as it relates to facility specific monitoring of lead emissions.

As a part of this effort Ohio EPA began an extensive review of lead emissions inventories. Based on the inventories, Ohio EPA consulted with several facilities regarding their reporting history. In some cases Ohio EPA found discrepancies where facilities have reported erroneously. Because the facility based lead monitoring network is based upon actual lead emissions from Ohio sources, it was essential to gather accurate information regarding lead emissions in order to effectively develop the lead monitoring network. This section contains a discussion of corrections to lead emissions for certain sources that may have required monitoring based on erroneously reported emissions.

Once Ohio EPA finalized the accurate emission inventories, any source with lead emissions greater than 0.7 tpy but less than one tpy required modeling[1] to determine if their impact on ambient air. This section contains a discussion of the results of this modeling and the determination as to whether a monitor would be necessary.

Lastly, once the appropriate sources were identified for monitor placement, modeling[1] was conducted to determine the appropriate monitor placement based upon the greatest impact on ambient air. Once this area is identified, Ohio EPA staff conduct surveys to determine a suitable location for installation of a monitor within or near the area of greatest impact. This section contains a discussion of Ohio EPA's expected monitor placement. However, Ohio EPA is continuing to investigate appropriate monitor locations and this will be an ongoing effort over the next several months prior to installation and operation of monitors beginning in 2010.

[1] Unless otherwise noted, all modeling was based upon the highest emissions rates that correspond to the highest ton per year emissions reported, in either the National Emissions Inventory or the Toxic Release Inventory, by the facility between 2004 and 2006, as guided by USEPA.

Facilities exceeding one ton per year according to USEPA inventories, but shown by Ohio EPA to be lower

USEPA has asked States to include within the annual monitoring network plan a discussion of any sources that exceed one tpy in the 2005 National Emissions Inventory (NEI) or the 2004 to 2006 Toxic Release Inventory (TRI) but upon investigation actually showed emissions below this level. The following section discusses facilities under this category.

AK Steel Corporation
FAC ID: 1409010006
1801 Crawford St.
Middletown, OH

Inventory	Current TPY	Corrected TPY
2005 NEI	0.0	0.0
2004 TRI	1.5	1.5
2005 TRI	1.5	1.5
2006 TRI	1.4	0.5

In May of 2006, AK Steel installed new controls (baghouse) on their lead source as required by a newly promulgated federal requirement (Maximum Achievable Control Technology (MACT)). AK Steel erroneously continued to use the pre-control AP-42 emission factor to calculate emissions in 2005 and 2006. After correcting to the AP-42 emission factor for a controlled source, lead emissions were calculated as identified in the table above (correspondence from AK Steel attached). Because emissions taking into account federally enforceable controls would be less than 0.7 tpy, it was determined that modeling and monitoring are not necessary for this facility.

Ford Motor Company, Cleveland Casting Plant
FAC ID: 1318120180
5600 Henry Ford Blvd.
Brook Park, OH

Inventory	Current TPY	Corrected TPY
2005 NEI	0.0	No investigation conducted, shutting down
2004 TRI	-	
2005 TRI	1.2	
2006 TRI	1.7	

Ford is reducing production rates and will be permanently shutting down by no later than the end of 2010 (correspondence from Ford attached). Therefore, it was determined that modeling and monitoring are not necessary for this facility.

GMC Powertrain Division
FAC ID: 0320010001
State Route 281 East
Defiance, OH

Inventory	Current TPY	Corrected TPY
2005 NEI	0.0	0.3
2004 TRI	2.0	0.8
2005 TRI	1.6	0.3
2006 TRI	2.0	0.3

GMC performed stack testing in 2007 on their lead emission sources. Prior reporting was based upon AP-42 emissions factors which overestimated lead emissions. GMC re-calculated lead emissions, as represented in the above table, based upon the more precise results of the stack test. In addition, in 2008 GMC installed new abatement equipment to address a newly promulgated federal requirement (Maximum Achievable Control Technology (MACT)). After installation, performance testing was conducted and used to determine a new lead emissions rate. Modeling would have been required for GMC based upon 2004 emissions of 0.8 tpy. However, when applying the current federally enforceable controls to the 2004 emissions it was found emissions would have been 0.37 tpy (correspondence from GMC attached). Therefore, it was determined that modeling and monitoring would not be necessary.

Ross Incineration Services
FAC ID: 0247050278
36790 Giles Rd.
Grafton, OH

Inventory	Current TPY	Corrected TPY
2005 NEI	5.4	0.0
2004 TRI	-	0.0
2005 TRI	0.0	0.0
2006 TRI	0.0	0.0

Ross has confirmed the accuracy of the TRI inventory reporting and is unaware of the source of the 2005 NEI lead emissions (correspondence from Ross attached).

Therefore, it was determined that modeling and monitoring are not necessary for this facility.

Performix Technologies
FAC ID: 0278080692
101 Tidewater Rd. NE
Warren, OH

Inventory	Current TPY	Corrected TPY
2005 NEI	1.0	0.0
2004 TRI	0.5	0.0
2005 TRI	1.0	0.0
2006 TRI	-	0.0

In consultation with Performix it was discovered that incorrect emissions factors were used in the reporting. Upon correction, lead emissions were calculated as identified in the table above (correspondence from Performix attached). Therefore, it was determined that modeling and monitoring are not necessary for this facility.

Severstal Wheeling-Pittsburgh
FAC ID: 0641150011
McLister Ave.
Mingo Junction, OH

Although Severstal has not reported emissions in excess of one tpy, they are discussed in this section because modeling would have been applicable to them (greater than 0.7 tpy).

Inventory	Current TPY	Corrected TPY
2005 NEI	0.8	0.8
2004 TRI	0.4	0.4
2005 TRI	0.8	0.8
2006 TRI	0.8	0.8

The Severstal operation is comprised of three plants within two to three miles of each other; two in Ohio (north and south) and one in West Virginia. In May of 2005 the north portion of the Severstal plant permanently shut down all emissions units associated with lead. Currently the north plant is not under operation except for some minor scrap handling. In investigating historical emissions reported, Severstal found various methods used for reporting emissions, and determined that the 2005 and 2006 emissions reported were overstated. Severstal performed a detailed analysis of

emissions taking into account permanently shutdown emissions units and federal enforceable production limits and found their worst case lead emissions would be 0.44 tpy (correspondence from Severstal attached). Therefore, it was determined that modeling and monitoring are not necessary for this facility.

Modeling of Sources With Lead Emissions Greater Than One TPY

Facilities with emissions of lead greater than one tpy are required to be monitored. The following modeling was conducted to determine appropriate monitor placement.

American Spring Wire
FAC ID: 1318041114
26300 Miles Rd.
Bedford Heights, OH

Modeling Files

All the AERMOD input and output files have been provided in the American Spring Wire folder on the CD labeled 2009 Ohio Lead NAAQS Modeling. In addition, the folder contains all AERSURFACE output and meteorological files. Surface data from Cleveland, Ohio (NWS Station 14820) and Upper Air data from Buffalo, New York (NWS Station 14733) were determined to be representative of the facility site. AERSURFACE was run using one sector and four seasons.

Emissions Rates

The emission rates per unit were provided by the facility. The total emission rate modeled for American Spring Wire is 1.531 tons per year. The modeled emission rate exceeds the highest rate reported by the facility between 2004 and 2006. Therefore, Ohio EPA considers the modeling to be conservative.

Stack Parameters

All lead emission sources are stacks. Table 1 shows all the modeled source parameters.

Source ID	Easting (m)	Northing (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	Emission Rate (TYP)
P002	458811.7	4585836	325.92	18.288	316.48	41.6	1.2192	0.047743

Source ID	Easting (m)	Northing (m)	Base Elevation	Stack Height	Temperature (K)	Exit Velocity	Stack Diameter	Emission Rate
P014	458811.7	4585827	325.92	18.288	315.37	41.6	1.2192	0.049495
P015	458811.7	4585820	325.92	18.288	315.37	41.6	1.22	0.02409
P016	458811.7	4585812	325.92	18.288	315.37	41.6	1.22	0.569399
P100	458817.2	4585839	325.92	16.4592	298.15	41.6	1.2192	0.049495
P101	458821	4585830	325.92	16.4592	298.71	41.6	1.2192	0.039421
P102	458817.2	4585825	325.92	16.4592	298.71	41.6	1.2192	0.049495
P103	458821	4585818	325.92	16.4592	298.71	41.6	1.2192	0.039421
P104	458817.2	4585809	325.92	16.4592	305.93	41.6	1.2192	0.049495
P001	458835.1	4585752	325.92	16.4592	309.82	41.6	1.2192	0.306602
P017	458847.4	4585752	325.92	16.4592	317.59	41.6	1.2192	0.306602

Table 1: Lead Source Parameters for American Spring Wire

Terrain

The terrain is generally flat surrounding the facility. There is little elevation change within the receptor grid.

Ambient Air Boundary

The facility fenceline was used as the ambient air boundary. The location of the fenceline was provided by the facility. A map of the fenceline, buildings, and source locations can be seen in Figure A.

Receptors

Please see Figure B for a receptor map showing receptor locations. Three receptor grids were modeled surrounding this facility. Receptor grid spacing is as follows 50 meters extending out 2km from the facility, 100 meters extending out 4km from the facility, 500 meters extending out 10km from the facility.

Lead Background

A background value was not added to the modeling results because no other significant lead sources were found in the vicinity of the facility.

Modeled Hot Spot Location

The lead post processor, written and provided by USEPA, was used to calculate a three month rolling average of the lead concentrations. AERMOD modeling output files were used as input files into the post processor. All these files can be found on the provide CD within the facility's folder. The overall maximum 3-month averaged concentration

calculated by the post processor is 0.17 ug/m3. The maximum modeled concentration was at 458992.00E, 4586052.00N, north-northeast of the facility. Figure C shows the maximum concentration and the concentration gradient surrounding the facility.

Figure A

<u>Facility</u>

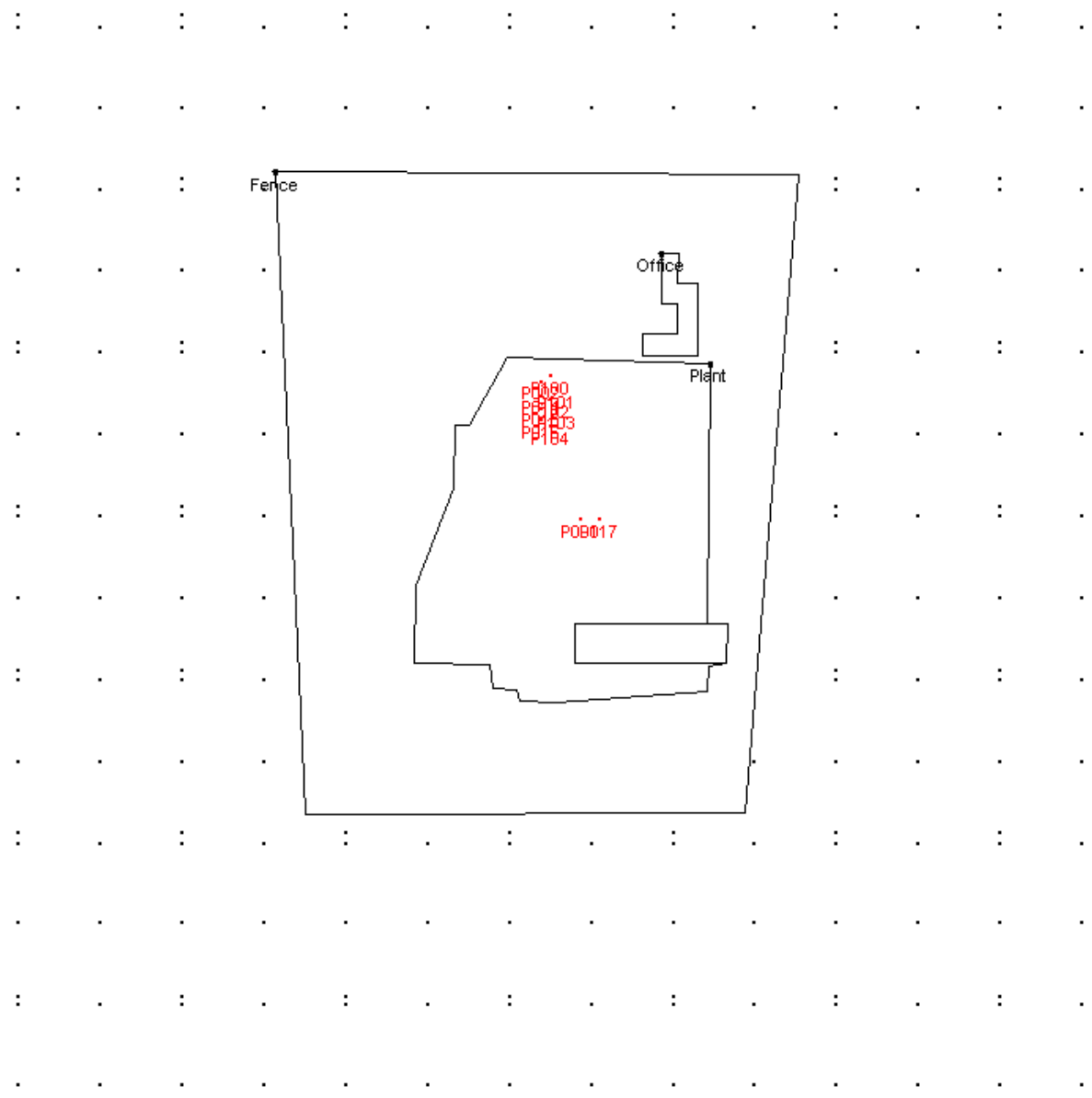


Figure B

<u>Receptor Grid</u>

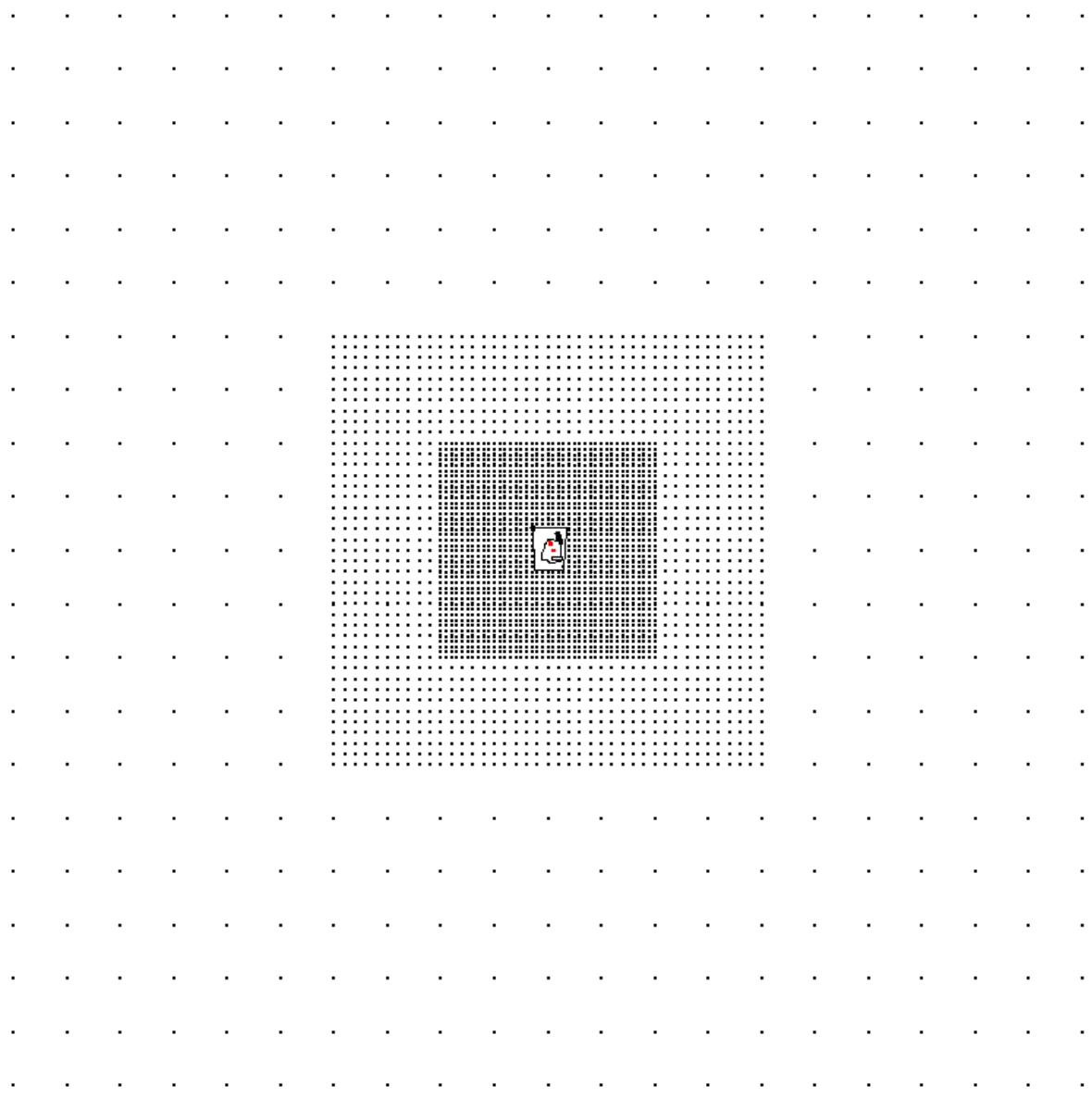
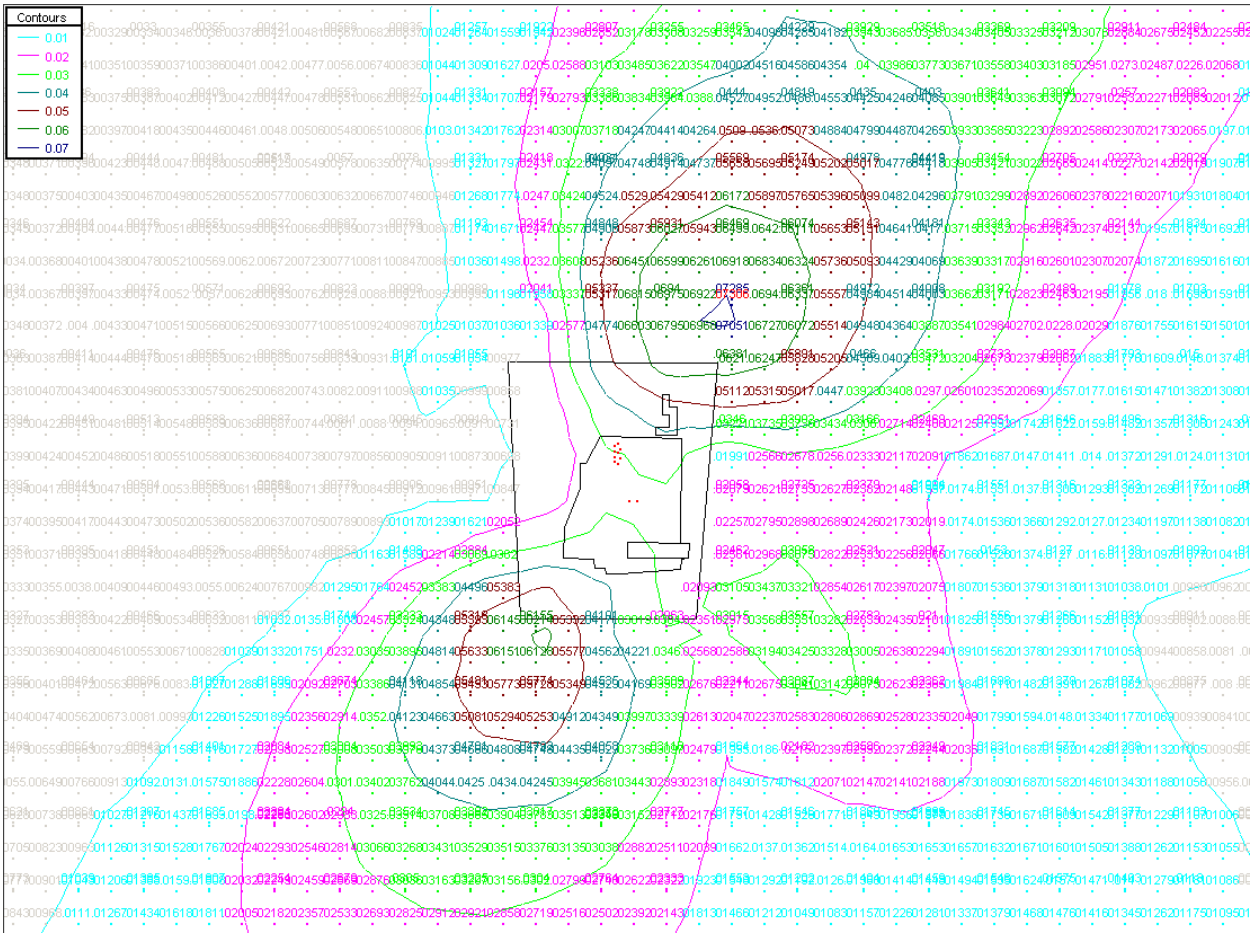


Figure C

<u>Hot Spot Location</u>



Ellwood Engineering Castings
FAC ID: 0278000025
7158 Hubbard Masury
Hubbard, OH

Modeling Files

All the AERMOD input and output files have been provide in the Ellwood Engineered Castings folder on the CD labeled 2009 Ohio Lead NAAQS Modeling. In addition, the folder contains all AERSURFACE output and meteorological files. Surface data from Youngstown, Ohio (NWS Station 14852) and Upper Air data from Pittsburgh, Pennsylvania (NWS Station 94823) were determined to be representative of the facility site. AERSURFACE was run using one sector and four seasons.

Emissions Rates

The emission rates per unit were provided by the facility. The total tons per year modeled for Ellwood Engineered Castings is 2.49 tpy. This emission rates exceeds the highest rate reported by the facility between 2004 and 2006. Therefore, Ohio EPA considers the modeling to be conservative.

Stack Parameters

All lead emission sources are stacks. Table 1 shows all the modeled source parameters.

Source ID	Easting (m)	Northing (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	Emission Rate (TYP)
P012	536978.1	4558031	289.56	37.4904	373.71	138.55	1.8288	0.83
P013	536978.1	4558031	289.56	37.4904	373.71	13.855	1.8288	0.83
P014	536978.1	4558031	289.56	37.4904	373.71	13.855	1.8288	0.83

Table 1: Lead Source Parameters for Ellwood Engineering Castings

Terrain

The terrain is generally flat surrounding the facility.

Ambient Air Boundary

The facility fenceline was used as the ambient air boundary. The location of the fenceline was provided by the facility. A map of the fenceline, buildings, and source locations can be seen in Figure A

Receptors

Please see Figure B for a receptor map showing receptor locations. Three receptor grids were modeled surrounding this facility. Receptor grid spacing is as follows 50 meters extending out 2km from the facility, 100 meters extending out 4km from the facility, 500 meters extending out 10km from the facility.

Lead Background

A background value was not added to the modeling results because no other significant lead sources were found in the vicinity of the facility.

Modeled Hot Spot Location

The lead post processor, written and provided by USEPA, was used to calculate a three month rolling average of the lead concentrations. AERMOD modeling output files were used as input files into the post processor. All these files can be found on the provide CD within the facility's folder. The overall maximum 3-month averaged concentration calculated by the post processor is 0.03 ug/m3. This calculated concentration does not exceed 50% of the NAAQS. The maximum modeled concentration was at 537078.00E, 4559334.00N, north of the facility. Another modeled hot spot is located to the northeast of the facility. Figure C shows the maximum concentration and the concentration gradient surrounding the facility.

Figure A

<u>Facility</u>

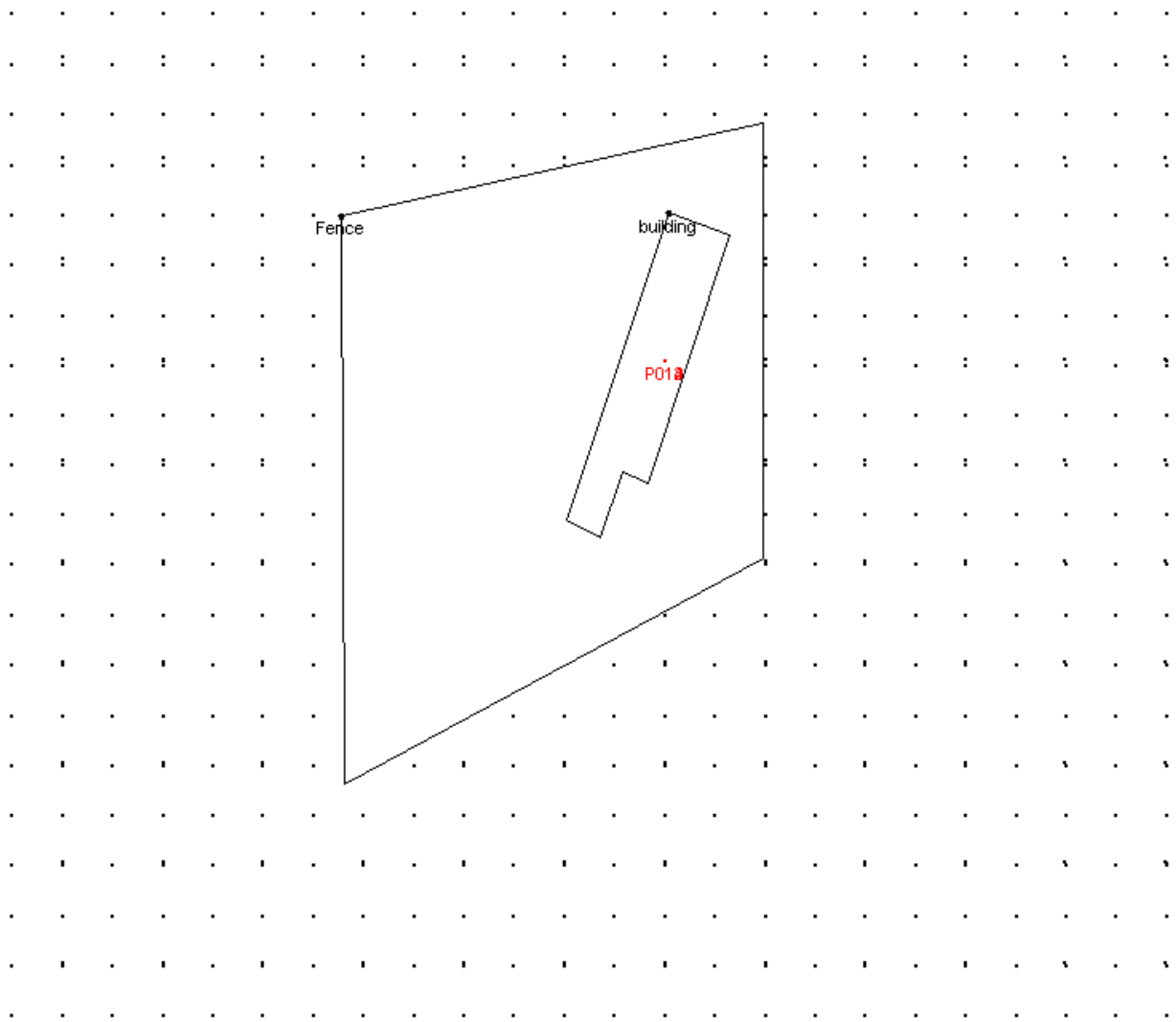


Figure B

Receptor Grid

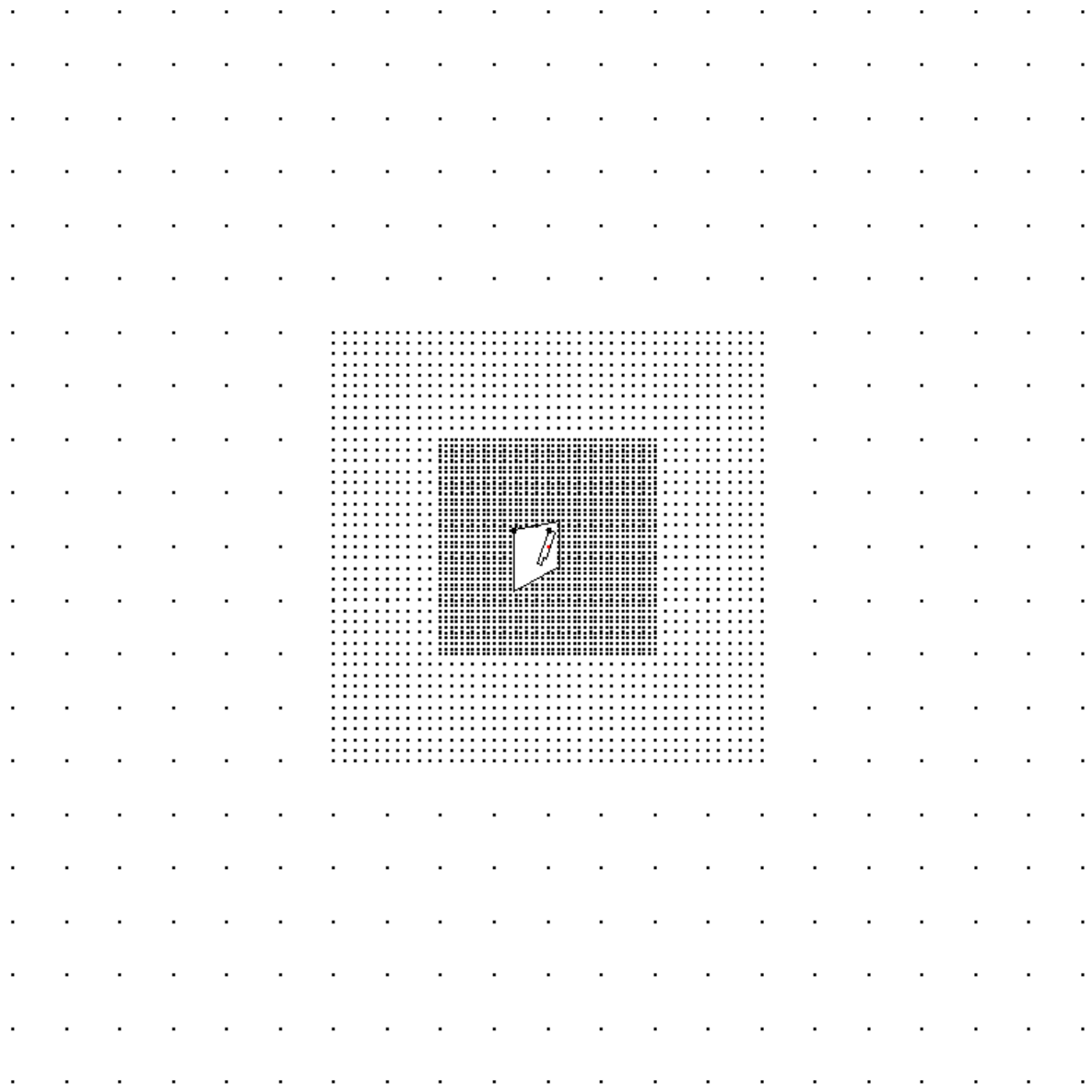
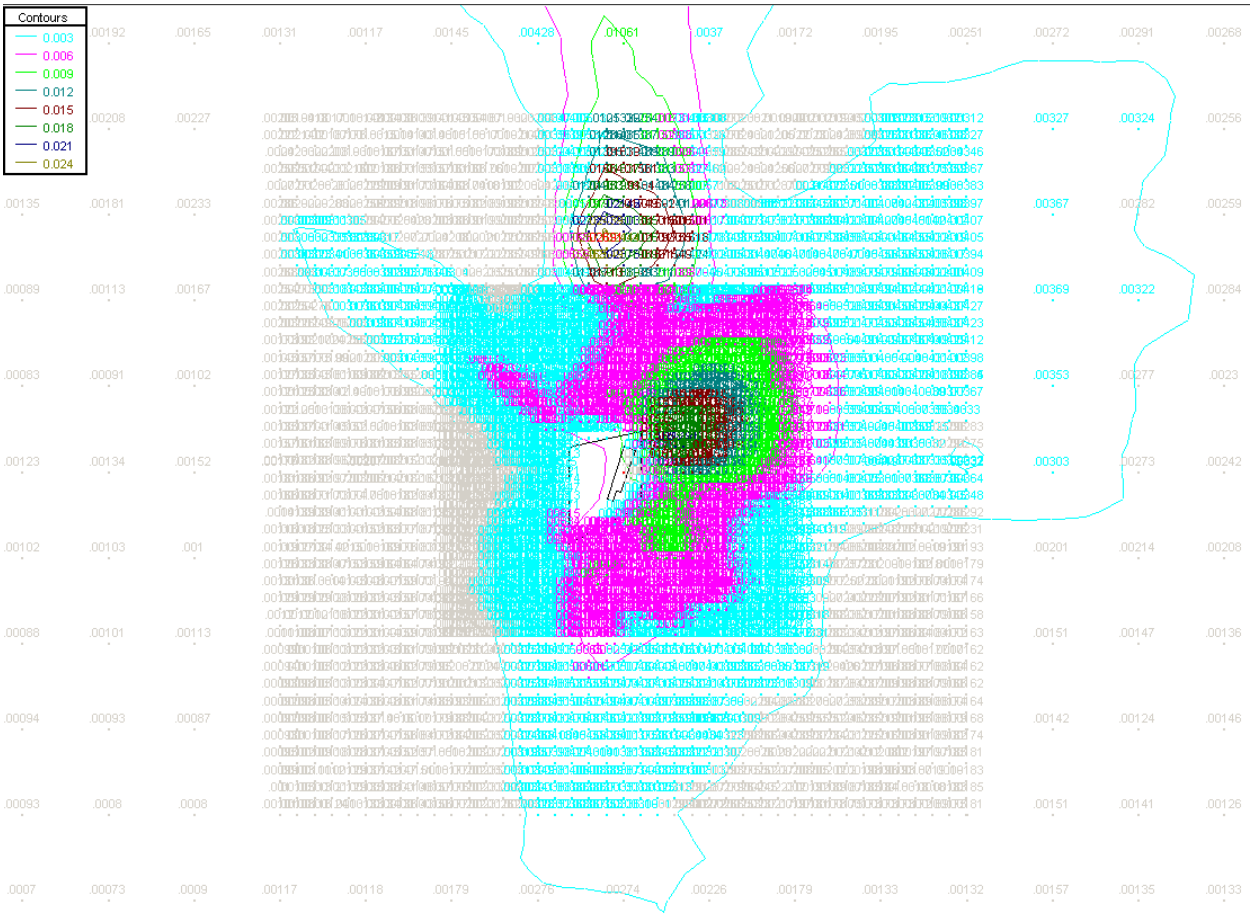


Figure C

<u>Hot Spot Location</u>



Nucor Marion Steel
FAC ID:
912 Cheney Ave.
Marion, OH

Modeling Files

All the AERMOD input and output files have been provide in the Nucor Marion Steel folder on the CD labeled 2009 Ohio Lead NAAQS Modeling. In addition, the folder contains all AERSURFACE output and meteorological files. . Surface data from Columbus, Ohio (NWS Station 14821) and Upper Air data from Dayton, Ohio (NWS Station 13840) were determined to be representative of the facility site. AERSURFACE was run using one sector and four seasons.

Emissions Rates

The total tons per year modeled for Nucor Marion Steel is 2.2 tpy. This emission rates correspond to the highest rate reported by the facility between 2004 and 2006.

Stack Parameters

All lead emission sources are stacks. Table 1 shows all the modeled source parameters.

Source ID	Easting (m)	Northing (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	Emission Rate (TYP)
EAF_BH1	318895.6	4493086	299.68	23.3425	353.15	1.104	5.3035	0.274999
EAF_BH2	318899.3	4493087	299.69	23.3425	353.15	1.104	5.3035	0.274999
EAF_BH3	318903	4493088	299.69	23.3425	353.15	1.104	5.3035	0.274999
EAF_BH4	318906.8	4493089	299.69	23.3425	353.15	1.104	5.3035	0.274999
EAF_BH5	318910.5	4493090	299.69	23.3425	353.15	1.104	5.3035	0.274999
EAF_BH6	318914.2	4493091	299.69	23.3425	353.15	1.104	5.3035	0.274999
EAF_BH7	318917.9	4493092	299.7	23.3425	353.15	1.104	5.3035	0.274999
EAF_BH8	318921.6	4493093	299.7	23.3425	353.15	1.104	5.3035	0.274999

Table 1: Lead Source Parameters for Nucor Marion Steel

Terrain

The terrain is generally flat surrounding the facility.

Ambient Air Boundary

The facility fenceline was used as the ambient air boundary. The location of the fenceline was provided by the facility. A map of the fenceline, buildings, and source locations can be seen in Figure A

Receptors

Please see Figure A for a receptor map showing receptor locations. Three receptor grids were modeled surrounding this facility. Receptor grid spacing is as follows 50 meters extending out 2km from the facility, 100 meters extending out 4km from the facility, 500 meters extending out 10km from the facility.

Lead Background

A background value was not added to the modeling results because no other significant lead sources were found in the vicinity of the facility. Modeled Hot Spot Location

The lead post processor, written and provided by USEPA, was used to calculate a three month rolling average of the lead concentrations. AERMOD modeling output files were used as input files into the post processor. All these files can be found on the provide CD within the facility's folder. The overall maximum 3-month averaged concentration calculated by the post processor is 0.17 ug/m3. The maximum modeled concentration was at 319077.00E, 4493219.00N, east of the facility. Figure C shows the maximum concentration and the concentration gradient surrounding the facility.

Figure A

<u>Facility</u>

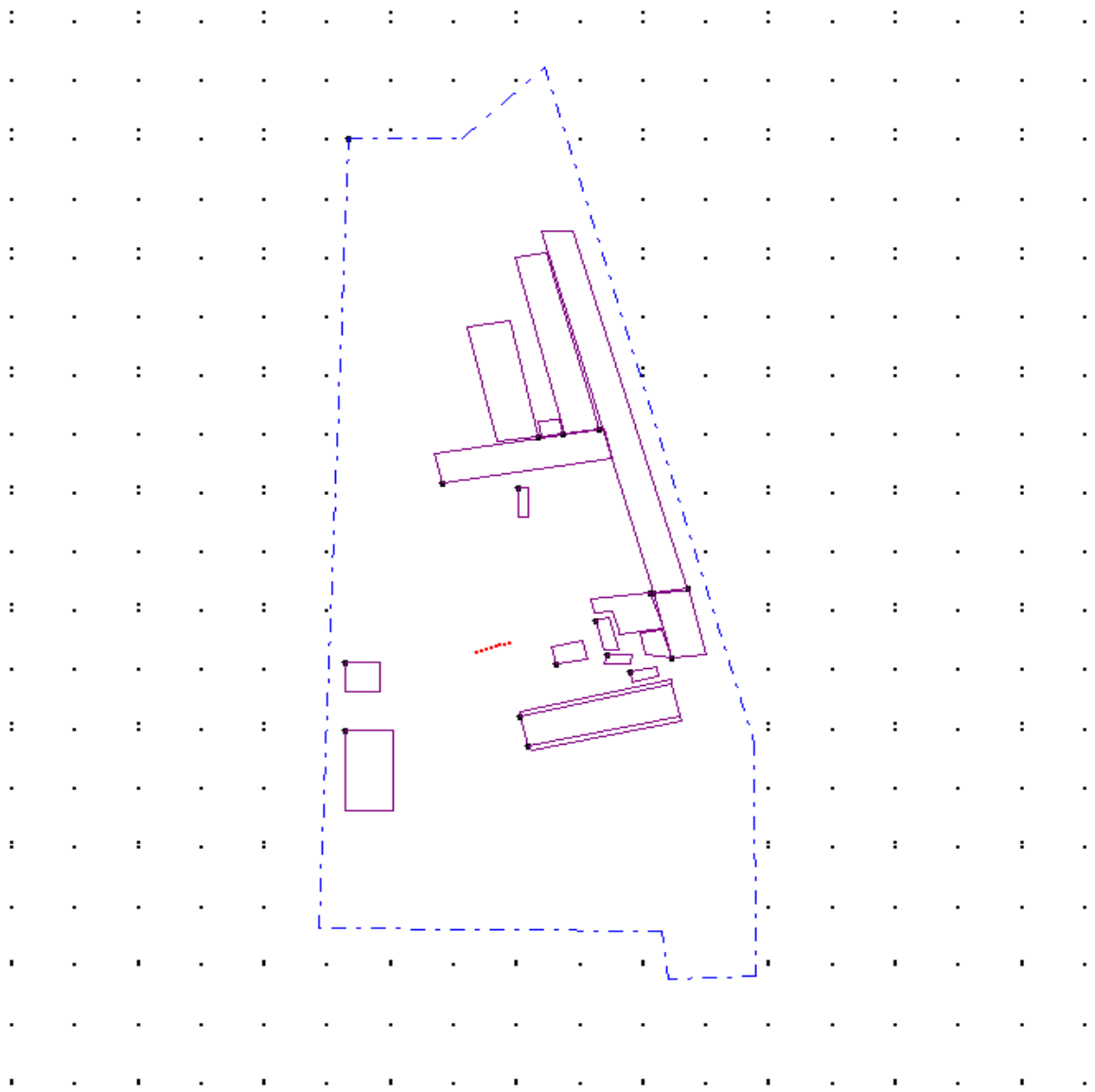


Figure B

Receptor Grid

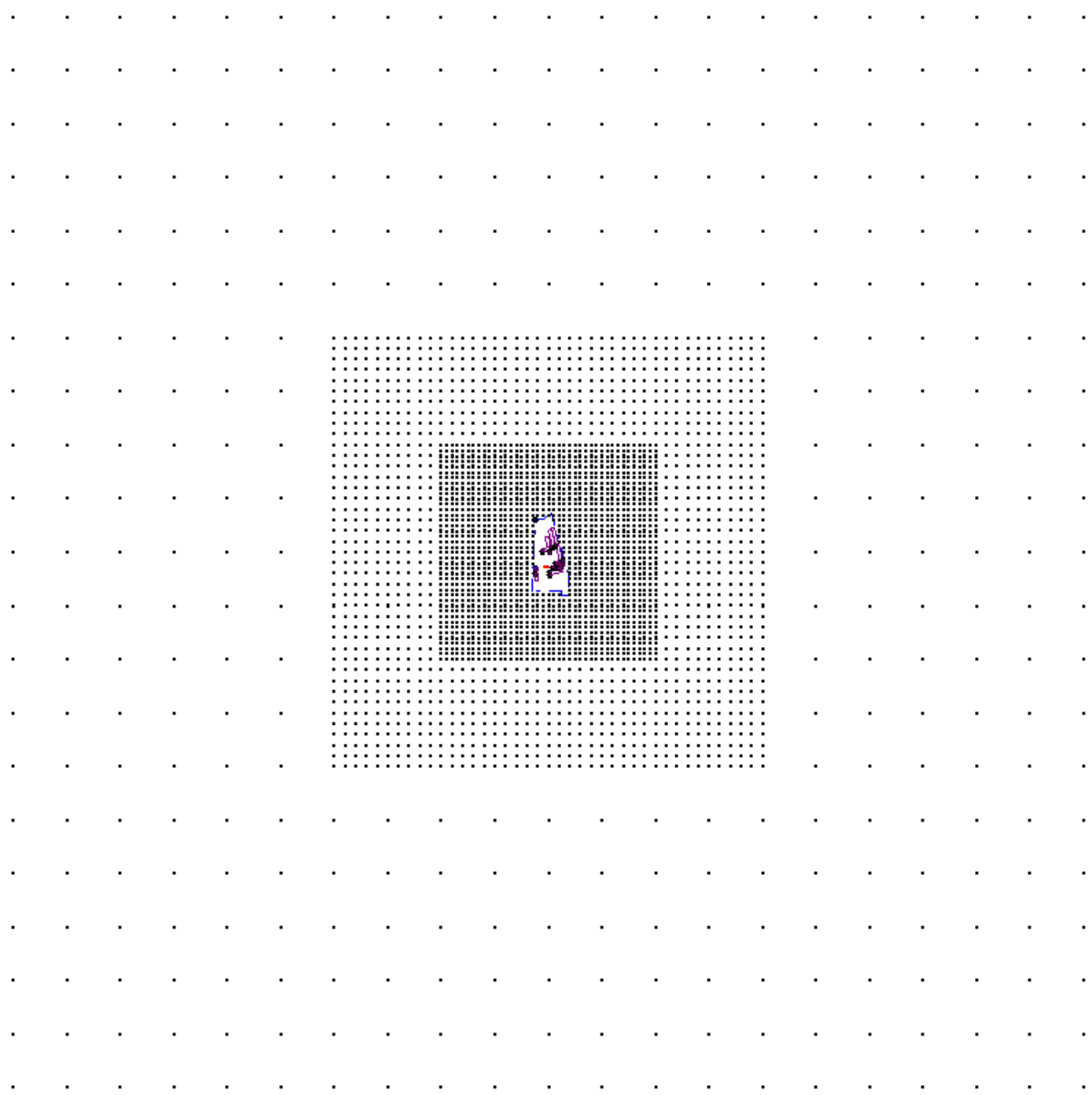


Figure C

<u>Hot Spot Location</u>

TImkin
FAC ID: 1576000613
1835 Dueber Ave. SW
Canton, OH

Modeling Files

All the AERMOD input and output files have been provide in the Timkin folder on the CD labeled 2009 Ohio Lead NAAQS Modeling. In addition, the folder contains all AERSURFACE output and meteorological files. Surface data from Akron, Ohio (NWS Station 14895) and Upper Air data from Pittsburgh, Pennsylvania (NWS Station 94823) were determined to be representative of the facility site. AERSURFACE was run using 12 sectors and 12 seasons.

Emissions Rates

The emission rates per unit were provided by the facility. The total tons per year modeled for Timkin is 1.2 tpy. This emission rates correspond to the highest rate reported by the facility between 2004 and 2006.

Stack Parameters

Timkin sources were modeled as point and volume sources. All source parameters can be found in the AERMOD input file. All source parameters were confirmed by Ohio EPA.

Terrain

The terrain is generally flat surrounding the facility.

Ambient Air Boundary

The facility fenceline was used as the ambient air boundary. The location of the fenceline was provided by the facility.

Receptors

One receptor grid was modeled surrounding this facility. Receptors are spaced 100 meters apart extending out eight kilometers from the fenceline. A map of the receptor grid, fenceline, buildings, and source locations can be seen in Figure A.

Lead Background

A background value was not added to the modeling results because no other significant lead sources were found in the vicinity of the facility.

Modeled Hot Spot Location

The lead post processor, written and provided by USEPA, was used to calculate a three month rolling average of the lead concentrations. AERMOD modeling output files were used as input files into the post processor. All these files can be found on the provide CD within the facility's folder. The overall maximum 3-month averaged concentration calculated by the post processor is 0.09 ug/m3. The maximum modeled concentration was at 466460.00E, 4514800.00N, north of the facility. Figure A shows the maximum concentration and the concentration gradient surrounding the facility.

Figure A

Facility and Receptor Grid

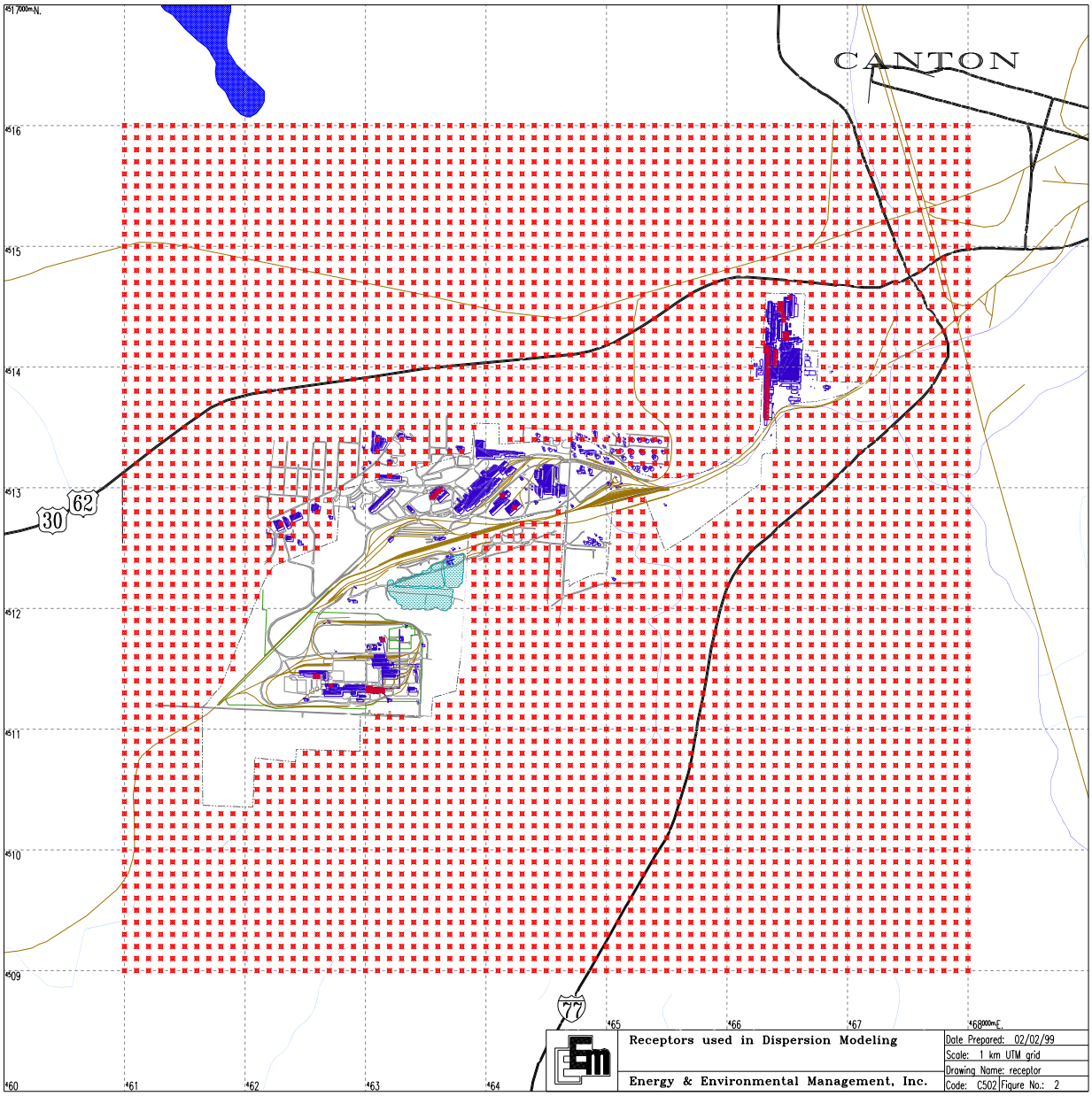
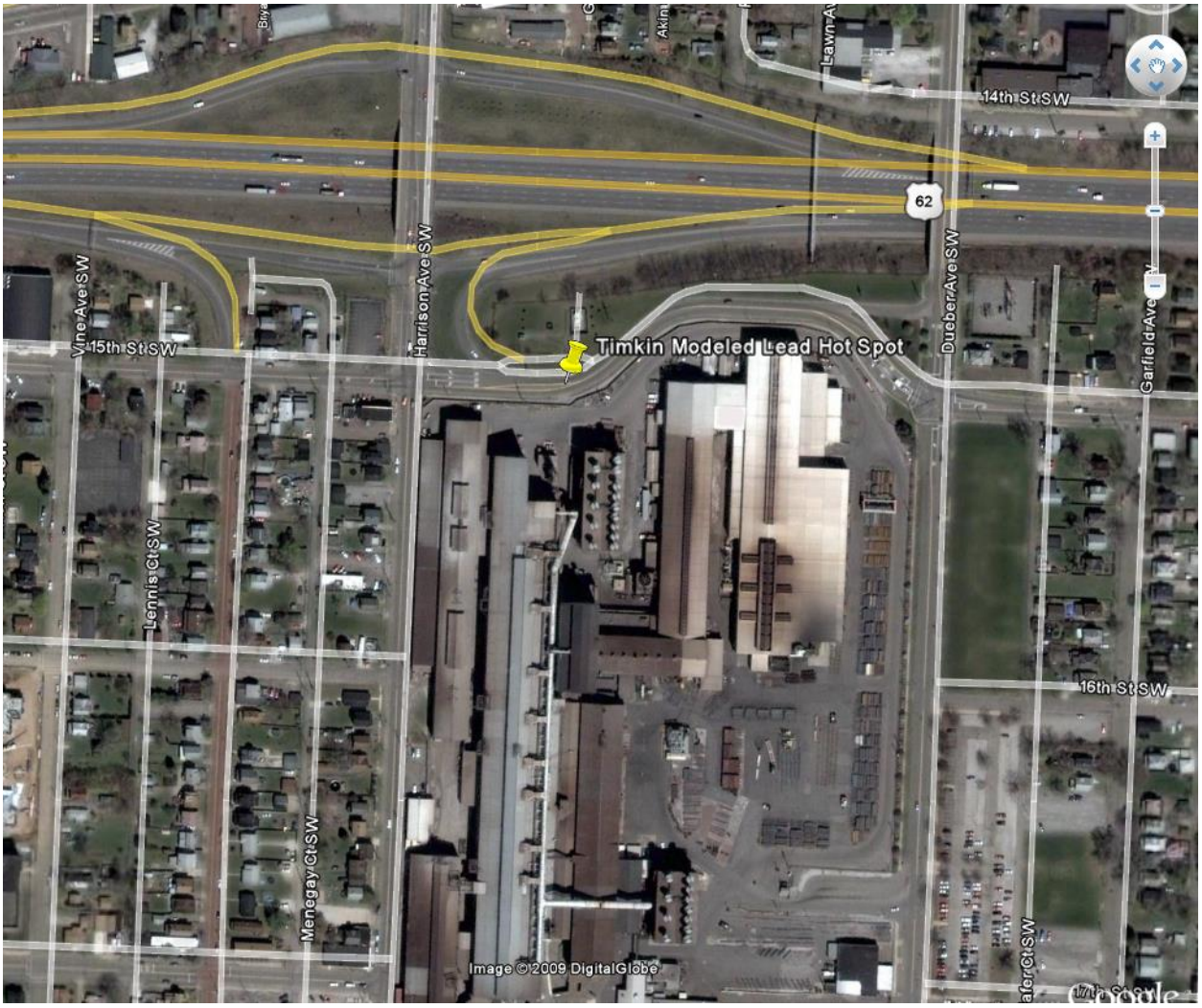


Figure B

<u>Hot Spot Location</u>



Modeling of Sources With Lead Emissions Greater Than 0.7 TPY but Less Than One TPY

Facilities with emissions of lead greater than 0.7 tpy but less than 1 tpy are required to be modeled to determine if they impact 50% of the new lead standard. The new lead standard is 0.15 ug/m3; therefore 50% is equivalent to results greater than or equal to 0.075 ug/m3. The following modeling was conducted to determine the impact of these facilities, and when applicable, appropriate monitor placement.

American Electric Power- Gavin Facility
FAC ID: 0627010056
7397 N. State Rd. 7
Cheshire, OH

Modeling Files

All the AERMOD input and output files have been provided in the AEP Gavin folder on the CD labeled 2009 Ohio Lead NAAQS Modeling. In addition, the folder contains all AERSURFACE output and meteorological files. . Surface data and Upper Air data from Huntington West Virginia (NWS Station 03860) were determined to be representative of the facility site. AERSURFACE was run using one sector and four seasons.

Emissions Rates

The total tons per year modeled for AEP Gavin is 0.8 tpy. This emission rates corresponds to the highest rate reported by the facility between 2004 and 2006.

Stack Parameters

All lead emission sources are stacks. Table 1 shows all the modeled source parameters.

Source ID	Easting (m)	Northing (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	Emission Rate (TYP)
UNIT1	403260	4309910	172.82	252.984	328.15	14.863	12.8016	0.421356
UNIT2	403330	4310040	172.82	252.984	328.15	14.863	12.8016	0.397266

Table 1: Lead Source Parameters for AEP Gavin

Terrain

The terrain is generally flat surrounding the facility. The facility sits along the Ohio River.

Ambient Air Boundary

The facility fenceline was used as the ambient air boundary. The location of the fenceline was provided by the facility. A map of the fenceline, buildings, and source locations can be seen in Figure A

Receptors

Please see Figure A for a receptor map showing receptor locations. Two receptor grids were modeled surrounding this facility. Receptor grid spacing is as follows 100 meters

extending out 10km from the facility, and 200 meters extending out 16km from the facility.

Lead Background

A background value was not added to the modeling results because no other significant lead sources were found in the vicinity of the facility.

Modeling Results

The lead post processor, written and provided by USEPA, was used to calculate a three month rolling average of the lead concentrations. AERMOD modeling output files were used as input files into the post processor. All these files can be found on the provide CD within the facility's folder. The overall maximum 3-month averaged concentration calculated by the post processor is 0.00 ug/m3. This calculated concentration does not exceed 50% of the NAAQS; therefore, a monitor is not needed for this site. Figure C shows the maximum concentration and the concentration gradient surrounding the facility.

Figure A

<u>Facility</u>

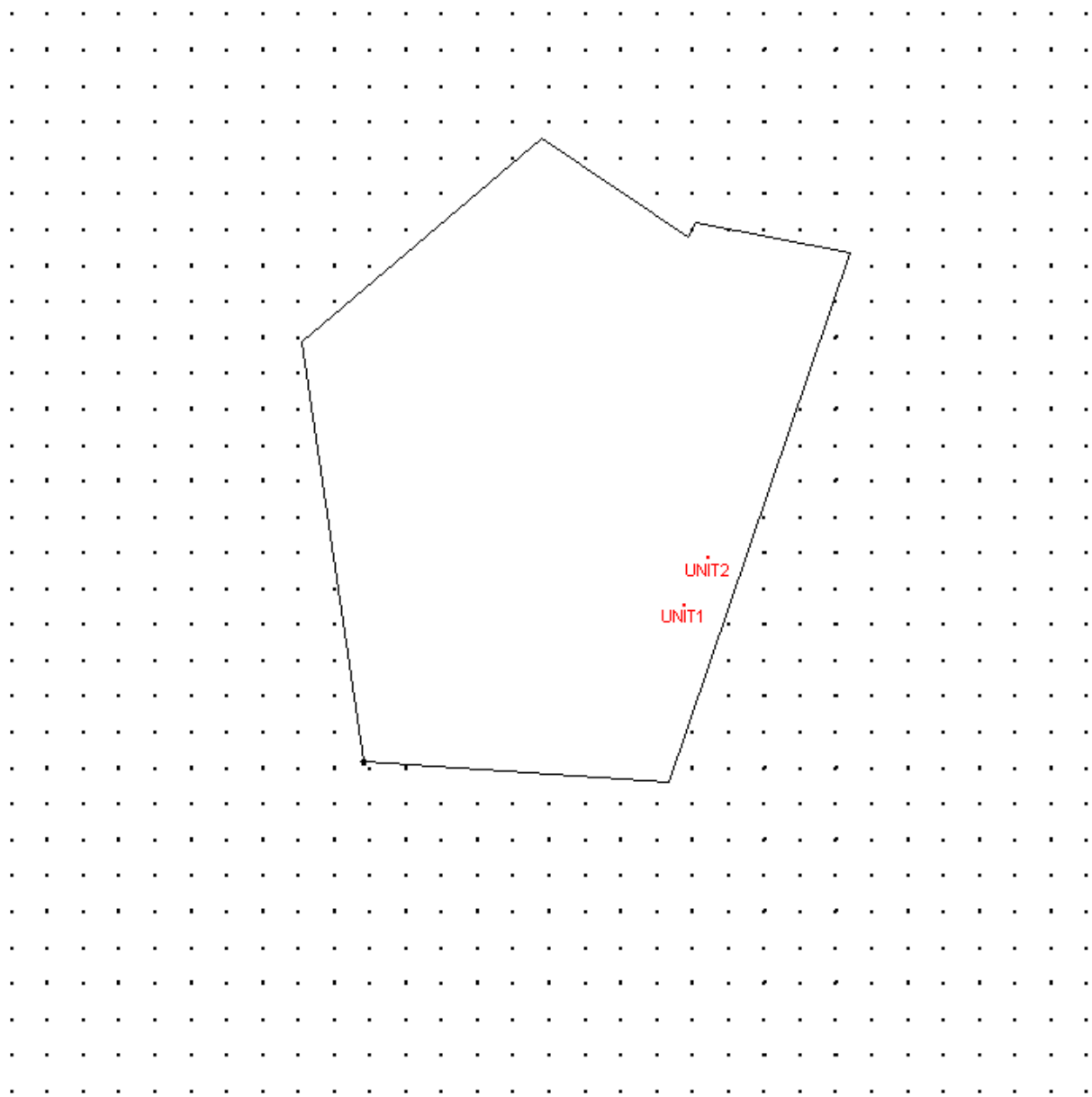


Figure B

<u>Receptor Grid</u>

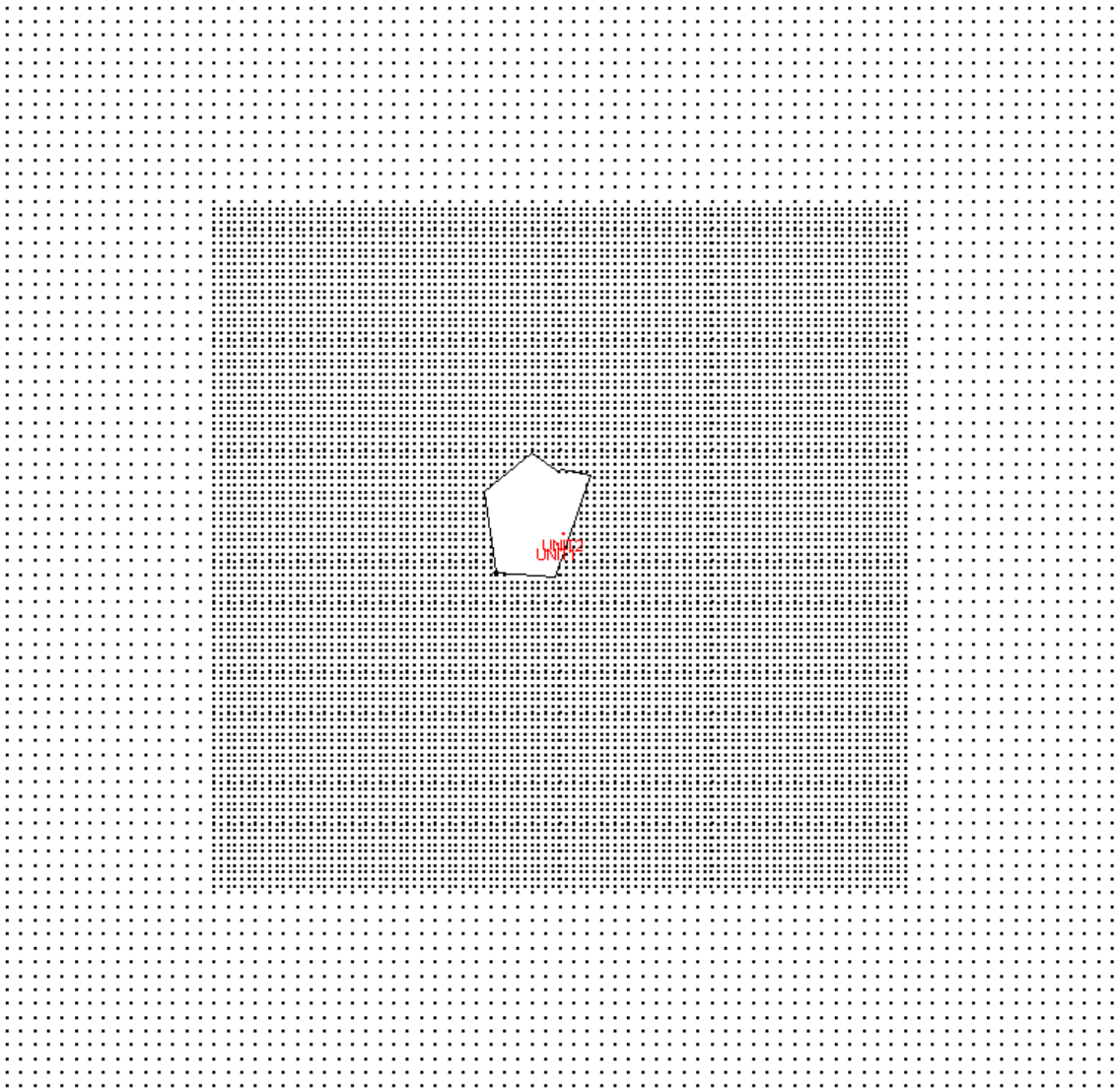
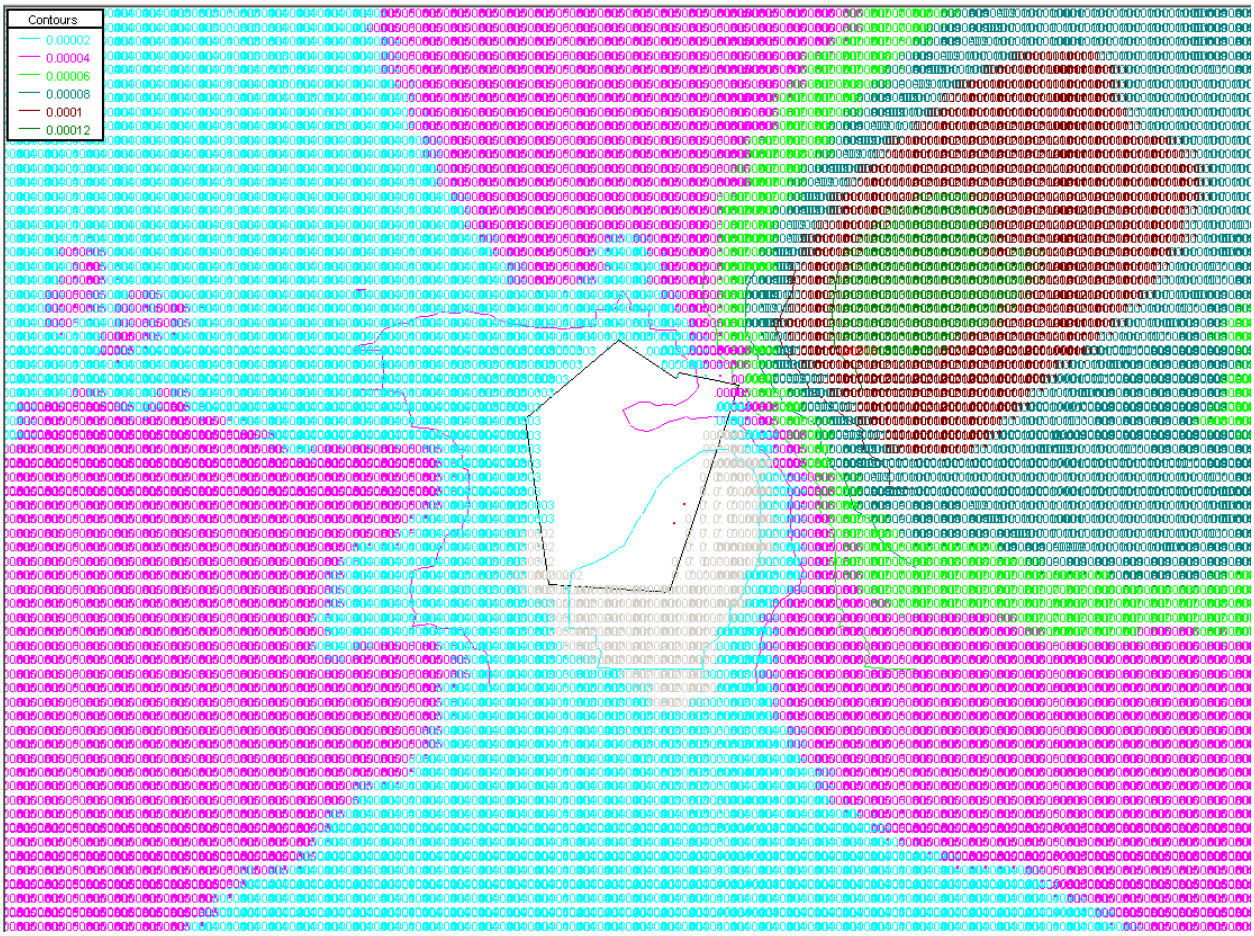


Figure C

<u>Hot Spot Locations</u>



Bunting Bearings
FAC ID: 0326000015
200 Van Buren St.
Delta, OH

Modeling Files

All the AERMOD input and output files have been provided in the Bunting Bearings folder on the CD labeled 2009 Ohio Lead NAAQS Modeling. In addition, the folder contains all AERSURFACE output and meteorological files. Surface data from Toledo, Ohio (NWS Station 94830) and Upper Air data from Flint, Michigan (NWS Station 14826) were determined to be representative of the facility site. AERSURFACE was run using one sector and four seasons.

Emissions Rates

The emission rates per unit were provided by the facility. The total emission rate modeled for Bunting Bearing is 0.54 tons per year. This emission rates exceeds the highest rate reported by the facility between 2004 and 2006. Therefore, Ohio EPA considers the modeling to be conservative.

Stack Parameters

All lead emission sources are stacks. Table 1 shows all the modeled source parameters.

Source ID	Easting (m)	Northing (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	Emission Rate (TYP)
NEW1	250120	4606992	220.56	8.5344	310.93	28.747	0.9144	0.036501
P014	250120	4606992	220.24	28	310.93	28.747	0.9144	0.036501
P005	250212	4606957	220.56	8.5344	310.93	21.56	0.9144	2.65E-03
P013	250212	4606957	220.56	8.5344	310.93	21.56	0.9144	2.65E-03
P015	250120	4606992	220.24	8.5344	310.93	28.747	0.9144	0.036501
P016	250120	4606957	220.24	8.5344	310.93	28.747	0.9144	0.036501
P017	250120	4606992	220.24	8.5344	310.93	28.747	0.9144	0.036501
P018	250120	4606992	220.56	8.5344	310.93	0.2	10.9728	0.036501
P019	250120	4606992	220.56	8.5344	310.93	28.747	0.9144	0.036501
P020	250192	4607052	220.56	50	310.93	16.848	1.6246	0.036501
NEW2	250192	4607052	220.56	15.24	310.93	16.848	1.6246	0.036501
P021	250192	4607052	220.56	15.24	310.93	16.848	1.6246	0.036501

Source	Easting	Northing	Base	Stack	Temperature	Exit	Stack	Emission
P022	250192	4607052	220.56	15.24	310.93	16.848	1.6246	0.036501
P023	250192	4607052	220.56	15.24	310.93	16.848	1.6246	0.036501
P024	250192	4607052	220.56	15.24	310.93	16.848	1.6246	0.036501
P025	250192	4607052	220.56	15.24	310.93	16.848	1.6246	0.036501
P006	250212	4606957	220.56	8.5344	310.93	21.56	0.9144	8.00E-03
P007	250212	4606957	220.19	8.5344	310.93	21.56	0.9144	8.00E-03
P008	250212	4606957	220.56	8.5344	310.93	21.56	0.9144	1.30E-03
P009	250212	4606957	220.56	8.5344	310.93	21.56	0.9144	1.30E-03
P010	250212	4606957	220.56	8.5344	310.93	21.56	0.9144	1.30E-03
P011	250212	4606957	220.56	8.5344	310.93	21.56	0.9144	1.30E-03

Table 1: Lead Source Parameters for Bunting Bearings

Terrain

The terrain is generally flat surrounding the facility. There is little elevation change within the receptor grid.

Ambient Air Boundary

The facility fenceline was used as the ambient air boundary. The location of the fenceline was provided by the facility. A map of the fenceline, buildings, and source locations can be seen in Figure A

Receptors

Please see Figure B for a receptor map showing receptor locations. Three receptor grids were modeled surrounding this facility. Receptor grid spacing is as follows 50 meters extending out 2km from the facility, 100 meters extending out 4km from the facility, 500 meters extending out 10km from the facility.

Lead Background

A background value was not added to the modeling results because no other significant lead sources were found in the vicinity of the facility. For those facilities that currently have a monitor located beyond the fenceline, Ohio EPA did not feel that it was appropriate to use monitored values as background values because of double counting.

Modeled Hot Spot Location

The lead post processor, written and provided by USEPA, was used to calculate a three month rolling average of the lead concentrations. AERMOD modeling output files were used as input files into the post processor. All these files can be found on the provide

CD within the facility's folder. The overall maximum 3-month averaged concentration calculated by the post processor is 0.02 ug/m3. This calculated concentration does not exceed 50% of the NAAQS. The maximum modeled concentration was at 250220.00E, 4607088.00N, north of the facility.

Bunting Bearings is currently monitored at one site which has violated the new standard in the past three years. Ohio EPA is recommending retaining this site. Regardless of modeling for monitor placement, Ohio EPA believes moving a monitor would not be appropriate due to the recent violations at the existing site.

As stated above, air quality modeling does not indicate violations of the standard. Ohio EPA believes the existing monitors are likely picking up historical releases still present in the vicinity. Ohio EPA does not feel it is necessary to add additional monitors near the modeled hot spot. Figure C shows the maximum concentration and the concentration gradient surrounding the facility.

Figure A

<u>Facility</u>

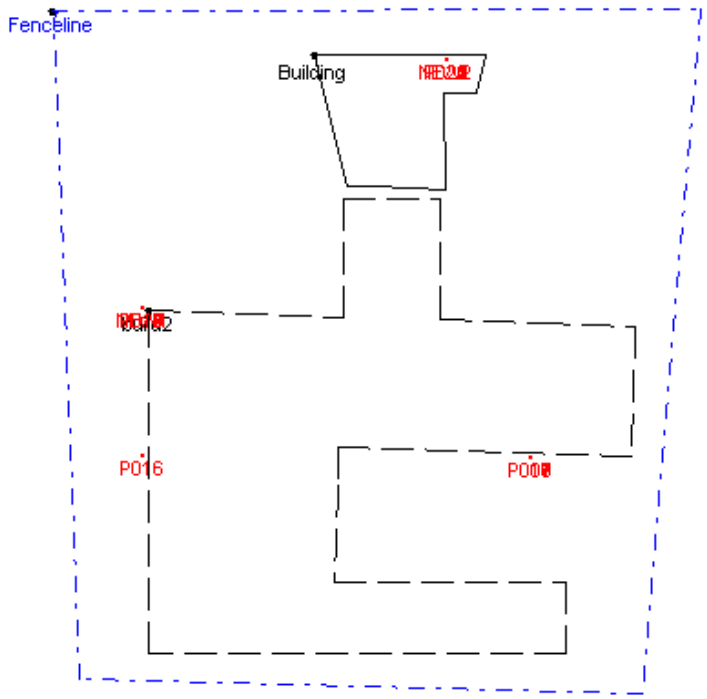


Figure B

<u>Receptor Grid</u>

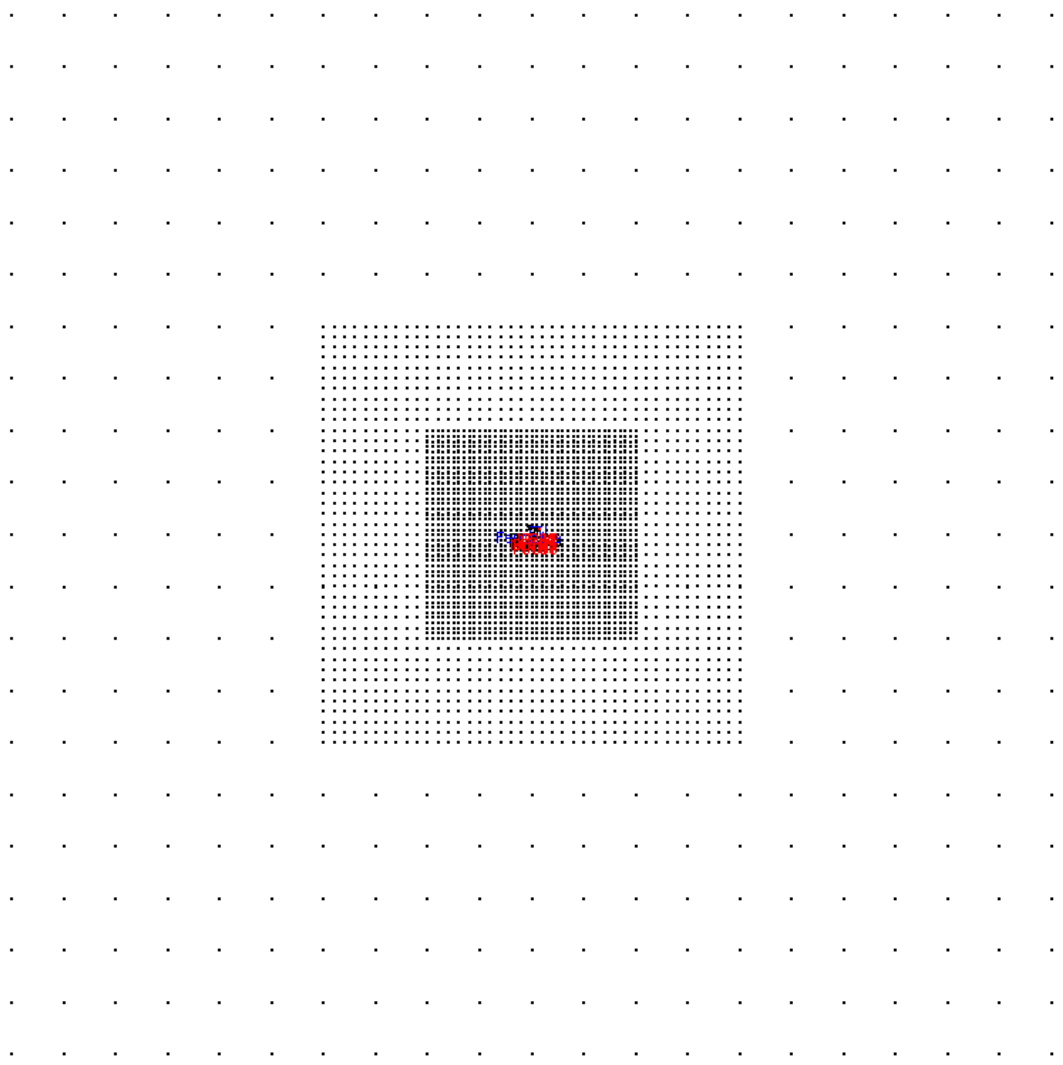
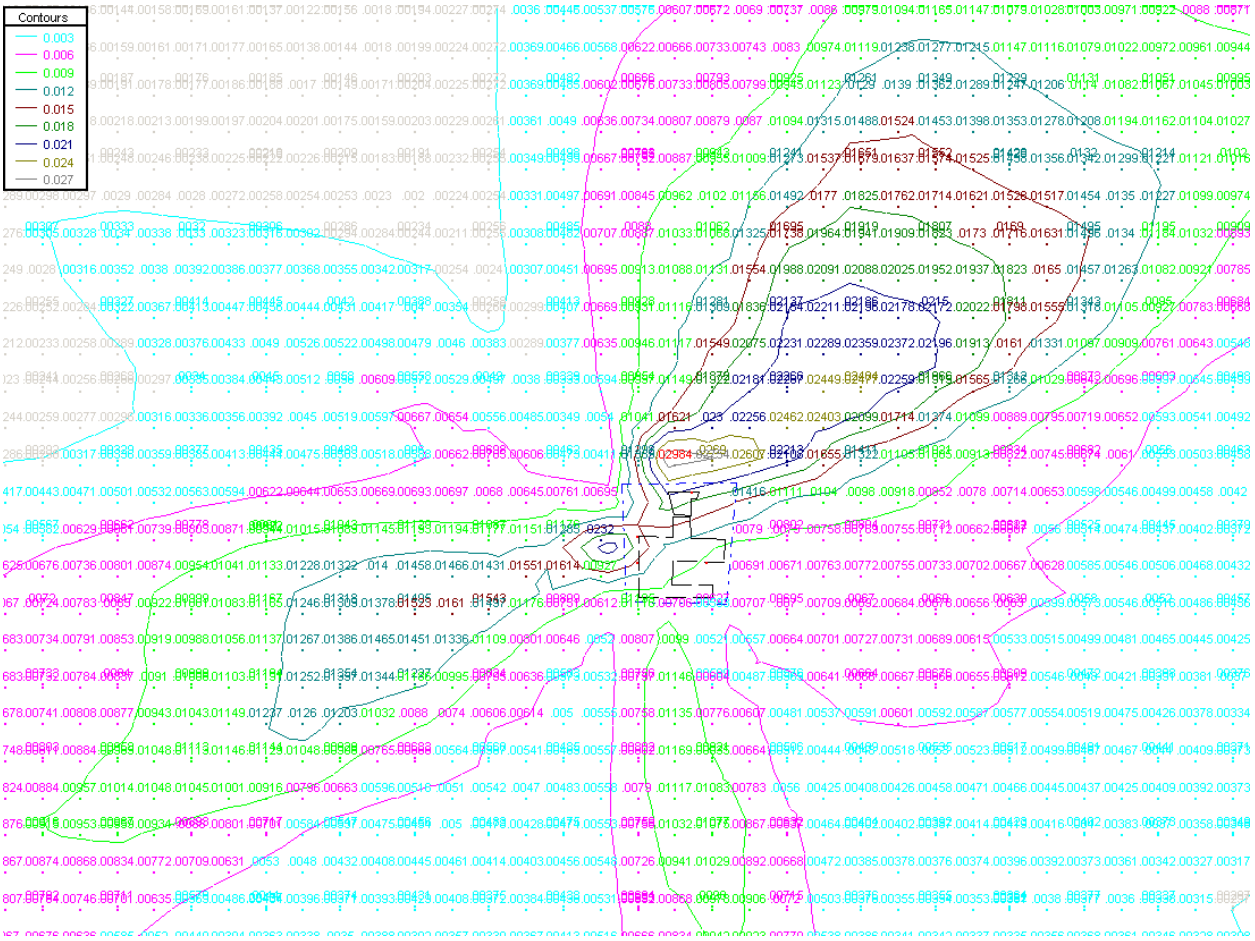


Figure C

<u>Hot Spot Locations</u>



Ferro Corp - Cleveland Frit Plant
FAC ID: 1318170235
4150 E. 56th St.
Cleveland, OH

Modeling Files

All the AERMOD input and output files have been provided in the Ferro Corporation folder on the CD labeled 2009 Ohio Lead NAAQS Modeling. In addition, the folder contains all AERSURFACE output and meteorological files. . Surface data from Cleveland, Ohio (NWS Station 14820) and Upper Air data from Buffalo, New York (NWS Station 14733) were determined to be representative of the facility site. AERSURFACE was run using one sector and four seasons.

Emissions Rates

The emission rates per unit were provided by the facility. The total tons per year modeled for Ferro Corporation is 0.038 tpy. This emission rates exceeds the highest rate reported by the facility between 2004 and 2006. Therefore, Ohio EPA considers the modeling to be conservative.

Stack Parameters

All lead emission sources are stacks. Table 1 shows all the modeled source parameters.

Source ID	Easting (m)	Northing (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	Emission Rate (TYP)
P071	445770	4588339	216.12	9.144	310.93	9.573	0.1524	0.000876
P064	445681	4588330	216.18	9.144	338.71	24.255	0.2438	0
P065	445680	4588340	216.18	9.144	338.71	24.255	0.2438	0.001095
P066	445680	4588340	216.18	9.144	338.71	24.255	0.2438	0.001007
P067	445681	4588330	216.12	9.144	338.71	24.255	0.2438	0.000788
P068	445680	4588347	216.18	9.144	338.71	24.255	0.2438	4.38E-05
P069	445680	4588347	216.12	9.144	338.71	24.255	0.2438	0
P915	445809	4588403	216.12	9.144	338.71	16.538	0.3566	0

Table 1: Lead Source Parameters for Ferro Corporation

Terrain

The terrain is generally flat surrounding the facility.

Ambient Air Boundary

The facility fenceline was used as the ambient air boundary. The location of the fenceline was provided by the facility. A map of the fenceline, buildings, and source locations can be seen in Figure A

Receptors

Please see Figure B for a receptor map showing receptor locations. Three receptor grids were modeled surrounding this facility. Receptor grid spacing is as follows 50 meters extending out 2km from the facility, 100 meters extending out 4km from the facility, 500 meters extending out 10km from the facility.

Lead Background

A background value was not added to the modeling results because no other significant lead sources were found in the vicinity of the facility. Ferro currently has a monitor located beyond the fenceline, but Ohio EPA did not feel that it was appropriate to use monitored values as background values because of double counting.

Modeled Hot Spot Location

The lead post processor, written and provided by USEPA, was used to calculate a three month rolling average of the lead concentrations. AERMOD modeling output files were used as input files into the post processor. All these files can be found on the provide CD within the facility's folder. The overall maximum 3-month averaged concentration calculated by the post processor is 0.00 ug/m3. Ferro is currently monitored at two sites. Only one of these sites has violated the new standard in the past three years. Ohio EPA is recommending retaining the site that currently shows violations and removing the non-violating site from the monitoring network. Regardless of modeling for monitor placement, Ohio EPA believes moving a monitor would not be appropriate due to the recent violations at the existing site. As stated above, air quality modeling does not indicate violations of the standard. Ohio EPA believes the existing monitors are likely picking up historical releases still present in the vicinity. Ohio EPA does not feel it is necessary to add additional monitors near the modeled hot spot. Figure C shows the maximum concentration and the concentration gradient surrounding the facility.

Figure A

<u>Facility</u>

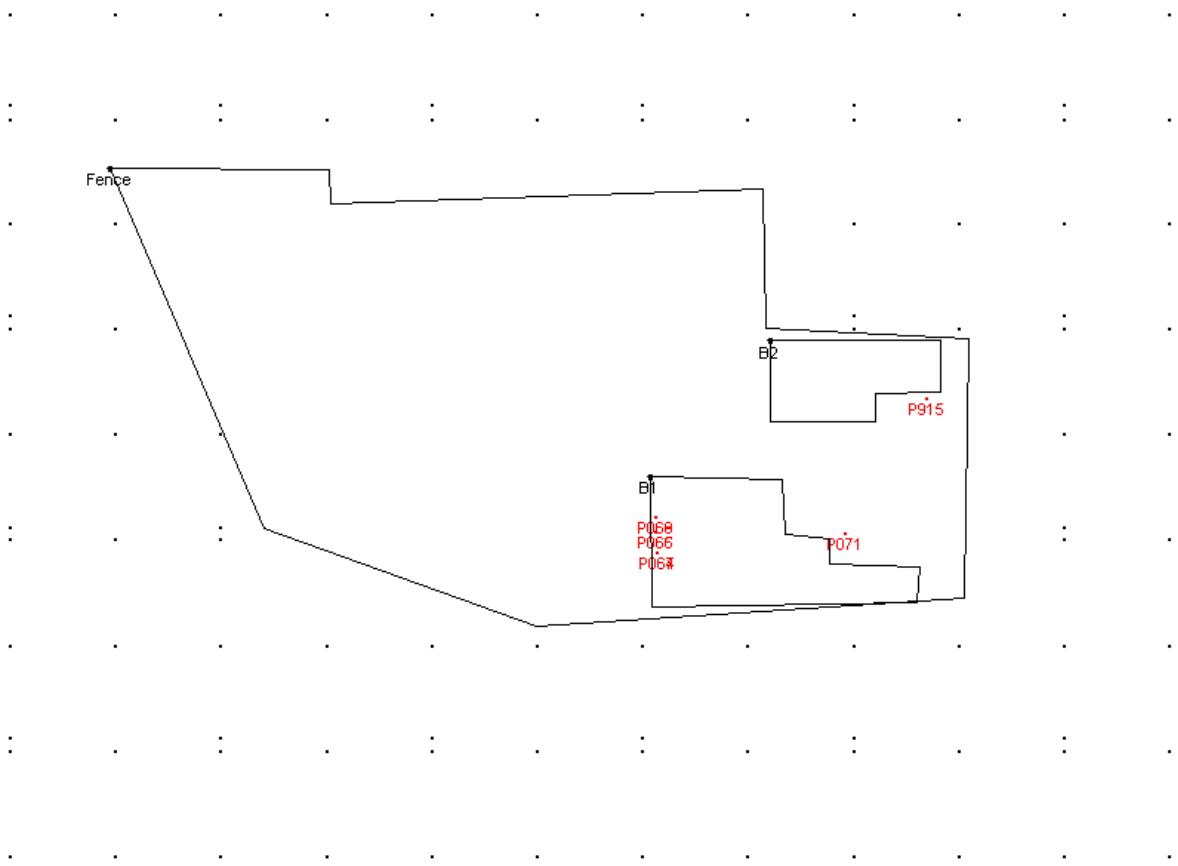


Figure B

Receptor Grid

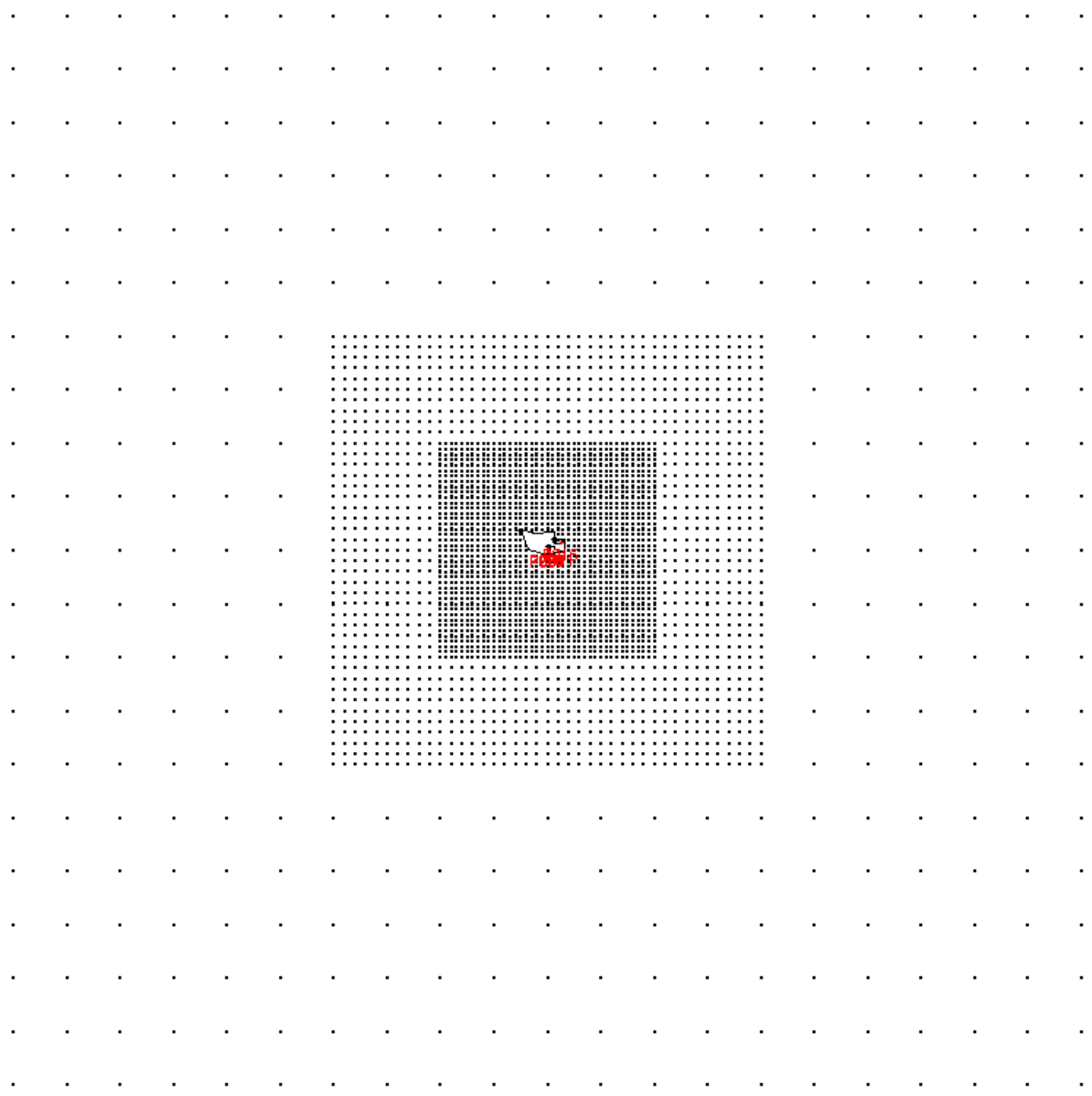
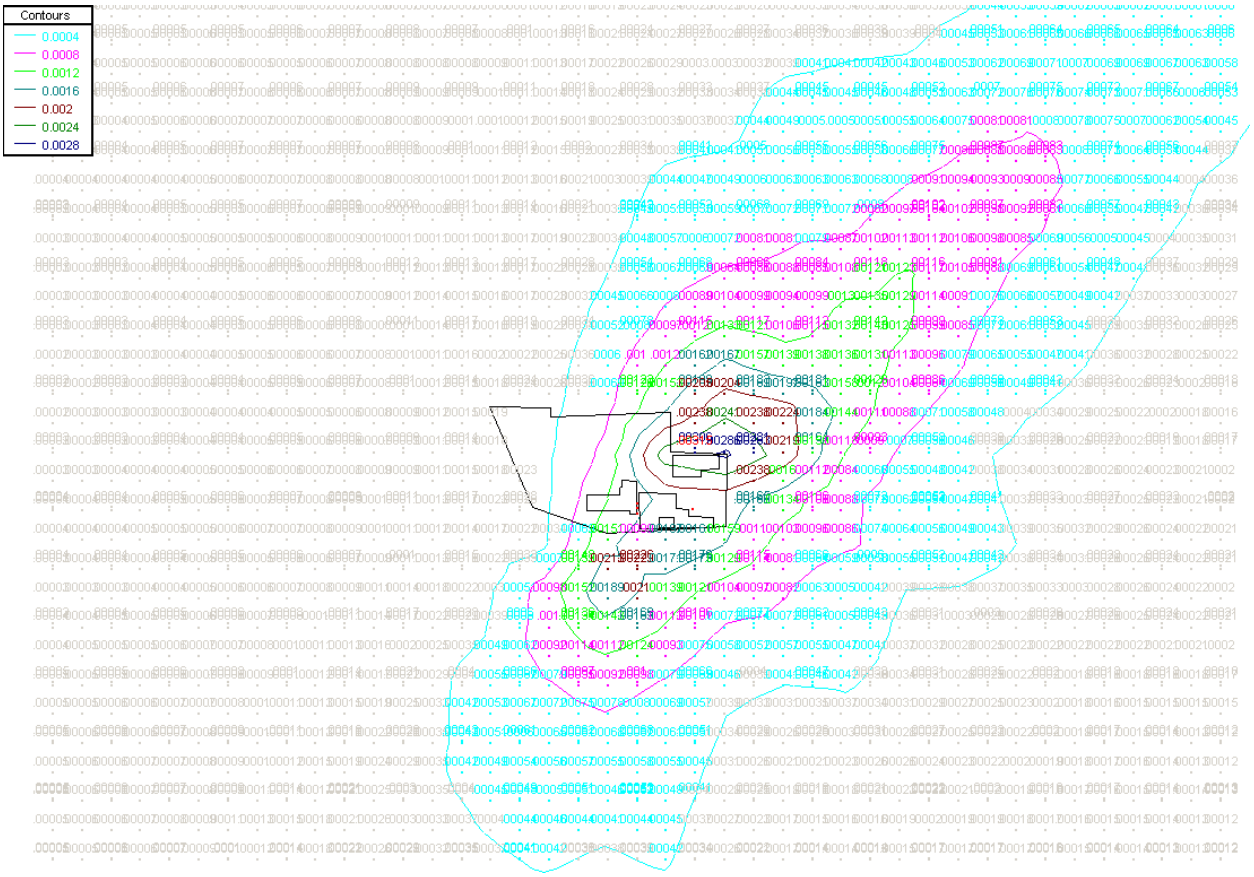


Figure C

<u>Hot Spot Location</u>



Monitor Placement

As described above, once the appropriate sources were identified for monitor placement, modeling was conducted to determine the appropriate monitor placement. Ohio EPA staff are still conducting surveys to determine a suitable location for installation of a monitor within or near the area of greatest impact identified by the modeling. However, additional information is relevant to the following facility:

Daido Metal
FAC ID: 0546010011
1215 Greenwood St.
Bellefontaine, OH

Daido will be ceasing production in their lead affected areas on May 1, 2009 and the remaining portions of the facility on June 30, 2009. The facility will be converted to warehousing (correspondence from Daido attached). Daido has been monitored by four separate monitor sites. Ohio EPA is proposing to continue to monitor the site until there are three years of data indicating the standard has been met, in accordance with USEPA's requirements for demonstrating attainment of the lead standard. Ohio EPA is proposing to retain the single monitor location that has recorded the highest results in the recent past – 39-091-0006 (Richland Avenue).